



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 839-2018

DONALD OUTFALL CHAMBER UPGRADES

Note to Bidders: Please be aware of revisions to B15.4

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 DONALD OUTFALL CHAMBER UPGRADES

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00pm central time, October 4, 2018.

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

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

B3. SITE INVESTIGATION

B3.1 Further to C3.1, the Contract Administrator or an authorized representative will be available at the Site at 10:00am until 11:00am on September 20, 2018 to provide Bidders access to the Site and existing outfall chamber structure. The Site is located at the Assiniboine Riverwalk entrance located at 318 Assiniboine Avenue, immediately adjacent to the Mid-Town Bridge.

B3.2 The Bidder is advised that the Site investigation is not mandatory but is highly recommended to view Site clearances and restrictions that could impede work progress.

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.

B3.4 Further to B3.1, the Bidder may view the Site at any time without making an appointment.

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.

B6.3 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/bidopp.asp>

B6.4 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.

B6.5 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B7. SUBSTITUTES

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

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

B7.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) business days prior to the submission deadline.

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

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

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

- B7.6 The Contract Administrator will provide a response in writing, at least two (2) business days prior to the submission deadline, to the Bidder who requested approval of the substitute.
- B7.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.
- B7.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B7.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B18.
- B7.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B8. BID COMPONENTS

- B8.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
 - (b) Form B: Prices;
 - (c) Bid Security
 - (i) Form G1: Bid Bond and Agreement to Bond, or
Form G2: Irrevocable Standby Letter of Credit and Undertaking, or
a certified cheque or draft;
- B8.2 Further to B8.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B7.
- B8.3 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the submission deadline, with all required entries made clearly and completely.
- B8.4 The Bid shall be submitted enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address.
- B8.4.1 Samples or other components of the Bid which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid.
- B8.5 Bidders are advised not to include any information/literature except as requested in accordance with B8.1.
- B8.6 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B18.1(a).
- B8.7 Bids submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.
- B8.8 Bids shall be submitted to:
- The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg, MB R3B 1J1

B9. BID

- B9.1 The Bidder shall complete Form A: Bid, making all required entries.
- B9.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, his/her name shall be inserted;
 - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
 - (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
 - (d) if the Bidder is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.
- B9.2.1 If a Bid is submitted jointly by two (2) 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 13 of Form A: Bid shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, it shall be signed by the Bidder;
 - (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
 - (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers and the corporate seal, if the corporation has one, should be affixed;
 - (d) if the Bidder is carrying on business under a name other than his/her own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.
- B9.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.
- B9.5 If a Bid is submitted jointly by two (2) or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

B10. PRICES

- B10.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.
- B10.1.1 Notwithstanding C12.2.3(c), prices on Form B: Prices shall not include the Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable.
- B10.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.
- B10.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.
- B10.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B11. DISCLOSURE

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

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

B11.2 The Persons are:

(a) N/A

B12. CONFLICT OF INTEREST AND GOOD FAITH

B12.1 Bidders, by responding to this Bid Opportunity, declare that no Conflict of Interest currently exists, or is reasonably expected to exist in the future.

B12.2 Conflict of Interest means any situation or circumstance where a Bidder or employee of the Bidder proposed for the Work has:

- (a) other commitments;
- (b) relationships;
- (c) financial interests; or
- (d) involvement in ongoing litigation;

that could or would be seen to:

- (i) exercise an improper influence over the objective, unbiased and impartial exercise of the independent judgment of the City with respect to the evaluation of Bids or award of the Contract; or
 - (ii) compromise, impair or be incompatible with the effective performance of a Bidder's obligations under the Contract;
- (e) has contractual or other obligations to the City that could or would be seen to have been compromised or impaired as a result of its participation in the Bid Opportunity process or the Work; or
- (f) has knowledge of confidential information (other than confidential information disclosed by the City in the normal course of the Bid Opportunity process) of strategic and/or material relevance to the Bid Opportunity process or to the Work that is not available to other bidders and that could or would be seen to give that Bidder an unfair competitive advantage.

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

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

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

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

- (a) disqualify a Bidder that fails to disclose a perceived, potential or actual Conflict of Interest of the Bidder or any of its employees proposed for the Work;

- (b) require the removal or replacement of any employees proposed for the Work that has a perceived, actual or potential Conflict of Interest that the City, in its sole discretion, determines cannot be avoided or mitigated;
- (c) disqualify a Bidder or employees proposed for the Work that fails to comply with any requirements prescribed by the City pursuant to B12.4 to avoid or mitigate a Conflict of Interest; and
- (d) disqualify a Bidder if the Bidder, or one (1) of its employees proposed for the Work, has a perceived, potential or actual Conflict of Interest that, in the City's sole discretion, cannot be avoided or mitigated, or otherwise resolved.

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

B13. QUALIFICATION

B13.1 The Bidder shall:

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

B13.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

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

B13.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

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

B13.4 Further to B13.3(c), the Bidder shall, within five (5) business days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

- (a) Written confirmation of a safety and health certification meeting SAFE Work Manitoba's SAFE Work Certified Standard (e.g., COR™ and SECOR™) or
 - (i) a copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
 - (ii) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program or
- (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information

Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>.

B13.5 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.

B13.6 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.

B14. BID SECURITY

B14.1 The Bidder shall provide bid security in the form of:

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

B14.1.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.

B14.1.2 All signatures on bid securities shall be original.

B14.1.3 The Bidder shall sign the Bid Bond.

B14.1.4 The Surety shall sign and affix its corporate seal on the Bid Bond and the Agreement to Bond.

B14.2 The bid security of the successful Bidder and the next two (2) lowest evaluated responsive and responsible Bidders will be released by the City when a Contract for the Work has been duly executed by the successful Bidder and the performance security furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.

B14.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B14.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.

B14.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.

B14.3 The bid securities of all Bidders will be released by the City as soon as practicable following notification by the Contract Administrator to the Bidders that no award of Contract will be made pursuant to the Bid Opportunity.

B15. OPENING OF BIDS AND RELEASE OF INFORMATION

B15.1 Bids will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Division, or in such other office as may be designated by the Manager of Materials.

B15.1.1 Bidders or their representatives may attend.

- B15.1.2 Bids determined by the Manager of Materials, or his/her designate, to not include the bid security specified in B14 will not be read out.
- B15.2 Following the Submission Deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the 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/>
- B15.3 After award of Contract, the name(s) of the successful Bidder(s), their address(es) 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/>
- B15.4 The Bidder is advised that any information contained in any Bid may be released if required by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law or by City policy or procedures (which may include access by members of City Council).
- B15.4.1 To the extent permitted, the City shall treat as confidential information, those aspects of a Bid Submission identified by the Bidder as such in accordance with and by reference to Part 2, Section 17 or Section 18 or Section 26 of The Freedom of Information and Protection of Privacy Act (Manitoba), as amended.

B16. IRREVOCABLE BID

- B16.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.
- B16.2 The acceptance by the City of any Bid shall not release the Bids of the next two (2) lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work until a Contract for the Work has been duly executed and the performance security furnished as herein provided, but any Bid shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 11 of Form A: Bid.

B17. WITHDRAWAL OF BIDS

- B17.1 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.
- B17.1.1 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.
- B17.1.2 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 13 of Form A: Bid, and only such person, has authority to give notice of withdrawal.
- B17.1.3 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 13 of Form A: Bid; and
 - (c) if the notice has been given by any one (1) of the persons specified in B17.1.3(b), declare the Bid withdrawn.
- B17.2 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 B16.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law, including the right to retain the Bidder's bid security.

B18. EVALUATION OF BIDS

- B18.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Bid Opportunity, or acceptable deviation there from (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B13 (pass/fail);
 - (c) Total Bid Price;
 - (d) economic analysis of any approved alternative pursuant to B7.
- B18.2 Further to B18.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.
- B18.3 Further to B18.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is responsible and qualified.
- B18.4 Further to B18.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.
- B18.4.1 Further to B18.1(a), in the event that a unit price is not provided on Form B: Prices, the City will determine the unit price by dividing the amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

B19. AWARD OF CONTRACT

- B19.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B19.2 The City will have no obligation to award a Contract to a Bidder, even though one (1) or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.
- B19.2.1 Without limiting the generality of B19.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Work;
 - (b) the prices are materially in excess of the prices received for similar work in the past;
 - (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with 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.
- B19.3 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 B18.
- B19.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

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

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

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

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of the construction of a new outfall gate chamber extension upstream of the existing Donald Outfall gate chamber.

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

- (a) Partial demolition of the existing outfall chamber to facilitate a new chamber extension and installation of a new slide gate thimble.
- (b) Installation of a new cast-in-place concrete gate chamber extension upstream of the existing chamber.
- (c) Installation of two (2) control gates: one (1) flap gate and one (1) slide gate that have been procured by the City of Winnipeg under a separate material procurement Bid Opportunity.
- (d) Installation of a new submersible pump and associated discharge piping.
- (e) Installation of a new electrical panel, including all automation and controls.
- (f) Miscellaneous Site works, including realignment of the Riverwalk pathway access.

D3. DEFINITIONS

D3.1 When used in this Bid Opportunity:

- (a) "**SRS**" means Storm Retention Sewer;
- (b) "**AWWA**" means American Water Works Association;
- (c) "**ASTM**" means American Society for Testing and Materials;
- (d) "**CSA**" means Canadian Standards Association.

D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is KGS Group Consulting Engineers, represented by:

Colin Siepman, P.Eng.
Senior Structural Engineer and Project Manager

Telephone No. 204-896-1209
Email CSiepman@ksgroup.com

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

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, or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator 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:
- The City of Winnipeg
Attn: Chief Financial Officer
Office of the Chief Administrative Officer
Susan A. Thompson Building
2nd Floor, 510 Main Street
Winnipeg MB R3B 1B9
- 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 not be submitted to the above facsimile number. Bids must be submitted in accordance with B8.**

D8. FURNISHING OF DOCUMENTS

- D8.1 Upon award of the Contract, the Contractor will be provided with five (5) complete sets of the Bid Opportunity. If the Contractor requires additional sets of the Bid Opportunity, they will be supplied to him/her at cost.

SUBMISSIONS

D9. AUTHORITY TO CARRY ON BUSINESS

D9.1 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.

D10. SAFE WORK PLAN

D10.1 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.

D10.2 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>

D11. INSURANCE

D11.1 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, broad form property damage cover 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) an all risks course of construction insurance, including testing and commissioning, in the amount of 100% of the total Contract price, written in the name of the Contractor and the City of Winnipeg. Policy to remain in place at all times during the performance of the Work and until the date of Total Performance.

D11.2 Deductibles shall be borne by the Contractor.

D11.3 The Contractor shall provide the City Solicitor with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) business days prior to the commencement of any Work but in no event later than the date specified in C4.1 for the return of the executed Contract.

D11.4 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.

D12. PERFORMANCE SECURITY

D12.1 The Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:

- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or

- (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
- (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.

D12.1.1 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.

D12.2 If the bid security provided in his/her Bid was not a certified cheque or draft pursuant to B14.1(c), the Contractor shall provide the City Solicitor with the required performance security within seven (7) calendar days of notification of the award of the Contract by way of letter of intent and prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D13. SUBCONTRACTOR LIST

D13.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least two (2) business days prior to the commencement of any Work on the Site but in no event later than the date specified in the General Conditions for the return of the executed Contract.

D14. DETAILED WORK SCHEDULE

D14.1 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.

D14.2 The detailed work schedule shall consist of the following:

- (a) a Gantt chart for the Work.

D14.3 Further to D14.2(a), 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 activity and task shall be on the vertical axis.

SCHEDULE OF WORK

D15. COMMENCEMENT

D15.1 The Contractor shall not commence any Work until he/she is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.

D15.2 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 D9;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the Safe Work Plan specified in D10;
 - (iv) evidence of the insurance specified in D11;
 - (v) the performance security specified in D12;
 - (vi) the Subcontractor list specified in D13, and
 - (vii) The Detailed Work Schedule in D14.
- (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.

D15.3 The Contractor shall not commence the Work on the Site before November 15, 2018.

D15.3.1 Further to D15.3, the Contractor shall not commence underground works on the Site before December 1, 2018, with the exception of the combined sewer connection and depressurization work outlined in E21.

D15.4 The City intends to award this Contract by November 5, 2018.

D15.4.1 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.

D16. SUBSTANTIAL PERFORMANCE

D16.1 The Contractor shall achieve Substantial Performance by February 28, 2019.

D16.2 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.

D16.3 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.

D17. TOTAL PERFORMANCE

D17.1 The Contractor shall achieve Total Performance by June 14, 2019.

D17.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.

D17.3 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.

D18. LIQUIDATED DAMAGES

D18.1 If the Contractor fails to achieve Total Performance in accordance with the Contract by the day fixed herein for Total Performance, the Contractor shall pay the City one thousand dollars (\$1,000.00) per working day for each and every working day following the day fixed herein for Total Performance during which such failure continues.

D18.2 The amount specified for liquidated damages in D18.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Total Performance by the day fixed herein for same.

D18.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

CONTROL OF WORK

D19. JOB MEETINGS

D19.1 Regular bi-weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one (1) representative of the Contract Administrator, one representative of the City and one (1) 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.

D19.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

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

D20.1 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).

D21. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

D21.1 Further to B13.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B13.4.

MEASUREMENT AND PAYMENT

D22. INVOICES

D22.1 Further to C12, the Contractor shall submit an invoice for each portion of Work performed in the previous calendar month to the Contract Administrator listed in D4.1.

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 Bid Submissions must be submitted in accordance with B8.

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 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) year thereafter, except where longer warranty periods are specified in the respective Specification sections, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

D24.1.1 For the purpose of Performance Security, the warranty period shall be one (1) year.

D24.2 Notwithstanding C13.2, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if a portion of the Work

cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.

- D24.2.1 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

FORM H1: PERFORMANCE BOND
(See D12)

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. 839-2018

DONALD OUTFALL CHAMBER UPGRADES

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

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

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

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

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

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

_____ day of _____, 20____ .

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

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

**FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT
(PERFORMANCE SECURITY)**
(See D12)

(Date)

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

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 839-2018
DONALD OUTFALL CHAMBER UPGRADES

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

(Name of Contractor)

(Address of Contractor)

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

_____ Canadian dollars.

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

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

Partial drawings are permitted.

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

(Address)

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

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

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

(Date)

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

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

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

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

E1.1 These Specifications shall apply to the Work.

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

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

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

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

E1.3 The following are applicable to the Work:

<u>Specification No.</u>	<u>Specification Title</u>
22 14 29.16	Submersible Sump Pump
22 14 29.17	Submersible Sump Pump – Discharge Piping
25 05 01	Controls – General Requirements
25 05 54	Controls Identification
25 30 01	RTU Control Panel
25 30 02	Controls Instrumentation
26 05 01	Common Work Results – Electrical
26 05 20	Wire and Box Connectors (0-1000 V)
26 05 21	Wires and Cables (0-1000 V)
26 05 34	Conduits, Conduit Fastenings and Conduit Fittings
26 05 43. 01	Installation of Cables in Trenches and Ducts
26 24 02	Service Entrance Board
26 24 17	Panelboards Breaker Type
26 27 26	Wiring Devices
26 28 21	Moulded Case Circuit Breakers
26 29 03	Control Devices

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
LD-8633	Cover Sheet
LD-8634	Municipal – Site Plan, Grading and Forcemain
LD-8636	Structural – Gate Chamber Partial Demolition – Plan, Sections and Details
LD-8637	Structural – Gate Chamber – Plans
LD-8638	Structural – Gate Chamber – Sections
LD-8639	Structural – Gate Chamber – Reinforcing Details
LD-8640	Structural – Gate Chamber – Miscellaneous Metals Details
LD-8641	Mechanical – Pump and Discharge Pipe - Plans and Sections
LD-8642	Electrical – Single Line Diagram and Panelboard Schedule
LD-8643	Electrical – Submersible Pump P-A01 Schematic and Wiring Diagram
LD-8644	Electrical – Sluice Gate Actuator Schematic and Wiring Diagram
LD-8645	Electrical – Control Panel Elevation and Equipment List
LD-8646	Electrical – Partial Site Plan and Details
LD-8647	Electrical – Details
LD-8648	Electrical – RTU Panel – 120VAC Power and Fuse Distribution
LD-8649	Electrical – RTU Panel – 120VDC Power and Fuse Distribution
LD-8650	Electrical – RTU Panel – Digital Input DI 09-10 – UPS Alarm and Power Distribution
LD-8651	Electrical – RTU Panel – Base I/O Board – Discrete Inputs
LD-8652	Electrical – RTU Panel – Base I/O Board – Analog Inputs
LD-8653	Electrical – RTU Panel – SCADA Com Detail

LD-8654	Electrical – RTU Panel – M580 I/O Board – Discrete Inputs
LD-8655	Electrical – RTU Panel – M580 I/O Board – Discrete Outputs
LD-8656	Electrical – Instrumentation Control P&ID

Appendix A	Memorandum – Geotechnical Site Investigations and Hydrogeological Study
Appendix B	City of Winnipeg Electrical Design Guide
Appendix C	City of Winnipeg Identification Standard
Appendix D	Existing Chamber Record Drawing

E2. SOILS INVESTIGATION REPORT

E2.1 Further to C3.1,

- (a) A Geotechnical test hole has been drilled in the vicinity of the proposed Works at Donald Outfall Chamber site to determine the character of subsurface soil to facilitate the design of the Work. The information listed is considered accurate at the location indicated in the Site Plan and at the time of the investigation. However, considerable variations in the soil conditions may exist between the test hole and fluctuations in ground water levels can be expected seasonally. The test hole log and associated Geotechnical and Hydrogeological Design Memorandum is included in Appendix A.
- (b) Bidders are responsible for any interpretation they place on the supplied information and are expected to make such additional investigation of the soil at the Site as they feel necessary to satisfy themselves.
- (c) Any test borings made by the Bidder shall be done in accordance with the requirements of the appropriate authority of the City of Winnipeg. Bidders shall notify the Contract Administrator prior to starting any soil boring operation.

E3. UNDERGROUND STRUCTURES TEMPORARY RELOCATIONS

E3.1 Further to C3.1,

- (a) It is the responsibility of the Contractor to locate all underground utilities in the vicinity of the Work and temporarily relocate as required for the proposed Construction methods.

GENERAL REQUIREMENTS

E4. OFFICE FACILITIES

E4.1 The Contractor shall supply a site trailer with available space for intermittent use by the Contract Administrator.

E4.2 The office facility shall meeting the following requirements:

- (a) The building shall be conveniently located near the Site of the Work.
- (b) The building shall have a minimum floor area of 25 square metres, two (2) windows and a door entrance with a suitable lock.
- (c) The building shall be suitable for all weather use. It shall be equipped with an electric heater and air conditioner so that the room temperature can be maintained between either 16-18°C or 24-25°C.
- (d) The building shall be adequately lighted with fluorescent fixtures and have a minimum of three (3) wall outlets.
- (e) The building shall be furnished with a drafting table, a table 2.5m X 1.2m, and a minimum of eight (8) chairs.
- (f) A portable toilet shall be located near the field office building. The toilet shall have a locking door.
- (g) The field office building and the portable toilet shall be cleaned on a weekly basis.

E4.3 Measurement and Payment

- (a) No pay item exists for this work. All work associated with office facilities is considered incidental to Site Development and Restoration.

E5. TRUCK WEIGHT LIMITS

- E5.1 The City shall not pay for any portion of material which results in the vehicle exceeding the maximum gross vehicle weight allowed under The City of Winnipeg Traffic By-Law, unless such vehicle is operating under special permit.

E6. DANGEROUS WORK CONDITIONS

- E6.1 Further to clause C6.24 of the General Conditions, the Contractor shall be aware that underground chambers, manholes, and sewers are considered a confined space and shall follow the "Guidelines for confined Entry Work" as published by the Manitoba Workplace Safety and Health Division.
- E6.2 The Contractor shall be aware of the potential hazards that can be encountered in gate chambers, manholes and sewers such as explosive gases, toxic gases and oxygen deficiency.
- E6.3 The air in a confined space must be tested before entry and continuously during the time that personnel are inside the space. Equipment for continuous monitoring of gases must be explosion-proof and equipped with a visible and audible alarm. The principal tests are for oxygen deficiency, explosion range and toxic gases. Testing equipment must be calibrated in accordance with manufacturer's specifications.
- E6.4 The Contractor shall ventilate all confined spaces including underground chambers, tunnels, pipes and shafts as required and approved by the Manitoba Workplace Safety and Health Act (the "Act"). If no ventilation is supplied, a Worker must wear a respirator or supplied air to enter the confined space.
- E6.5 Workers must wear a respirator or supplied air at all times when entering a chamber, manhole or sewer where live sewage is present.
- E6.6 If products containing volatile organic carbons (VOCs) are used, the Contractor shall provide a photoionization detector (PID) on Site to monitor potential VOCs in the confined spaces. The gas detector and safety equipment conforming to the Act shall be made available to the Contract Administrator for his use during inspections. In addition, the Contract Administrator may collect discrete air samples for laboratory analysis.
- E6.7 The Contract Administrator may issue a Stop Work order to the Contractor if the above guidelines are not being followed. The Contractor shall not resume his operations until the Contract Administrator is satisfied the Contractor is following the appropriate procedures. The Contractor shall have no claim for extra time or costs due to the Stop Work order for not following these safety guidelines.

E7. WATERWAY BY-LAW COMPLIANCE

- E7.1 The Contractor shall note that all Works associated with this Bid Opportunity fall within 107 meters (350 feet) of the regulated summer water level of the Assiniboine River and therefore requires a Waterways Permit. The Contract Administrator will apply and pay for the required Waterways Permit. The Contractor will strictly adhere to the conditions imposed by the approved permit.

E8. FLOW CONTROL

- E8.1 During winter months, land drainage and storm relief sewers can receive flow of an undetermined amount from groundwater infiltration, watermain breaks, snow melt, interconnection with building roof drains and chiller systems, and other unforeseen sources.

- E8.2 Further to E8.1, the Contractor shall be aware that there are constant sources of flow at the Donald Outfall totaling approximately two (2) liters per second attributed to infiltration and upstream connections via building roof drains and chiller systems. This flow is expected to continue throughout the winter months and must be diverted to the combined sewer during Construction.
- E8.3 Provide flow control measures to contend with and maintain flows in the 1981 mm diameter storm relief sewer upstream of the existing and new gate chamber structures.
- (a) Construct a cofferdam upstream of the new gate chamber extension within the SRS pipe. The cofferdam is to be constructed to a maximum height of 0.9m (223.260m). The cofferdam is to be constructed in accordance with "Sandbag Dike Construction Instructions" as published by the Government of Manitoba Emergency Measures Organization.
- (b) Supply and maintain a submersible pump and discharge piping to route intercepted upstream flows to the combined sewer. It is recommended that the combined sewer connection be completed at an early stage of the Construction to facilitate this pumping as the closest combined sewer manhole is located a block away below the Midtown Bridge.
- E8.4 Provide flow control measures within the gate chamber excavation to contend with overland flows and groundwater within the shored excavation. Flow control measures shall include but are not limited to diversions, flumes and by-pass pumping. All dewatering shall occur within the shoring.
- E8.5 Provide a cofferdam just downstream of the work area as required to prevent river water from entering the excavation. The cofferdam shall be constructed in accordance with "Sandbag Dike Construction Instructions" as published by the Government of Manitoba Emergency Measures Organization. Cofferdams shall be constructed with 6 mil polyethylene sheeting to ensure watertightness. Maintain a 150mm (6") freeboard at all times. Downstream cofferdams shall not be constructed to more than one-half of the pipe diameter as to not restrict flows in the case of an emergency condition (e.g. watermain break).
- E8.6 The existing slide gate must remain in place until installation of the new flap gate has been completed to ensure continued flood protection of the upstream SRS pipe.
- E8.7 All intercepted flow water from upstream sources must be discharged to the combined sewer.
- E8.8 Discharge hoses for by-pass pumping shall not be laid across vehicle or pedestrian traffic areas and must be protected from freezing during winter months. Pumping equipment if used shall be set-up in a location and in such a way to not be a noise problem for nearby residences.
- E8.9 Provide a flow control plan to the Contract Administrator for review prior to commencement of any demolition work.
- E8.10 In the event the flow in the sewer system is expected to exceed the sewer capacity due to spring runoff, the Contract Administrator may suspend Work activities that require temporary by-pass pumping. Suspension of these activities will continue until the high flow diminishes in the sewer.
- E8.11 If in the opinion of the Contract Administrator suspension of Work activities that require temporary by-pass pumping cause a delay in completion of the Work through no fault of the Contractor, the completion date of the Work will be adjusted accordingly.
- E8.12 Measurement and Payment
- (a) No separate pay item exists for this work. All work associated with Flow Control is considered incidental to Site Development and Restoration.

E9. SHOP DRAWINGS

- E9.1 Description

- (a) This Specification shall revise, amend and supplement the requirements of CW1110.
 - (i) The term 'shop drawings' means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data, including site erection drawings which are to be provided by the Contractor to illustrate details of a portion of the work.
 - (ii) The Contractor shall submit specified shop drawings to the Contract Administrator for review. All submissions must be in metric units. Where data is in imperial units, the correct metric equivalent shall also be on all submissions for Engineering review.
- (b) Shop Drawings
 - (i) Original drawings are to be prepared by Contractor, Subcontractor, supplier, distributor, or manufacturer, which illustrate appropriate portion of work; showing fabrication, layout, setting or erection details as specified in appropriate sections.
- (c) Contractor's Responsibilities
 - (i) Review shop drawings, product data and samples prior to submission and stamp and sign drawings indicating conformance to the Contract requirements.
 - (ii) Verify:
 - (i) Field Measurements
 - (ii) Field Construction criteria
 - (iii) Catalogue numbers and similar data
 - (iii) Coordinate each submission with requirements of Work and Contract documents. Individual shop drawings will not be reviewed until all related drawings are available.
 - (iv) Notify Contract Administrator, in writing at time of submission, of deviations from requirements of Contract documents
 - (v) Responsibility for deviations in submission from requirements of Contract documents is not relieved by Contract Administrator's review of submission, unless the Contract Administrator gives written acceptance of specified deviations.
 - (vi) Responsibility for errors and omissions in submission is not relieved by the Contract Administrator's review of submittals.
 - (vii) 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 the previous submission.
 - (viii) After Contract Administrator's review and return of copies, distribute copies to sub-trades as required.
 - (ix) Maintain one (1) complete set of reviewed shop drawings, filed by specification section number, at the site of the work for use and reference of the Contract Administrator and Subcontractors.
- (d) Submission Requirements
 - (i) Schedule submissions at least seven (7) calendar days before dates reviewed submissions will be needed, and allow for a seven (7) calendar day period for review by the Contract Administrator of each individual submission and re-submission, unless noted otherwise in the Contract documents.
 - (ii) Submit five (5) paper prints of shop drawings. The Contractor is advised that the Contract Administrator will retain three (3) copies of all submittals and return two (2) copies to the Contractor.
 - (iii) Accompany submissions with transmittal letter, containing:
 - (i) Date
 - (ii) Project title and Bid Opportunity Number
 - (iii) Contractor's name and address
 - (iv) Number of each shop drawing, product data and sample submitted
 - (v) Specification Section, Title, Number and Clause

- (vi) Drawing Number and Detail/ Section Number
- (vii) Other pertinent data
- (iv) Submission shall Include:
 - (i) Date and revision dates.
 - (ii) Project title and Bid Opportunity number.
 - (iii) Name of:
 - (i) Contractor
 - (ii) Subcontractor
 - (iii) supplier
 - (iv) manufacturer
 - (v) separate detailer when pertinent
 - (iv) Identification of product of material.
 - (v) Relation to adjacent structure or materials.
 - (vi) Field dimensions, clearly identified as such.
 - (vii) Specification section name, number and clause number or drawing number and detail/section number.
 - (viii) Applicable standards, such as CSA or CGSB numbers.
 - (ix) Contractor's stamp, initialled or signed, certifying review of submission, verification of field measurements and compliance with Contract documents.
- (e) Other Considerations
 - (i) Fabrication, erection, installation or commissioning may require modifications to equipment or systems to conform to the design intent. Revise pertinent shop drawings and resubmit.
 - (ii) Material and equipment delivered to the site of the works will not be paid for at least until pertinent shop drawings have been submitted and reviewed.
 - (iii) Incomplete shop drawing information will be considered as stipulated deductions or the purposes of progress payment certificates.
 - (iv) No delay or cost claims will be allowed that arise because of delays in submission, re-submissions and review of shop drawings.

E9.2 Measurements and Payment

- (i) Preparation and submittal of shop drawings shall be considered incidental to the Works of this Contract and no measurement or payment will be made for this item.

E10. SITE DEVELOPMENT AND RESTORATION

E10.1 Description

- (a) This Specification shall supplement the requirements of CW1130.
- (b) This Specification shall cover all aspects of the Site Development and Restoration Work, including:
 - (i) Erection, maintenance and removal of safety fencing;
 - (ii) Snow clearing;
 - (iii) Water/flow control;
 - (iv) General access development;
 - (v) Start-up costs;
 - (vi) Equipment setup and removal;
 - (vii) Office facilities;
 - (viii) Access maintenance; and
 - (ix) Site restoration.

- E10.1.1 The Bid quantities listed on Form B: Prices include an estimated quantity of topsoil, seeding, and sodding based on pipe trench installation and regarding requirements. All topsoil, seeding, and sodding beyond the quantities listed on Form B: Prices will be considered incidental to Site Development and Restoration, and no additional payment will be made for the additional quantities.
- E10.1.2 Additional Site specific Works included within this Specification are the temporary removal, relocating, and replacing existing site furniture, fencing, and other obstructions within easement right-of-ways or as required for site access.
- E10.1.3 This Specification shall amend and supplement Standard Specification CW 3510 and CW 3520.
- E10.2 Materials
- E10.2.1 Equipment
- All equipment, implements, tools and facilities used shall be of a size and type as required to complete the Work in a reasonable time, approved by the Contract Administrator. The Contractor shall keep all equipment in good working order, and have sufficient standby equipment available at all times, as required.
- E10.3 Construction Methods
- E10.3.1 Site and Construction Access
- The Contractor shall be responsible to develop suitable Site access. This includes but is not limited to, temporary bridging over structures, temporary removal and reinstallation of safety fencing, any landscaping and grading repairs, restoration of vegetation, etc. necessary to restore any Site and construction access area to their pre-existing condition.
- E10.3.2 Vegetation Removal
- Some vegetation (living trees smaller than 50 mm, fallen larger trees and sod) removal may be permitted in order to facilitate Site access. Existing vegetation shall not be removed without prior approval from the Contract Administrator. The Contractor shall load and haul any removed vegetation, and dispose of the material off Site immediately upon collection. Stockpiling shall not be permitted unless written approval has been obtained from the Contract Administrator.
- E10.3.3 Site Security
- At the end of each work day, all excavations and underground structure openings shall be secured to prevent access. Safety fence shall also be closed and secured to prevent public access.
- E10.3.4 Environmental Regulations
- (a) The Contractor shall adhere to all relevant Federal and Provincial environmental regulations.
 - (b) The Contractor shall plan to Work in accordance with the current environmental regulations of "Manitoba Stream Crossing Guidelines for Protection of Fish and Fish Habitat", Fisheries and Oceans, and Manitoba Natural Resources
 - (c) The Contractor shall supply, in writing, prior to the commencement of Work on-site to cleanup minor spills, should they occur. The Contractor shall supply the name, address and phone number of a local supplier, where additional kits are available on short notice.
- E10.4 Staging Areas
- (a) During the Site Investigation outlined in B3.1, the Contract Administrator will identify staging areas that are acceptable to the City for staging materials and placement of a site trailer.

E10.5 General Site Cleanup and Restoration

All areas of the construction Site shall be restored to a condition at least equivalent to its original condition prior to initiation of Work. This may include, but is not necessarily limited to the Contractor's lay down area, and removal of all temporary fencing.

E10.6 Permanent Surface Restorations

(a) If required, permanently restore all existing surface areas disturbed by construction activities including but not limited to areas disturbed by; construction equipment, placement of equipment trailers and where construction materials were stockpiled, shall be restored as follows:

- (i) Boulevards, ditches and grassed areas – sodding using imported topsoil in accordance with CW 3510.
- (ii) Asphalt surfaces – match existing base course and asphalt thickness or a minimum of 150 mil of base course and 75 mil of Type 1A Asphaltic Concrete, whichever is greater, in accordance with CW 3410.
- (iii) Miscellaneous concrete slabs, including sidewalk – in accordance with CW 3235
- (iv) Interlocking stones – in accordance with CW 3330.
- (v) Concrete curb and gutter – in accordance with CW 3240.

E10.6.1 Topsoil and Sod

(a) Due to their current status as park/recreational land, the primary means of restoration for existing grassy areas along the River Trail Access will be sod. A fraction of restoration not exceeding 25% of the total restoration area may be undertaken using topsoil and seed at these locations, or as directed by the Contract Administrator.

E10.7 Method of Measurement and Payment

E10.7.1 Site Development and Restoration

The site development and restoration shall be measured on a lump sum basis and paid for at the Contract Lump Sum Price for "Site Development and Restoration," which prices shall be payment in fill for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification.

50% of the Site Development and Restoration unit price will be paid for on the first progress payment following commencement of the work on the specific Site being developed.

The remaining 50% of the Site Development and Restoration unit price will be paid subsequent to the completion of the Work and restoration and cleanup of the Site.

E10.7.2 Topsoil and Sod

(a) Where topsoil and sodding is required to restore laydown areas, or similar temporary Work areas, it shall be considered incidental to Site Development and Restoration. No separate payment shall be made for topsoil and sod in these areas.

E10.7.3 Asphalt Pathway

(a) Restorations of the asphalt pathway shall be restricted to the limits of Work as defined in the drawings. Any damage to the asphalt pathway outside the limits of Work shall be appropriately restored by the Contractor at his own cost, to the satisfaction of the Contract Administrator. No payment will be made for restorations to the asphalt pathway outside of the limits of Work, as defined on the drawings.

E11. TREE REVEGETATION

E11.1 Description

E11.1.1 This Specification shall cover the installation of trees on site.

- E11.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead labour, materials, and all other things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified.
- E11.1.3 The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification.
- E11.2 Materials
- E11.2.1 Trees to be placed shall consist of native species approximately 75 mm in diameter. The number and species of trees to be planted will be determined by the Contract Administrator.
- E11.3 Construction Methods
- E11.3.1 The trees to be planted shall be planted in the general vicinity of where the 0.8 m diameter tree was removed prior to the commencement of Works or as directed by the Contract Administrator.
- E11.4 Measurement and Payment
- E11.4.1 The supply and planting of trees will be measured on a unit basis for the type of tree planted and paid for at the Contract Unit Price for "Tree Revegetation". The Contractor shall be paid for the total number of trees planted as replacement of the trees removed in accordance with this Specification.

E12. PROTECTION OF EXISTING TREES

- E12.1 The Contractor shall take the following precautionary steps to avoid damage from construction activities to any existing trees within the limits of the construction area.
- E12.1.1 Do not stockpile materials and soil or park vehicles and equipment within 2 m of trees.
- E12.1.2 Strap mature tree trunks with 38 x 140 x 2400 wood planks. Smaller trees shall be similarly protected using appropriately sized wood planks.
- E12.1.3 Excavations shall be carried out in a manner to minimize damage to existing root systems. Where roots must be cut to facilitate an excavation they shall be neatly pruned at the face of the excavation.
- E12.1.4 Work on Site shall be carried out in a manner to minimize damage to existing tree branches. Where damage to tree branches does occur, the Contractor shall neatly prune the damaged branch.
- E12.1.5 American elm trees shall not be pruned between April 1st and August 1st and Siberian elm trees between April 1st and July 1st of any year under provisions of The Dutch Elm Disease Act.
- E12.2 All damage to existing trees due to construction activities shall be repaired to the requirements and satisfaction of the City of Winnipeg, Public Works Department and Forestry Branch at the Contractor's expense.
- E12.3 Payment
- No separate pay item exists for this work. All work associated with Protection of Existing Trees is considered incidental to Site Development and Restoration.

E13. TRAFFIC MANAGEMENT

- E13.1 Further to clause 3.7 of CW 1130:
- E13.1.1 Maintain traffic open on Assiniboine Avenue to the maximum extent possible during the Works.

- E13.1.2 Partial closure of Assiniboine Avenue will be required during Works associated with the new pump discharge piping connection to the existing combined sewer. The Contractor shall give the Contract Administrator a minimum of ten (10) Working Days' notice prior to the closure to coordinate with the City of Winnipeg.
- E13.1.3 No stockpiling of material will be permitted on the roadway.
- E13.1.4 Intersecting street and private approach access shall be maintained at all times.
- E13.1.5 Should the Contractor be unable to maintain pedestrian or vehicular access to a residence or business, he shall review the planned disruption with the residence and the Contract Administrator, and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of 24 hours notification to the affected residence or business and the Contract Administrator, prior to disruption of access.
- E13.1.6 Pedestrian access and ambulance/emergency vehicle access must be maintained at all times.
- E13.1.7 Pedestrian access shall be restricted by maintaining a security fence around the perimeter of the Work site. The City of Winnipeg will provide and maintain an alternate temporary park entrance during Construction for pedestrian traffic to the east of the current access location.
- E13.2 Payment
- No separate pay item exists for this work. All work associated with Traffic Management is considered incidental to Site Development and Restoration.

E14. FORCEMAIN PIPE INSTALLATION

- E14.1 Description
- E14.1.1 This Specification shall cover the installation of the 150 mm forcemain. This Specification shall amend and supplement Standard Specifications CW 2110 as follows:
- (a) The term "forcemain" shall be considered equivalent to the term "watermain".
 - (b) Disinfection of the forcemain pipe will not be required.
- E14.2 Materials
- E14.2.1 Forcemain Pipe
- (a) The forcemain shall be constructed using C900 PVC pipe or equivalent product from the City of Winnipeg Approved Product list and as per Section B.7.
- E14.2.2 Equipment
- All equipment, implements, tools and facilities used shall be of a size and type as required to complete the Work in a reasonable time, approved by the Contract Administrator. The Contractor shall keep all equipment in good Working order, and have sufficient standby equipment available at all times, as required.
- E14.3 Construction Methods
- E14.3.1 Trench Shoring And Excavation
- (a) Work must be completed in accordance with CW 2030, unless otherwise indicated by the Contract Administrator.
 - (b) The Contractor shall take precautionary steps to prevent damage from construction activities to adjacent properties. All damage to adjacent properties caused by the Contractor's activities shall be repaired to, equal or better condition than prior to construction, as approved by the Contract Administrator. No separate measurement or payment will be made for the protection of adjacent private property.

E14.4 Method of Measurement and Payment

E14.4.1 Supply and Installation of 150 mm PVC Pipe

- (a) Forcemain installation will be measured on a length basis for each size, method of installation, type of bedding and type of backfill and paid for at the Contract Unit Price per metre for "Supply and Installation of Forcemain Pipe". Length to be paid for will be the total number of linear metres supplied and installed in accordance with this Specification, accepted and measured by the Contract Administrator.
- (b) Measurement for length of forcemain installed using trenchless methods will be made horizontally at grade above the centreline of pipe through shafts. Measurement where the type of backfill used in shafts changes will be from the midpoint distance between adjacent shafts.
- (c) Extraction of existing pipe required to install new pipe will be included with payment for trenchless method of installation
- (d) Measurement for length of forcemain installed using trenchless methods between pipes installed in a trench will be made horizontally at grade above the centreline of pipe from face to face of the trench excavation.
- (e) Forcemain pipe specified to be installed using trenchless methods but were installed in a trench due to field conditions will be paid at the Contract Unit Price per metre for trenchless installation.
- (f) Correction of alignment and grade exceeding the allowable variance will be at the Contractor's own expense.

E15. CONNECTION FROM NEW SEWER SERVICE TO EXISTING SEWER

E15.1 Description

E15.1.1 This Specification shall cover the connection of the new sewer service to the existing 900mm CIPP, brick lined sewer. This Specification shall amend and supplement Standard Specification CW 2130.

E15.1.2 The Work to be done by the Contractor under this Specification shall include the installation of 150mm Inserta Tee fitting. Furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all things necessary for an incidental to the satisfactory performance and completion of all Work as hereinafter specified.

E15.2 Materials

E15.2.1 Inserta Tee Fitting

- (a) 150 mm Inserta tee to be used for the connection of the 150 mm forcemain to the existing 900 combined sewer or an alternate approved product as per Section B7.

E15.2.2 Grout

- (a) Non-shrink cement grout is to be used at the connection of the 150 mm forcemain to the 900 combined sewer. Products used must be included in the City of Winnipeg Approved Products.

E15.3 Method of Measurement and Payment

E15.3.1 Connection of the new 150mm sewer service to the existing sewer will be measured for payment on a unit basis for each size and type of new sewer or sewer service and each size and type of existing sewer and paid for at the Contract Unit Price for "Connecting New Sewer Service to Existing Sewer (C900 Pipe to CIPP lined brick using 150 mm Inserta Tee)". Number of units to be paid for will be total number of connections supplied and installed in accordance with this Specification, accepted and measured by the Contract Administrator.

- E15.3.2 The Unit Price shall include all Work and materials, including the supply and installation of the 150mm Inserta Tee and any modifications to the pipe on either side of the fitting, as required, to install the fitting.

E16. SLOPE REGRADING

E16.1 Description

- E16.1.1 This Specification shall cover the slope regrading at the site as indicated on the drawings, including excavation and reworking of excavated material, and clay supply and placement.
- E16.1.2 This Specification shall amend and supplement Standard Specification CW 3110, unless otherwise directed by the Contract Administrator.
- E16.1.3 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all things necessary for an incidental to the satisfactory performance and completion of all Work as hereinafter specified.

E16.2 Materials

- E16.2.1 The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification.
- E16.2.2 Material to be Excavated
- (a) The materials covered in this Specification consist of the in-situ overburden soils, and may include but not necessarily be limited to organic topsoil, clay, silt, sand, gravel, fill, rubble, roots, riprap, concrete blocks, etc., all of which may be excavated with standard hydraulic excavation equipment.

E16.3 Construction Methods

E16.3.1 General

- (a) The slope regrading will be completed as indicated on the drawings.

E16.3.2 Native Material to be Excavated

- (a) All excavated material shall be removed off site immediately upon excavation or stockpiled as directed by the Contract Administrator.

E16.4 Measurement and Payment

E16.4.1 Basis of Measurement

The Work to be done under this Specification by the Contractor, including excavation, shaping of the slopes, and placement, will be measured on a volume basis. The volume to be paid for shall be the total number of cubic metres and at the Contract Unit Price for "Slope Regrading", supplied and placed in accordance with this Specification, as measured in the field and accepted by the Contract Administrator. No payment will be made for material removed outside of the limits of excavation.

E16.4.2 Basis of Payment

The supply and placement of slope regrading will be paid for at the Contract Unit Price per cubic metre for the "Slope Regrading", measured as specified herein, which shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification.

E17. RELOCATION OF EXISTING ROCK RETAINING STRUCTURES

E17.1 Description

- E17.1.1 This Specification shall cover the relocation of the rock retaining structures, as indicated on the drawings. The scope of Work to be done by the Contractor under this Specification

includes excavation for and supply and installation of material for the foundation as shown on the Drawings.

E17.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all things necessary for an incidental to the satisfactory performance and completion of all Work as hereinafter specified.

E17.2 Materials

E17.2.1 Materials used shall meet the requirements of Standard Specification CW 3110.

E17.2.2 All damage to existing rock retaining structures due to construction activities shall be repaired to the requirements and satisfaction of the Contract Administrator.

E17.3 Construction Methods

E17.3.1 The rock retaining structures and surrounding ground behind the retaining structures shall be restored to, equal or better condition than prior to construction, as approved by the Contract Administrator. Backfill behind the retaining structures shall follow Standard Specification CW 3110 and CW 3170.

E17.3.2 The Contractor shall take all precautions to prevent damage to retaining structures, adjacent property, existing utility infrastructure, and to trees and shrubs. In the event of damage, the Contractor will be held liable, and shall be required to provide appropriate restoration at his cost, to the satisfaction of the Contract Administrator.

E17.4 Method of Measurement and Payment

E17.4.1 Relocation of the rock retaining structures will be measured for payment on a linear metre basis and paid for at the Contract Unit Price for "Relocation of Existing Rock Retaining Structures". The linear metres to be paid for shall be the total number of metres supplied and placed in accordance with this Specification, as measured in the field and accepted by the Contract Administrator.

E17.4.2 The Unit Price shall include all Work and materials, including but not limited to the supply and placing of backfill material.

E18. PARTIAL SLAB PATCHES

E18.1 Partial slab patches shall be constructed, measured and paid for as per CW 3230 except that no differentiations will be made for class of patch. Furthermore, no separate measurement or payment will be made for drilled dowels or tie bars, the cost for which shall be included on the prices bid for "Partial Slab Patches".

E19. CONCRETE CURB RENEWAL

E19.1 Constructed concrete curb renewal in accordance with CW 3240. Concrete curb renewal shall be measured on a length basis and paid for at the Contract Unit Prices per metre for "Concrete Curb Renewal" in Form B of the Bid Submission.

E20. TEMPORARY SURFACE RESTORATION

E20.1 Further to clause 3.3 of CW 1130, where permanent surface restorations cannot be made due to cold weather, the Contractor shall temporarily restore surfaces as follows:

- (a) backfill and level boulevards and grassed areas to match existing surface elevations,
- (b) cap excavations in concrete pavement with a 100 millimetre thick layer of concrete for "Temporary Restoration of Utility Pavement Cuts" as specified in CW 3310,
- (c) cap excavations in sidewalk pavement with a 50 millimetre thick layer of concrete for "Temporary Restoration of Utility Pavement Cuts" as specified in CW 3310,
- (d) insulate temporary concrete where required during 48hr curing period,

- (e) where curb has been removed as part of the pavement cut pour temporary curb using “Concrete for Temporary Restoration of Utility Pavement Cuts” as specified in CW 3310.
 - (f) remove all temporary pavements prior to permanent restorations.
- E20.2 The Contractor shall monitor and maintain temporarily restored surfaces as required until permanent restoration is complete.
- E20.3 If, in the opinion of the Contract Administrator, temporarily restored surfaces are not being adequately maintained or were not properly constructed and pose a danger to the public, maintenance or reconstruction will be done by the City forces with no advance notification the Contractor.
- E20.4 All costs associated with the maintenance or reconstruction of temporary pavement incurred by the City shall be deducted from future payments to the Contractor.
- E20.5 Temporary surface restorations shall be measured and paid as follows:
- (a) Temporary restoration will be measured by area and paid at the Contract Unit Price for “Temporary Surface Restoration”. Area to be paid for will be total area temporarily restored inspected in accordance with this Specification, accepted and measured by the Contract Administrator.
- E20.6 No measurement or payment will be made for the temporary restoration of barrier or lip curb.
- E20.7 No measurement or payment will be made for the temporary restorations of boulevards and grassed areas.
- E20.8 No measurement or payment will be made for the removal of temporary pavement prior to permanent restoration.

E21. SUPPLY AND INSTALLATION OF TEMPORARY SHORING

E21.1 Description

- (a) This Specification shall cover shoring requirements for the Works related to the installation of the new gate chamber, as shown on the drawings.

E21.2 Construction Methods

E21.2.1 Excavation

- (a) Remove excavated material from the Site immediately. Excavated material shall not be stockpiled on-site unless it will be used as backfill the same day it is excavated.
- (b) All working areas below grade shall be kept adequately and securely supported during and after excavation until the shoring and bracing is in place to prevent loss of ground or injury to any person from falling material.

E21.2.2 Excavation Depressurization

- (a) Construction of the outfall chamber will require the depressurization of the excavation area to control ground water levels and pressures and protect against excavation basal heave/blowout. Details on existing groundwater levels and monitoring well data, including a review of regional geology and historic groundwater levels has been summarized in a hydrogeological review in Appendix A.
- (b) Brackish water is not expected in this area. Discharge of excavation depressurization water may therefore be directed to the Assiniboine River, provided the discharge is made below the ice level as to not impact the Assiniboine River ice skating trail, or walking paths along the banks of the river.
- (c) Prior to Construction the Contractor shall submit an excavation depressurization system plan designed and sealed by a Professional Engineer or Professional Geologist registered to practice in the Province of Manitoba for review by the Contract Administrator. The plan submittal shall include the following at a minimum:

- (i) An evaluation of static groundwater conditions and required drawdown elevations for successful completion of the project excavations.
- (ii) The results of a groundwater test pumping program. The program shall include the installation of both a pumping well and an observation well within the Worksite. The existing monitoring well can be used as an additional observation well.
- (iii) Permissible groundwater levels (pressures) at various stages of excavation and backfill to prevent uplift of soil layers and to prevent any other disturbance to the in-situ foundation soils due to any excess groundwater pressures.
- (iv) Confirmation of the elevation to which the excavation may proceed before the well system commences operation.
- (v) Expected pumping rates throughout Construction.
- (vi) Confirmation of the extent to which chamber construction and backfill must be completed before the depressurization system can cease operation.
- (vii) The depressurization plan using a pump well system shall include the number of wells, including location, size, pumps and installation details.
- (viii) Schedule of monitoring, maintenance, manpower estimates, and interpreting of ground water levels throughout the duration of the project.
- (ix) A well decommissioning plan.

E21.2.3 Excavation Security Fence

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

E21.2.4 Shoring

- (a) The type, strength, and amount of shoring and bracing shall be such as the nature of the ground and attendance conditions may require, taking into account property lines, existing slopes, utilities, roadways and existing structures.
- (b) Shoring and bracing shall be so spaced and dimensioned as to prevent caving, loss of ground, surface settlement, or squeezing of the soil beyond the neat lines of excavation. It shall be free from defects that might impair its strength or suitability for the Work. Sheeting/shoring and bracing shall conform to the latest revisions of the "Construction Safety Act" of the Department of Labour of the Government of Manitoba and in accordance with Province of Manitoba "W210 The Workplace Safety and Health Act" and "Guidelines for Excavation Work".
- (c) Supporting design calculations as required to facilitate review of the submission for conformance with the Contract documents.
- (d) Submit AutoCAD shop drawings and design calculations for the shoring/excavation system designed and sealed by a Professional Engineer registered or licensed to practice in the Province of Manitoba and experienced in the structural design of shoring systems. The designer of the shoring system shall inspect the system during construction and certify, in writing to the Contract Administrator, that construction is in conformance with the approved design.
- (e) Shoring and bracing shall be installed such that the structure size and wall thickness shown on the shop drawings can be obtained subsequent to installation of the shoring system.

- (f) Shoring and bracing shall be designed and installed to prevent settlement and damage to existing structures. In the event of damage, the Contractor will be held liable, and shall be required to provide appropriate restoration at his cost, to the satisfaction of the Contract Administrator.
- (g) Shoring and bracing shall remain in place until concrete has attained 75% of the design strength.

E21.2.5 Monitoring Movement of Shoring

- (a) The Contractor shall submit to the Contract Administrator a plan for monitoring the movement of shoring during construction a minimum of two (2) working days prior to commencing the installation of shoring. The monitoring plan shall be performed by approved survey methods for vertical or horizontal movement of the shoring, acceptable to the Contract Administrator. The shoring shall be surveyed at a minimum once every two (2) weeks. Costs for monitoring shall be incidental to the installation of the temporary shoring.

E21.3 Measurement and Payment

- E21.3.1 Shoring will be paid for at the Contract Lump Sum Price for "Temporary Shoring for Gate Chamber". Said price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this Specification.
- E21.3.2 Excavation depressurization will be paid for at the Contract Lump Sum Price for "Temporary Depressurization for Gate Chamber". Said price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this Specification.

E22. DEMOLITION OF STRUCTURES

E22.1 Description of Work

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

- (a) Partial demolition of the existing gate chamber concrete and SRS pipe to specified limits shown on the drawings.
- (b) Removal and disposal of construction debris.
- (c) Removal of the existing slide gate and all related hardware.

E22.1.1 The Work required under this section shall include, but is not limited to, the following:

Removal of existing concrete, performing saw cutting, demolition, existing equipment to be maintained, demolition and disposal of existing concrete, and clean-up of work site in anticipation of new work for those demolition areas indicated on the drawings.

E22.1.2 The work to be done by the Contractor under this section shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as described hereinafter.

E22.2 References

- E22.2.1 CSA S350-M1980, Code of Practice for Safety in Demolition of Structures.
- E22.2.2 Manitoba Workplace Safety and Health Act, and all applicable National, Provincial and Municipal regulations.

E22.3 Protection

- E22.3.1 Prevent damage of existing gates and structure to remain. Provide bracing and shoring as required. Make good any damage caused by the demolition Work.

- E22.3.2 Take precautions to support affected structures and, if safety of structure being demolished or adjacent structures appears to be endangered, cease operations and notify the Contract Administrator.
- E22.3.3 The Contractor shall take precautions during demolition works to prevent damage to existing structures and adjacent property. In the event of damage, the Contractor will be held liable, and shall be required to provide appropriate restoration at his cost, to the satisfaction of the Contract Administrator.
- E22.4 Execution
- E22.4.1 Commencement
- (a) Demolition shall commence after certification of the shoring system as outlined in E14.
- E22.4.2 Inspection
- (a) Inspect Site with Contract Administrator and verify extent of items for removal, disposal, salvage and items to remain.
- (b) Notify and obtain approval of Contract Administrator before starting demolition.
- E22.4.3 Safety Code and Requirements
- (a) Unless otherwise specified, carry out demolition in accordance with the City of Winnipeg Safety Directives and Guidelines.
- E22.4.4 Demolition
- (a) Demolish structures to permit construction of new work as required.
- (b) Remove existing equipment, services, and obstacles where required for refinishing or making good of existing surfaces, and replace as Work progresses.
- (c) At end of each day's Work, leave Work in safe condition so that no part is in danger of toppling or falling
- (d) Do not sell or burn materials on Site.
- (e) Damage to concrete that is to remain shall be minimized. Concrete shall be demolished by sawcutting and subsequent jackhammering using hand-held breakers or jack hammers (maximum 10 kgs/20 lbs.). Other methods of performing concrete demolition may be submitted for review and approval to the Contract Administrator. The Contractor shall take measures to ensure that the concrete beyond the limits of demolition is not fractured or shattered. The Contractor shall remove using acceptable methods and replace any concrete which is deemed to be fractured as a result of demolition methods employed by the Contractor. This repair Work shall be performed at no additional cost to the City of Winnipeg.
- E22.4.5 Demolition Tolerances
- (f) All demolition shall be done using equipment and procedure to prevent over-breakage of the existing structure.
- (g) Final demolition surfaces must remain locally within (25 mm) of the demolition lines, alignments, or limits shown on the drawings. Demolition beyond the limits shown shall be reviewed by the Contract Administrator. The Contractor shall repair excess demolition to the satisfaction of the Contract Administrator, and at no cost to the City where required.
- (h) All protrusions into the defined limits of demolition shall be removed if they interfere with the placement and alignment of embedded components or reinforcing steel.
- E22.4.6 Abrasive Wiresaw and Sawcutting
- (a) Areas of demolition shall be delineated from existing concrete that is to remain using either abrasive disc sawcutting, or abrasive wiresawing.
- (b) All sawcuts shall be performed straight and normal to the surface being cut, following the locations shown on the drawings, or as directed by the Contract Administrator.

- (c) Overruns at the junctions of sawcuts, and mis-starts shall be cleaned and filled with dry patching mortar of matching colour, as directed by the Contract Administrator.
- (d) Minimum depths of sawcuts shall be 50 mm (2") unless otherwise shown on drawings.

E22.4.7 Disposal of Demolished Material

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

E22.4.8 Special Provisions – Existing Slide Gate

- (a) Removal of the existing slide gate and partial demolition of the existing slide gate concrete headwall can only commence after successful installation of the upstream flap gate to ensure continuous flood protection of the upstream SRS pipe. The Contractor shall request authorization from the Contract Administrator a minimum of five (5) working days prior to removal of the existing slide gate and associated hardware.
- (b) Salvage components of the slide gate for the City of Winnipeg for use as spare parts. The Contract Administrator for coordination of pick-up of salvaged components.

E22.5 Measurement and Payment

E22.5.1 Demolition

Demolition of existing sewer pipe and partial demolition of the gate chamber concrete will be measured on a lump sum basis and paid for at the Contract Lump Sum Price for "Demolition."

No payment shall be made for demolition beyond the limits specified, or those otherwise approved by the Contract Administrator. The separation, as necessary of embedded and structural steel shall be considered incidental to the Work. The installation of temporary supports, shoring or hangers shall also be considered incidental to the Work. Sawcutting of concrete and removal of construction debris shall be considered incidental to the Work.

E23. CAST-IN-PLACE CONCRETE CONSTRUCTION

E23.1 Description

E23.1.1 This specification will cover construction of cast-in-place concrete and shall supplement, revise and amend CW 2160.

E23.1.2 This specification does not include pavement. For pavement requirements, refer to Section E18 of these specifications.

E23.2 Materials

(a) Concrete Mix Design

The Contractor shall be responsible for the design and performance of all concrete mixes supplied under this Specification. Concrete shall be supplied in accordance with the requirements of CSA A23.1-09, with the minimum properties as provided below:

(i) Concrete Chamber Construction	
Class of Exposure	S-1
Maximum Size of Aggregate	19 mm
Cement Type	Type HS
Maximum Water/Cementing Materials Ratio	0.42
Compressive Strength at 7 Days	20 MPa

- | | |
|---------------------------------|-----------------|
| Compressive Strength at 56 Days | 35 MPa |
| Slump/Flow | 80 mm +/- 20 mm |
| Air Content | 6.5% +/- 1.5% |
- (ii) Lean Mix Concrete
- | | |
|---------------------------------|---------|
| Cement Type | Type GU |
| Compressive Strength at 28 Days | 15 MPa |
| Slump/Flow | 80 mm |
| Air Content | nil |
- (iii) Flowable Cement Stabilized Fill
- | | |
|---|---------|
| Cement Type | Type GU |
| Compressive Strength at 28 days (Maximum) | 2.5 MPa |
| Slump/Flow (minimum) | 200 mm |
| Air Content (minimum) | 20% |
- (b) Provide a "Mix Design Statement" for each type of concrete to be used certifying constituent materials and mixing proportions to the Contract Administrator at least two (2) weeks prior to delivery of Concrete to the Site. Supply reasonable evidence to the Contract Administrator that the mix proportions selected will produce concrete meeting the specified strength, workability and yield.
- (c) Admixtures
- All admixtures shall be compatible.
 - Air entraining agent shall meet ASTM C260.
 - Chemical water reducing admixtures shall meet ASTM C494.
- (d) Grout and Hydraulic Cement
- Grout shall be Sika Grout 212 SR or approved equivalent in accordance with B7
 - Hydraulic cement for form hole patching shall be Xypex Patch-n-Plug or approved equivalent in accordance with B7.
- (e) Reinforcing Steel
- Bar accessories:
 - To be made of a non-corroding material
 - Shall not stain, blemish or spall the concrete surface for the life of the concrete
 - Shall be approved by the Contract Administrator
 - Bar chairs shall be PVC
- (f) Bonding Agent shall be Sika Latex R or approved equivalent in accordance with B7.
- (g) Shop Drawings:
- Provide shop drawings in accordance with E9 of this specification.
 - Submit shop drawings for reinforcing steel a minimum of two (2) weeks prior to the fabrication of any reinforcing steel.

E23.3 Construction Methods

E23.3.1 Construction Method Submission

- No Work shall commence on construction of cast-in-place concrete until after the Contract Administrator's review of the Contractor's Construction Method submission.

- (b) The Contractor shall prepare for the Contract Administrators review a Construction Method submission detailing:
 - (i) Construction sequence to be followed including all methods to be employed.
 - (ii) Specialized equipment to be used.
 - (iii) Any design revisions proposed to accommodate the Contractor's proposed construction method.
- (c) The Contractor shall respond to any concerns that may be raised by the Contract Administrator after review of Construction Method submission.

E23.3.2 Cast-in-place Concrete Chamber Construction

- (a) Construct cast in place concrete in accordance with CW 2160, except as supplemented, revised or amended in this specification and as indicated in the construction notes on the drawings.
- (b) Adjust the location of reinforcing steel adjacent to openings to frame those openings in accordance with good practice, and maintain the bar spacing intent.
- (c) Do not use welded splices for reinforcing steel.
- (d) Order all wall reinforcement steel in lengths to best suit the spacing of walers so that reinforcing bars will not be bent or misformed in order to remove the walers.
- (e) Remove all form tie plastic cones and patch with hydraulic cement compound.

E23.3.3 Cast-in-place Concrete Piles

- (a) The Contractor shall be responsible to verify the existence of all underground services in the piling area whether shown or not. Expose all services close to the piling as required.
- (b) Reinforce all piles as detailed on the drawings. Concrete shall be in accordance with CW 2160, except as supplemented, revised or amended in this specification and as indicated in the construction notes on the drawings.
- (c) Vibrate the top 4.5 m of concrete in all piles.
- (d) Piles should not be more than 50mm out of position laterally at the top and not more than 2% out of plumb.

E23.3.4 Concrete Chamber Backfill Requirements

- (a) Place and compact backfill material as indicated in the drawings and in accordance with CW 2030.
- (b) Do not place backfill material in a frozen state.
- (c) Supply heating and hoarding in accordance with CW 2160 if required to ensure material does not freeze before compaction is complete.
- (d) Notify the Contract Administrator at least one (1) full working day in advance of any backfilling operation. No Backfill shall be placed against concrete until approved by the Contract Administrator and in no case before field cured test cylinders show the concrete strength to be 75% of that specified.

E23.3.5 Grout and Hydraulic Cement

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

E23.4 Measurement and Payment

- E23.4.1 Construction of the cast-in-place concrete will be paid for at the Contract Lump Sum Price for "Cast-in-Place Concrete." Said price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this specification.

E24. COLD WEATHER REQUIREMENTS

- E24.1 Should any concrete Work be required to be carried out when the daily mean temperature is below 5°C or anticipated to be below 5°C within the next 24 hours, cold weather requirements will be specified herein.
- E24.2 All freshly placed concrete shall be protected from the elements and from defacements due to construction operations.
- E24.3 The following are minimum requirements for protecting concrete during and after placement during freezing weather, but mere adherence to these requirements will not relieve the Contractor of the necessity for producing concrete which has not been weakened or injured by frost or freezing, or replacing such damaged Work at no additional cost to the City;
- (a) Before any concrete is placed, all ice, snow, and frost shall be completely removed from all formwork, and other surfaces against which concrete temperatures of such surfaces raised above 7°C for twenty-four (24) hours minimum prior to concreting. Where concrete Work is to come in contact with the earth, the surface of the earth shall be completely free of frost when concrete is placed thereon.
 - (b) Concrete aggregates and water shall be heated to not over 80°C. Concrete shall be not less than 20°C or more than 30°C in temperature when deposited. Concrete when placed during freezing weather, or if freezing is anticipated during curing period, shall be fully enclosed and the temperature of same maintained at not less than 20°C for five (5) days nor less than 5°C for an additional five (5) days.
 - (c) Heating enclosures shall be strong and wind-proof, well ventilated with heating units so located as to prevent local overheating or drying of the concrete or damage from combustion gases. Only indirect fired heaters will be accepted. Units must be vented outside the enclosure. No direct fired units will be accepted.
 - (d) The Contractor shall inform the Contract Administrator well in advance as to the methods of enclosure and frost protection he proposes to employ.
- E24.4 Measurement and Payment
- E24.4.1 Cold weather requirements shall be considered incidental to the construction of Cast-in-Place concrete and no payment will be made for this item.

E25. METAL FABRICATIONS

- E25.1 Description
- E25.1.1 General
- (a) This Specification shall cover the supply, fabrication, transportation, handling, delivery and placement of metal fabrications.
- E25.2 Materials
- E25.2.1 All material shall be of a type acceptable to the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.
- E25.2.2 Material intended for use in the various assemblies shall be new, straight, and clean with sharply defined profiles.
- E25.2.3 Steel Sections and Plates: to CAN/CSA G40.20/G40.21, Grade 300 W, except W, HP AND HSS sections, which shall be Grade 350 W.
- E25.2.4 Steel Pipe: to ASTM A53/A53M, seamless, galvanized, as specified by item.
- E25.2.5 Welding materials: to CSA W59.
- E25.2.6 Hot dipped galvanized steel repair material: Galvalloy and Gal-Viz
- E25.2.7 Stud Anchors: to ASTM A108, Grade 1020.

- E25.2.8 Aluminum: to CAN/CSA S157 and the Aluminum Association 'Specifications for Aluminum Structures'. Aluminum for plates shall be Type 6061-T651. Aluminum plate shall have an approved raised oval or multi-grip pattern.
- E25.2.9 Isolation sleeves shall be "Nyltite" – headed sleeves as manufactured by Spaenaur of Kitchener, Ontario, or approved equal.
- E25.2.10 Anchor bolts and fasteners: ASTM A276, Type 316 stainless steel, of ample section to safely withstand the forces created by operation of the equipment or the load to which they may be subjected.
- E25.2.11 Paint: Amerlock 2 epoxy or approved equivalent in accordance with B7; Colour: neutral grey.
- E25.3 Construction Methods
- E25.3.1 Submittals
- (a) The Contractor shall submit the qualifications of the fabricator and welders to the Contract Administrator for acceptance. Submit shop drawings in accordance with E9 clearly indicating material, core thickness, finishes, connections, joints, methods of anchorage, number of anchors, supports, reinforcement, details and accessories. Indicate field measurements on shop drawings.
- E25.3.2 Fabrications
- (a) Fabricate Work square, true, straight and accurate to required size, with joints close fitted and properly secured. Assemble Work in such a way that no disfigurements show in the finished Work, or impair the strength.
 - (b) Confirm measurements for all fabrications before fabricating.
 - (c) Cut aluminum plate with edges straight and true, as far as practical; maintain the continuity of the pattern at abutting edges.
 - (d) Pieces shall be of the sizes indicated on the drawings and shall not be built up from scrap pieces. Confirm sizes with field measurements,
 - (e) Where possible, fit Work and shop assemble, ready for erection.
 - (f) Remove and grind smooth burrs, filings, sharp protrusions, and projections from metal fabrications to prevent possible injury. Correct any dangerous or potential harmful installations as directed by the Contract Administrator.
 - (g) Angle frames shall be of the same material as the cover plate (except for existing frames designated on the drawings for re-use), and cover plates shall be hinged and be supplied with lifting handles, as shown on the drawings. Exterior covers shall be supplied with a hasp for a padlock.
 - (h) All steel welding shall conform to CSA Standard W.59. Fabricator shall be fully approved by the Canadian Welding Bureau, in conformance with CSA Standard W.47.1. Welding shall be done by currently licensed welders only.
 - (i) All aluminum welding shall be in accordance with the requirements of CSA W59.2. The fabricator shall be fully certified in conformance with CSA Standard W47.2. All welding shall be done in a licensed welding shop, and no field welding will be permitted unless approved in writing, in advance, by the Contract Administrator.
 - (j) Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.
 - (k) Seal exterior steel fabrications to provide corrosion protection in accordance with CAN3-S16.1.
 - (l) Use self-tapping shake-proof flat-headed screws on items requiring assembly by screws.
- E25.3.3 Coatings

- (a) Surface prepare steel fabrications requiring epoxy coating to SSPC SP6 (Commercial Blast).
- (b) Apply two coats of Amerlock 2 Epoxy paint, 150 µm per coat dry film thickness. Colour: Neutral Grey.
- (c) Recoating and curing times shall be as per coating manufacturers recommendations.

E25.3.4 Erection

- (a) Do steel welding Work in accordance with CSA W59 and aluminum welding Work in accordance with CSA W59.2
- (b) Erect metal Work in accordance with reviewed shop drawings, square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- (c) Provide suitable means of anchorage acceptable to Contract Administrator such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles where not specifically indicated on the drawings.
- (d) Provide components for building in accordance with shop drawings and schedule.
- (e) Make field connections with bolts to CAN/CSA-S16, or weld.
- (f) Touch-up rivets, bolts and burnt or scratched surfaces that are to receive paint finish, with zinc primer after completion of erection.
- (g) Repair damaged galvanized surfaces and field welds with self-fluxing, low temperature, zinc-based alloy rods in accordance with ASTM A780, Repair of Damaged Hot Dip Galvanizing Coatings. The general procedure shall be to allow a small amount of the repair alloy to flow then spread by brushing briskly with a wire brush. Brushing shall be sufficient to obtain a bright finish. Repeat process three (3) times to ensure a proper thickness is achieved. Temperatures shall be kept below 177°C (350°F) at all times. All heating of structural steel Work shall be done in the presence of the Contract Administrator.
- (h) Install access hatch frames square and level at the locations show on the drawings. Embed anchors in concrete as shown on the drawings. Install covers and adjust hardware to proper function.
- (i) All aluminum surfaces in contact with concrete shall be isolated using alkali resistant bituminous paint meeting the requirements of CGSB 31-GP-3M.
- (j) Install electrochemical isolation gaskets and sleeves to electrically isolate dissimilar metals.

E25.4 Measurement and Payment

- E25.4.1 Supply, fabrication, transportation, handling, delivery and placement of metal fabrications will be paid for at the Contract Lump Sum Price for "Supply and Installation of Miscellaneous Metals."

E26. ORNAMENTAL FENCING

E26.1 Description

E26.1.1 General

- (a) This Specification shall cover the supply, fabrication, transportation, handling, delivery and installation of ornamental fencing.

E26.2 Materials

- E26.2.1 Ornamental fencing shall be 1070 mm (3'-6") high Montage Plus Classic 2/3-Rail System, manufactured by Ameristar or an approved equivalent in accordance with B7.

- E26.2.2 The railing shall be installed with baseplates bolted into the gate chamber roof using chemical adhesive anchors. Anchor bolt type shall be of a non-corroding material electrochemically compatible with the fencing base metal.

E26.3 Construction Methods

E26.3.1 Submittals

- (a) Submit shop drawings in accordance with E9 clearly indicating layout of the ornamental fence, including a plan, typical sections and details. Indicate all locations of gates. Indicate field measurements on shop drawings.

E26.3.2 Installation

- (a) Install the ornamental fencing in accordance with manufacturer's written instructions.
- (b) Install anchor bolts in accordance with

E26.4 Measurement and Payment

- E26.4.1 Supply and installation of ornamental fencing will be paid for at the Contract Lump Sum Price for "Supply and Installation of Ornamental Fencing."

E27. CAST IRON SLIDE GATE

E27.1 Description

- (a) This Specification shall cover the installation and testing of cast iron slide gates, wall thimbles, stems, wall brackets, and all associated accessories.
- (b) The City of Winnipeg has procured these items under a separate Tender: Bid Opportunity No. 467-2018. Delivery of the thimble is expected by December 31st, 2018. Delivery of the gate, mechanical lift operator, stems and miscellaneous hardware is expected by January 31st, 2019. The Contractor will be responsible for picking up these materials and transporting them to site. Materials will be stored at the City of Winnipeg's Water Services Division shop located at 598 Plinguet Street. The Contract Administrator will notify the Contractor upon arrival of the equipment.
- (c) Approved shop drawings of the gates have been provided in Appendix B for reference.

E27.2 Construction Methods

E27.2.1 Installation

- (a) Install the cast iron slide gate, wall thimbles, stems, wall brackets and accessories as shown on the drawings and in accordance with the manufacturer's recommendations.
- (b) The Contract Administrator will coordinate to have the field representative of the slide gate supplier/manufacturer to inspect the installation during and after completion and provide a Certificate of Satisfactory Installation.

E27.2.2 Field Testing

- (a) Perform leakage tests in the Contract Administrator's presence once slide gates have been installed to ensure compliance with the allowable leakage rate indicated in AWWA C560.
- (b) The Contract Administrator will arrange to have a field representative of the flap gate supplier/manufacturer to be present during field testing.
- (c) The leakage test for the flap and slide gate will be performed concurrently by closing the slide gate and filling the flap gate chamber to the specified slide gate unseating head. The leakage rate will be assessed by measuring the combined leakage rate through both the slide gate and flap gate. Visual assessments of leakage will be obtained on either side of the control gates.
- (d) Water used for testing purposes must be chlorine free. Potable drinking water shall be de-chlorinated if used for testing purposes.
- (e) The Contractor will be responsible to pump water from the Assiniboine River or supply potable water from a delivery truck or hydrant into the chamber for testing purposes.
- (f) Testing water shall not be released to the river if the Assiniboine River skating trail is open.
- (g) If a gate fails the field leakage test, the Contract Administrator will direct the slide gate supplier/manufacturer's field representative to undertake adjustments, replacements or

other modifications and the Contractor shall repeat the test. The sequence shall be repeated until the gate passes no more than the allowable leakage rate.

E27.3 Measurement and Payment

- (a) Installation and testing of the cast iron slide gate, wall thimble, stem, wall brackets and accessories will be paid for at the Contract Unit Price for "Installation and Field Testing of Slide Gate (Supplied by City of Winnipeg)".
 - (i) 85% of the Installation and Field Testing of Slide Gate (Supplied by City of Winnipeg) will be paid on upon installation.
 - (ii) The remaining 15% of the Installation and Field Testing of Slide Gate (Supplied by City of Winnipeg) will be paid on the successful field testing of the gate.

E28. CAST IRON FLAP GATE

E28.1 Description

- (a) This Specification shall cover the installation and testing of cast iron flap gates and wall thimble.
- (b) The City of Winnipeg has procured these items under a separate Tender: Bid Opportunity No. 467-2018. Delivery of the thimble is expected by December 31st, 2018. Delivery of the flap gate and miscellaneous hardware is expected by January 31st, 2019. The Contractor will be responsible for picking up these materials and transporting them to site. Materials will be stored at the City of Winnipeg's Water Services Division shop located at 598 Plinguet Street. The Contract Administrator will notify the Contractor upon arrival of the equipment.
- (c) Approved shop drawings of the gates have been provided in Appendix B for reference.

E28.2 Construction Methods

E28.2.1 Installation

- (a) Install cast iron flap gates and wall thimbles as shown on the drawings and in accordance with the manufacturer's recommendations.
- (b) The Contract Administrator will coordinate to have the field representative of the slide gate supplier/manufacturer to inspect the installation during and after completion and provide a Certificate of Satisfactory Installation.

E28.2.2 Field Testing

- (a) Perform leakage tests in the Contract Administrator's presence once flap gates have been installed to ensure compliance with the allowable leakage rate of 1.24L/min per metre of seated perimeter at any head.
- (b) The Contract Administrator will arrange to have a field representative of the flap gate supplier/manufacturer to be present during field testing.
- (c) The leakage test for the flap and slide gate will be performed concurrently by closing the slide gate and filling the flap gate chamber to the specified slide gate unseating head. The leakage rate will be assessed by measuring the combined leakage rate through both the slide gate and flap gate. Visual assessments of leakage will be obtained on either side of the control gates.
- (d) Water used for testing purposes must be chlorine free. Potable drinking water shall be de-chlorinated if used for testing purposes.
- (e) The Contractor will be responsible to pump water from the Assiniboine River or supply water from a delivery truck or hydrant into the chamber for testing purposes.
- (f) Testing water shall not be released to the river if the Assiniboine River skating trail is open.
- (g) If a gate fails the field leakage test, the Contract Administrator will direct the flap gate supplier/manufacturer's field representative to undertake adjustments, replacements or other modifications and the Contractor shall repeat the test. The sequence shall be repeated until the gate passes no more than the allowable leakage rate.

E28.3 Measurement and Payment

- (a) Installation and testing of the cast iron flap gate and associated wall thimble will be paid for at the Contract Unit Price for "Installation and Field Testing of Flap Gate (Supplied by City of Winnipeg)".
 - (i) 85% of the Installation and Field Testing of Flap Gate (Supplied by City of Winnipeg) will be paid on upon installation.
 - (ii) The remaining 15% of the Installation and Field Testing of Flap Gate (Supplied by City of Winnipeg) will be paid on the successful field testing of the gate.

E29. CASH ALLOWANCE FOR REPAIRS

E29.1 Description

- (a) The Cash Allowance for Repairs is intended to be used for remedial repairs directed and authorized by the Contract Administrator.
- (b) The City reserves the right to delete any or all of the Cash Allowance from the Contract if the Work intended to be covered by the Cash Allowance is not required, or if the Works intended are found to be more extensive than the provisional Cash Allowance.

E29.2 Method of Measurement and Basis of Payment

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