



**THE CITY OF WINNIPEG**

# **TENDER**

**TENDER NO. 723-2021**

**PORTAGE AVENUE INTERCEPTOR SIPHON REPLACEMENT AT OMAND'S  
CREEK**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 PORTAGE AVENUE INTERCEPTOR SIPHON REPLACEMENT AT OMAND'S CREEK

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, December 7, 2021.

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

### **B3. SITE INVESTIGATION**

B3.1 Further to C3.1, the Bidder may view the Site without making an appointment.

B3.2 The Bidder is advised that access to the site is constrained to the City owned right-of-ways and existing easement extents as identified on the Drawings. Bidders may not trespass on private property.

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

### **B4. ENQUIRIES**

B4.1 All enquiries shall be directed to the Contract Administrator identified in D6.1.

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

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

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

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

B4.6 Any enquiries concerning submitting through MERX should be addressed to:  
MERX Customer Support  
Phone: 1-800-964-6379  
Email: merx@merx.com

### **B5. CONFIDENTIALITY**

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

- (a) was known to the Bidder before receipt hereof; or
- (b) becomes publicly known other than through the Bidder; or

(c) is disclosed pursuant to the requirements of a governmental authority or judicial order.

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

## **B6. ADDENDA**

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

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

B6.3 Addenda will be available on the MERX website at [www.merx.com](http://www.merx.com).

B6.4 The Bidder is responsible for ensuring that he/she has received all addenda and is advised to check the MERX website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

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

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

## **B7. SUBSTITUTES**

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

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

B7.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.

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

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

- B7.5 The Contract Administrator, after assessing the request for approval of a substitute, may in 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/Proposal;
  - (b) Form B: Prices;
  - (c) Form G1: Bid Bond and Agreement to Bond.
- B8.2 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely.
- B8.3 The Bid shall be submitted electronically through MERX at [www.merx.com](http://www.merx.com).
- B8.3.1 Bids will **only** be accepted electronically through MERX.
- B8.4 Bidders are advised that inclusion of terms and conditions inconsistent with the Tender document, including the General Conditions, will be evaluated in accordance with B18.1(a).

## **B9. BID**

- B9.1 The Bidder shall complete Form A: Bid/Proposal, making all required entries.
- B9.2 Paragraph 2 of Form A: Bid/Proposal shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, his/her name shall be inserted;
  - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
  - (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
  - (d) if the Bidder is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.
- B9.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B9.2.

- B9.3 In Paragraph 3 of Form A: Bid/Proposal, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.
- B9.4 Paragraph 13 of Form A: Bid/Proposal shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, it shall be signed by the Bidder;
  - (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
  - (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers;
  - (d) if the Bidder is carrying on business under a name other than his/her own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.
- B9.4.1 The name and official capacity of all individuals signing Form A: Bid/Proposal should be entered below such signatures.
- B9.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

## **B10. PRICES**

- B10.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.
- B10.1.1 Notwithstanding C12.2.3(c), prices on Form B: Prices shall not include the Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable.
- B10.1.2 Prices stated on Form B: Prices shall not include any costs which may be incurred by the Contractor with respect to any applicable funding agreement obligations as outlined in D27. Any such costs shall be determined in accordance with D27.
- B10.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.
- B10.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.
- B10.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).
- B10.5 The Bidder shall enter the Total Bid Price from Form B: Prices into the Total Bid Price field in MERX.
- B10.5.1 Bidders are advised that the calculation indicated in B18.4 will prevail over the Total Bid Price entered in MERX.

## **B11. DISCLOSURE**

- B11.1 Various Persons provided information or services with respect to this Work. In the City's opinion, this relationship or association does not create a conflict of interest because of this full disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.
- B11.2 The Persons are:
- (a) IPEX Inc.
    - (i) Product Information



## **B12. CONFLICT OF INTEREST AND GOOD FAITH**

- B12.1** Further to C3.2, Bidders, by responding to this Tender, declare that no Conflict of Interest currently exists, or is reasonably expected to exist in the future.
- B12.2** Conflict of Interest means any situation or circumstance where a Bidder or employee of the Bidder proposed for the Work has:
- (a) other commitments;
  - (b) relationships;
  - (c) financial interests; or
  - (d) involvement in ongoing litigation;
- that could or would be seen to:
- (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 Tender process or the Work; or
- (f) has knowledge of confidential information (other than confidential information disclosed by the City in the normal course of the Tender process) of strategic and/or material relevance to the Tender process or to the Work that is not available to other bidders and that could or would be seen to give that Bidder an unfair competitive advantage.
- B12.3** In connection with 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 Tender process, promptly disclose a detailed description of the Conflict of Interest to the City in a written statement to the Contract Administrator; and
  - (c) provide the City with the proposed means to avoid or mitigate, to the greatest extent practicable, any perceived, potential or actual Conflict of Interest and shall submit any additional information to the City that the City considers necessary to properly assess the perceived, potential or actual Conflict of Interest.
- B12.4** Without limiting B12.3, the City may, in 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 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 <https://www.winnipeg.ca/matmgt/Templates/files/debar.pdf>

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

- (a) have successfully carried out work similar in nature, scope and value to the Work; and
- (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract;
- (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba); and
- (d) upon request of the Contract Administrator, provide the Security Clearances in accordance with PART F - Security Clearance.

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

- (a) Written confirmation of a safety and health certification meeting SAFE Work Manitoba's SAFE Work Certified Standard (e.g., COR™ and SECOR™) in the form of:
  - (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 include in its Bid Submission bid security in the form of a digital bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in Form G1: Bid Bond and Agreement to Bond, available on The City of Winnipeg, Corporate Finance, Materials Management Division website at <https://www.winnipeg.ca/MatMgt/templates/files/eBidsecurity.pdf>.

B14.2 Bid security shall be submitted in a digital format meeting the following criteria:

- (a) The version submitted by the Bidder must have valid digital signatures and seals;
- (b) The version submitted by the Bidder must be verifiable by the City with respect to the totality and wholeness of the bond form, including: the content; all digital signatures and digital seals; with the surety company, or an approved verification service provider of the surety company.
- (c) The version submitted must be viewable, printable and storable in standard electronic file formats compatible with the City, and in a single file. Allowable formats include pdf.
- (d) The verification may be conducted by the City immediately or at any time during the life of the bond and at the discretion of the City with no requirement for passwords or fees.
- (e) The results of the verification must provide a clear, immediate and printable indication of pass or fail regarding B14.2(a).

B14.3 Bonds failing the verification process will not be considered to be valid and the bid shall be determined to be non-responsive in accordance with B18.1(a).

B14.4 Bonds passing the verification process will be treated as original and authentic.

B14.4.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.

B14.5 The bid security of the successful Bidder and the next two lowest evaluated responsive and responsible Bidders will be released by the City when a Contract for the Work has been duly formed with the successful Bidder and the contract securities are furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.

B14.6 The bid securities of all Bidders will be released by the City as soon as practicable following notification by the Contract Administrator to the Bidders that no award of Contract will be made pursuant to the Tender.

#### **B15. OPENING OF BIDS AND RELEASE OF INFORMATION**

B15.1 Bids will not be opened publicly.

B15.2 Following the Submission Deadline, the names of the Bidders and their Total Bid Prices (unevaluated and pending review and verification of conformance with requirements) will be available on the MERX website at [www.merx.com](http://www.merx.com).

B15.3 After award of Contract, the name(s) of the successful Bidder(s) and their Contract amount(s) will be available on the MERX website at [www.merx.com](http://www.merx.com).

B15.4 The Bidder is advised that any information contained in any Bid may be released if required by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law or by City policy or procedures (which may include access by members of City Council).

B15.4.1 To the extent permitted, the City shall treat as confidential information, those aspects of a Bid Submission identified by the Bidder as such in accordance with and by reference to Part 2, Section 17 or Section 18 or Section 26 of The Freedom of Information and Protection of Privacy Act (Manitoba), as amended.

## **B16. IRREVOCABLE BID**

B16.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid/Proposal.

B16.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work until a Contract for the Work has been duly formed and the contract securities have been furnished as herein provided, but any Bid shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 11 of Form A: Bid/Proposal.

## **B17. WITHDRAWAL OF BIDS**

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

## **B18. EVALUATION OF BIDS**

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

- (a) compliance by the Bidder with the requirements of the Tender, or acceptable deviation there from (pass/fail);
- (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B13 (pass/fail);
- (c) 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 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 Bidders are advised that the calculation indicated in B18.4 will prevail over the Total Bid Price entered in MERX.

## **B19. AWARD OF CONTRACT**

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

B19.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be qualified, and the Bids are determined to be responsive.

B19.2.1 Without limiting the generality of B19.2, the City will have no obligation to award a Contract where:

- (a) the prices exceed the available City funds for the Work;
- (b) the prices are materially in excess of the prices received for similar work in the past;
- (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with 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 If funding for the Work is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, Bidders are advised that the terms of D27 shall immediately take effect upon confirmation of such funding, regardless of when funding is confirmed.

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

B19.4.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of 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 2020-01-31) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at [http://www.winnipeg.ca/matmgt/gen\\_cond.stm](http://www.winnipeg.ca/matmgt/gen_cond.stm)
- C0.2 A reference in the Tender to a section, clause or subclause with the prefix “C” designates a section, clause or subclause in the *General Conditions for Construction*.

## PART D - SUPPLEMENTAL CONDITIONS

### GENERAL

#### D1. GENERAL CONDITIONS

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

#### D2. BACKGROUND AND PROJECT INFORMATION

D2.1 The Bidder is advised that the City has initiated a Private Property Authorization Agreement with the property owner of 1420 Portage Avenue (Portage Avenue Church).

- (a) While the private property authorization process is ongoing, it is expected that the Private Property Authorization Agreement will be in place for construction to be completed in time to achieve the contract dates outlined in D17 and D18.
- (b) Figure identifying approximate private property authorization extents is provided in Appendix C.

D2.2 The Bidder is advised that there may be historic timber piles located within the project area (left behind from the historic Portage Avenue bridge structure). The exact locations of historic timber piles is unknown.

D2.3 Further to D2.2, the Bidder is advised that there are numerous existing utilities and infrastructure within and/or in close proximity to the project area, including but not limited to the Portage Avenue bridge structure, existing 1800 mm diameter rock caissons, 350 mm diameter watermain, 250 mm diameter watermain, and the existing 600 mm diameter steel wastewater siphon. The Bidder shall verify locations and elevations of all utilities and infrastructure using soft digging methods prior to construction and as required to facilitate the Bidder's shoring design. Shoring extents shall remain a minimum of 1.0 meter away from edge of rockfill columns and accommodate the existing 350 mm diameter watermain as required to suit the Bidder's means and methods. Line items for repair and replacement of the 350 mm diameter watermain is included in the Contract, up to a maximum length of 45 meters. Any watermain repairs exceeding this maximum lineal meter length as required to suit the Bidder's means and methods shall be the responsibility of the Bidder.

D2.4 As-built/record drawing information for the Portage Avenue bridge structure is included in Appendix A. Past geotechnical soils investigation information for the project site is included in Appendix B.

D2.5 To isolate the 350 mm watermain during construction and ensure no loss of service to nearby properties, two (2) 350 mm diameter watermain valves are to be installed on either side of the creek at locations as indicated on the Drawings. The two (2) 350 mm diameter watermain valves and associated couplings will be supplied by the City of Winnipeg. The Bidder will be responsible for installation of the valves only.

D2.6 Further to D2.4, an air release valve on the 350 mm diameter watermain is to be installed on the east side of Omand's Creek at the location specified on the Drawings. The air release valve, and all associated components as specified on the Drawings, is to be supplied and installed by the Bidder.

D2.7 The Bidder is advised that prior to cutting/abandoning the existing 600 mm diameter wastewater siphon, the 350 mm diameter watermain shall be isolated, cut, drained, and capped appropriately to prevent any potential contamination. At the end of construction and prior to reinstating the 350 mm diameter watermain, the watermain section replaced by the Contractor shall be tested and disinfected in accordance with CW2125.

- D2.8 The Rivers and Creeks in Winnipeg are regulated in the summer at the approximate ASRL listed on the drawings and efforts are made to lower the river to the AWRL in the winter months. However, annual flooding occurs in the Red River Valley and water levels can fluctuate greatly from year to year and month to month and no guarantees are made that the water level will be at the levels indicated on the Drawings. For more information on past river levels within the City of Winnipeg, visit <https://winnipeg.ca/waterandwaste/flood/riverLevels.stm>
- D2.9 Figures for proposed pedestrian re-routing plan and proposed temporary traffic control/lane closures is included in Appendix C.
- D2.10 Additional project Site photos are provided in Appendix D.
- D2.11 A copy of the City of Winnipeg Waterway Permit documentation will be provided to the Bidder upon project award. All measures and requirements identified on permits shall be adhered to during construction. Permits required for construction of temporary access where required shall be the responsibility of the Bidder.

### **D3. FORM OF CONTRACT DOCUMENTS**

- D3.1 Notwithstanding C4.1(c) and C4.4, the Contract Documents will be provided to the Contractor electronically and there will be no requirement for execution and return to the City by the Contractor. Accordingly, the provisions under C4.4(a) and C4.4(b) are no longer applicable.

### **D4. SCOPE OF WORK**

- D4.1 The Work to be done under the Contract shall consist of the replacement of the Portage Avenue at Omand's Creek Interceptor Siphon along with abandonment and/or removal of the existing siphon where required and as identified on the Drawings.
- D4.2 The major components of the Work are as follows:
- (a) Installation of (2) - 350 mm diameter watermain valves
  - (b) Supply and Installation of one (1) air release valve on 350 mm diameter watermain
  - (c) Temporary by-pass pumping throughout project as required
  - (d) Supply and installation of (+/-) 77.4 m of 600 mm diameter AWWA C905 PVC WWS Siphon crossing Omand's Creek, including bends and thrust blocks where required
  - (e) Supply and installation of mechanical restraints on all PVC joints from approximately Sta. 1+30.55 to 1+86.21 (open cut section)
  - (f) Installation and/or replacement of 350 mm diameter watermain as specified on the Drawings
  - (g) Supply and installation of new 1500 mm diameter manhole
  - (h) Supply and installation of new 1800 mm diameter manhole
  - (i) Connection of new 600 mm diameter PVC siphon and existing concrete sewers to new manholes
  - (j) Abandonment of two (2) existing manholes and (+/-) 14.6 m of existing 900 diameter concrete sewer
  - (k) Abandonment and removal of existing 600 mm diameter steel siphon where required
  - (l) Site restoration
- D4.3 The following shall apply to the Work:
- (a) City of Winnipeg Green Building Policy: New City-Owned Buildings and major additions;  
<http://clkapps.winnipeg.ca/DMIS/DocExt/ViewDoc.asp?DocumentTypeId=2&DocId=5989>
  - (b) Universal Design Policy  
<http://clkapps.winnipeg.ca/DMIS/DocExt/ViewDoc.asp?DocumentTypeId=2&DocId=3604>



## **D5. DEFINITIONS**

D5.1 When used in this Tender:

- (a) "**ASRL**" means Average Summer River Level;
- (b) "**ASTM**" means American Society for Testing and Materials;
- (c) "**AWRL**" means Average Winter River Level;
- (d) "**AWWA**" means American Water Works Association;
- (e) "**Controlled Low Strength Material (CLSM)**" means cement stabilized fill, in accordance with CW 2160.
- (f) "**CSA**" means Canadian Standards Association;
- (g) "**OHWM**" means Ordinary High Water Mark (1:2 Year Flood Level).

## **D6. CONTRACT ADMINISTRATOR**

D6.1 The Contract Administrator is:

Nicole Vidal, C.E.T.  
Municipal Technologist  
Telephone No. 204-986-1209  
Email Address nvidal@kgsgroup.com

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

## **D7. CONTRACTOR'S SUPERVISOR**

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

## **D8. NOTICES**

D8.1 Except as provided for in C22.4, 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/Proposal.

D8.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D8.3 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator identified in D6.

D8.3 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

## **D9. FURNISHING OF DOCUMENTS**

D9.1 Upon award of the Contract, the Contractor will be provided with 'issued for construction' Contract Documents electronically, including Drawings in PDF format only.

## **SUBMISSIONS**

### **D10. AUTHORITY TO CARRY ON BUSINESS**

D10.1 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.

### **D11. SAFE WORK PLAN**

D11.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.

D11.2 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>

D11.3 Notwithstanding B13.4 at any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require an updated COR Certificate or Annual Letter of good Standing. A Contractor, who fails to provide a satisfactory COR Certificate or Annual Letter of good Standing, will not be permitted to continue to perform any Work.

### **D12. INSURANCE**

D12.1 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 Installation Floater carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.

D12.2 Deductibles shall be borne by the Contractor.

D12.3 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 Documents, as applicable.

D12.4 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.

### **D13. CONTRACT SECURITY**

D13.1 The Contractor shall provide and maintain the performance bond and the labour and material payment bond until the expiration of the warranty period in the form of:

- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; and
- (b) a labour and material payment bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H2: Labour and Material Payment Bond), in an amount equal to fifty percent (50%) of the Contract Price.

D13.1.1 Where the contract security is a performance bond, it may be submitted in hard copy or digital format. If submitted in digital format the contract security must meet the following criteria:

- (a) the version submitted by the Contractor must have valid digital signatures and seals;
- (b) the version submitted by the Contractor must be verifiable by the City with respect to the totality and wholeness of the bond form, including: the content; all digital signatures and digital seals; with the surety company, or an approved verification service provider of the surety company.
- (c) the version submitted must be viewable, printable and storable in standard electronic file formats compatible with the City, and in a single file. Allowable formats include pdf.
- (d) the verification may be conducted by the City immediately or at any time during the life of the bond and at the discretion of the City with no requirement for passwords or fees.
- (e) the results of the verification must provide a clear, immediate and printable indication of pass or fail regarding D13.1(b).

D13.1.2 Digital bonds failing the verification process will not be considered to be valid and may be determined to be an event of default in accordance with C18.1. If a digital bond fails the verification process, the Contractor may provide a replacement bond (in hard copy or digital format) within seven (7) Calendar Days of the City's request or within such greater period of time as the City in its discretion, exercised reasonably, allows.

D13.1.3 Digital bonds passing the verification process will be treated as original and authentic.

D13.2 The Contractor shall provide the City Solicitor with the required performance and labour and material payment bonds within seven (7) Calendar Days of notification of the award of the Contract by way of an award letter and prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.

D13.3 The Contractor shall, as soon as practicable after entering into a contract with a Subcontractor:

- (a) give the Subcontractor written notice of the existence of the labour and material payment bond in D13.1(b); and
- (b) post a notice of the bond and/or a copy of that bond in a conspicuous location at the Site of the Work.

#### **D14. SUBCONTRACTOR LIST**

D14.1 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 Documents, if applicable.

## **SCHEDULE OF WORK**

### **D15. EXPEDITED SHOP DRAWINGS AND UTILITY LOCATES**

- D15.1 Further to E8, in order to expedite Shop Drawings with critical timeliness, the lowest responsive Bidder, as outlined in B15, will be permitted, after receiving written approval from the Contract Administrator, to arrange for the preparation of Shop Drawings for the following items with critical timelines:
- (a) Watermain Valves and Air Release Valves
  - (b) AWWA C905 PVC
  - (c) Mechanical Restraints
  - (d) Precast Manholes
  - (e) Pipe to Manhole Connections
  - (f) Temporary Trench Shoring (as required)
- D15.2 In order to expedite utility locates, the lowest responsive Bidder as outlined in B15 will be permitted to arrange for utility locates after receiving written approval from the Contract Administrator.
- D15.3 If Award is made to the lowest responsive Bidder, then as indicated in E8.1(a)(iii), no payment for the preparation of Shop Drawings will be made.
- D15.4 If Award is made to the lowest responsive Bidder, no payment for the booking of utility locates will be made.
- D15.5 If no Contract is awarded, then the City of Winnipeg will pay the requested Bidder up to a maximum of five hundred dollars (\$500.00) for each of the requested items identified in D15.1 for the preparation and delivery of Shop Drawings and a single payment for the booking of utility locates as per D15.2. Delivery of the Shop Drawings to the City, booking of Utility Locates, and payment of the above mentioned amounts will constitute full and final consideration of each party to the other, and neither party will have any further liability to the other with respect to this Tender.

### **D16. COMMENCEMENT**

- D16.1 The Contractor shall not commence any Work until he/she is in receipt of an award letter from the Award Authority authorizing the commencement of the Work.
- D16.2 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 D10;
    - (ii) evidence of the workers compensation coverage specified in C6.15;
    - (iii) the Safe Work Plan specified in D11;
    - (iv) evidence of the insurance specified in D12;
    - (v) the contract security specified in D13; and
    - (vi) the Subcontractor list specified in D14.
  - (vii) the direct deposit application form specified in D26.1
  - (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.
- D16.3 Work on this project, with the exception of restorations (landscaping, topsoil, seed, sod, pavement restorations, and tree planting) is limited to the period between December 1 to March 15 of any given year, or as authorized by the Contract Administrator.

- D16.4 Further to D16.4, riprap to be installed below the average summer river level (as specified on the Drawings) shall be installed by March 11, 2022. Grouted riprap, and other site restoration Work above the average summer river level shall be completed prior to June 30, 2022.
- D16.5 Installation of the two (2) 350 watermain valves, (1) one air release valve, and verifying locations and elevations of underground infrastructure shall be the first items initiated as part of the Work.
- D16.3 Work and/or laydown of materials outside of the City owned right-of-ways and sewer easement extents shown shall not commence until the Contract Administrator provides in writing that the Private Property Authorization Agreement for such areas is in place.

#### **D17. SUBSTANTIAL PERFORMANCE**

- D17.1 The Contractor shall achieve Substantial Performance within forty (40) consecutive Working Days or by March 11, 2022, whichever comes first.
- D17.2 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.
- D17.3 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.

#### **D18. TOTAL PERFORMANCE**

- D18.1 The Contractor shall achieve Total Performance by June 30, 2022.
- D18.2 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.
- D18.3 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.

#### **D19. LIQUIDATED DAMAGES**

- D19.1 If the Contractor fails to achieve Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Working Day for each and every Working Day following the days fixed herein for same during which such failure continues:
- (a) Substantial Performance – one thousand eight hundred dollars (\$1800.00);
  - (b) Total Performance – eight hundred dollars (\$800.00).
- D19.2 The amounts specified for liquidated damages in D19.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve, Critical Stages, Substantial Performance or Total Performance by the days fixed herein for same.
- D19.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

## **D20. COVID-19 SCHEDULE DELAYS**

- D20.1 The City acknowledges that the schedule for this Contract may be impacted by the COVID-19 pandemic. Commencement and progress of the Work shall be performed by the Contractor with due consideration to the health and safety of workers and the public, directives from health authorities and various levels of government and in close consultation with the Contract Administrator.
- D20.2 If the Contractor is delayed in the performance of the Work by reason of the COVID-19 pandemic, the Work schedule may be adjusted by a period of time equal to the time lost due to such delay and costs related to such delay will be determined as identified herein.
- D20.3 A minimum of seven (7) Calendar Days prior to the commencement of Work, the Contractor shall declare whether COVID-19 will affect the start date. The Contractor shall provide sufficient evidence that the delay is directly related to COVID-19, including but not limited to evidence related to availability of staff, availability of Material or work by others.
- D20.4 For any delay related to COVID-19 and identified after Work has commenced, the Contractor shall within seven (7) Calendar Days of becoming aware of the anticipated delay declare the additional delay and shall provide sufficient evidence as indicated in D20.3. Failure to provide this notice will result in no additional time delays being considered by the City.
- D20.5 The Work schedule, including the durations identified in D17 to D18 where applicable, will be adjusted to reflect delays accepted by the Contract Administrator. No additional payment will be made for adjustment of schedules except where seasonal work, not previously identified in the Contract, is carried over to the following construction season.
- D20.6 Where Work not previously identified is being carried over solely as a result of delays related to COVID-19, as confirmed by the Contract Administrator, the cost of temporary works to maintain the Work in a safe manner until Work recommences, will be considered by the Contract Administrator. Where the Work is carried over only partially due to COVID-19, a partial consideration of the cost of temporary works will be considered by the Contract Administrator.
- D20.7 Any time or cost implications as a result of COVID-19 and in accordance with the above, as confirmed by the Contract Administrator, shall be documented in accordance with C7.

## **D21. SCHEDULED MAINTENANCE**

- D21.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:
- (a) Watering and maintenance of all new trees and vegetation until established as specified in E34;
  - (b) Acceptance of installed sod.
- D21.2 Determination of Substantial Performance and Total Performance shall be exclusive of scheduled maintenance identified herein. All scheduled maintenance shall be completed prior to the expiration of the warranty period. Where the scheduled maintenance cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the scheduled maintenance.

## **CONTROL OF WORK**

### **D22. JOB MEETINGS**

- D22.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need

to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.

D22.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

**D23. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)**

D23.1 Further to C6.26, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

**D24. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS**

D24.1 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**

**D25. PAYMENT**

D25.1 Further to C12, the City shall make payments to the Contractor's banking institution, and by no other means. Payments will not be made until the Contractor has made satisfactory direct deposit arrangements with the City. Direct deposit application forms are at [https://winnipeg.ca/finance/files/Direct\\_Deposit\\_Form.pdf](https://winnipeg.ca/finance/files/Direct_Deposit_Form.pdf).

**WARRANTY**

**D26. WARRANTY**

D26.1 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) 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.

D26.1.1 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.

D26.1.2 For the purpose of contract security, the warranty period shall be one (1) year.

**THIRD PARTY AGREEMENTS**

**D27. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS**

D27.1 In the event that funding for the Work of the Contract is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, the following terms and conditions shall apply, as required by the applicable funding agreements.

D27.2 Further to D27.1, in the event that the obligations in D27 apply, actual costs legitimately incurred by the Contractor as a direct result of these obligations ("Funding Costs") shall be determined by the actual cost to the Contractor and not by the valuation method(s) outlined in C7.4. In all other respects Funding Costs will be processed in accordance with Changes in Work under C7.

D27.3 For the purposes of D27:

- (a) **“Government of Canada”** includes the authorized officials, auditors, and representatives of the Government of Canada; and
- (b) **“Government of Manitoba”** includes the authorized officials, auditors, and representatives of the Government of Manitoba.

D27.4 Modified Insurance Requirements

D27.4.1 If not already required under the insurance requirements identified in D12, the Contractor will be required to provide wrap-up liability insurance in an amount of no less than two million dollars (\$2,000,000) inclusive per occurrence. Such policy will be written in the joint names of the City, Contractor, Consultants and all sub-contractors and sub-consultants and include twelve (12) months completed operations. The Government of Manitoba and its Ministers, officers, employees, and agents shall be added as additional insureds.

D27.4.2 If not already required under the insurance requirements identified in D12, the Contractor will be required to provide builders' risk insurance (including boiler and machinery insurance, as applicable) providing all risks coverage at full replacement cost, or such lower level of insurance that the City may identify on a case-by-case basis, such as an installation floater.

D27.4.3 The Contractor shall obtain and maintain third party liability insurance with minimum coverage of two million dollars (\$2,000,000.00) per occurrence on all licensed vehicles operated at the Site. In the event that this requirement conflicts with another licensed vehicle insurance requirement in this Contract, then the requirement that provides the higher level of insurance shall apply.

D27.4.4 Further to D12.3, insurers shall provide satisfactory Certificates of Insurance to the Government of Manitoba prior to commencement of Work as written evidence of the insurance required. The Certificates of Insurance must provide for a minimum of thirty (30) days' prior written notice to the Government of Manitoba in case of insurance cancellation.

D27.4.5 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.

D27.5 Indemnification By Contractor

D27.5.1 In addition to the indemnity obligations outlined in C17 of the General Conditions for Construction, the Contractor agrees to indemnify and save harmless the Government of Canada and the Government of Manitoba and each of their respective Ministers, officers, servants, employees, and agents from and against all claims and demands, losses, costs, damages, actions, suit or other proceedings brought or pursued in any manner in respect of any matter caused by the Contractor or arising from this Contract or the Work, or from the goods or services provided or required to be provided by the Contractor, except those resulting from the negligence of any of the Government of Canada's or the Government of Manitoba's Ministers, officers, servants, employees, or agents, as the case may be.

D27.6 Records Retention and Audits

D27.6.1 The Contractor shall maintain and preserve accurate and complete records in respect of this Contract and the Work, including all accounting records, financial documents, copies of contracts with other parties and other records relating to this Contract and the Work during the term of the Contract and for at least six (6) years after Total Performance. Those records bearing original signatures or professional seals or stamps must be preserved in paper form; other records may be retained in electronic form.

D27.6.2 In addition to the record keeping and inspection obligations outlined in C6 of the General Conditions for Construction, the Contractor shall keep available for inspection and audit at all reasonable times while this Contract is in effect and until at least six (6) years after Total Performance, all records, documents, and contracts referred to in D27.6.1 for inspection, copying and audit by the City of Winnipeg, the Government of Manitoba and/or the Government of Canada and their respective representatives and auditors, and to produce



them on demand; to provide reasonable facilities for such inspections, copying and audits, to provide copies of and extracts from such records, documents, or contracts upon request by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada and their respective representatives and auditors, and to promptly provide such other information and explanations as may be reasonably requested by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada from time-to-time.

#### D27.7 Other Obligations

- D27.7.1 The Contractor consents to the City providing a copy of the Contract Documents to the Government of Manitoba and/or the Government of Canada upon request from either entity.
- D27.7.2 If the Lobbyists Registration Act (Manitoba) applies to the Contractor, the Contractor represents and warrants that it has filed a return and is registered and in full compliance with the obligations of that Act, and covenants that it will continue to comply for the duration of this Contract.
- D27.7.3 The Contractor shall comply with all applicable legislation and standards, whether federal, provincial, or municipal, including (without limitation) labour, environmental, and human rights laws, in the course of providing the Work.
- D27.7.4 The Contractor shall properly account for the Work provided under this Contract and payment received in this respect, prepared in accordance with generally accepted accounting principles in effect in Canada, including those principles and standards approved or recommended from time-to-time by the Chartered Professional Accountants of Canada or the Public Sector Accounting Board, as applicable, applied on a consistent basis.
- D27.7.5 The Contractor represents and warrants that no current or former public servant or public office holder, to whom the Value and Ethics Code for the Public Sector, the Policy on Conflict of Interest and Post Employment, or the Conflict of Interest Act applies, shall derive direct benefit from this Contract, including any employment, payments, or gifts, unless the provision or receipt of such benefits is in compliance with such codes and the legislation.
- D27.7.6 The Contractor represents and warrants that no member of the House of Commons or of the Senate of Canada or of the Legislative Assembly of Manitoba is a shareholder, director or officer of the Contractor or of a Subcontractor, and that no such member is entitled to any benefits arising from this Contract or from a contract with the Contractor or a Subcontractor concerning the Work.

**FORM H1: PERFORMANCE BOND**  
(See D13)

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

TENDER NO. 723-2021

PORTAGE AVENUE INTERCEPTOR SIPHON REPLACEMENT AT OMAND'S CREEK

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

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

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

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

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

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

\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

**SIGNED AND SEALED**  
in the presence of:

\_\_\_\_\_  
(Witness as to Principal if no seal)

\_\_\_\_\_  
(Name of Principal)

Per: \_\_\_\_\_ (Seal)

Per: \_\_\_\_\_

\_\_\_\_\_  
(Name of Surety)

By: \_\_\_\_\_ (Seal)  
(Attorney-in-Fact)

**FORM H2: LABOUR AND MATERIAL PAYMENT BOND**  
(See D13)

KNOW ALL MEN BY THESE PRESENTS THAT

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

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

\_\_\_\_\_ dollars (\$\_\_\_\_\_)

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

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

TENDER NO. 723-2021

PORTAGE AVENUE INTERCEPTOR SIPHON REPLACEMENT AT OMAND'S CREEK

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

NOW THEREFORE the condition of the above obligation is such that if the Principal shall promptly make payment to all claimants as hereinafter defined, for all labour, service and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void, otherwise it shall remain in full force and effect subject, however, to the following conditions:

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

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

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

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

\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_ .

SIGNED AND SEALED  
in the presence of:

\_\_\_\_\_  
(Witness as to Principal if no seal)

\_\_\_\_\_  
(Name of Principal)

Per: \_\_\_\_\_ (Seal)

Per: \_\_\_\_\_

\_\_\_\_\_  
(Name of Surety)

By: \_\_\_\_\_ (Seal)  
(Attorney-in-Fact)



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

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
13024	Cover Sheet
13025	Index Page
13026	Portage Avenue at Omand's Creek – Plan and Profile – S-MA70031433
13027	Temporary By-Pass Pumping – Plan and Details
13028	Miscellaneous Details – Sheet 1
13029	Miscellaneous Details – Sheet 2

#### E2. SOILS INVESTIGATION REPORT

- E2.1 Further to C3.1,
- Historic geotechnical data for the site is provided in Appendix B. The information listed is considered accurate at the locations indicated and at the time of the investigation. However, considerable variations in the soil conditions may exist between test holes and fluctuations in ground water levels can be expected seasonally. Test hole logs are included in the historic geotechnical report.
  - Contractors are responsible for any interpretation they place on the supplied information and are expected to make such additional investigation of the soil at Site as they feel necessary to satisfy themselves.
  - Any test borings made by the Contractor shall be done in accordance with the requirements of the appropriate authority of the City of Winnipeg. The Contractor shall notify the Contract Administrator prior to starting any soil boring operation.

## **GENERAL REQUIREMENTS**

### **E3. OFFICE FACILITIES**

- E3.1 Contractor shall supply one (1) office facility to be located on Site for use by the Contract Administrator.
- E3.2 The Contractor shall supply office facilities meeting the following requirements:
- (a) To reduce the risk of spread of Covid-19, the field office shall be for the exclusive use of the Contract Administrator and City staff. The site office may be used for site meetings and shall be wide and large enough to accommodate up to 8 people while allowing for 2 meter physical distancing to be maintained at all times.
  - (b) The building shall be equipped with appropriate cleaning products, including hand sanitizer.
  - (c) The building shall be conveniently located near the active Work Site.
  - (d) The building shall have a minimum floor area of 25 square metres, two windows and a door entrance with a suitable lock.
  - (e) 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 16-25 °C.
  - (f) The building shall be adequately lighted with fluorescent fixtures and have a minimum of three wall outlets.
  - (g) The building shall be furnished with two desks, table 3m x 1.2m, one two drawer legal size filing cabinet, and a minimum of 8 chairs.
  - (h) A separate portable toilet shall be located near the field office building and shall be for the exclusive use of the Contract Administrator. The toilet shall have a locking door and equipped with hand sanitizer at all times.
  - (i) The field office building and the portable toilet shall be cleaned regularly and at minimum on a weekly basis immediately prior to each Site meeting. The Contract Administrator may request additional cleaning when the Contract Administrator deems it necessary.

### **E4. TRUCK WEIGHT LIMITS**

- E4.1 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.

### **E5. DANGEROUS WORK CONDITIONS**

- E5.1 Further to clause C 6.24 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.
- E5.2 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.
- E5.3 Further to E5.2, the Contractor shall be aware that other hazardous items and materials, such as needles, have been observed at the project site and inside some of the manholes. Caution shall be taken and appropriate PPE shall be used and worn by Workers to protect themselves from any potential hazardous items and substances as required. Any hazardous items encountered on site or within manholes shall be disposed of appropriately.



- E5.4 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.
- E5.5 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.
- E5.6 Workers must always wear a respirator or supplied air when entering a chamber, manhole or sewer where live sewage is present.
- E5.7 The Contractor shall always have a photoionization detector (PID) on Site to monitor potential hydrocarbon vapours in the confined spaces. The gas detector and safety equipment conforming to the Act shall be made available to the Contract Administrator for his/her use during inspections. In addition, the Contract Administrator shall collect discrete air samples for laboratory analysis.
- E5.8 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 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.

## **E6. WATERWAY BY-LAW AND PERMITS**

- E6.1 The Contractor shall note that all Works fall within 76.2 (250 feet) of Omand's Creek and are within the jurisdiction of the Waterway By-law. The Contract Administrator will apply and arrange for payment by the City for the required Waterway Permits for the permanent Work. The Contractor shall adhere to restrictions imposed by the permit.
- E6.2 The Contractor shall be responsible to apply and pay for Waterway Permits for all temporary Works, including construction of temporary access ramps as outlined in E11.
- E6.3 Under no circumstances will stockpiling of any material be permitted within 76.2 m (250 feet) of the regulated summer water level of Omand's Creek.

## **E7. ENVIRONMENTAL PROTECTION PLAN**

- E7.1 The Contractor shall plan and implement the Work of this Contract strictly in accordance with the requirements of the Environmental Protection Plan as herein specified.
- E7.2 The Contractor is advised that at least the following Acts, Regulations, and By-laws apply to the Work and are available for viewing at the office of the Contract Administrator.
- (a) Federal
    - (i) Canadian Environmental Assessment Act (CEAA) c.37
    - (ii) Transportation of Dangerous Goods Act and Regulations c.34
    - (iii) The Fisheries Act
    - (iv) Navigable Waters Protection Act
  - (b) Provincial
    - (i) The Dangerous Goods Handling and Transportation Act D12
    - (ii) The Endangered Species Act E111
    - (iii) The Environment Act c.E125
    - (iv) The Fire Prevention Act F80

- (v) The Manitoba Heritage Resources Act H39.1
  - (vi) The Manitoba Noxious Weeds Act N110
  - (vii) The Manitoba Nuisance Act N120
  - (viii) The Public Health Act c.P210
  - (ix) The Workplace Safety and Health Act W210
  - (x) And current applicable associated regulations.  
(Note: Provincial regulations updated as of September 1999)
- (c) Municipal
- (i) The City of Winnipeg By-law No. 1/2008
  - (ii) And any other applicable Acts, Regulations, and By-Laws.

E7.3 The Contractor is advised that the following environmental protection measures apply to the Work.

- (a) Materials Handling and Storage
- (i) Construction materials shall not be deposited or stored on riverbanks or river shorelines unless written acceptance from the Contract Administrator is received in advance.
  - (ii) Construction materials and debris shall be prevented from entering Omand's Creek. In the event that materials and/or debris inadvertently enter the watercourse, the Contractor shall be required to remove the material and restore the watercourse to its original condition.
- (b) Fuel Handling and Storage
- (i) The Contractor shall obtain all necessary permits from Manitoba Conservation for the handling and storage of fuel products and shall provide copies to the Contract Administrator.
  - (ii) All fuel handling and storage facilities shall comply with The Dangerous Goods and Transportation Act Storage and Handling of Petroleum Products Regulation and any local land use permits.
  - (iii) Fuels, lubricants, and other potentially hazardous materials as defined in The Dangerous Goods and Transportation Act shall be stored and handled within the approved storage areas.
  - (iv) In accordance with Section 2.5 (Construction: General Guidelines) of the Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat, (DFO and DNR, 1996), the Contractor shall ensure that any temporary fuel storage areas established for construction of the project are contained by an impermeable dike and are located a minimum distance of 100 metres away from the high water line Omand's Creek. Dikes shall be designed, constructed, and maintained to retain not less than 100% of the capacity of the total number of containers or 110% of the largest container, whichever is greatest. The dikes shall be constructed of clay or similar impervious material. If this type of material is not available, the dike shall be constructed of locally available material and lined with high density polyethylene (HDPE). Furthermore, the fuel storage area(s) shall be secured by a barrier such as a high fence and gate to prevent vandalism.
  - (v) The Contractor shall ensure that all fuel storage containers are inspected daily for leaks and spillage.
  - (vi) Products transferred from the fuel storage area(s) to specific Work Sites shall not exceed the daily usage requirement.
  - (vii) When servicing requires the drainage or pumping of fuels, lubricating oils or other fluids from equipment, a groundsheet of suitable material (such as HDPE) and size shall be spread on the ground to catch the fluid in the event of a leak or spill.
  - (viii) Refuelling of mobile equipment and vehicles shall take place at least 100 metres from a watercourse.

- (ix) The area around storage Sites and fuel lines shall be distinctly marked and kept clear of snow and debris to allow for routine inspection and leak detection.
  - (x) A sufficient supply of materials, such as absorbent material and plastic oil booms, to clean up minor spills shall be stored nearby on-site. The Contractor shall ensure that additional material can be made available on short notice.
- (c) Waste Handling and Disposal
- (i) The construction area shall be kept clean and orderly at all times during and at completion of construction.
  - (ii) At no time during construction shall personal or construction waste be permitted to accumulate for more than one day at any location on the construction Site, other than at a dedicated storage area as may be approved by the Contract Administrator.
  - (iii) All resulting debris shall be deposited at a Waste Disposal Ground operating under the authority of Manitoba Regulation #150/91. Exceptions are liquid industrial and hazardous wastes which may require special disposal methods (see SC:21.4 D).
  - (iv) Indiscriminate dumping, littering, or abandonment shall not take place.
  - (v) No on-site burning of waste is permitted.
  - (vi) Waste storage areas shall not be located so as to block natural drainage.
  - (vii) Run-off from a waste storage area shall not be allowed to cause siltation of a watercourse.
  - (viii) Waste storage areas shall be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.
  - (ix) Equipment shall not be cleaned near watercourses; contaminated water from onshore cleaning operations shall not be permitted to enter watercourses.
- (d) Dangerous Goods/Hazardous Waste Handling and Disposal
- (i) Dangerous goods/hazardous wastes are identified by, and shall be handled according to, The Dangerous Goods Handling and Transportation Act and Regulations.
  - (ii) The Contractor shall be familiar with The Dangerous Goods Handling and Transportation Act and Regulations.
  - (iii) The Contractor shall have on-site staff that is trained and certified in the handling of the dangerous/hazardous goods, when said dangerous/hazardous goods are being utilized on-site for the performance of the Work.
  - (iv) Different waste streams shall not be mixed.
  - (v) Disposal of dangerous goods/hazardous wastes shall be at approved hazardous waste facilities.
  - (vi) Liquid hydrocarbons shall not be stored or disposed of in earthen pits on-site.
  - (vii) Used oils shall be stored in appropriate drums, or tankage until shipment to waste oil recycling centres, incinerators, or secure disposal facilities approved for such wastes.
  - (viii) Used oil filters shall be drained, placed in suitable storage containers, and buried or incinerated at approved hazardous waste treatment and disposal facilities.
  - (ix) Dangerous goods/hazardous waste storage areas shall be located at least 100 metres away from the high water line and be dyked.
  - (x) Dangerous goods/hazardous waste storage areas shall not be located so as to block natural drainage.
  - (xi) Run-off from a dangerous goods/hazardous waste storage area shall not be allowed to cause siltation of a watercourse.
  - (xii) Dangerous goods/hazardous waste storage areas shall be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.
- (e) Emergency Response

- (i) The Contractor shall ensure that due care and caution is taken to prevent spills.
- (ii) The Contractor shall report all major spills of petroleum products or other hazardous substances with significant impact on the environment and threat to human health and safety (as defined in Table 1 below) to Sustainable Development, immediately after occurrence of the environmental accident, by calling the 24-hour emergency phone number (204) 945-4888. The Contract Administrator shall also be notified.
- (iii) The Contractor shall designate a qualified supervisor as the on-site emergency response co-ordinator for the project. The emergency response co-ordinator shall have the authority to redirect manpower in order to respond in the event of a spill.
- (iv) The following actions shall be taken by the person in charge of the spilled material or the first person(s) arriving at the scene of a hazardous material accident or the on-site emergency response co-ordinator:
  - (i) Notify emergency-response co-ordinator of the accident:
    - ◆ identify exact location and time of accident
    - ◆ indicate injuries, if any
    - ◆ request assistance as required by magnitude of accident (Sustainable Development 24-hour Spill Response Line (204) 945-4888, Police, Fire Department, Ambulance, company backup)
  - (ii) Attend to public safety:
    - ◆ stop traffic, roadblock/cordon off the immediate danger area
    - ◆ eliminate ignition sources
    - ◆ initiate evacuation procedures if necessary
  - (iii) Assess situation and gather information on the status of the situation, noting:
    - ◆ personnel on-site
    - ◆ cause and effect of spill
    - ◆ estimated extent of damage
    - ◆ amount and type of material involved
    - ◆ proximity to waterways, sewers, and manholes
  - (iv) If safe to do so, try to stop the dispersion or flow of spill material:
    - ◆ approach from upwind
    - ◆ stop or reduce leak if safe to do so
    - ◆ dike spill material with dry, inert sorbet material or dry clay soil or sand
    - ◆ prevent spill material from entering waterways and utilities by diking
    - ◆ prevent spill material from entering manholes and other openings by covering with rubber spill mats or diking. Resume any effective action to contain, clean up, or stop the flow of the spilled product.
- (v) The emergency response co-ordinator shall ensure that all environmental accidents involving contaminants shall be documented and reported to Sustainable Development according to The Dangerous Goods Handling and Transportation Act Environmental Accident Report Regulation 439/87.
- (vi) When dangerous goods are used on-site, materials for containment and cleanup of spill material (e.g. absorbent materials, plastic oil booms, and oversized recovery drums) shall be available on-site.
- (vii) Minor spills of such substances that may be contained on land with no significant impact on the environment may be responded to with in-house resources without formal notification to Manitoba Environment.
- (viii) City emergency response, 9-1-1, shall be used if other means are not available.
- (ix) The on-site emergency response coordinator shall contact The Canadian Coast Guard, Selkirk (204) 785-6030, if the spill material reaches and is on or in the Red or Assiniboine Rivers, or Sturgeon Creek.

**Table 1 Spills that must be reported to the Manitoba Conservation as Environmental Accidents**

<u>Classification</u>	<u>Hazard</u>	<u>Reportable Quantity/Level</u>
1	Explosives	All
2.1	Compressed Gas (flammable)	100 L*
2.2	Compressed Gas	100 L*
2.3	Compressed Gas (toxic)	All
2.4	Compressed Gas (corrosive)	All
3	Flammable Liquids	100 L
4	Flammable Solids	1 kg
5.1	PG** I & II	Oxidizer 1 kg or 1 L
	PG III	Oxidizer 50 kg or 50 L
5.2	Organic Peroxide	1 kg or 1 L
6.1	PG I	Acute Toxic 1 kg or 1 L
	PG II & III	Acute Toxic 5 kg or 5 L
6.2	Infectious	All
7	Radioactive	Any discharge or radiation level exceeding 10 mSv/h at the package surface and 200 uSv/h at 1 m from the package surface
8	Corrosive	5 kg or 5 L
9.1	Miscellaneous	50 kg (except PCB mixtures)
9.1	PCB Mixtures	500 g
9.2	Aquatic Toxic	1 kg or 1 L
9.3	Wastes (Chronic Toxic)	5 kg or 5 L

\* Container capacity (refers to container water capacity)

\*\* PG = Packing Group(s)

(f) Vegetation

- (i) Vegetation shall not be disturbed without written permission of the Contract Administrator. The Contractor shall protect plants or trees which may be at risk of accidental damage. Such measures may include protective fencing or signage and shall be approved in advance by the Contractor Administrator.
- (ii) Trees damaged during construction activities shall be examined by bonded tree care professionals; viable trees damaged during construction activities shall be pruned according to good practise by bonded tree care professionals. Damaged trees which are not viable shall be replaced at the expense of the Contractor.
- (iii) Trees identified to be at risk by the Contract Administrator are to be strapped with 25 x 150 x 2400 millimetre wood planks, or suitably protected as approved by the Contract Administrator.
- (iv) Herbicides and pesticides shall not be used adjacent to any surface watercourses.
- (v) All landowners adjacent to the area of application of herbicides or pesticides shall be notified prior to the Work.
- (vi) Trees or shrubs shall not be felled into watercourses.
- (vii) Areas where vegetation is removed during clearing, construction, and decommissioning activities, shall be revegetated as soon as possible in accordance

with the landscaping plans forming part of the contract, or as directed by the Contract Administrator.

## **E8. SHOP DRAWINGS**

### **E8.1 Description**

- (a) This Specification shall revise, amend and supplement the requirements of CW 1110.
  - (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 shown on all submissions for Engineering review.
  - (iii) Provision of Shop Drawings will be considered incidental to the price for supply and delivery of equipment and materials.
- (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
  - (ii) Shop drawings for the following structural components shall bear the seal of a registered Engineer in the Province of Manitoba.
    - ◆ Reinforcing steel.
    - ◆ Metal Fabrications.
- (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:
    - ◆ Field Measurements
    - ◆ Field Construction Criteria
    - ◆ 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 Contract Administrator gives written acceptance of specified deviations.
  - (vi) Responsibility for errors and omissions in submission is not relieved by Contract Administrator's review of submittals.
  - (vii) The Contractor shall make any corrections required by the Contract Administrator and shall resubmit the Shop Drawings. The Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections requested by the Contract Administrator on previous submission.
  - (viii) After Contract Administrator's review and return of copies, distribute copies to subtrades as appropriate.
  - (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 14 Calendar Days before dates reviewed submissions will be needed, and allow for a 10 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 one original print and one digital PDF copy of shop drawings. The Contractor is advised that the Contract Administrator will retain the original copy and return one digital PDF copy to the Contractor
- (iii) Accompany submissions with transmittal letter, containing:
  - ◆ Date
  - ◆ Project title and Bid Opportunity/Tender number
  - ◆ Contractor's name and address
  - ◆ Number of each shop drawing, product data and sample submitted
  - ◆ Specification Section, Title, Number and Clause
  - ◆ Drawing Number and Detail/Section Number
  - ◆ Other pertinent data
- (iv) Submissions shall include:
  - (a) Date and revision dates.
  - (b) Project title and Bid Opportunity/Tender number.
  - (c) Name of:
    - (a) Contractor
    - (b) Subcontractor
    - (c) Supplier
    - (d) Manufacturer
    - (e) Separate detailer when pertinent
  - (d) Identification of product of material.
  - (e) Relation to adjacent structure or materials.
  - (f) Field dimensions, clearly identified as such.
  - (g) Specification section name, number and clause number or drawing number and detail/section number.
  - (h) Applicable standards, such as CSA or CGSB numbers.
  - (i) Contractor's stamp, initialed 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 for the purposes of progress payment certificates.
  - (iv) No delay or cost claims will be allowed that arise because of delays in submissions, re-submissions and review of shop drawings.

## **E9. WORK PRACTICES ON ASBESTOS CEMENT PIPE**

E9.1 Further to BC.6.28(d) the Contractor's attention is directed to the possible health dangers associated with working with asbestos-cement pipe and all work associated with existing asbestos cement pipe shall conform to the following publications:

E9.1.1 "Guidelines for Working with Asbestos" by Manitoba Department of Labour and Immigration, Workplace Health and Safety Branch.  
<http://www.gov.mb.ca/labour/safety/publication.html>

- E9.1.2 “Work practices for Asbestos –Cement Pipe”, AWWA No. M16, published by American Water Works Association. <http://www.awwa.org/>.
- E9.1.3 Recommended Work Practices for AC Pipe, 1977, published by the AC Pipe producers Association.

## **E10. CHANNEL PROTECTION**

- E10.1 The ice surface and riverbank channel shall be cleared of construction materials prior to ice break-up. The Contractor shall clean up all materials, including but not limited to: soil, snow fence, construction debris, etc. from this construction activity. All items that will have an adverse impact on the channel shall be removed. Channel Protection shall be considered incidental to the Works of this Contract and no measurement or payment will be made for this item.

## **E11. SITE DEVELOPMENT AND RESTORATION**

### **E11.1 Description**

- E11.1.1 This Specification shall cover all aspects of the Site Development and Restoration Work, including but not limited to mobilization and demobilization, heating, hoarding, thawing sewer and water pipes and/or temporary by pass lines as required, erection, maintenance and removal of fencing, removal and replacement of concrete jersey road barriers, swamp mats and/or other materials as required for access, traffic and pedestrian control and signage, sediment control Works, snow clearing, temporary cofferdams, protection and pruning of existing trees as required, removal of fallen trees and debris, removal and reinstallation of any existing site furniture, office facilities, general access development, access maintenance and removal (including permits required for temporary access works), pedestrian sidewalks and/or pathway maintenance and removal as required, and Site Restoration.
- E11.1.2 The Tender quantities for each Site listed on Form B: Prices include an estimated quantity of Topsoil, Seeding, and Sodding based on pipe trench installation Works. 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.
- E11.1.3 Additional Site specific works included within this specification are the:
- (a) Temporary removal, relocating, and replacing existing fencing, temporary structures, and other obstructions within easement right-of-ways or as required for site access to complete the Work.
  - (b) Heating/hoarding, thawing of sewer and water pipes and/or temporary by pass pumping lines as required to complete the Work.
  - (c) Works and permits associated with temporarily supporting, raising and/or relocating overhead power lines and/or light standards as required to facilitate the Works. Contact the local Manitoba Hydro Office to arrange for Manitoba Hydro Staff to lift power lines, temporarily support utilities, and/or relocate utilities as required. Only Manitoba Hydro staff will be permitted to lift power lines.

### **E11.2 Materials**

#### **E11.2.1 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.

### **E11.3 Construction Methods**

#### **E11.3.1 Site and Construction Access**



- (a) 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 areas to their pre-existing condition. Prior to commencing construction, the Contractor shall submit their site access plan to the Contract Administrator for review and approval.
- (b) All construction access ramps from the top bank area down to the edge of the creek shall be constructed by excavating to the necessary ramp grade and disposing of the material off Site. Under no circumstances will the excavated material or any additional materials be placed as fill in the ramp area. Detailed construction access ramp drawings are to be submitted to the Contract Administrator for approval a minimum of seven (7) days prior to any construction activity on Site. Where access ramps cross over existing pipe alignments and/or where equipment is required to cross over existing pipe alignments, pipe loading calculations (as required) shall be the responsibility of the Contractor.
- (c) The Contractor is responsible for obtaining and paying for all required permits and permissions that are necessary for Site access, including a Waterways Access Permit, if required by the City of Winnipeg. Contact the Riverbank Management Contract Administrator at 204-986-5159 for information regarding Waterways Permits.
- (d) The locations of the Contractor's construction access ramps shall be restored to the same condition or better than it was prior to the initiation of any Work.

#### E11.3.2 Frozen Waterways Permit

- (a) The Contractor is responsible for obtaining a Frozen Waterway Permit for permission to Work on the river ice. Contact the City of Winnipeg Zoning and Permits Office for information regarding Frozen Waterways Permits.

#### E11.3.3 Diversion of Flows

- (a) Flows such as snowmelt, rainfall, a water main break, or any other flow traveling through the Site shall be diverted during construction as required. The cost of the flow diversion associated with snowmelt, rainfall, and/or water main breaks is considered incidental to Site Development and Restoration.
- (b) Temporary wastewater by-pass pumping as required to facilitate the new siphon installation is not included under this specification and shall be measured and paid separately in accordance with E15.

#### E11.3.4 Temporary Cofferd Dam

- (a) The Contractor shall erect a temporary cofferdam to provide a safe environment to carry out the Work associated with this project if required. Cofferdam designs shall be submitted to the Contract Administrator for approval before construction. Where clay material is used, clay shall consist of a high plasticity with a liquid limit in excess of 50%. The clay shall be free of deleterious material such as roots, organic material, ice, snow or other unsuitable materials, and may be salvaged from the on-site excavation, as approved by the Contract Administrator. Frozen material will not be accepted. Material for the cofferdam shall be inspected and approved by the Contract Administrator before construction. Cofferdam materials shall be completely removed following construction.

#### E11.3.5 Vegetation Removal

- (a) 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.

#### E11.3.6 Snow and Ice Removal

- (a) Snow cover shall be cleared from the riverbank and hauled off-site prior to placement of rockfill riprap. The methodology to clear the snow shall be subject to the approval of the Contract Administrator.
- (b) Ice at the shoreline of the creek shall be broken and cleared before the placement of riprap below ice level. Care shall be taken to ensure that the ice is removed, and does not become trapped below rockfill riprap placement.

#### E11.3.7 Safety Fence

- (a) The Contractor shall erect and maintain for the duration of the project a safety fence, acceptable to the Contract Administrator, to restrict access to the Site. The fencing shall enclose the entire Site with appropriate gates or openings that are closed at the end of each Work day. Appropriate signs shall be erected to warn all recreational users of the creek of the construction site and that potential open water hazards exist. This shall include but not be limited to snowmobilers and skiers. The installed fencing shall consist of Dupont Number L70 orange plastic safety fence or approved equal in accordance with B7, with a mesh spacing of 45 mm, constructed as shown in the contract drawings. Upon completion of the Work, the fence shall be removed and disposed of off Site.

#### E11.3.8 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 commencement of Work on-site, a detailed plan for sediment control on this project.
- (d) The Contractor shall ensure that sufficient supplies of suitable spill kits are 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

#### E11.3.9 General Site Cleanup and Restoration

- (a) 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, the removal of the Contract Administrator Site trailer, and removal of all temporary fencing.

#### E11.4 Method of Measurement and Payment

##### Site Development and Restoration

- (a) The Site development and restoration will be measured and paid for at the Contract Lump Sum Price for "Site Development and Restoration", which price 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.
- (b) 50% of the Site Development and Restoration unit price will be paid on the first progress payment following commencement of the work on the specific Site being developed.
- (c) The remaining 50% of the Site Development and Restoration unit price will be paid subsequent to the completion of the Work and restoration and clean-up of the Site

#### E11.4.2 Topsoil and Sod

- (a) Further to E11.1.2 where topsoil and sodding is required to restore the project site and laydown areas to preconstruction conditions it shall be considered incidental to Site

Development and Restoration. No separate payment shall be made for topsoil and sod in these areas.

## **E12. TREE REMOVAL**

### **E12.1 Description**

E12.1.1 This specification shall cover the removal of existing trees.

E12.1.2 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 and incidental to the satisfactory performance and completion of all Work as hereinafter specified.

### **E12.2 Materials**

E12.2.1 The existing trees to be removed include, but not limited to ash, elm, cottonwood, basswood, oak, pine, maple, spruce, etc., all of which may be cut with standard chain saw equipment. The existing trees range from 50 mm to 1,000 mm diameter.

### **E12.3 Construction Methods**

E12.3.1 Prior to commencement of the Work the Contract Administrator shall identify all trees for removal. The Contractor shall cut down only trees designated to be removed, and grub out all stumps and roots greater than 100 mm diameter. In general, the Contractor shall start at the top of the tree and remove branches or trunks not longer than 2 m. Trees are to be felled so as to land within the limits of the Works. The Contractor shall load and haul all trees, stumps, roots, logs, brush, rubbish and all other surface litter from the Site and dispose of these materials at an approved disposal Site, acceptable to the Contract Administrator.

E12.3.2 The Contractor shall take all precautions to prevent damage to structures, adjacent property 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.

E12.3.3 Any trees damaged during construction activities shall be examined by a bonded tree care professional and pruned as required. Damaged trees which are not viable shall be replaced by the Contractor at his own cost.

### **E12.4 Measurement and Payment**

E12.4.1 The removal of existing trees shall be measured on a per tree basis and paid for at the Contract Unit Price per unit for the "Items of Work" listed below. The amount to be paid shall be the total number of trees removed in accordance with this specification, accepted and measured by the Contract Administrator.

Items of Work: Tree Removal

i. 50 mm to 249 mm Diameter

ii. 250 mm to 500 mm Diameter

iii. Greater than 500 mm Diameter

E12.4.2 The removal of trees and brush less than 50 mm diameter is considered incidental to the Work and no separate measurement or payment will be made.

## **E13. PROTECTION OF EXISTING TREES**

E13.1 Removal of some trees will be required. The Contract Administrator will identify which trees will be removed. The Contractor shall take the following precautionary steps to avoid damage from

construction activities to any existing trees not marked for removal within the limits of the construction area.

- E13.1.1 Do not stockpile materials and soil or park vehicles and equipment within 2 metres of trees.
- E13.1.2 Strap mature tree trunks with 25 x 150 x 2400 wood planks. Smaller trees shall be similarly protected using appropriately sized wood planks.
- E13.1.3 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 and coated with an appropriate wound dressing to prevent infection.
- E13.1.4 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.
- E13.1.5 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.
- E13.2 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, Forestry Branch at the Contractor's expense.
- E13.3 Costs for protection of trees shall be considered incidental to Site Development and Restoration. No separate measurement or payment will be made.

#### **E14. PEDESTRIAN SAFETY**

- E14.1 The Contractor shall be responsible for the development and maintenance of alternate temporary pathways during the project as directed by and to the satisfaction of the Contract Administrator.
  - (a) A proposed pedestrian re-routing plan is provided in Appendix C and is intended to provide the Contractor reference to the existing pathways in the area, however the Contractor shall be responsible for development and maintenance of pedestrian re-routing as required to ensure the safety and security of the Work Site.
- E14.2 General Requirements
  - (a) The Contractor shall provide appropriate warning signage, custom signage indicating upcoming sidewalk and/or pathway closures, custom signage indicating detours, temporary curb ramps (if required), and traffic control at all pedestrian crossings that are consistent with the requirements of the City of Winnipeg *Manual of Temporary Traffic Control on City Streets*.
  - (b) Should alternate pathways be provided, the minimum temporary pathway construction shall include:
    - (i) 50 mm Compacted Class A Base Course on Separation Geotextile
    - (ii) 2 m clear width
    - (iii) Accessible ramps at curb faces and other vertical obstacles
    - (iv) Signage installed every 50 m along and leading up to any temporary pathway and/or re-routing detours to ensure that appropriate wayfinding exists. Erect signage at all potential temporary pathway access points that explain the temporary detours.
  - (c) The contractor shall be responsible to maintain the temporary pedestrian diversion corridor daily. This shall include but not be limited to providing snow clearing and laying down traction gravel. The Contractor shall prioritize inspecting the temporary pedestrian corridor in the morning and implementing any necessary maintenance works daily. If at the discretion of the Contract Administrator, any element of the temporary pedestrian corridor

requires maintenance, the Contractor shall immediately implement the necessary maintenance works to the satisfaction of the Contract Administrator.

- (d) The removal of temporary pathways is considered incidental to the Work.

#### E14.3 Measurement and Payment

- (a) The supply, placement, and removal of temporary pathways shall be considered incidental to the Work. No separate measurement or payment will be made.

### SEWER WORK

#### E15. WASTEWATER TEMPORARY BY-PASS PUMPING

##### E15.1 Description

E15.1.1 This section specifies the requirements for the temporary by-pass pumping of wastewater flows during the siphon replacement Works.

E15.1.2 Sewers can receive flow of an undetermined amount from watermain breaks, snow melt, rain, and other unforeseen sources. The Contractor will be responsible to monitor the flow in the sewer and adjust work activities accordingly, such as putting the spare standby by-pass pump into operation to handle any excessive flows due to unforeseen flow above the amount identified for PDWF.

##### E15.2 Materials

E15.2.1 Provide a complete fully automatic pumping system that includes a minimum of two submersible pumps, each with a capacity equal to or greater than the listed PDWF. Expected PDWF is 170 L/s. Both pumps are to be installed, always connected to power and discharge piping and be available for operation. A replacement pump of equal capacity shall be immediately provided if one of the two original pumps must be removed from the site for repairs.

##### E15.2.2 Temporary By-Pass Pumping Equipment

- (a) Non-clog, submersible pumping units, each sized to meet or exceed the required capacity. Complete with all required piping, fittings, floats, alarms, back-up generator, pump controls and related appurtenances suitable for temporary installation in a Lift Station.
- (b) Duty Pump to provide 170 L/s.
- (c) Stand-by pump to provide 170 L/s.
- (d) Pumps to operate in lead-lag configuration.
- (e) Provide model and capacity cures to the Contract Administrator for approval.
- (f) Power supply to be suitably sized for pumping equipment complete with all required controls. Fuel to be in lockable, tamperproof container, approved by the Contract Administrator.

##### E15.2.3 Manhole B (New)

- (a) Should the Contractor choose to install intake lines within Manhole B for the permanent by-pass pumping throughout the project, Manhole B may be installed with an additional 1.0 vertical meter sump. 1.0 m vertical meter sump shall be filled in with concrete following completion of the project to match sewer invert elevation.
- (b) Further to E15.2.3(a), should the Contractor choose to install intake lines within Manhole B for the permanent by-pass pumping throughout the project, Manhole B shall be modified so as to allow for the installation of two intake lines (ie. 1500 mm barrel height extended as required to suit the Contractor's means and methods).

##### E15.2.4 Fittings and Appurtenances

- (a) Fittings, coupling and appurtenances to be used for repairs to existing sewers to be approved products for underground use in the City of Winnipeg.

E15.2.5 A combination of smaller sized pumps may be used concurrently if the total discharge flow of the pumps meets the PDWF volumes identified providing replacement pumps are available on-site to maintain the PDWF volume.

E15.2.6 Surface mount, vertical lift suction pumps are not acceptable.

E15.2.7 Inflatable Rubber Sewer Plugs

- (a) Made of rubber, capable of remaining in place when inflated to the pressure required to withstand the expected sewer levels.
- (b) Provided with an inflation/deflation hose, monitoring pressure valve, removal rope or cable and safety chain, all of sufficient length to reach ground elevations for monitoring and removal.

E15.3 Construction Methods

E15.3.1 General

- (a) Provide a 24-hour contact person who can address any issues with the temporary by-pass pumping system.
- (b) Discharge overflow to the street or creek is not allowed, and shall be controlled to show no overflows during by-pass pumping.
- (c) Manhole A Maximum Permissible Liquid Level Elevation is 229.780 m. Manhole B Maximum Permissible Liquid Level Elevation is 228.650 m.
- (d) Should the Contractor choose to install intake lines at Manhole B for the permanent by-pass pumping throughout the project, temporary by-pass to facilitate the manhole installation would be required and the responsibility of the Contractor.
- (e) On a rise in the manhole water level to a predetermined point, the temporary pumping system shall come on automatically. Maintain the level of sewage in the existing sewer 300mm below the Maximum Permissible Liquid Level Elevations specified on the Drawings.
- (f) The downstream flows of the temporary pumping system can be installed at the following locations shown on the Drawings: Manhole "D" (New), Manhole "E" (Existing). The Contractor shall select the appropriate downstream location based on their construction means, methods, and schedule.
- (g) Temporary pumping equipment and materials shall remain on-site until construction is completed as described in these Specifications and to the satisfaction of the Contract Administrator.
- (h) Provide a temporary by-pass flow control plan to the Contract Administrator for review and approval prior to starting construction. It shall provide detailed information for pumping equipment to be used including pump capacity and dimensions, depth of submergence, pump controls and installation details. Also include discharge piping details, arrangements to protect manhole openings required to run piping and power to the pumps and power supply details.
- (i) Provide suitable traffic ramps approved by the Contract Administrator if the by-pass pumping discharge pipe and power supply cables are laid across vehicle or pedestrian traffic areas on the Site.
- (j) Cooperation and coordination will always be required with the City to allow full access to the sewer to carry out maintenance and operational duties.
- (k) If wastewater gate operations are required, they shall only be operated by the City.

E15.3.2 Inflatable Sewer Plugs or Weirs

- (a) Only inflatable rubber sewer plugs or weir structures shall be used to plug sewers.

- (b) Clean sewer pipe as required to properly install inflatable sewer plug(s) in accordance with the manufacturer's instructions.
- (c) Secure inflatable sewer plugs at or near the ground surface.
- (d) Continuously monitor air pressure while sewer plug is in place and have proper inflation equipment available at all times.

#### E15.3.3 Temporary By-Pass Pumping

- (a) Provide a check valve on the by-pass pumping discharge pipe to prevent cycling.
- (b) Power supply for the pumps is the responsibility of the Contractor and must be suitably sized for pumping equipment complete with all required automatic controls. Should the pump(s) not perform, an alarm shall be raised to the Contractor's representative and the standby pump shall be used.
- (c) Monitor the upstream system at all times to ensure the stored level of wastewater does not exceed the Maximum Permissible Liquid Level elevation(s) identified.
- (d) Provide an alarm when the water level rises to 150 mm above pump start elevation. Send this alarm via cell phone to the Contractor's 24 hour emergency contact.
- (e) The Contractor shall ensure temporary by-pass pumping equipment and materials will be properly insulated and heated, as required, to be protected from freezing and to maintain proper functioning during cold weather.

#### E15.4 Measurement and Payment

E15.4.1 Wastewater Temporary By-Pass Pumping will be paid for at the Contract Lump Sum Price for "Wastewater Temporary By-Pass Pumping". Said price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this specification, accepted by the Contract Administrator.

E15.4.2 There shall be no claim for additional costs or time due to increased standby pumping operations from high dry weather flows.

E15.4.3 Should the Contractor choose to install intake lines within Manhole B for their by-pass pumping plan, an additional vertical 1.0 meter of manhole will be permitted and paid for at the lump sum Contract unit price for "Supply and Installation of Manhole".

E15.4.4 Should the Contractor choose to install intake lines within Manhole B for their by-pass pumping plan, the additional 1.0 vertical meter of manhole (if chosen to be used) shall be filled in with concrete once construction is completed. This will be paid for at the Contract unit price for "Filling in 1500 mm diameter Manhole Sump - 1.0 vertical m."

### **E16. SUPPLY AND INSTALLATION OF TEMPORARY SHORING**

#### E16.1 Description

E16.1.1 This Specification shall cover shoring requirements for the Works where required to protect the existing Site infrastructure and under Manitoba Acts, Regulations, and Guidelines, or as indicated on the Drawings.

E16.1.2 The Contractor is advised that shoring shall be designed to protect and accommodate the existing Site infrastructure and utilities where required, including but not limited to the adjacent Portage Avenue bridge structure, existing 1800 mm diameter rockfill columns, and watermains. The Contractor is responsible for verifying the locations and elevations of all underground utilities using soft digging methods as required to facilitate design of temporary shoring.

#### E16.2 Construction Methods

E16.2.1 Verify Location and Elevation of All Underground Utilities

- (a) The Contractor shall verify the location and elevations of all underground utilities using soft digging methods in advance of starting construction as required to facilitate design of temporary shoring and to suit their means, methods, and schedule.

#### E16.2.2 Excavation

- (a) Remove excavated material from the Site immediately. Excavated material shall not be stockpiled on-Site or along river bank.
- (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.

#### E16.2.3 Excavation Safety 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) Safety fence installed shall be as per E11.3.7.

#### E16.2.4 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 and roadways.
- (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 information, including soil log information and stratigraphy, and 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.

#### E16.2.5 Monitoring Movement of Shoring

- (a) The Contractor shall submit to the Contract Administrator a plan for monitoring the movement of trench shoring during construction a minimum of two (2) Working Days prior to the installation of trench shoring. The monitoring plan shall be performed by approved survey methods for vertical or horizontal movement of the shoring, acceptable to the Contract Administrator. Costs for monitoring shall be incidental to the installation of the temporary shoring.



### E16.3 Measurement and Payment

- E16.3.1 Temporary shoring for the siphon installation is required to protect the surrounding infrastructure, including but not limited to the Portage Avenue bridge, existing watermains, and existing 1800 mm diameter rockfill columns. All costs associated with temporary shoring to meet Manitoba Safety Laws and Regulations, where required, and as described herein, will be measured and paid for on a lump sum basis at the unit price for "Supply and Installation of Temporary Shoring".
- E16.3.2 Further to E16.3.1, soft digging as required to verify locations and elevations of existing underground utilities is considered incidental to Supply and Installation of Temporary Shoring. No separate measurement or payment will be made.

## E17. SIPHON INSTALLATION

### E17.1 Description

- E17.1.1 This Specification shall cover the supply and installation of the new 600 mm diameter siphon. This Specification shall amend, and supplement Standard Specifications CW 2110 as follows:
- (a) The term "siphon" shall be considered equivalent to the term "watermain".
  - (b) Disinfection of the siphon pipe will not be required.

### E17.2 Materials

#### E17.2.1 Siphon Pipe

- (a) The siphon shall be constructed using AWWA-C905 PVC DR 18 pipe Contractor shall submit product information and/or shop drawings for pipe and bends for review and approval.
- (b) Mechanical restraints are to installed at all PVC joints where specified on the Drawings. Acceptable mechanical restraint product is PVC Stargrip Series 4100P PVCG4024 (Star Pipe Products) or approved equivalent in accordance with B7. Contractor shall submit product information and/or shop drawings for mechanical restraints to be used for review and approval.
- (c) 100 mm thick rigid polystyrene insulation to be installed where identified on the Drawings.

#### E17.2.2 Equipment

- (a) 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.

### E17.3 Construction Methods

#### E17.3.1 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.
- (c) The siphon shall be installed with Class B Bedding, with Modified Class 2 backfill, modified to have 0.6 m of compacted excavated Site select material as opposed to the detailed 0.3 m of compacted excavated material, or as specified on the Drawings.

- (d) Thrust blocks shall be constructed for each PVC bend as specified on the Drawings.

#### E17.4 Method of Measurement and Payment

##### E17.4.1 Supply and Installation of 600 mm diameter AWWA-C905 PVC DR18 Siphon

- (a) Siphon installation will be measured on a length basis for each method of installation, and paid for at the Contract Unit Price per metre for "Supply and Installation of Siphon 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 siphon installed in a trench will be made horizontally at grade above the centreline of pipe through fittings.
- (c) Correction of alignment and grade exceeding the allowable variance will be at the Contractor's own expense.
- (d) Mechanical Restraints shall be considered incidental to Supply and Installation of Siphon Pipe. No separate measurement or payment will be made.
- (e) Thrust blocks shall be considered incidental to Supply and Installation of Siphon Pipe and Supply and Installation of Bends. No separate measurement or payment will be made.
- (f) Rigid insulation will be paid separately as per City of Winnipeg Construction Specifications.

### **E18. WATERMAIN CASING PIPE INSTALLATION**

#### E18.1 Description

- (a) This specification shall amend and supplement CW 2110 as described herein.
- (b) The Contractor shall install watermain casing pipe at the locations shown on the Drawings in accordance with CW 2110.

#### E18.2 Materials

- (a) Casing pipe shall be 500mm (20") HDPE PE4710 DR21 or approved equivalent in accordance with B7. HDPE or steel casing pipe will be permitted.
- (b) Contractor shall submit shop drawing and associated calculation information for overburden soil loading for the watermain casing pipe. Materials shall conform to requirements of the watermain casing pipe as indicated on the Drawings.

#### E18.3 Construction Methods

- (a) Construction methods shall be in accordance with manufacturers recommendations.

#### E18.4 Measurement and Payment

- (a) Supply and Installation of watermain casing pipe will be considered incidental to Supply and Installation of Watermain Pipe, at the Contract Unit Price per metre for "Supply and Installation of Watermain Pipe – in a trench, Class B sand bedding, modified Class 2 backfill, in casing pipe". No separate measurement or payment will be made.

### **E19. PIPE SWABBING AND HYDROSTATIC LEAKAGE TESTING**

#### E19.1 Pipe swabbing and hydrostatic pressure testing to be completed before final siphon connections to manholes are made.

#### E19.2 Pipe Swabbing

- (a) The contractor shall slowly fill the siphon to expel as much air as possible by flushing.

- (b) Swabs shall be open cell polyurethane foam with density of 16-30 kg/m<sup>3</sup> (1 to 2 lb/ft<sup>3</sup>)
- (c) Swabs shall be able to traverse standard piping configurations such as 45-degree elbows, tees, and valves.
- (d) Three swabs shall be passed through the siphon consecutively.
- (e) Insert swabs, ensuring that the pipe is full of water while swabbing.
- (f) Contractor to employ a method to ensure that the swabs being discharged at the siphon tie-in manhole are retrieved.
- (g) Ensure no air is introduced into the siphon after swabbing and before leakage testing.
- (h) Submit a swabbing procedure to the Contract Administrator for review and approval prior to swabbing.

E19.2.1 Pipe swabbing associated with the work herein described will be considered incidental to the cost of the siphon renewal.

#### E19.3 Hydrostatic Leaking Testing

- (a) When flushing and swabbing are completed, test the siphon in accordance with CW2125 except as modified below.
- (b) The siphon will be tested to a pressure of 690 kPa (100 psi).
- (c) Hydrostatic Leakage Testing to be completed prior to connections to upstream and downstream manholes.

E19.3.1 Hydrostatic Leakage Testing associated with the work herein described will be considered incidental to the cost of the siphon renewal.

### **E20. AIR RELEASE VALVE**

#### E20.1 Description

E20.1.1 This Specification shall cover the supply and installation of air release valve as indicated on the Drawings.

#### E20.2 Materials

E20.2.1 Contractor shall submit shop drawing(s) of the air release valve and materials shall conform to requirements of the air release valve as indicated on the Drawings.

#### E20.3 Construction Methods

E20.3.1 Construction methods shall be in accordance with manufacturers recommendations and as indicated on the Drawings.

#### E20.4 Measurement and Payment

E20.4.1 Supply and Installation of air release valve shall be measured per each air release valve installed and paid for at the contract unit price for "Supply and Installation of Air Release Valve".

### **E21. SEALED MANHOLE COVER**

#### E21.1 Description

E21.1.1 This Specification shall cover the supply and installation of a sealed manhole cover on the new 1500 mm diameter west manhole.

#### E21.2 Materials

E21.2.1 A double locking sealed manhole cover complete with neoprene gasket shall be installed on the 1500 mm diameter west manhole. Lifting holes also to be sealed with threaded bolts

and washers. Installation of neoprene gaskets required on both top and bottom washers to ensure proper seal. Contractor shall submit shop drawing(s) of the sealed manhole cover to be installed.

### E21.3 Construction Methods

E21.3.1 Construction methods shall be in accordance with manufacturers recommendations.

### E21.4 Measurement and Payment

E21.4.1 Supply and Installation of Sealed Manhole Cover shall be measured per each sealed manhole cover installed and paid for at the contract unit price for "Sealed Manhole Cover".

## **E22. CONSTRUCTION OF CONCRETE COLLAR**

### E22.1 Description

E22.1.1 All concrete work in this project, materials and construction methods, shall be according to the Drawings, Details and this specification.

### E22.2 Materials

#### Concrete Mix Design

Concrete mix design and steel reinforcement shall be as indicated on the Drawings and in accordance with E23 (Cast in Place Concrete Construction).

#### E22.2.1 Cold Weather Requirements

Cold weather requirements shall be in accordance with E24 (Cold Weather Requirements).

### E22.3 Construction Methods

#### E22.3.1 Cast in place Concrete 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 reinforcing 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.

#### E22.3.2 Backfill

- (a) Place and compact backfill material as indicated on the Drawings 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.

#### E22.3.3 Grout

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

### E22.4 Measurement and Payment

- (a) Construction of the concrete collar will be measured on a unit basis and paid for at the Contract Unit Price for “Items of Work” listed below. 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.
- (b) Cold weather requirements shall be considered incidental to the construction of cast-in-place concrete and no measurement or payment will be made for this item.

**Items of Work:** Construction of Concrete Collar

- a) Reinforced Concrete Collar Connection of 600 mm diameter PVC to West Manhole
- b) Reinforced Concrete Collar Connection of 600 mm diameter PVC to East Manhole

**E23. CAST-IN-PLACE CONCRETE CONSTRUCTION**

**E23.1 Description**

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

**E23.2 Materials**

(a) Concrete Design

- (i) Proportioning of fine aggregate, coarse aggregate, cement, and water for cast-in-place concrete shall be as follows:
  - ◆ Cement Type: HS
  - ◆ Minimum Compressive Strength @ 28 days: 30 MPa
  - ◆ Maximum coarse aggregate size: 19 mm
  - ◆ Maximum Water/Cement ratio: 0.45
  - ◆ Slump (Before Plasticizing): 80 mm +/- 30 mm
  - ◆ Slump (After Plasticizing): 150 mm +/- 30 mm
- (ii) All admixtures must be compatible and meet the following standards:
  - ◆ Air entraining agents to ASTM C260
  - ◆ Chemical admixtures (water reducing) to ASTM C494
  - ◆ Type F high-range water reducing (super-plasticizing) admixture shall be used when a slump of more than 110 mm is desired.

(b) Lean-Mix Concrete Design

- (i) Proportioning of fine aggregate, coarse aggregate, cement, and water for lean mix concrete shall be as follows:
  - ◆ Cement Type: HS
  - ◆ Minimum Compressive Strength @ 28 days: 15 MPa
  - ◆ Slump: 80 mm
  - ◆ Air Content: nil
  - ◆ Minimum Cement Content = 240 kg/m<sup>3</sup>
  - ◆ Maximum Water/Cement Ratio = 0.49

(c) Grout

- (i) Grout shall be Sika Grout 212 or approved equal in accordance with B7.

(d) Reinforcing Steel

- (i) Reinforcement is new deformed billet steel bar conforming to CSA G30.18 (Latest). Grade 400.

- (ii) Unless noted otherwise, reinforcement clear concrete cover distances shall be a minimum of:
  - ◆ 75 mm for concrete cast against earth.
  - ◆ 50mm for all other concrete.
- (iii) Reinforcing steel shall be clean, free of rust, dirt, loose scale, oil, grease or any material that could reduce bond with the concrete.
- (e) Waterstop shall be SikaSwell S-2 (Hydrophilic Polyurethane Sealant) extrudable swelling waterstop or approved equivalent in accordance with B7.

### E23.3 Measurement and Payment

E23.3.1 Cast-in-place concrete will be considered incidental to the Work listed in individual Part E specifications and shall be included in the associated price for each applicable item. No direct measurement for payment will be made for this item.

## E24. COLD WEATHER REQUIREMENTS

### E24.1 Description

- (a) Should any concrete Work be required to be carried out when the mean daily temperature is below 5°C or anticipated to be below 5°C within the next 24 hours, cold weather requirements will be specified herein.
- (b) All freshly placed concrete shall be protected from the elements and from defacements due to construction operations.

### E24.2 Construction Methods

- (a) 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 expense to the City;
  - (i) 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.
  - (ii) 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.
  - (iii) 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.
  - (iv) The Contractor shall inform the Contract Administrator well in advance as to the methods of enclosure and frost protection he proposes to employ.

### E24.3 Measurement and Payment

E24.3.1 Cold weather requirements shall be considered incidental to the construction of cast-in-place concrete and no measurement or payment will be made for this item.

## E25. RIVERBANK REGRADING

### E25.1 Description

E25.1.1 This Specification shall cover the riverbank regrading at the site, including excavation and reworking of excavated material, and imported impervious clay supply and placement.

E25.1.2 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.

## E25.2 Materials

E25.2.1 The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification.

### E25.2.2 Native 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.

### E25.2.3 Clay Backfill

- (a) The impervious clay backfill to be used for riverbank regrading shall consist of a high plasticity clay material, with a liquid limit in excess of 50%. The clay shall be free of deleterious material such as roots, organic material, ice, snow or other unsuitable materials, and may be salvaged from the on-site excavation, as approved by the Contract Administrator. Frozen material will not be accepted.

## E25.3 Construction Methods

### E25.3.1 General

- (a) The riverbank regrading will be completed in the bottom and upper bank portions of the bank as required to suit the Contractor's means and methods.

### E25.3.2 Native Material to be Excavated

- (a) All excavated material shall be removed off site immediately upon excavation. Stockpiling is not permitted.

### E25.3.3 Clay Backfill

- (a) The depressions within the limits of the existing mid and upper bank shall be infilled with clay backfill material. The clay backfill material shall be pushed and kneaded into place to ensure that the entire excavated volume is entirely filled with clay, and that no void spaces remain. The clay backfill shall be compacted to a minimum of 95% of the SPMDD.
- (b) Clay backfill for placement within the limits of the existing mid and upper bank shall not be stockpiled on the riverbank.

## E25.4 Measurement and Payment

### E25.4.1 Basis of Measurement

The supply and placement of the riverbank regrading will be measured on a volume basis. The volume to be paid for shall be the total number of cubic metres of "Riverbank Regrading", supplied and placed in accordance with this Specification, as measured in the field and accepted by the Contract Administrator.

### E25.4.2 Basis of Payment

The supply and placement of riverbank regrading will be paid for at the Contract Unit Price per cubic metre for the "Riverbank 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.

## **E26. REMOVAL OF CONCRETE DEBRIS**

### **E26.1 Description**

E26.1.1 This Specification shall cover the removal of concrete debris located at the Site, including existing grouted riprap and tri-lock revetment as required.

### **E26.2 Construction Methods**

E26.2.1 All existing concrete debris located within the Contractor's excavation/shoring extents and/or as directed by the Contract Administrator shall be removed and appropriately disposed off site.

### **E26.3 Measurement and Payment**

E26.3.1 The removal of concrete debris shall be measured by tonnes and paid for at the Contract Unit Price for "Removal of Concrete Debris". The weight to be paid for shall be the total tonnes of garbage removed from Site and taken to a waste facility, in accordance with this Specification, and accepted and measured by the Contract Administrator.

E26.3.2 The Contractor shall supply and deliver receipts of weigh bills to the Contract Administrator before payment will be made.

E26.3.3 All costs associated with removal of concrete debris, which includes collection of debris, transport, and tipping fees, will be considered incidental to the Work.

## **EROSION CONTROL AND SITE RESTORATION**

### **E27. EROSION CONTROL BLANKETS**

#### **E27.1 Description**

E27.1.1 This Specification shall cover the supply and placement of erosion control blankets to provide temporary erosion control in localized areas (as directed by the Contract Administrator)

#### **E27.2 Materials**

E27.2.1 The blanket material shall consist of wheat or barley straw, coconut fibres, or other plants approved by the Contract Administrator. Acceptable products will be S32 BD Double Net Straw Blankets with **biodegradable** netting or approved alternative in accordance with B7. The blanket material shall be air dried, reasonably light in colour, and shall not be musty, mouldy, caked or otherwise of low quality. The blanket material shall be free of coarse (chaff) material and free of noxious weeds and/or seeds to prevent the introduction of weeds into previously seeded and planted areas.

#### **E27.3 Construction Methods**

##### **E27.3.1 General**

- (a) The Contractor shall supply and place erosion control blankets immediately after final grading is completed and prior to March 15.
- (b) Erosion control blankets shall be placed as directed, measured and accepted by the Contract Administrator.
- (c) Covered areas shall be inspected periodically and after runoff producing storm events. Damaged areas shall be repaired immediately as determined by the Contract Administrator. Areas requiring recovering as directed by the Contract Administrator will be re-measured and additionally paid for at the Contract Unit Price for the Work item.

##### **E27.3.2 Installation**



- (a) The erosion control blankets shall be installed as per the manufacturer's recommended procedures. Blankets shall be rolled out on smoothed out soils starting from the top of the slope. The Contractor is to start by stapling the blanket at the top of the slope in a 150 mm deep by 150mm wide trench. The trench will be backfilled and compacted so that water will flow evenly onto the blanket.
- (b) The Contractor shall roll the blankets down the slope insuring soil blanket contact. Edges are to be overlapped a minimum 50 mm with parallel blankets.
- (c) If more than one blanket is need for the run down the slope then adjoining ends must be overlapped a minimum 100 mm shingle style. Overlapped areas are to be stapled with a staggered pattern of staples.

**E27.3.3 Removal**

- (a) Immediately prior to placement of topsoil and sod and/or topsoil and seed all erosion control blankets shall be removed and disposed of off-Site.

**E27.4 Measurement and Payment**

**E27.4.1** Supply, placement and removal of erosion control blankets will be measured on an area basis and paid for at the Contract Unit Price for "Erosion Control Blankets". The area to be paid for shall be the total number of square metres of ground covered by blankets, supplied and placed in accordance with this Specification, accepted and measured by the Contract Administrator.

**E28. GEOTEXTILE**

**E28.1 Description**

**E28.1.1** This Specification shall cover the supply and placement of the geotextile fabric below the rockfill riprap.

**E28.2 Materials**

**E28.2.1** Each geotextile roll to be used shall be tagged to provide product identification for inventory and quality control purposes.

**E28.2.2** Geotextile rolls shall be furnished with suitable wrapping for protection against moisture and extended exposure from the sun, and contamination from dirt, dust, and any other deleterious materials. The geotextile shall remain wrapped in a protective covering until it is used.

**E28.2.3** Non-woven geotextile fabric shall meet or exceed the following requirements:

Parameter	Test Method	Minimum Criteria
Grab Tensile Strength	ASTM D4632	900 N
Mullen Burst	ASTM D3786	2600 kPa
Puncture	ASTM D4833	550 N
Trapezoidal Tear	ASTM D4533	350 N
Apparent Opening Size	ASTM D4751	1.2 mm
Permittivity	ASTM D4491	1.2 sec <sup>-1</sup>
Flow Rate	ASTM D4491	60 L/sec/m <sup>2</sup>

**E28.2.4** Suitable products shall be Tencate Mirafi 180 N or approved equivalent in accordance with B7.

**E28.3 Construction Methods**

- E28.3.1 Geotextiles shall consist of non-woven fabric.
- E28.3.2 All Work related to the geotextile storage, handling, and installation shall comply with the procedures and recommendations of the manufacturers, and as accepted by the Contract Administrator.
- E28.3.3 Snow and ice shall be cleared from the riverbank in accordance with E11.3.6 prior to placement of geotextile.
- E28.3.4 The fabric shall be loosely laid in order to allow conformity to the bedding surface. Folds and wrinkles in the fabric shall be avoided. Pins, nails or weights shall be installed to hold the fabric in place such that placement of fill material will not excessively stretch or tear the fabric and seam overlaps will be maintained.
- E28.3.5 The fabric shall be overlapped in a downstream direction (upstream panel overtop of downstream panel) at all joints a minimum of 600 mm. The overlap shall be pinned or secured as approved by the Contract Administrator.
- E28.3.6 A minimum of 300 mm of material shall be placed over the fabric prior to equipment passage.
- E28.3.7 Riprap shall be placed on the geotextile in such a manner that the geotextile is not damaged, torn, excessively stretched, or punctured.
- E28.3.8 Any damaged geotextile, as identified by the Contract Administrator, shall be repaired immediately at the Contractors own cost. All fill material shall be cleared a minimum of 1 m around the damaged area. The damaged area shall be covered with a geotextile patch that shall be large enough to be sewn or overlapped a minimum of 600 mm onto the undamaged geotextile.
- E28.4 Measurement and Payment
- E28.4.1 The supply and placement of geotextile, and related Work specified herein will be measured on an area basis and paid for at the Contract Unit Price for "Geotextile". The area to be paid for shall be the total number of square metres of ground covered by geotextile, placed in accordance with this Specification, accepted and measured by the Contract Administrator.
- E28.4.2 Overlap at all joints shall be considered a single layer of geotextile for measure and payment purposes.
- Geotextile used for repairs will be excluded from the quantity paid.

## **E29. INSTALLATION OF SILT FENCE**

- E29.1 Description
- E29.1.1 This specification covers the erection of temporary silt fencing, which shall be installed and maintained at the locations shown on the Drawings or as directed by the Contract Administrator, to control runoff and minimize the release of detrimental silt loading to watercourses.
- E29.1.2 The scope of Work included in this specification is as follows:
- (a) Supply and Install temporary silt fencing at the locations as indicated on the Drawings or as directed by the Contract Administrator, in accordance with the detailed drawing provided, immediately upon completion of the riprap placement and prior to undertaking any other activities on the Site where silt fencing is required.
  - (b) Maintain the silt fencing in serviceable condition throughout the entire duration of activities at the Site where silt fencing is required, including final restoration and cleanup of the construction Site.

- (c) Remove the silt fencing and restore the area where the fencing was installed, without further disturbing the area and without releasing any deleterious substances to the adjacent watercourse.

## E29.2 Materials

### E29.2.1 Fence Posts

- (a) Fence posts shall be 100 mm diameter untreated wood posts or 50 mm diameter steel.

### E29.2.2 Filter Fabric

- (a) Filter Fabric Shall be a woven geotextile material specifically designed for a silt fence applications, meeting the following minimum requirements:

Property	Test Method	Value
Grab Tensile Strength	ASTM D 4632	0.55 kN
Grab Tensile Elongation	ASTM D 4632	15%
Mullen Burst	ASTM D 4786	2060 kPa
Puncture	ASTM D 4833	0.285 kN
Trapezoid Tear	ASTM D 4533	0.285 kN
UV Resistance	ASTM D 435	5 80 % @ 500 hrs
Apparent Opening Size (AOS)	ASTM D 4751	0.60 mm
Flow Rate	ASTM D 4491	405 l/min/m <sup>2</sup>

Acceptable Product: "Amoco 2130 Silt Fence Fabric" or approved equal in accordance with B7.

### E29.2.3 Wire Mesh

- (a) Wire mesh shall be galvanized or plain metal with wire gauge = 3.0 mm, wire spacing @ 150 mm o/c.

### E29.2.4 Fencing Material Fasteners

- (a) Staples or wire ties of sufficient strength and spacing to withstand 500 N (100 lbf) pull test at any point on the wire mesh.

## E29.3 Construction Methods

E29.3.1 Ensure that no deleterious substances are discharged into the adjacent watercourse at any time during construction activities.

### E29.3.2 Silt Fence Installation

- (a) Excavate 150 x 150 anchor trench along alignment of silt fence as indicated.
- (b) Install fence posts as indicated. Ensure that fence posts are firmly driven into undisturbed soil, or are completely and firmly backfilled if installed via auger methods. Attach wire mesh as support backing for silt fence filter fabric with fasteners as specified in E29.2.4. Attach silt fence filter fabric on top of wire mesh in similar fashion. Overlap any fence seams (wire mesh or filter fabric) by 450 mm minimum. Ensure that wire mesh and filter fabric are installed on the upslope side of the post and are fully laid in anchor trench as shown.
- (c) Install and compact impermeable excavated materials into anchor trench and slope as indicated. Compact to 95% of maximum dry density (ASTM D-698).

### E29.3.3 Silt Fence Maintenance

- (a) Inspect silt fence daily, prior to starting any other construction activities. If fence posts are found loose or not upright, repair in accordance with installation procedure as specified in E29.3.2. If silt fence is found to be loose or torn, repair or replace as necessary to comply with E29.3.2.
- (b) If silt deposition at the fence is 300 mm or more in depth, carefully remove and dispose of silt offsite without disturbing silt fence.

#### E29.3.4 Silt Fence Removal

- (a) The silt fence shall remain in place until new vegetation growth has established on the bank, as determined by the Contract Administrator.
- (b) Upon authorization of the Contract Administrator, remove all fence posts, wire mesh, fabric, and fasteners from Site.
- (c) Restore areas disturbed in accordance with E11 without releasing any deleterious substances to the adjacent watercourse.

#### E29.4 Measurement and Payment

E29.4.1 The supply, placement, and removal of silt fence shall be measured on a length basis and paid for at the Contract Unit Price per lineal metre for "Silt Fence". The length to be paid for shall be the total number of metres supplied and placed in accordance with this Specification, accepted and measured by the Contract Administrator. Payment of silt fence shall be in accordance with the following payment schedule:

- (a) Sixty percent (60%) of the Contract Unit Price per lineal metre for "Silt Fence" shall be paid following supply and installation.
- (b) Forty percent (40%) of the Contract Unit Price per lineal metre for "Silt Fence" shall be paid following final removal.

E29.4.2 Removal of accumulated sediment from the silt fence is considered incidental to the Work and no separate measurement or payment will be made

### **E30. GROUTED RIPRAP**

#### E30.1 Description

E30.1.1 This Specification shall amend and supplement Standard Specification CW 3615.

#### E30.2 Materials

##### E30.2.1 Riprap

- (a) Rock for riprap shall consist of hard, dense, durable rock. The rock shall be angular crushed limestone, resistant to the action of air and water and suitable in all other respects for the purpose intended.
- (b) The stones shall range in size from 100mm to 350mm in diameter with 75% by count between 200mm and 350mm.
- (c) Crushed limestone when subjected to the Los Angeles abrasion test shall have a loss of not more than thirty-two percent (32%).
- (d) Crushed limestone when subjected to the Magnesium Sulphate Soundness test shall have a loss of not more than eighteen percent (13%).
- (e) The sample material shall be crushed to 37.5 mm maximum aggregate size and tested in accordance with ASTM C131 – Resistance to Degradation of Small size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine and ASTM C88 – Soundness of Aggregates by Use of Magnesium Sulphate.
- (f) The rock for riprap shall be approved by the Contract Administrator prior to riprap installation.

E30.2.2 Geotextile

- (a) Geotextile shall be as per E28

E30.2.3 Grout

- (a) Grout shall be as per CW 3615.

E30.3 Construction Methods

E30.3.1 Riprap

- (a) Installation of 300mm grouted riprap shall be as per Clause 9.3 of CW 3615. Total depth of concrete and riprap to be as shown on the drawings.
- (b) Riprap shall not be dropped onto the geotextile from a height greater than 300mm.
- (c) Any geotextile damaged during placement of the riprap shall be replaced as directed by the Contract Administrator at the Contractors expense.

E30.4 Measurement and Payment

E30.4.1 Grouted Riprap

- (a) As per Clauses 12.2 and 13.2 of CW 3615.

**E31. ROCKFILL RIPRAP**

E31.1 Description

E31.1.1 This Specification shall cover the supply and placement of rockfill riprap.

E31.2 Materials

E31.2.1 The rockfill material for use as riprap shall consist of a clean free draining, sound, dense, durable, crushed rock. The material shall be free from organics, roots, silts, sand, clay, snow, ice or any other material that would detract from the strength and drainage characteristics of clean rockfill.

E31.2.2 Individual particles shall be shaped such that no dimension is greater than two times the smallest dimension. Flat, elongated, or platy particle shapes will not be accepted.

E31.2.3 Should the Contractor choose to use limestone, it shall be durable white crystalline limestone. Softer buff to yellow dolomite or dolostone will not be accepted.

E31.2.4 The rockfill material shall meet the following requirements:

Parameter	Test Method	Specified Limit
Bulk Specific Gravity	ASTM C127	2.6 minimum
Absorption	ASTM C127	2.5 % maximum
LA Abrasion Loss	ASTM C131	32% maximum
Soundness	ASTM C88	13% maximum
Gradation	ASTM D5519	See below

E31.2.5 Rockfill riprap shall be well graded having a full range and even distribution of sizes and shall conform to the following gradation:

<u>Canadian Metric Sieve Size</u> <u>(millimeters)</u>	<u>Percent of Total Dry Weight</u> <u>Passing Each Sieve</u>
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450	100%
300	35-80%
100	20-60%
50	10-30%
5	0-5%

**E31.3 Submittals**

E31.3.1 The Contractor shall submit the proposed supplier(s) and location of quarry Sites for supply of riprap.

E31.3.2 Representative samples of the rockfill riprap submitted for material testing purposes shall be completed as specified herein.

**E31.4 Quarry Sites**

E31.4.1 Contractors supplying rockfill riprap shall be responsible for demonstrating that the material is of adequate quality and volume to meet the material specifications contained herein.

**E31.5 Testing and Approval**

E31.5.1 All materials set forth in this Specification shall be subject to inspection and testing by the Contract Administrator or by the testing laboratory designated by the Contract Administrator. There shall be no charge for any materials taken by the Contract Administrator for testing purposes.

E31.5.2 The Contract Administrator will visit proposed quarry Sites for inspection of the proposed rockfill material and quarry faces a minimum of fourteen (14) days prior to supply and placement of riprap.

E31.5.3 No supply and placement of riprap will be permitted prior to the Contract Administrator reviewing the source.

E31.5.4 The procedures for preparation of all rockfill samples for use in material inspection and testing shall be subject to review and acceptance by the Contract Administrator for individual tests. The samples may be obtained from crushed and processed material at the sizing necessary for specific tests if the material is deemed to be representative of the riprap that will be used, subject to the acceptance of the Contract Administrator.

E31.5.5 The testing frequency necessary to confirm the material quality will be specified at the discretion of the Contract Administrator.

**E31.6 Construction Methods**

E31.6.1 Rockfill riprap shall be restored over the rock columns after they are backfilled to the lines and grades shown on the drawings. Riprap shall be placed over the geotextile membrane at the location of the backfilled outfall excavation as shown on the drawings.

E31.6.2 Rockfill Riprap shall be pushed or rolled into place in such a manner that the larger rocks are uniformly distributed and the smaller rocks serve to fill the places between the larger rocks such that excessive segregation of the various particle sizes does not occur.

E31.6.3 Sufficient levelling shall be done to produce a neat and uniform surface, conforming to the shape and dimensions shown on the Drawings.

E31.6.4 The allowable fill tolerances shall be within  $\pm 50$  mm of the grades and thickness shown on the Drawings, provided positive downslope grading is achieved.

E31.6.5 Provide a smooth uniform surface from the existing grade and new riprap when placing outside edges or transitions, as accepted by the Contract Administrator.

E31.6.6 Temporary stockpiling of riprap along the riverbank shall not be permitted. Material shall be placed to the required lines and grade shown the Drawing immediately upon delivery to the Site.

E31.7 Measurement and Payment

E31.7.1 The supply and placement of rockfill riprap shall be measured on a weight basis and paid for at the Contract Unit Price for "Rockfill Riprap". The weight to be paid for shall be the total number of metric tonnes of rockfill supplied and placed in accordance with this Specification, as measured by a certified weigh scale and accepted by the Contract Administrator.

E31.7.2 The Contractor shall provide the weigh tickets to the Contract Administrator for the material supplied to the Site at the time of delivery. No payment will be made for any weigh tickets which are not supplied at the time of delivery, or which are lost.

**E32. TEMPORARY SURFACE RESTORATION**

E32.1 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.

E32.2 The Contractor shall monitor and maintain temporarily restored surfaces as required until permanent restoration is complete.

E32.3 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.

E32.4 All costs associated with the maintenance or reconstruction of temporary pavement incurred by the City shall be deducted from future payments to the Contractor.

E32.5 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.

E32.6 No measurement or payment will be made for the temporary restoration of barrier or lip curb.

E32.7 No measurement or payment will be made for the temporary restorations of boulevards and grassed areas.

E32.8 No measurement or payment will be made for the removal of temporary pavement prior to permanent restoration.

### **E33. NATIVE GRASSES**

#### **E33.1 Description**

E33.1.1 This Specification shall cover the installation of native grasses within the lower and mid bank areas.

E33.1.2 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.

E33.1.3 The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification.

#### **E33.2 Materials**

##### **E33.2.1 Lower and Mid Bank Revegetation**

###### **(a) Seed Mixture**

Grass seed shall consist of a Canada common native seed mix as follows:

20% Slender Wheatgrass

20% Switchgrass

20% Big Bluestem

20% Canada Wildrye

10% Fringed Brome

10% Canada Milkvetch

Grass species that may be substituted in varying percentages (no greater than 20%) as alternatives to those listed above include;

Prairie Cordgrass

Streambank Wheatgrass

Western Wheatgrass

Northern Wheatgrass

No more than (2) wheatgrass species shall be used in the mixture.

#### **E33.3 Construction Methods**

##### **E33.3.1 Seeding**

(a) Grass seed shall be sown at a rate of 0.5 kg per 100 square metres.

(b) Oats shall be sown at a rate of 0.38 kg per 100 square metres.

(c) Oats and grass seed may be mixed and sown together or they may be sown separately.

##### **E33.3.2 Maintenance of Seeded Area**

E33.3.3 Areas seeded with native grasses shall be mowed during the first growing season to control pioneering weeds and other competition. For the purposes of this project a weed is defined as any plant not included in the seed mix. Mowing should be done before the general height is 150 to 250 mm, or when the weedy foliar cover reaches 50 percent of the seeded area, or when the weed species begin to flower. The first mowing shall be set at a height of 75 mm with the following mowings to be set at a height of 100 to 200 mm. Rotary, flail, or sickle bar type mowing equipment is acceptable.

E33.3.4 All other maintenance of seeded area shall be in accordance with City of Winnipeg Construction Specifications.

##### **E33.3.5 Quality Control**



(a) Inspection

All workmanship and all materials furnished and supplied under this Specification are subject to close and systematic inspection by the Contract Administrator including all operations from the selection of materials through the final acceptance of the specified work. The Contractor shall be wholly responsible for the control of all operations incidental thereto notwithstanding any inspection of approval that may have been previously given.

(b) Access

The Contract Administrator shall be afforded full access for the inspection of materials at the site to determine whether the material is being selected and placed in accordance with this Specification.

E33.4 Method of Measurement

E33.4.1 Topsoil and Seeding

- (a) The supply and placement of the native grass seeding within the lower and mid bank areas will be measured on an area basis. **The maximum area to be paid for shall be the area indicated on Form B: Prices, which is based on the area to be seeded as a direct result of specified works. Topsoil and Seeding area above this quantity shall be considered incidental to E11: Site Development and Restoration.**
- (b) The formula used to calculate topsoil and seeding areas is:  $[3*(pipe\ diameter)+6] * pipe\ length$  for all excavated pipe sections, including renewals and removals.
- (c) Where installed pipe lengths vary due to field conditions or instructions from the Contract Administrator, the quantity of Topsoil and Seeding to be paid will be adjusted as appropriate.

E33.5 Basis of Payment

E33.5.1 Topsoil and Seeding (Native Grass Seed Mix)

- (a) The supply and placement of the native grass seeding within the lower and mid bank areas will be paid for at the Contract Unit Price per square metre of seeding for the "Topsoil and Seeding (Native Grass Seed Mix)" measured as specified, herein, which price shall be payment in full supplying all materials and performing all operations herein described, and all other items incidental to the work included in this Specification.

**E34. PLANTING OF TREES AND SHRUBS**

E34.1 Description

E34.1.1 Trees and Shrubs will be planted in 2022 as directed by the Contract Administrator. Plantings will consist of trees and shrubs in various container sizes.

E34.1.2 The Work to be undertaken by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as herein specified.

E34.1.3 Work shall include, but not necessarily confined to, the relocation, supply and installation of trees and shrubs.

E34.1.4 Reference

- (a) All plants shall be supplied and installed as per the Canadian Standards for Nursery Stock Current Edition, published by the Canadian Nursery Trades Association, except where specified otherwise.

#### E34.1.5 Source Quality Control

- (a) All plant material shall be randomly inspected at the source upon request of the Contract Administrator.
- (b) Trees are to be grown in nurseries under proper cultural practices as recommended by the Canadian Nursery Trades Association.
- (c) Only those trees that have been grown for at least the four (4) previous years in local Manitoba nurseries located in an Agriculture Canada Plant Hardiness Zone designation of 2(a or b) or 3(a or b) and within a 250 km radius of Winnipeg, will be accepted. Trees that have grown in plant hardiness zones 1 and 4 or greater will be rejected.

#### E34.1.6 Maintenance

- (a) The Contractor shall be responsible for the maintenance of the trees and shrubs for a period of one (1) year from the date of Total Performance. Any areas planted after September 15<sup>th</sup>, the maintenance period will commence on May 15<sup>th</sup> of the following year or such date as mutually agreed upon by all parties.
- (b) Water to ensure soil moisture conditions for optimum growth and health of plant material. Ensure watering techniques do not cause erosion.
- (c) Reform damaged watering saucers.
- (d) Remove weeds as per overall weed control strategy.
- (e) Replace or re-spread damaged, missing or disturbed mulch.
- (f) For non-mulched areas, cultivate monthly to keep top layer of soil friable.
- (g) If required to control insects, fungus and disease, use appropriate control methods in accordance with Federal, Provincial and Municipal regulations. Obtain product approval from Contract Administrator prior to application.
- (h) Apply fertilizer as directed by manufacturer's specifications.
- (i) Remove dead, broken or hazardous branches from plant material.
- (j) Keep trunk protection and tree supports in proper repair and adjustment.
- (k) Remove trunk protection, tree supports and level watering saucers at end of warranty period.
- (l) Remove and replace dead plants and plants not in healthy growing condition. Make replacements in same manner as specified for original plantings.
- (m) Submit weekly written reports to Contract Administrator identifying:
  - (i) Maintenance work carried out.
  - (ii) Development and condition of plant material.
  - (iii) Preventative or corrective measures required which are outside Contractor's responsibility.

#### E34.1.7 Warranty

- (a) The Contractor shall, at his/her expense, warrant the Work against any and all defects or deficiencies resulting from insect infestation, disease and mechanical damage due to improper handling, installation or maintenance, for a period of one (1) year from the date of the Total Performance. Nursery stock damaged by vandalism or reasons beyond the control of the Contractor shall be replaced by the client.
- (b) End-of-Warranty inspection will be conducted by the Contract Administrator.
- (c) The Contract Administrator reserves the right to request material replacement or extend the Contractor's Maintenance responsibilities for an additional one (1) year if, at the end of the Warranty Period, leaf development and growth are not sufficient to ensure future survival of the plant material.

#### E34.1.8 Replacements

- (a) During the Warranty Period, the Contractor shall remove from Site any plant material that has died or failed to grow satisfactorily as determined by the Contract Administrator and replace as per Specifications within a maximum ten (10) day period from notification.
- (b) Defective trees shall be replaced within three (3) days of notification to the Contractor, unless otherwise agreed to by the Contract Administrator.
- (c) The Contractor shall extend Maintenance and Warranty on replacement tree for a period equal to the original Maintenance and Warranty Periods.
- (d) The Contractor shall continue such replacement, Maintenance and Warranty until tree is acceptable.

#### E34.2 Materials

##### E34.2.1 Planting Soil and Mulch

- (a) As per Planting Preparation.
- (b) Imported soils shall be used to backfill tree and shrub plantings

##### E34.2.2 Miscellaneous Materials

- (a) Water shall be potable and free of minerals which may be detrimental to plant growth.
- (b) Stakes shall be metal T-Bar, steel, 40x40x5x2440 mm.
- (c) ARBORTILE® by Deep Root Canada Corp., or equivalent approved by the Contract Administrator
- (d) Guying Collar shall be plastic tube, 13mm diameter, nylon reinforced.
- (e) Trunk Protection shall be plastic perforated spiralled strip.
- (f) Fertilizer shall be a slow release formulation of low nitrogen and high phosphorus e.g. 10-50-12. Apply quantities at rates stated by product manufacturer.
- (g) Root Ball Burlap shall be 150 g Hessian burlap, biodegradable.
- (h) Wire Baskets shall be horticultural accepted product designed to carry the weight and to contain a burlap-covered root ball. Minimum diameter basket size is to conform to the same minimum diameter of the tree root ball for the respective minimum tree caliper sizes.

##### E34.2.3 Plant Material

- (a) All nursery stock supplied shall be Canadian Prairie nursery grown, and of species and sizes indicated in the plant list on the Drawings. Its quality shall be in accordance with the "Guide Specification for Nursery Stock of the Canadian Nursery Trades Association".
- (b) Any nursery stock dug from native stands, wood lots, orchards, or neglected nurseries and which have not received proper cultural maintenance as advocated by the Canadian Nursery Trades Association shall be designated as "collected plants". The use of "collected plants" will not be permitted unless specified below.
- (c) Nomenclature of specified nursery stock shall conform to the International Code of Nomenclature for Cultivated Plants and shall be in accordance with the approved scientific names given in the latest edition of Standardized Plant Names. The names of varieties not named therein are generally in conformity with the names accepted in the nursery trade.
- (d) Plants larger than specified may be used if approved by the Contract Administrator. The use of such plants shall not increase the Contract price.
- (e) Plants shall be free of disease, insect infestation, rodent damage, or environmental stress.

- (f) Trees:
- (i) To be characteristically developed for their species and structurally sound, well branched, healthy and vigorous and densely foliated when in leaf. The tree is to have a healthy, well developed, fibrous root system which may be verified through a testing procedure that destructively samples one or more randomly selected root balls;
  - (ii) To have been root pruned regularly, but not later than one growing season prior to arrival on-site. The Contractor may be required to furnish documentation to the client on their root-pruning program. Trees in excess of 75 mm caliper are to have been half root pruned during each of two successive growing seasons, the latter at least, one growing season prior to arrival on-site;
  - (iii) To have all parts, especially lower branches, moist and show live, green cambium tissue when cut;
  - (iv) Single stem trees to have only one, sturdy, reasonably straight and vertical trunk, and a well-balanced crown with fully developed leader.
  - (v) To be free of disease, insect infestation, rodent damage, sun scald, frost cracks, abrasions, unhealed scars, scars exceeding 5cm in diameter, major forks or crooks in the trunk, broken branches, or angled leaders. Trees having the above defects will not be accepted by the Contract Administrator;
  - (vi) Trees having a leader which has developed at a sharp angle to the trunk as a result of pruning or trunk damage will not be accepted;
  - (vii) Trees exhibiting suppressed, weakly developed branches due to competition from other closely spaced trees in the nursery will not be accepted. Trees exhibiting dead branches will not be accepted.
  - (viii) Any tree that has come out of dormant stage and is too far advanced will not be accepted unless prior approval obtained. Approval is required for any tree which has been held in cold storage.
  - (ix) Balled and burlapped trees in excess of a 3 m height must have been dug with large firm ball. Roots in root balls must be comprised of 75% fibrous and feeder root systems. Secure root balls with burlap, heavy twine and rope. For trees 75 mm or more in caliper, wrap ball in double layer of burlap and drum lace with minimum 10 mm diameter rope. Protect root balls against sudden changes in temperature and exposure to heavy rainfall.
  - (x) Tree spade dug trees are to be dug with mechanized digging equipment with hydraulic spade. Lift root ball from hole, place in wire basket designed for purpose and lined with burlap. Tie basket to ball with heavy rope. Take care not to injure trunk of tree with wire basket ties or rope.
  - (xi) Use of collected or native trees is not permitted.

#### E34.2.4 Tree and Shrub Quantity and Size

- (a) Trees and shrubs are to be planted at the quantities and caliper listed in Form B and broken down in detail below. Any variations to size, caliper or species of specified trees will require a request for approval from the Contract Administrator.
- (i) Large trees shall be a minimum 75 mm caliper, 2.5 m in height, with a minimum of eight (8) major branches 2 m above grade, have balled and burlapped root balls, and be double stake. Tree species specific to the site shall consist of:
    - ◆ American Elm
    - ◆ Bur Oak
    - ◆ Manitoba Maple
    - ◆ Basswood
    - ◆ Cottonwood
  - (ii) Shrubs in two gallon containers shall be well formed, dense, bushy plants. The species of the planted shrubs shall consist of:

- ◆ Nannyberry (shrub form) with a minimum of nine (9) basal stems and a minimum height of 900 mm
  - ◆ Red Oiser Dogwood with a minimum of nine (9) basal stems and a minimum height of 900 mm
  - ◆ False Indigo with a minimum of five (5) basal stems and a minimum height of 450 mm
- (b) Planting locations will be determined on-site by the Contract Administrator.
- (c) Trees are to conform to the measurements specified in Form B, except that trees larger than specified may be used if approved by the Contract Administrator.
- (d) Trees are to be measured when the branches are in their normal position. Height dimensions specified are to refer to the main body of the tree and not from branch tip to root base. Where trees have been measured by caliper or diameter, reference is to be made to the diameter of the trunk measured 15 cm above the ground as the tree stands in the nursery prior to lifting. Caliper of tree shall be appropriately designed on a permanently fixed tag on one of the branches.

#### E34.2.5 Shipment and Pre-Planting Care

- (a) Coordinate shipping of trees and excavation of holes to ensure minimum time lapse between digging and planting.
- (b) Tie branches of trees securely, and protect trees against abrasion, exposure and extreme temperature change during transit. Avoid binding of trees with rope or wire which would damage bark, break branches or destroy natural shape of tree. Give full support to root ball of trees during lifting.
- (c) Cover tree foliage with tarpaulin, and protect bare roots by means of dampened straw, peat moss, saw dust or other acceptable material to prevent loss of moisture during transit and storage.
- (d) Remove broken and damaged roots with sharp pruning shears. Make clean cuts, and cover cuts over 10 mm diameter with a tree wound dressing.
- (e) Keep roots moist and protected from sun and wind. Heel-in trees which cannot be planted immediately in shaded areas and water well.

#### E34.3 Construction Methods

##### E34.3.1 Workmanship

- (a) All areas and locations provided for planting will be staked out or painted on-Site by the Contract Administrator. Excavation shall not proceed until the layout has been inspected and approved by the Contract Administrator. Excavation shall not be undertaken until all underground utilities have been located and protected.
- (b) Coordinate operations. Keep Site clean and planting holes drained. Immediately remove soil or debris spilled onto street pavement, grass or sidewalk.
- (c) Work to be coordinated with installation of fencing and planting of shrub.

##### E34.3.2 Planting Time

- (a) Plant trees and shrubs as early as May 15, 2022 but no later than June 30, 2022 depending when Topsoil are placed and prepared.
- (b) Plant only under conditions that are conducive to health and physical conditions of trees.
- (c) Provide planting schedule to Contract Administrator. Extending planting operations over long period using limited crew will not be accepted.
- (d) The Contractor must obtain all above and below ground clearances from all the utilities as well as the appropriate District Operations Branch in a timely manner so as not to jeopardize the schedule of the complete tree planting Contract.

### E34.3.3 Excavation

- (a) Tree pit to be dug with back hoe.
- (b) Excavate tree pits as indicated by stakes or paint marks.
- (c) Protect bottom of excavations against freezing.
- (d) Remove water which enters excavations prior to planting. Ensure source of water is not ground water and notify Contract Administrator.
- (e) Upon excavation of the planting, the excavation shall be backfilled with a Topsoil mixture to a depth to permit adequate installation and stabilization of the plant material. Topsoil shall be placed in accordance with City of Winnipeg Standard Construction Specification CW 3540 to a 300 mm depth.

### E34.3.4 Installation

- (a) Plantings of trees and shrubs shall be undertaken as approved by the Contract Administrator. Configuration of planting shall be subject to input and final approval by the Contract Administrator.
- (b) Planting shall be done during periods of suitable weather conditions and in accordance with locally accepted practice.
- (c) Trees are to be planted within forty-eight (48) hours of excavation from the nursery.
- (d) No tree pit is to be left open at the end of the Contractor's Work Day. Planting program is to be planned to ensure that all approved trees delivered to the Site at designated planting locations are installed and thoroughly watered the same day as delivery.
- (e) With balled and burlapped root balls and root balls in wire baskets, burlap shall be loosened and cut away from the top 1/3 without disturbing root ball. Wire shall be cut away and removed from the top 1/3 of the root ball. Burlap or rope shall not be pulled from under root ball. Non-biodegradable wrapping shall be removed.
- (f) To avoid future root girdling, The Contractor shall ensure that roots are not coiled around the root ball. After removal from the container, if it is seen that roots are coiled around the root ball, roots must be loosened and spread out in a more natural form before planting in order to establish healthy root development and root direction after planting.
- (g) After inserting the tree and tamping the root system with Topsoil in layer of 150mm, water shall be poured in until the pit is thoroughly soaked. Filling of the hole shall then be completed and the fill-in soil shall be packed firmly around the roots, leaving a concave surface for convenient watering. After filling, the planting shall be watered at frequent intervals.
- (h) Each tree is to have an earth saucer at its base having a diameter as large as the excavation with a 10 cm lip formed at the perimeter of the saucer to retain water.
- (i) All nursery stock shall be set plumb in the centre of pits and at levels as shown on the planting details after settlement has taken place.
- (j) Nursery stock shall be faced to give the best appearance or relationship to adjacent structure and to the approval of the contract administrator. Trees shall be placed equal to depth they were originally growing in nursery.
- (k) Tree pit depth shall be such that the top of the root ball is even with the existing grade, taking into account that proper planting depth requires the root flare to be at or slightly above the finished grade. It is important to determine how deep the root flare is in the ball before it is placed in the planting hole. Sometimes the top of the ball may need to be raised until the root flare is at the proper planting depth and/or soil must be removed from the top of the ball.
- (l) Each tree must be planted such that the trunk flare is visible at the top of the root ball. Trees where the trunk flare is not visible shall be considered a deficiency and

payment for the planting will not be received until the deficiency is addressed. Do not cover the top of the root ball with soil.

**E34.3.5 Supply and Installation of Mulch**

- (a) Contractor to supply and install mulch in tree pit, planters and in areas as indicated in the Drawings. Mulch supplied shall cover entire planting area to a consistent depth of 100 mm.
- (b) Mulch must not be placed within 8 cm (3 in) of tree trunks.

**E34.3.6 Fertilizing**

- (a) When planting is completed, give surface of planting saucer dressing of fertilizer meeting the requirements of Specification. Mix fertilizer thoroughly with top layer of planting soil and water in well.

**E34.3.7 Trunk / Beaver Protection**

- (a) Install trunk protection on trees.
- (b) Install trunk protection prior to installation of tree supports when used.

**E34.3.8 Pruning**

- (a) The Contractor shall provide a licensed Manitoba Certified Arborist for each Work crew or Work Site.
- (b) Employ clean sharp tools and make cuts flush with branch collars. Remove dead and injured branches.

**E34.3.9 Watering**

- (a) Trees are to be watered during the planting procedure as described previously, and once a week thereafter, or more frequently as required, during the growing season.
- (b) Apply 40 litres of water per 25 mm caliper per application using deep root feeder or low/pressure nozzle and hose. The water stream must not gouge out a hole in the soil and mulch.
- (c) A complete record is to be kept of each series of waterings for all planted trees noting: 1) location, and 2) date of watering. This record shall be sent bi-weekly to the Contract Administrator.

**E34.4 Measurement and Payment**

**E34.4.1** Installation and maintenance of trees and shrubs shall be measured on a per unit basis. The amount to be paid for shall be the total number of trees and shrubs supplied and installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

**E34.4.2** Payment for Installation and maintenance of trees and shrubs shall be paid for at the Contract Unit Prices. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

**E35. INSTALLATION OF TURFSTONE PAVERS**

**E35.1 General**

**E35.2 Description**

**E35.2.1** This Specification shall cover the installation of turfstone pavers/tri-lock revetment within the Site.

**E35.3 References**

**E35.3.1** CAN3-A231.2, Precast Concrete Pavers

#### E35.4 Materials

- (a) Concrete turf pavers to be Turfstone Pavers by Barkman Concrete, or approved equivalent in accordance with B7 to match existing.
- (b) Sub-base and base course shall be in accordance with CW 3110.
- (c) Non-woven separation geotextile fabric
- (d) Grass Seed Mixture shall be in accordance with CW 3520

#### E35.5 Construction Methods

- (a) Subgrade preparation shall be in accordance with CW 3110.
- (b) Install Turfstone Pavers as shown on the Drawings and in accordance with CW 3330. The Contractor shall ensure the manufacturer's installation instructions are consistent with this Specification.
- (c) Fill paver voids with seeded topsoil, sod plugs, or a mixture of both to approximately 25 mm below the top of the paver surface. The sod or topsoil mix must be fertilized and kept moist during root establishment (minimum of 3 weeks).

#### E35.6 Measurement and Payment

- E35.6.1 Supply, placement and maintenance of the Turfstone Paver Installation will be measured on an area basis and will be paid for under the item "Supply and Installation of Turfstone Pavers". The area to be paid for shall be the total number of square metres placed and maintained in accordance with this Specification and accepted by the Contract Administrator.



## PART F - SECURITY CLEARANCE

### F1. SECURITY CLEARANCE

- F1.1 Each individual proposed to perform Work under the Contract shall be required to obtain a Police Information Check from the police service having jurisdiction at his place of residence. This can be obtained from one of the following;
- (a) police service having jurisdiction at his/her place of residence; or
  - (b) Sterling BackCheck – for existing account holders, log into your account to send individual invitations to employees requiring security clearance. For those that do not have an account, click on the following link to open an account:  
<https://forms.sterlingbackcheck.com/partners/platform2-en.php?&partner=winnipegcity> ; or
  - (c) Commissionaires (Manitoba Division), forms to be completed can be found on the website at: <https://www.commissionaires.ca/en/manitoba/home> ;or
  - (d) FASTCHECK Criminal Record & Fingerprint Specialists, forms to be completed can be found on the website at: <https://myfastcheck.com>
- F1.2 The following is a link to information for obtaining the Police Information Check including the Vulnerable Sector screening from the City of Winnipeg Police Service.  
<http://winnipeg.ca/police/pr/PIC.stm>
- F1.2.1 The Police Information Check shall include a Vulnerable Sector Screening. This can be obtained by following the link below <http://winnipeg.ca/police/pr/PIC.stm> .
- (a) Individuals will need to state in the form, that they may be working in City of Winnipeg pools, libraries and community centres;
- F1.3 The original Police Information Check (Form P–612) will be provided by the Winnipeg Police Service to the individual applicant. The original has a validation sticker from the Winnipeg Police Service in the top right hand corner. The applicant shall:
- (a) Provide the original Police Information Check (Form P–612) to the Contract Administrator.
- F1.4 Prior to the award of Contact, and during the term of the Contract if additional or replacement individuals are proposed to perform Work, the Contractor shall supply the Contract Administrator with a Police Information Check obtained not earlier than one (1) year prior to the Submission Deadline, or a certified true copy thereof, for each individual proposed to perform the Work.
- F1.5 Any individual for whom a Police Information Check is not provided, or for whom a Police Information Check indicates any convictions or pending charges related to property offences or crimes against another person will not be permitted to perform any Work.
- F1.6 Any Police Information Check obtained thereby will be deemed valid for the duration of the Contract subject to a repeated records search as hereinafter specified.
- F1.7 Notwithstanding the foregoing, at any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require an updated Police Information Check. Any individual who fails to provide a satisfactory Police Information Check as a result of a repeated Police Information Check will not be permitted to continue to perform any Work.