



**THE CITY OF WINNIPEG**

# **TENDER**

**TENDER NO. 114-2021**

**MARYLAND WATER MAIN CROSSING REHABILITATION BY PULLED IN PLACE  
FLEXIBLE LINER**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 MARYLAND WATER MAIN CROSSING REHABILITATION BY PULLED IN PLACE FLEXIBLE LINER

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, May 5, 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.

### **B4. ENQUIRIES**

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

B4.2 If the Bidder finds errors, discrepancies or omissions in the Tender, or is unsure of the meaning or intent of any provision therein, the Bidder shall 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 D4.

## **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) LV Energy Services Ltd. - Constructability
  - (b) IVIS Inc. – Constructability
  - (c) Primus Line CA Inc. - Constructability

## **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 <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; and
- (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);
- (d) upon request of the Contract Administrator, provide the Security Clearances in accordance with PART F - Security Clearance.

B13.4 Further to B13.3(a) upon request the Bidder and/or any proposed Subcontractor completing supply and installation of the Pulled in Place Liner shall demonstrate the following specific qualifications in accordance with B13.9:

- (a) Three (3) examples of successful Pulled in Place Flexible Liner installations in the past five (5) years.
- (b) One (1) example of a potable water (NSF-61) Pulled in Place Flexible Liner installation.

B13.5 Further to B13.3(a) upon request the Bidder shall demonstrate the following specific qualifications for key project personnel (proposed project manager and site foreman) in accordance with B13.9.

- (a) Three (3) examples of successful Pulled in Place Flexible Liner installations in the past five (5) years.
- (b) One (1) example of a potable water (NSF-61) Pulled in Place Flexible Liner installation.

B13.6 Further to B13.4 and B13.5 pipeline cleaning and preparation shall be undertaken by or under the direct supervision of the qualified pulled in place liner installer and pre-qualified key project personnel as defined in B13.3 and B13.4.

B13.7 The Bidder shall submit, within five (5) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the following for the lining systems proposed for use on this project:

- (a) Provide the following for the proposed Pulled in Place Flexible Liner system:
  - (i) Manufacturer
  - (ii) Proposed liner variant or product classification
  - (iii) Proposed design material properties and dimensions
- (b) For the proposed lining system demonstrate the following:
  - (i) A minimum of three (3) successful projects, one (1) of which for potable water (NSF-61), within the last 5 years.

**B13.8** 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/>).

**B13.9** 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 and key project personnel. The Bidder shall utilize Form L: Contractor Experience or provide similar project sheets containing all information identified in Form L: Contractor Experience. Experience provided for key project personnel must be accompanied by a project specific submission for each referenced project, complete with all identified reference contact information.

**B13.10** 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(b).

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 Further to B18.1(a), in the event that a unit price is not provided on Form B: Prices, the City may determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.
- B18.4.2 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. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of rehabilitation of the Maryland Water Main river crossing using a pulled in place flexible liner.

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

- (a) Site access;
- (b) Civil modifications to existing water main piping to facilitate work;
- (c) Pipeline cleaning, preparation, and inspection;
- (d) Rehabilitation of pipeline using pulled in place flexible liner;
- (e) Reassembly of water main piping; and
- (f) Site restoration.

#### D3. DEFINITIONS

D3.1 When used in this Tender:

- (a) "**ANSI**" means American National Standards Institute;
- (b) "**ASTM**" means American Society for Testing and Materials;
- (c) "**AWWA**" means American Water Works Association;
- (d) "**CSA**" means Canadian Standards Association;
- (e) "**Host Pipe**" means the existing sewer or water main intended for rehabilitation through the installation of a pulled in place flexible liner;
- (f) "**ISO**" means International Organization for Standardization;
- (g) "**NSF**" means NSF International;
- (h) "**Pulled in Place Liner**" means a reinforced flexible tube capable of supporting all internal pressures, which is installed within an existing water main.

#### D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is AECOM, represented by:

Nathan Kehler  
Municipal Engineer  
Telephone No.: 204-928-7436  
Email Address: nathan.kehler@aecom.com

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

#### D5. CONTRACTOR'S SUPERVISOR

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

## **D6. NOTICES**

- D6.1 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.
- D6.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D6.3 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator identified in D4.
- D6.3 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

## **D7. FURNISHING OF DOCUMENTS**

- D7.1 Upon award of the Contract, the Contractor will be provided with 'issued for construction' Contract Documents electronically, including Drawings in PDF format only.

## **SUBMISSIONS**

### **D8. AUTHORITY TO CARRY ON BUSINESS**

- D8.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

### **D9. SAFE WORK PLAN**

- D9.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.
- D9.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>
- D9.3 Notwithstanding B13.8 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.

### **D10. INSURANCE**

- D10.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed

motor vehicle liability, non-owned automobile liability and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;

- (b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence.
- (c) The Contractor shall provide and maintain CPL insurance in the amount of at least one million dollars (\$1,000,000) per occurrence and one million dollars (\$1,000,000) aggregate insuring against claims for:
  - (i) Bodily injury;
  - (ii) Property damage including diminution in value, and Natural Resource Damages;
  - (iii) Clean-up costs;
  - (iv) Transported cargo and non-owned disposal sites (blanket basis); and,
  - (v) Sudden and gradual pollution conditions including the further disruption of pre-existing conditions from the services rendered by the Contractor.

D10.2 Deductibles shall be borne by the Contractor.

D10.3 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.

D10.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

## **D11. CONTRACT SECURITY**

D11.1 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.

D11.1.1 Where the contract security is a performance bond, it may be submitted in hard copy or digital format. If submitted in digital format the contract security must meet the following criteria:

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



- (e) the results of the verification must provide a clear, immediate and printable indication of pass or fail regarding D11.1(b).

D11.1.2 Digital bonds failing the verification process will not be considered to be valid and may be determined to be an event of default in accordance with C18.1. If a digital bond fails the verification process, the Contractor may provide a replacement bond (in hard copy or digital format) within seven (7) Calendar Days of the City's request or within such greater period of time as the City in its discretion, exercised reasonably, allows.

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

D11.2 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.

D11.3 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 D11.1(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.

## **D12. SUBCONTRACTOR LIST**

D12.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.

## **D13. EQUIPMENT LIST**

D13.1 The Contractor shall provide the Contract Administrator with a complete list of the equipment which the Contractor proposes to utilize (Form K: Equipment List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.

## **D14. DETAILED WORK SCHEDULE**

D14.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents if applicable.

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

- (a) a critical path method (C.P.M.) schedule for the Work.

D14.3 Further to D14.2(a), the C.P.M. schedule shall clearly identify the start and completion dates of all of the following activities/tasks making up the Work as well as showing those activities/tasks on the critical path:

- (a) Mobilization(s) to site;
- (b) Pipeline access and Civil modifications to water main piping;
- (c) Water main cleaning and prep work;
- (d) Installation of pulled in place flexible liner;
- (e) Water main piping reassembly;
- (f) Leakage testing;
- (g) Pipeline disinfection;

- (h) Restoration; and
- (i) Planned breaks in the performed work pursuant to D17.7.

D14.4 The Contractor shall provide an updated detailed work schedule at least once per month or within two (2) Business Days of a request by the Contract Administrator.

## **SCHEDULE OF WORK**

### **D15. COMMENCEMENT**

D15.1 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.

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

- (a) the Contract Administrator has confirmed receipt and approval of:
  - (i) evidence of authority to carry on business specified in D8;
  - (ii) evidence of the workers compensation coverage specified in C6.15;
  - (iii) the Safe Work Plan specified in D9;
  - (iv) evidence of the insurance specified in D10;
  - (v) the contract security specified in D11;
  - (vi) the Subcontractor list specified in D12;
  - (vii) the equipment list specified in D13; and
  - (viii) the detailed work schedule specified in D14.
- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.

### **D16. SCHEDULE RESTRICTIONS**

D16.1 Water Main Service Disruption

D16.1.1 Disruption of the water main service to facilitate the installation of the 250 mm gate valve impacts the south water service to the Misericordia Health Centre. The Contractor shall provide notice to the Contract Administrator a minimum of ten (10) business days prior to gate valve installation.

D16.1.2 Disruption of water service to facilitate installation of the 250 mm gate valve shall be limited to a maximum duration of twelve (12) hours.

D16.2 Water Main Crossing Shutdown

- (a) The water main shall be handed over to the City ready for return to service within forty-five (45) Calendar Days of disassembly upon commencement of the Work.

### **D17. WORKING DAYS**

D17.1 Further to C1.1(tt), the Contract Administrator's determination of whether or not atmospheric and Site conditions are such that a Working Day is deemed to have elapsed may be based at one time on one type of work while at another time a Working Day may be based on another type of work. When more than one type of major work is involved, the quantity of equipment that must be able to work in order to meet the requirements of a Working Day may vary considerably from that specified in the General Conditions.

D17.2 In the event that incidental work is behind schedule which, in the opinion of the Contract Administrator, should have been or could have been carried out by the Contractor in conjunction with or immediately following work of a major type, the City hereby reserves the right to charge Working Days on the incidental work until such time as it is up to schedule.

- D17.3 When the major type of work involves restoration of the site to the condition it was prior to rainfall, Working Days shall not be charged.
- D17.4 The Contract Administrator will furnish the Contractor with a daily record for each major type of work showing various information concerning the equipment, the time it worked, could have worked and Working Days charged. This report is to be signed each day by an authorized representative of the Contractor.
- D17.5 Notwithstanding C1.1(tt) if the Contractor chooses to work on a Saturday, Sunday, or statutory or civic holiday and is able to complete at least seven (7) hours of work during the period between 7:00 a.m. Winnipeg time or the time the Contractor's operations normally commence, whichever is earlier, and 7:00 p.m. Winnipeg time the day shall be considered a Working Day.
- D17.6 Working Days shall be incurred by the Contractor for every Working Day as defined herein. Working days shall be incurred starting on the date the Contractor commences work on site, or the date of commencement identified on the Contractors submitted schedule (D14), whichever occurs first.
- D17.7 Planned Breaks in Construction
- (a) The Contractor will be permitted planned suspensions of on-site construction to facilitate crew breaks and seasonal weather breaks where contract work is not completed. Working Days will not be incurred during these periods.
  - (b) All planned breaks in on-site construction activity must be clearly identified in the Contractors detailed construction schedule (D14) and notice must be provided in writing a minimum of two (2) Business Days prior to the planned suspension of work. Failure of the Contractor to provide adequate notice, in the opinion of the Contract Administrator, may result in Working Days being incurred.
  - (c) During these periods, the Site must be made secure, roadways completely operational, and all existing facilities and work in progress be protected from weather or other potentially harmful effects.
  - (d) Upon recommencement of site activities after long breaks (greater than 1 month), the Contractor shall provide an updated schedule and notification to the Contract Administrator a minimum of five (5) Business Days prior to recommencement of work.
  - (e) No changes to the Contract completion dates resulting from suspension of contract time as described herein will be considered.
- D17.8 No additional costs associated with demobilization and remobilization resulting from suspension of contract time will be considered.

## **D18. SUBSTANTIAL PERFORMANCE**

- D18.1 The Contractor shall achieve Substantial Performance within twenty five (25) consecutive Working Days of the commencement of the Work as specified in D15, or by November 30, 2021, whichever comes first.
- D18.2 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.
- D18.3 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.

## **D19. TOTAL PERFORMANCE**

- D19.1 The Contractor shall achieve Total Performance within thirty five (35) consecutive Working Days of the commencement of the Work as specified in D15, or by July 8, 2022 whichever comes first.
- D19.2 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.
- D19.3 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.

## **D20. LIQUIDATED DAMAGES**

- D20.1 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 (\$1,800.00).
  - (b) Total Performance – Five Hundred Dollars (\$500.00).
- D20.2 The amounts specified for liquidated damages in D20.1 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.
- D20.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

## **D21. COVID-19 SCHEDULE DELAYS**

- D21.1 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.
- D21.2 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.
- D21.3 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.
- D21.4 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 D21.3. Failure to provide this notice will result in no additional time delays being considered by the City.
- D21.5 The Work schedule, including the durations identified in D18 to D19 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.

- D21.6 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.
- D21.7 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.

## **CONTROL OF WORK**

### **D22. JOB MEETINGS**

- D22.1 Regular bi-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 B13.8, 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 B13.8.

## **MEASUREMENT AND PAYMENT**

### **D25. PAYMENT**

- D25.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

## **WARRANTY**

### **D26. WARRANTY**

- D26.1 Warranty is as stated in C13.

## **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 D10, 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 D10, 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 D10.3, 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.

**FORM H1: PERFORMANCE BOND**  
(See D11)

KNOW ALL MEN BY THESE PRESENTS THAT

\_\_\_\_\_ ,  
(hereinafter called the "Principal"), and

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

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

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

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

TENDER NO. 114-2021

MARYLAND WATER MAIN CROSSING REHABILITATION BY PULLED IN PLACE FLEXIBLE LINER

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

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

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

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

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

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

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



SIGNED AND SEALED  
in the presence of:

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

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

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

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

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

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

**FORM H2: LABOUR AND MATERIAL PAYMENT BOND**  
(See D11)

KNOW 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. 114-2021

MARYLAND WATER MAIN CROSSING REHABILITATION BY PULLED IN PLACE FLEXIBLE LINER

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
  - (i) 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;

- (ii) 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;
  - (iii) other than in a court of competent jurisdiction in the Province of Manitoba.
- (d) The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics liens which may be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against this bond.
- (e) The Surety shall not be liable for a greater sum than the specified penalty of this bond.

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

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

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

SIGNED AND SEALED  
in the presence of:

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

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

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

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

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

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



**FORM K: EQUIPMENT**  
(See D13)

MARYLAND WATER MAIN CROSSING REHABILITATION BY PULLED IN PLACE FLEXIBLE LINER

<p>1. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>2. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>3. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>

**FORM K: EQUIPMENT**  
(See D13)

MARYLAND WATER MAIN CROSSING REHABILITATION BY PULLED IN PLACE FLEXIBLE LINER

<p>4. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>5. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>6. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>

**FORM L: CONTRACTOR EXPERIENCE**

(See B13)

MARYLAND WATER MAIN CROSSING REHABILITATION BY PULLED IN PLACE FLEXIBLE LINER

Attach. additional resumes and documents as required. Indicate whether Projects/Project Personnel are for Contractor or Subcontractor, and if applicable include name of Subcontractor.

**Project References:**

Project Client/Contact: \_\_\_\_\_

(Name)

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(phone)

\_\_\_\_\_  
(email)

<u>Year</u>	<u>Description of Project, including type of pipe</u>	<u>Value</u>
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_____	_____	_____
_____	_____	_____
_____	_____	_____

**Project References:**

Project Client/Contact: \_\_\_\_\_

(Name)

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(phone)

\_\_\_\_\_  
(email)

<u>Year</u>	<u>Description of Project, including type of pipe</u>	<u>Value</u>
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_____	_____	_____
_____	_____	_____
_____	_____	_____

**FORM L: CONTRACTOR EXPERIENCE**

(See B13)

MARYLAND WATER MAIN CROSSING REHABILITATION BY PULLED IN PLACE FLEXIBLE LINER

**Project Personnel:**

Name and Title: \_\_\_\_\_  
(Name)

Qualifications: (attach resume and fill out information below)

<u>Year</u>	<u>Description of Past Project</u>	<u>For Whom Work Was Performed</u>	<u>Value</u>

**Project Personnel:**

Name and Title: \_\_\_\_\_  
(Name)

Qualifications: (attach resume and fill out information below)

<u>Year</u>	<u>Description of Past Project</u>	<u>For Whom Work Was Performed</u>	<u>Value</u>

**Project Personnel:**

Name and Title: \_\_\_\_\_  
(Name)

Qualifications: (attach resume and fill out information below)

<u>Year</u>	<u>Description of Past Project</u>	<u>For Whom Work Was Performed</u>	<u>Value</u>



## 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>Appendix No.</u>	<u>Appendix Title</u>
A	Record Drawings
B	Site Photos
C	PICA Inspection Report

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
D-15835	Cover Sheet
D-15836	Plan/Profile
D-15837	Details

### GENERAL REQUIREMENTS

#### E2. ENVIRONMENTAL PROTECTION

- E2.1 The Contractor shall be aware that water mains and associated infrastructure is for potable water and no contamination by fuel, chemicals, etc. shall be permitted at any time. Fuels or chemicals shall not be stored within 30 metres of the existing chambers, excavations, etc.
- E2.2 The Contractor shall plan and implement the Work of this Contract strictly in accordance with the requirements of the environmental protection measures as herein specified.
- E2.3 The Contractor is advised that at least the following Acts, Regulations, and By-laws apply to the Work:
- E2.3.1 Federal
- (a) Canadian Environmental Protection Act (CEPA) c.16;
  - (b) Canadian Environmental Assessment Act (CEAA) c.37;
  - (c) Transportation of Dangerous Goods Act and Regulations c.34; and
  - (d) Migratory Birds Convention Act, 1994
- E2.3.2 Provincial
- (a) The Dangerous Goods Handling and Transportation Act D12;

- (b) The Endangered Species Act E111;
- (c) The Environment Act c.E125;
- (d) The Fire Prevention Act F80;
- (e) The Manitoba Heritage Resources Act H39.1;
- (f) The Manitoba Noxious Weeds Act N110;
- (g) The Manitoba Nuisance Act N120;
- (h) The Public Health Act c.P210;
- (i) The Workplace Safety and Health Act W210; and
- (j) And current applicable associated regulations.

#### E2.3.3 Municipal

- (a) The City of Winnipeg By-law no. 1/2008;
- (b) The City of Winnipeg Waterway By-Law no. 5888/92; and
- (c) Other applicable Acts, Regulations and By-laws.

#### E2.4 The Contractor is advised that the following environmental protection measures apply to the Work.

##### E2.4.1 Materials Handling and Storage

- (a) Construction materials and debris shall be prevented from entering drainage pipes or channels.
- (b) Construction materials and debris shall also be prevented from accumulating on local roadways and sidewalks when tracked out of the Site by trucks hauling excavated materials.
- (c) The Contractor shall provide on-Site measures to mitigate the tracking of sediment off-Site and therefore reduce the amount of street cleaning required. These measures may take the form of a truck wheel wash (automated or manually operated) or other measures as approved by the Contract Administrator.

##### E2.4.2 Fuel Handling and Storage

- (a) 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.
- (b) 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.
- (c) 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.
- (d) The Contractor shall ensure that all fuel storage containers are inspected daily for leaks and spillage.
- (e) Products transferred from the fuel storage area(s) to specific Work Sites shall not exceed the daily usage requirement.
- (f) 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.
- (g) Refuelling of mobile equipment and vehicles shall take place at least 100 metres from a watercourse.
- (h) 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.

- (i) A sufficient supply of materials, such as absorbent material and plastic oil booms to clean up minor spills shall be stores nearby on-site. The Contractor shall ensure that additional material can be made available on short notice.

#### E2.4.3 Waste Handling and Disposal

- (a) The construction area shall be kept clean and orderly at all times during and at completion of construction.
- (b) 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.
- (c) 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).
- (d) Indiscriminate dumping, littering, or abandonment shall not take place.
- (e) No on-site burning of waste is permitted.
- (f) Waste storage areas shall not be located so as to block natural drainage.
- (g) Run-off from a waste storage area shall not be allowed to cause siltation of a watercourse.
- (h) 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.
- (i) Equipment shall not be cleaned near watercourses; contaminated water from onshore cleaning operations shall not be permitted to enter watercourses.

#### E2.4.4 Dangerous Goods/Hazardous Waste Handling and Disposal

- (a) Dangerous goods/hazardous waste are identified by, and shall be handled according to, The Dangerous Goods Handling and Transportation Act and Regulations.
- (b) The Contractor shall be familiar with The Dangerous Goods Handling and Transportation Act and Regulations.
- (c) 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.
- (d) Different waste streams shall not be mixed.
- (e) Disposal of dangerous goods/hazardous wastes shall be at approved hazardous waste facilities.
- (f) Liquid hydrocarbons shall not be stored or disposed of in earthen pits on-site.
- (g) 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.
- (h) Used oil filters shall be drained, placed in suitable storage containers, and buried or incinerated at approved hazardous waste treatment and disposal facilities.
- (i) Dangerous goods/hazardous waste storage areas shall be located at least 100 metres away from the high water line and be diked.
- (j) Dangerous goods/hazardous waste storage areas shall not be located so as to block natural drainage.
- (k) Run-off from a dangerous goods/hazardous waste storage area shall not be allowed to cause siltation of a watercourse.
- (l) 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.

#### E2.4.5 Emergency Response

- (a) The Contractor shall ensure that due care and caution is taken to prevent spills.

- (b) The Contractor shall report all major spills of petroleum products or other hazardous substances with the potential for impacting the environment and threat to human health and safety to the Contract Administrator and Manitoba Environment, immediately after occurrence of the environmental accident, by calling the 24-hour emergency telephone phone number (204) 945-4888. The Contract Administrator shall also be notified.
- (c) The Contractor shall designate a qualified supervisor as the on-site emergency response coordinator for the project. The emergency response coordinator shall have the authority to redirect manpower in order to respond in the event of a spill.
- (d) 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 coordinator:
  - (i) Notify emergency-response coordinator of the accident:
    - identify exact location and time of accident
    - indicate injuries, if any
    - request assistance as required by magnitude of accident (Manitoba Environment 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 and the Aqueduct
  - (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 sorbent material or dry clay soil or sand
    - prevent spill material from entering waterways and utilities by diking
    - prevent spill material from entering Aqueduct manholes and other openings by covering with rubber spill mats or diking
  - (v) Resume any effective action to contain, clean up, or stop the flow of the spilled product.
- (e) The emergency response coordinator shall ensure that all environmental accidents involving contaminants shall be documented and reported to the Manitoba Environment according to The Dangerous Goods Handling and Transportation Act Environmental Accident Report Regulation 439/87.
- (f) 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.
- (g) 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.
- (h) City emergency response, 9-1-1, shall be used if other means are not available.

## E2.5 Vegetation

- (a) Vegetation shall not be disturbed without written permission of the Contract Administrator. The Contractor shall protect plants which may be at risk of accidental damage. Such measures may include protective fencing or signage.

- (b) Herbicides and pesticides shall not be used adjacent to any surface watercourses.
- (c) All landowners adjacent to the area of application of herbicides or pesticides shall be notified prior to the Work.
- (d) Trees and shrubs shall not be felled into watercourses.
- (e) Areas where vegetation is removed during clearing, construction, and decommissioning activities, shall be revegetated as soon as possible in accordance the requirements outlined herein, or as directed by the Contract Administrator.

#### E2.6 Measurement and Payment

- (a) The work covered in this section will be considered incidental to the Work and will not be measured for payment. No additional payment will be made.

### **E3. SHOP DRAWINGS**

#### E3.1 Description

- (a) This Specification shall revise, amend, and supplement the requirements of CW 1110 of the City of Winnipeg's Standard Construction Specifications.

#### E3.2 Submit all Shop Drawings in accordance with CW 1110 except as modified herein.

#### E3.3 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.

#### E3.4 Submit Shop Drawing submissions within five (5) Calendar days of a request as indicated in E3 or receipt of Notice of Award in accordance with B19, whichever is earlier.

#### E3.5 Allow for a five (5) Calendar day period for review by the Contract Administrator of each individual submission and re-submission, unless noted otherwise in the Contract Documents.

#### E3.6 Shop Drawings not meeting the requirements of CW 1110 or the requirements specified herein will be returned to the Contractor without review for resubmission.

#### E3.7 Review of Shop Drawings by the Contract Administrator will be limited two (2) reviews per Shop Drawing. This shall include a review of the initial submission and a review of the revised submission. Costs associated with subsequent reviews will be billed of the Contractor.

#### E3.8 Measurement and Payment

- (a) The provision of Shop Drawings shall be considered incidental to the Work and will not be measured for payment and no additional payment will be made.

### **E4. MOBILIZATION AND DEMOBILIZATION**

#### E4.1 Description

- (a) This Specification shall govern Mobilization and Demobilization from site.

#### E4.2 Measurement and Payment

##### E4.2.1 Mobilization and Demobilization

- (a) Mobilization and demobilization will be measured on a lump sum basis and paid for at the Contract Lump Sum Price for "Mobilization and Demobilization". Payment for Mobilization and demobilization shall include all costs associated with mobilization and demobilization, site set up, and cleanup. Payment will be made on the following schedule:
  - (i) 50% payment of the Mobilization and Demobilization lump sum price will be paid once crews arrive on site to commence Civil modification works.

- (ii) The remaining 50% of the Mobilization and Demobilization lump sum price will be paid upon completion of the following
  - ◆ Handover of the water main to the City for return to service;
  - ◆ Removal and backfill of all shoring and removal of all temporary work platforms;
  - ◆ Rough site grading; and,
  - ◆ Site cleanup, excluding final site restoration (pavement works and sodding).
- (iii) Notwithstanding E4.2.1(a)(i) the initial payment for Mobilization and Demobilization will be limited to ten percent (10%) of the total Contract value.

## **E5. SITE ACCESS**

### **E5.1 Site Access Requirement and Constraints**

- (a) Maryland Water Main (Sherbrook Street / Maryland Street at Maryland Bridge from Cornish Avenue to Wellington Crescent)
  - (i) Access to north side of crossing is located on Cornish Avenue.
  - (ii) Access to south side of crossing is through access gate located in northwest corner of Shaarey Zedek Synagogue parking lot. Coordinate access with the Contract Administrator.
  - (iii) The available clearance below the bottom of the east bridge structure on the south side of the crossing is approximately 3.1 m. The Contractor is responsible for confirming clearances prior to commencing work.
  - (iv) The Contractor may utilize northbound and southbound median lanes of the Maryland Bridge to facilitate equipment and material drop-offs. Lane closures shall follow regional street lane closure requirements in accordance with E7.
  - (v) The Contractor shall develop site access as required to complete the work.
  - (vi) The Contractor shall keep construction activities within the City of Winnipeg easements.
  - (vii) Maintain access to all private approaches.
  - (viii) Contractor shall be responsible for providing and maintaining all necessary traffic control in accordance with E7 and the City of Winnipeg Manual of Temporary Traffic Control.
- (b) The Contractor shall exercise caution to prevent damage to existing pavements, curbs, sidewalks, grassed areas, and trees. Surface restoration of damaged areas caused by the Contractor outside of the designated construction areas shall be the responsibility of the Contractor.
- (c) Where site access utilizes multi-use pathways, the pathways must remain open to public use. Ensure adequate delineation, fencing, flagging or other measures are used to protect public.
- (d) Where tracked equipment is utilized, protect pathways from damage with planking. No payment will be made for damages caused by equipment tracks on unprotected surfaces.
- (e) Where site access utilizes grassed right-of-ways, limit access for heavy equipment to a single pathway directly from street to work area. Protect grassed areas with planking or other measures to minimize rutting and damage.
- (f) Laydown and storage areas shall be staged away from areas prone to damage.
- (g) The Contractor shall maintain access to all businesses during business hours, except where written authorization has been provided by the business.
- (h) The Contractor is responsible for maintaining safe vehicular traffic through their work site. The Contractor shall rectify any unsafe conditions immediately upon notification. This could

include but is not limited to providing flag persons, clearing debris and snow from sites, moving equipment, and erecting additional signage.

**E5.2 Measurement and Payment**

- (a) Development of site access will be considered incidental to "Pipeline Access" and will not be measured for payment. No separate payment will be made.

**E6. EXCAVATION, SHORING, AND BACKFILL**

**E6.1 Description**

- (a) This Specification covers the requirements for excavations and backfilling of trenches, pipelines, and structures.

**E6.2 Submittals**

- (a) Shop Drawings for all excavation shoring (where required) shall be prepared and submitted a minimum of five (5) Business Days prior to undertaking the excavation and shoring installation. Where required by Workplace Safety and Health Regulation, shoring Shop Drawings shall be sealed by a Professional Engineer, registered in the Province of Manitoba, experienced in the design of excavation shoring systems.

**E6.3 Approvals**

- (a) City of Winnipeg Waterways approvals have been submitted and will be in place prior to the start of construction.

**E6.4 Shoring Design**

- (a) Shoring shall be provided for excavations in accordance with CW 2030.
- (b) Excavation shoring shall be designed to accommodate the installation of all pipe and fittings.
- (c) All shoring systems shall comply with Manitoba Workplace Safety and Health requirements.

**E6.5 Excavation**

- (a) Material from excavations shall not be stockpiled on the riverbank, or within 30 metres of the top of the riverbank.
- (b) Granular materials, pipe bedding, and other materials shall not be stockpiled on the riverbank, or within 30 metres of the top of the riverbank.
- (c) Materials shall not be stockpiled over pipelines.
- (d) Excess excavation material from excavations shall be disposed of off-site.
- (e) Granular bedding in the vicinity of existing pipelines shall be dewatered and stabilized prior to undermining pipes to prevent loss of granular pipe foundation.
- (f) Carefully excavate to expose existing pipelines. Excavation within 1.0 m of the pipe shall be done using soft dig or hand excavation methods to prevent damage to the pipe.
- (g) The Contractor shall undertake all efforts to prevent freezing of soils underlying existing pipelines, bedding and backfilling will not be permitted overtop of frozen soils. Excavations left open when nighttime atmospheric temperatures are expected to drop below 0°C shall be horded and heated as required to keep soils and pipelines from freezing.
- (h) Provide heating and hoarding around the lower portion of the excavation and pipe during freezing conditions.

**E6.6 Backfill**

- (a) Backfill within 1 m of existing and proposed pavements shall be completed to CW 2030, Class 2 standards.

- (b) Backfill under paths and walkways shall be completed to CW 2030, Class 2 standards.
- (c) Backfill within 1 metre of existing concrete structures shall be completed with free draining pit run granular material to CW 2030, Class 2 standards. The top 600 millimetres of the backfill adjacent to concrete structures shall be insitu clay material completed to CW 2030, Class 4 standards.
- (d) All other areas shall be backfilled with a Class 4 backfill unless otherwise noted on the Drawings.
- (e) The Contractor shall undertake all efforts to prevent excavated material intended for backfilling from freezing. Backfilling with frozen materials will not be permitted.

**E6.7 Measurement and Payment**

- (a) Excavation, shoring, and backfilling for excavations will be considered incidental to "Pipeline Access" and will not be measured for payment. No separate payment will be made.

**E7. WATER SUPPLY**

**E7.1 Further to specifications CW 1120, Section 3.1, CW 2140 and CW 2145, water supply for the Work may be taken from City of Winnipeg hydrants in accordance with the following:**

- (a) Only hydrants approved by the Water Services Division (WSD) shall be used for water supply.
- (b) The Contractor shall supply and use a Backflow Protection Arrangement as shown on Standard Drawing SD-019 when taking water from City hydrants. Alternatively, the Contractor may rent the Backflow Protection Arrangement from the WSD if available. WSD will supply a meter and locks for the Backflow Protection Arrangement.
- (c) The Contractor is permitted to turn approved hydrants on and off provided the Contractor has received training by the Water Services Division and the turn-ons and turn-offs are done in the presence of the Contract Administrator.
- (d) Hydrants approved for use shall be considered to be "in the Contractor's control" from the time the City has turned the hydrant on until the Contractor has notified the City the hydrant is no longer being used and the meter box has been removed.
- (e) Between November 1 and April 30 of any year the Contractor shall take all necessary precautions to prevent freezing of hydrants and related appurtenances for hydrants in their control and shall be responsible to pump out hydrants turned off by Emergency Services. Heating and hoarding of hydrants will be required by the Contractor.
- (f) If a hydrant or appurtenance is damaged due to freezing or improper turn-on or turn-off procedures while in the Contractor's control, WSD will assess the damage and determine if WSD will repair the damage or if the Contractor will be responsible to repair the damage. Costs for repairs completed by WSD will be deducted from payments owing the Contractor. Repairs completed by the Contractor will be at the Contractor's expense.
- (g) Erect and maintain signage (bump signs) warning oncoming traffic of hose crossings to the satisfaction of the Contract Administrator and the Manual of Temporary Traffic Control. Construct ramps as shown on attached Drawing D-8211.
- (h) Direct hook-up of pipeline flushing equipment to a hydrant is not permitted unless approved by the Contract Administrator.
- (i) WSD may instruct the Contractor to make other arrangements for hydrant turn-ons and turn-offs.

**E7.2 Measurement and Payment**

- (a) The supply of the Backflow Protection Arrangement or rental of same from WSD will be considered incidental to the Work and will not be measured for payment. No additional payment will be made.



- (b) All costs associated with heating and hoarding will be considered incidental to the Work and will not be measured for payment. No additional payment will be made.
- (c) Further to Section 3.7 of CW 1120, charges incurred for the permit and water meters shall be paid for by the Contractor when taken out. The Contractor shall forward the invoice to the Contract Administrator for reimbursement. The billing for water usage sent to the Contractor shall be forwarded to the Contract Administrator for payment. The Bid Opportunity number shall be noted on each permit.

## **E8. TRAFFIC MANAGEMENT**

- E8.1 Further to Section 3.7 of CW 1130 of the General Requirements the Contractor shall be responsible to redirect and maintain traffic with appropriate signing in accordance with The City of Winnipeg, "Manual of Temporary Traffic Control in Work Areas on City Streets" at all times during construction.
- E8.2 Maintain access for approaches, driveways, public lanes and crossing streets for all locations.
- E8.3 The Contractor shall maintain access to all businesses during business hours, except where written authorization has been provided by the business.
- E8.4 The Contractor shall maintain access to all schools, community centres, and other public buildings at all times.
- E8.5 Further to Section 3.6 of CW 1130 of the General Requirements, the Contractor shall maintain safe pedestrian crossings at intersections at all times. If possible, only one pedestrian crossing at an intersection is to be blocked by construction at any one time. If more than one pedestrian crossing is blocked by construction at an intersection at the same time the Contractor shall provide flag persons to safely escort pedestrians across the intersection. The Contractor shall leave pedestrian crossing locations safe and free of equipment that may hamper pedestrians when no construction activities are being performed at a particular crossing location.
- E8.6 Further to Clause 3.7 of CW 1130 of the General Requirements, should the Contractor be unable to maintain pedestrian or vehicular access to a residence or business, he/she shall review the planned disruption with the business or residence and the Contract Administrator, and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of 24 hours notification to the affected residence or business and the Contract Administrator, prior to disruption of access.
- E8.7 The Contractor shall not park company or private vehicles inside the barricaded work zone in a manner that will block sightlines for vehicles and pedestrians approaching and crossing intersections.
- E8.8 The Contractor is responsible for maintaining safe vehicular and pedestrian traffic through their work site as identified herein. The Contractor shall rectify any unsafe conditions immediately upon notification. This could include but is not limited to, providing flag persons, clearing debris and snow from sites, moving equipment, and erecting additional signage.
- E8.9 Regional Street Lane Closures
  - E8.9.1 The Contractor shall submit all regional lane closure requests to the Contract Administrator a minimum of five (5) Business Days prior to the planned work. Requests for regional lane closures shall include all required information for submission required by the City's online request form. A link to the form can be found here:  
<http://www.winnipeg.ca/publicworks/trafficcontrol/laneclosures/LaneClosuresMap.asp>.
- E8.10 Residential Streets
  - (a) Where complete street closures are required, the Contractor shall provide notice of complete street shutdowns complete with dates and duration a minimum of five (5) Business Days prior to the street closures.

- E8.11 Notwithstanding the requirements noted herein and CW 1130, the Contractor shall maintain the following minimum site specific traffic control requirements:
- (a) The Contractor may request complete lane closure of Cornish Avenue in accordance with the following:
    - (i) The Contractor shall maintain access to the Misericordia Health Centre drop off lane located on the south side of Hospital at all times.
    - (ii) Further to E8.11(a)(i), access from both southbound Maryland Street and northbound Sherbrook Street shall be maintained at all times to allow for access to Misericordia Health Centre drop off lane.
    - (iii) Traffic control for complete road closure will be completed by Traffic Services. All other traffic control shall be completed by the Contractor.
    - (iv) Advanced warning signage of closure to be located north of Wolseley Avenue on Maryland Street will be provided by Traffic Services.
    - (v) "NO EXIT" signage to be located at the turn off at Cornish Avenue and Maryland Street will be provided by Traffic Services.
    - (vi) Closure of Cornish Avenue shall not commence until all signage and required traffic control is in place.
  - (b) Lane closures on the Maryland Bridges shall only be undertaken outside of weekday peak hours.
- E8.12 Measurement and Payment
- (a) Traffic management as outlined here will be considered incidental to the Work and will not be measured for payment. No separate payment will be made.

## **E9. PIPELINE MODIFICATIONS**

### **E9.1 Description**

- (a) This Specification shall cover the modification of water mains as required for cleaning, inspection, and lining of the water main.

### **E9.2 Description of Work:**

#### **E9.2.1 Piping Modifications:**

- (a) See Drawings for details and location of valve installation.
- (b) Install 250 gate valve upstream of existing launch wye on north side of river crossing as shown on the Drawings.
- (c) Disassemble and remove existing launch wye assemblies to facilitate rehabilitation of the water main. Reassemble upon completion of work.

#### **E9.2.2 Provisional Bend Replacement**

- (a) The Contractor shall be aware of the potential for a sharp bend at STA 0+128.51 which may impede cleaning, inspection, and liner installation works. A provisional work item for to remove and replace existing bend at STA 0+128.51 with a long radius or equivalent bend has been included in this the contract.
- (b) The Contractor shall be prepared to complete the bend replacement if required and have components to facilitate the work on site or readily available. As the exact configuration of the water main at that location is unknown, the Contractor shall review the replacement works with the Contract Administrator on site prior to backfilling.
- (c) All materials and workmanship shall conform to City of Winnipeg standards.

### **E9.3 Submissions:**

- E9.3.1 Submit Shop Drawings for all permanent and temporarily installed fittings, valves, piping and couplings in accordance with E3.

## E9.4 Products

### E9.4.1 Fasteners

- (a) Bolts for all sleeve style couplings and/or restraints shall be ASTM F593 or ASTM F738M, type 316 stainless steel.
- (b) Nuts for all sleeve style couplings and/or restraints shall be ASTM F594 or ASTM F836M, type 316 stainless steel.
- (c) Anti-seize compound shall be used on all bolts.
- (d) Dielectric washers and sleeves shall be used wherever stainless steel hardware is used on ferrous metal fittings. Flange isolation kits shall be a double flange isolation kit with insulating sleeves and washers. Bolt sleeves and washers shall be comprised of G10 and G11 epoxy glass.
- (e) All steel bolting hardware shall be liquid epoxy coated in accordance with AWWA C116, E9.4.7 after assembly.

### E9.4.2 PVC Pipe and Fittings

- (a) PVC pipe and fittings shall conform to AWWA C900 and CSA B137.3.
- (b) Pipe and fittings shall meet the following minimum requirements:
  - (i) Shall have a dimension ratio (DR) of 18.

### E9.4.3 Gate Valves

- (a) As per City of Winnipeg Approved Products.

### E9.4.4 Pipe Couplings

- (a) Pipe couplings shall conform to AWWA C219.
- (b) Minimum requirements for sleeve couplings are:
  - (i) Center sleeve length: 250 mm
  - (ii) Center sleeve thickness for steel couplings: 9.5 mm
  - (iii) Couplings capable of accommodating up to 2 degrees deflection
  - (iv) Design pressure 150 psi
- (c) All hardware shall be type 316 stainless steel in accordance with E9.4.1 and shall utilize di-electric insulating boots.
- (d) Couplings to be fusion bonded epoxy coated in accordance with E9.4.7.
- (e) Buried pipe couplings shall be further protected against corrosion by wrapping the assembled coupler with petrolatum tape coating system in accordance with E9.4.9.

### E9.4.5 Coatings

- (a) Unless otherwise specified herein coatings for all metal chamber piping and fittings shall be a liquid epoxy meeting the requirements of E9.4.6. As an alternative to liquid epoxy, the contractor shall have the option to use fusion bonded epoxy in accordance with E9.4.7.
- (b) Field-applied pipe coatings for above ground piping shall be a liquid epoxy meeting the requirements of E9.4.6.

### E9.4.6 Liquid Epoxy Coatings

- (a) Liquid epoxy coatings shall conform to AWWA C210.
- (b) Liquid epoxy coatings shall be NSF 61 certified for immersion service in feeder main and water main pipelines.
- (c) All coatings shall be applied in a minimum of two (2) or more layers (5 mils dry film thickness minimum each coat) for a minimum final coating dry film thickness of the greater of 16 mils or the thickness recommended by the manufacturer for immersion service.

(d) Exterior coatings for all exposed steel, piping, valves, and actuators shall be Polyamide Epoxy. Approved products: Enviroline 230, Bar-Rust 234P, Specialty Polymer Coatings SP-7888, Tnemec Series 140F Pota-Pox Plus, Amerlock 2 or approved equal in accordance with B7.

(e) Submit product data for interior lining and exterior coating products.

#### E9.4.7 Fusion Bonded Epoxy Coatings

(a) Fusion bonded epoxy coatings shall conform to AWWA C213 for steel components and AWWA C116 for ductile iron fittings.

(b) Fusion bonded epoxies shall be NSF 61 certified for immersion service in feeder main and water main pipelines.

(c) The final minimum coating thickness shall be the greater of 16 mils or the thickness recommended by the manufacturer for immersion service.

(d) Submit product data for interior lining and exterior coating products.

#### E9.4.8 Galvanic Anodes

(a) Galvanic anodes for cathodic protection of buried ferrous pipes and fittings shall be 10.9 kg pre-packaged zinc anodes to City of Winnipeg specification.

#### E9.4.9 Petrolatum Tape Corrosion Protection System

(a) Petrolatum tape corrosion protection system shall consist of the following components:

(i) Petrolatum paste primer

(ii) Void-filling mastic filler

(iii) Petrolatum tape

(iv) Protective outerwrap

(b) Petrolatum tape systems shall conform to AWWA C217.

(c) Approved products: Petrolatum tape system manufactured by Denso North America Inc., Trenton Corporation, Petro Coating Systems Ltd, or approved equal in accordance with B7.

(d) Submit Shop Drawings for petrolatum wrapping system in accordance with CW1110.

### E9.5 Methods

#### E9.5.1 Installation of Lead Wires, Continuity Bonding and Galvanic Anodes

(a) Anodes and continuity bonding shall be installed on new and existing pipes and fittings where shown on the Drawings or as directed by the Contract Administrator.

#### E9.5.2 Installation of Petrolatum Tape Corrosion Protection Systems

(a) Install in accordance with AWWA C217 and the manufactures recommendations.

(b) For all surfaces to be wrapped with the corrosion protection system, remove loose rust, paint and foreign matter by hand and/or power tool cleaning in accordance with SSPC-SP-2 or SSPC-SP-3.

(c) Apply a thin uniform coat of petrolatum paste primer, using a glove or brush, to all surfaces to be wrapped with the corrosion protection system.

(d) Apply void-filling mastic filler, by hand, to all flanges designated to be wrapped with the corrosion protection system. Mold the mastic to a rounded configuration around the flange, filling all spaces around fasteners and eliminating sharp edges and irregular shapes.

(e) Spirally wrap the petrolatum tape, using a minimum 25mm overlap, over the primed and mastic-filled pipe and flange surfaces. While wrapping, press out all air pockets and smooth all lap seams.

- (f) Spirally wrap clear outerwrap, using sufficient tension to make a tight-fitting cover, over the petrolatum tape.

E9.5.3 Bedding

- (a) All pipes shall be installed in accordance with CW2030, utilizing a Class B bedding

E9.5.4 Installation of Gate Valves

- (a) Disruption of the water main service to facilitate the installation of the 250 mm gate valve impacts the south water service to the Misericordia Health Centre. The Contractor shall provide notice to the Contract Administrator a minimum of ten (10) business days prior to gate valve installation.
- (b) Disruption of water service to facilitate installation of the 250 mm gate valve shall be limited to a maximum duration of twelve (12) hours.
- (c) Carefully excavate to expose existing pipelines in accordance with E6.5.
- (d) Confirm diameters of pipelines at tie in points and ensure appropriate couplers are available for reconnection work.
- (e) Do not isolate the water main or sever existing pipeline until all materials to complete installation are on site, are confirmed via site measurements, and available for installation.
- (f) Upon completion of work, backfill in accordance with CW 2030 and E6.

E9.5.5 Disassembly of Existing Launch Wyes

- (a) Carefully excavate to expose existing launch wye assemblies in accordance with E6.5.
- (b) Carefully remove existing flange connections and cathodic protection as required to facilitate the work.
- (c) Upon completion of work, reinstall all existing corrosion protection and wye assemblies back to original positions.

E9.5.6 Provisional: Bend Replacement at Lower Riverbank

- (a) The existing bend at STA 0+128.51 is to be removed and replaced if required to facilitate lining. The exact dimensions of the existing bend are unknown.
- (b) Carefully excavate to expose existing bend in accordance with E6.5.
- (c) Confirm diameters and configuration of the pipeline and fittings at the bend and ensure appropriate fittings and couplers are available for reconnection work.
- (d) Do not sever existing pipeline until all materials to complete installation are on site and available for installation.
- (e) Upon completion of work, backfill in accordance with CW 2030 and E6.

E9.6 Measurement and Payment

E9.6.1 Pipeline Access

- (a) "Pipeline Access" shall be measured and paid on a Lump Sum basis as listed in Form B: Prices.
- (b) Payment for "Pipeline Access" shall include the supply of all materials and equipment required to complete the work, including excavation, shoring, disassembly and reassembly of piping, and backfilling as specified herein.
- (c) Payment for Pipeline Access will be as follows:
  - (i) 40% payment of the Pipeline Access Modifications lump sum price upon completion of excavations and commencement of cleaning operations.
  - (ii) The remaining 60% payment of the Pipeline Access Modifications lump sum price upon turn over of the water main for return to service, backfill of excavations, and rough grading of the site.

- E9.6.2 Supply and Install 250 mm Gate Valve
- (a) "Supply and Install 250 mm Gate Valve" shall be measured and paid on a Lump Sum basis as listed in Form B: Prices.
  - (b) Payment for "Supply and Install 250 mm Gate Valve" shall include the supply of all materials and equipment required to complete the work, including excavation, shoring, disassembly of piping, valves, fittings, couplers, and backfilling as specified herein.
- E9.6.3 Provisional Item – Bend Replacement on Lower Riverbank
- (a) The supply and installation of a long radius (or equivalent) bend at STA 0+128.51 shall be paid for on a lump sum basis at the Contract Price for "Bend Replacement on Lower Riverbank" as listed in Form B: Prices.
  - (b) Payment for "Bend Replacement on Lower Riverbank" shall include payment for all labour and materials to complete the work, including excavation, shoring, removal of existing bend, reassembly of piping, couplers, fittings, and backfilling as specified herein.

## **E10. PIPELINE CLEANING**

### E10.1 Description

E10.2 This Specification shall cover the cleaning of the pipelines to be rehabilitated under this Contract.

### E10.3 General

#### E10.3.1 Cleaning Objectives and Methods

- (a) Proper cleaning of the host pipe is critical to ensure proper liner installation and operation in accordance with long term design objectives.
- (b) The interior surfaces of the pipe to be lined shall be cleaned by methods to remove sediment, tuberculation, and corrosion products sufficient to install the pulled in place liner without damage. The host pipe prior to lining shall be free of defects that would cause defects and stress concentrations in the pulled in place liner.
- (c) The contractor may employ a combination of high-pressure flushing, pigging, mechanical cleaning, or other methods to ensure the host pipes are cleaned sufficiently to meet the stated design objectives.
- (d) The existing water main has significant corrosion related defects along its length. A corrosion related leak was found and repaired in 2015 as part of the inspection program. Corrosion defects may be aggravated by aggressive cleaning methods, resulting in additional challenges for cleaning and inspection of the crossing. The Contractor shall be aware that while the water main is not currently known to be leaking, that aggravation of existing corrosion defects is anticipated through the cleaning process. The Contractor shall be prepared to deal with leakage during the cleaning, dewatering, and inspection processes.
- (e) The inspection report for the advanced electromagnetic inspection undertaken by PICA in 2015 can be found in Appendix C.

#### E10.3.2 Pipeline Cleaning Experience

- (a) Pipeline cleaning shall be undertaken by or under the direct supervision of the qualified pulled in place liner installer and pre-qualified key project personnel as per B13.

### E10.4 Submittals

#### E10.4.1 Cleaning Plan

- (a) The Contractor shall submit in writing a detailed cleaning plan for review by the Contract Administrator. The cleaning plan at a minimum shall include the following:

- (i) Method(s) of cleaning.
  - (ii) Tools and equipment required
  - (iii) Sizes and densities of foam pigs to be used
  - (iv) Means of debris collection and disposal
  - (v) Shop drawings as identified herein
- (b) Provide examples of the previous use of the proposed cleaning methods for pulled in place water main rehabilitation projects. The Contract Administrator may require the submission of additional information, including pre and post inspection videos/photos to demonstrate the suitability of the proposed cleaning methods.
- (c) The pipeline cleaning plan must be submitted a minimum of twenty (20) Business Days prior to undertaking cleaning operations.
- (d) No cleaning operations shall be undertaken prior to review of the cleaning plan by the Contract Administrator.

#### E10.4.2 Shop Drawings

- (a) Where towed cleaning equipment is proposed, the Contractor shall submit Shop Drawings for the proposed winch line (or flusher hose), complete with the safe pull strength as recommended by the manufacturer.
- (b) The Contractor shall submit Shop Drawings for all foam cleaning pigs and mechanical cleaning tools proposed for use.

#### E10.5 Products

E10.5.1 All pipeline cleaning products shall be equipment dedicated for use in potable water pipelines and shall not have any prior use in sewer or storm sewer applications.

#### E10.5.2 Foam Cleaning Pigs

- (a) Material: One piece moulded open-cell polyurethane
- (b) Density: up to a standard medium density cleaning pig (80 to 112 kg/m<sup>3</sup>)
- (c) Pigs shall be new and packaged for shipping.
- (d) Pigs shall be supplied complete with a factory installed steel pulling cable. The cable and loops shall be rated for a tensile force equal to 1.5 times the capacity of the proposed winch. Pigs shall be supplied complete with a steel support disc on both ends suitable for towing pigs. The steel disk shall have a minimum diameter of 100 mm.
- (e) Foam cores for pigs shall be of equal or greater density than foam body.
- (f) Pigs to be sized for the internal diameter of the pipeline or as recommended by the manufacturer for the intended purposes.
- (g) Bristled pigs may use synthetic plastic or steel brushes.

#### E10.6 Equipment

E10.6.1 All pipeline cleaning equipment shall be equipment dedicated for use in potable water pipelines and shall not have any prior use in sewer or storm sewer applications.

E10.6.2 High velocity flushing equipment shall be specially designed for the purposes of cleaning water mains for rehabilitation.

#### E10.6.3 Winch and Winch Line

- (a) Winch lines shall be one of the following:
  - (i) synthetic winch lines;
  - (ii) steel cable; or,
  - (iii) braided flusher hose.

- (b) Proposed winch lines and hoses must have a third party verified tensile load rating. Minimum tensile strength for the winch line shall be 60 kN (13,490 lb) or as required to facilitate the cleaning operations, whichever is greater. Winch lines should have a minimum tensile capacity of 1.5 times the maximum or limited capacity of the winch as noted below.
  - (c) Winches used for cleaning purposes shall have sufficient load capacity to facilitate pipeline cleaning.
  - (d) Winches used for cleaning purposes shall be fitted with gauges capable of monitoring winching loads. Winch loads shall be monitored at all times to ensure the load rating of the winch lines and cleaning pigs is not exceeded. Winch capacity shall not exceed 66% of the rating of the cable. Where winches exceed these limits, hard controls on winch output shall be implemented to limit their capacity to 66% of the tensile capacity of the winch line.
- E10.6.4 Scrapers shall be specially designed for cleaning water mains of this diameter and capable of navigating the geometry of the pipeline.
- E10.6.5 All towed pipeline cleaning equipment must be capable of being towed in both directions for retrieval.
- E10.7 Methods
- E10.7.1 All equipment being used within a potable water pipeline shall be spray or swab disinfected using a 200 mg/L free chlorine solution prior to entering or coming in contact with the pipe.
- E10.7.2 The Contractor shall not deviate from the submitted and accepted cleaning plan without notification to and acceptance by the Contract Administrator.
- E10.7.3 Cleaning pigs and scrapers shall be tethered on each end and capable of being winched back to their deployment location in the event they are prevented from traversing the entirety of the crossing.
- E10.7.4 Pigging
- (a) Where applicable, provide pig launch tubes, pipe and fittings, including valves.
  - (b) Winch lines shall be inserted into the pipelines for cleaning purposes. Winch lines may be inserted by high pressure flusher nozzle, flow drone or other accepted method.
  - (c) Foam cleaning pigs shall be tethered on each end and be capable of being winched in either direction.
  - (d) Pigging shall be completed in a progressive manner, commencing with undersized soft pigs before proceeding to more aggressing cleaning pigs.
- E10.7.5 Mechanical Cleaning
- (a) Mechanical cleaning (chain flails, scrapers) may be employed for the removal of hard debris. Setup and operation of mechanical cleaning methods shall be undertaken with an abundance of caution to not aggravate existing defects or otherwise damage the pipe prior to lining.
- E10.7.6 Alternative Cleaning Methods
- (a) Alternative cleaning methods other than those noted herein may be utilized upon review and acceptance by the Contract Administrator.
- E10.7.7 Retrieval of Cleaning Equipment
- (a) The Contractor shall be responsible for the retrieval of any cleaning equipment which becomes lodged within the host pipe and the repair of any damage to the host pipe caused by the work or the retrieval process.



## E10.8 Measurement and Payment

### E10.8.1 Pipeline Cleaning

- (a) Pipeline Cleaning shall be measured and paid on a Lump Sum basis at the bid price for "Pipeline Cleaning – 250 mm CI/Steel Water Main" as listed in Form B: Prices.
- (b) Payment for "Pipeline Cleaning – 250 mm CI/Steel Water Main" shall include the supply of all labour and materials required to complete the work, including the provision of all materials and performance of all cleaning, flushing, dewatering, and gauging work, and disposal of all solids as specified herein.
- (c) Payment for "Pipeline Cleaning – 250 mm CI/Steel Water Main" will be made upon acceptance of the cleaning works based on review of the pre-lining video by the Contract Administrator.
- (d) Access to pipelines for cleaning including excavation, shoring, and disassembly of piping will be considered incidental to "Pipeline Access" and will not be measured for payment. No additional payment will be made.
- (e) The supply of pigs for pipeline cleaning will be considered incidental to "Pipeline Cleaning – 250 mm CI/Steel Water Main" and will not be measured for payment. No additional payment will be made.
- (f) Disinfection of pipelines, health testing will be considered incidental to "Supply and Install 250 mm Pulled in Place Flexible Liner" and will not be measured for payment. No additional payment will be made.
- (g) Disposal of chlorinated water will be considered incidental to "Pipeline Access" and will not be measured for payment. No additional payment will be made.

### E10.8.2 Provisional Robotic Grinding

- (a) Provisional use of robotic grinding tools shall be measured and paid on an hourly basis for each hour of use on site and paid for at the unit price for "Pipeline Preparation – Robotic Grinding".
- (b) Payment for "Pipeline Preparation – Robotic Grinding" shall include supply of all materials and equipment required.
- (c) Pipeline flushing, dewatering, debris removal, hauling and disposal of solid debris will be considered incidental to Pipeline Cleaning – 250 mm CI/Steel Water Main and will not be measured for payment. No separate payment will be made.

## E11. PIPELINE INSPECTION

### E11.1 Description:

- (a) This Specification describes the requirements for obtaining water main inspections required to facilitate the specified rehabilitation work.

### E11.2 Methods

E11.2.1 All equipment being used within a potable water pipeline shall be spray or swab disinfected using a 200 mg/L free chlorine solution prior to entering or coming in contact with the pipe.

### E11.2.2 Verification of Existing Host Pipe Dimensions

- (a) Verify dimensions and depths prior to installation as follows:
  - (i) Length of host pipe to confirm the liner length prior to installation.
  - (ii) Measure the diameter of the host pipe at each end a distance within the host pipe to get a measurement representative of the host pipe.
- (b) Confirm measurements and suitability of the manufactured liner with the Contract Administrator prior to lining.

- E11.2.3 Perform the following pipeline inspections in accordance with CW 2145 and as outlined herein:
- (a) For all CCTV inspections, the host pipe shall be dewatered sufficiently to permit full inspection of the pipeline.
  - (b) Pre-Cleaning Inspection:
    - (i) Perform prior to undertaking pipe cleaning and preparation.
    - (ii) No coding of the CCTV submission will be required.
  - (c) Pre-Lining Inspection:
    - (i) Perform after host pipe cleaning and preparation.
    - (ii) The Pre-Lining Inspection shall confirm:
      - ◆ Necessary cleaning and pipe preparation work, including internal and external host pipe repairs, have been satisfactorily completed.
      - ◆ Condition of the host pipe is consistent with the design conditions and the Specifications. The Contractor shall advise the Contract Administrator of any condition that is contrary to the design conditions or assumptions made that may affect either long or short term performance of the liner prior to commencing lining.
    - (iii) No coding of the submission will be required.
- E11.2.4 Submit all inspection videos to the Contractor Administrator for review in accordance with CW 2145 and as specified herein.
- E11.3 Inspection Reports
- (a) Provide the Contract Administrator with the following inspection reports prepared in accordance with CW 2145. The pre-lining inspection and report shall be submitted prior to lining complete with confirmation from the liner supplier that the liner is suitable for installation of the liner system.
- E11.4 Amendments and Supplements to CW 2145:
- E11.4.1 Replace Section 3.4 with:
- (a) Ensure each operator is fully trained in all aspects of pipeline inspection and capable of making accurate observations and recording all conditions that may be encountered in the pipeline.
  - (b) Inspection shall be performed by certified operators in accordance with the National Association of Sewer Service Companies (NASSCO) having attained and retained their "Pipeline Assessment Certification Program" (PACP) and "Manhole Assessment Certification Program" (MACP) certification.
- E11.4.2 Replace Section 3.5 with:
- (a) Coding not required
- E11.4.3 Further to Section 3.13, a paper or "hard copy" of the inspection reports are not required and the following digital format submissions shall be provided:
- (a) The Contractor shall maintain backup copies of all digital video and inspection data submissions for the duration of the Warranty Period as stated in C13.
  - (b) CCTV inspections shall be submitted on a portable HDD or DVD, pipeline condition coding shall be submitted as a PACP.mdb and MACP.mdb files accordingly. Retained HDD's will be returned at the bi-weekly meeting.
  - (c) The Contractor shall supply separately two (2) duplicated, 2.5 inch portable HDD's, complete with all operating software, power adaptors and USB cables, containing all video inspections, post processed Multi-Sensor inspection data, inspection PACP and MACP defect coded reports and coding data to the City upon completion of the project.

- (d) The Contractor shall supply separately one (1) set of archival grade digital versatile discs, DVD-R format in accordance with E11.4.5 to the City upon completion of the project.
- (e) All HDD's shall be sized appropriately to accommodate all above mentioned files and have dual USB 3.0 (preferable) and (a minimum) USB 2.0 compatibility with a minimum data transfer rate of 480 MB/s.

E11.4.4 Replace Clause 3.8.1 with:

- (a) Provide a minimum of 400 lines of resolution around the periphery of the picture for digital MPEG video playback.

E11.4.5 Replace Clause 3.11.1 with:

- (a) Capture the inspections in digital format in colour from the live video source on archival grade digital versatile discs, DVD-R format to the following minimum requirements. Adjust requirements as required to achieve 400 lines of resolution specified in Clause E8.1.6 of this Specification.
  - (i) XDVD MPEG-2 or MPEG-4 format (MPEG-4 preferred).
  - (ii) Picture Size: NTSC 720 x 480 @ 29.97 frames per second.
  - (iii) Data/Bit Rate: 6.0 M-bits/sec.
- (b) Replace Clause 3.17.7.6, with:
  - (i) Record the distance from the centre of the manhole to the cable calibration location at the start of the inspection and adjust the distance reading so that zero is at the centre of the start manhole. This distance is known as the cable calibration distance. The cable calibration location is the intersection point between the camera's widest horizontal viewing angle and the pipe's side periphery (03 or 09 o'clock) when the camera is level and looking forward.

E11.5 Pipeline Inspection Equipment

E11.5.1 Equipment shall meet the requirements CW 2145 and those identified herein.

E11.5.2 All CCTV inspection equipment shall be equipment dedicated for use in potable water pipelines and shall not have any prior use in sewer or storm sewer applications.

E11.5.3 Notwithstanding CW 2145, CCTV equipment meet the following requirements:

- (a) Minimum requirements of the in-line inspection platform include:
  - (i) Independently controlled drive tracks that enable the platform to manoeuvre around bends and climb over debris.
  - (ii) Operable under partially or fully submerged flow conditions, for distances up to 500m upstream or downstream from a single access point.
  - (iii) Operable in pipes constructed of standard pipe materials including concrete, PVC, HDPE, and steel.
  - (iv) Tethered to facilitate extraction of the platform from the pipeline, without causing damage to the existing infrastructure, in the event the equipment fails or otherwise becomes uncontrollable within the pipeline.
  - (v) Equipped with sufficient high intensity lighting to illuminate the pipeline for visual inspection.
  - (vi) Equipment shall be capable of continuously capturing digital video from first generation recordings with no frame loss, regardless of the progression of the inspection.
  - (vii) Equipment shall be used to acquire continuous digital video images of the pipeline for the entire length being inspected.

E11.5.4 Retrieval of Inspection Equipment

- (a) Notwithstanding CW2145, the Contractor shall be responsible for the retrieval of any inspection equipment which becomes lodged within the host pipe and the repair of any damage to the host pipe caused by the work or the retrieval process.

E11.6 Measurement and Payment

E11.6.1 Pipeline Inspection – 250 mm CI/Steel Water Main

- (a) Pipeline inspections shall be measured and paid on a Lump Sum basis at the bid price for the respective inspection as listed in Form B: Prices.
- (b) Payment for pipeline inspections shall include the supply of all labour and materials required to complete the work as defined herein.
- (c) Payment for pipeline inspections will not be made for inspections re-performed where the Contract Administrator has determined the requirements of the specification have not been satisfied.
- (d) Dewatering and other efforts to facilitate CCTV inspections will be considered incidental to “Pipeline Inspection – 250 mm CI/Steel Water Main” and will not be measured for payment. No additional payment will be made.
- (e) Disposal of chlorinated water will be considered incidental to “Pipeline Access” and will not be measured for payment. No additional payment will be made.

E11.6.2 Inspection Reports

- (a) CCTV inspection reports and other associated documentation will be considered incidental to the inspection and will not be measured for payment. No additional payment will be made.

**E12. PULLED IN PLACE FLEXIBLE LINER**

E12.1 Description

E12.1.1 This specification covers the supply and installation of Pulled in Place Liners for the rehabilitation of potable water mains and other pressure pipelines.

E12.2 Definitions

- (a) Pulled in place liners consist of a reinforced flexible tube capable of supporting all internal pressures, which is installed within an existing water main. The liner is secured at each end through the use of termination rings, providing a hydrostatically integral connection to the adjacent WM.
- (b) Acceptance Test – A test or a series of tests conducted under actual or simulated field conditions to determine whether a material system or component conforms to specified requirements in a construction or procurement document.
- (c) Type Tests – Tests carried out under controlled laboratory conditions to demonstrate representative short or long term structural properties of a product or one of its components.
- (d) Demonstration Test – A Type or Acceptance Test carried out to demonstrate cause and effect by specified methods; used to establish the relationship between a specific set of procedures to prepare and apply a product and a desired outcome in terms of achieving target mechanical or other properties. For example, building a test panel to illustrate what combination of surface preparation and application technique/procedures are required to achieve target adhesion values.
- (e) Maximum Allowable Pressure (MAP) – The maximum combination of internal pressures that a pipe or lining system is anticipated to be exposed to including sustained, occasional surge and/or test pressure.
- (f) Maximum Allowable Operating Pressure (MAOP) – The maximum anticipated sustained internal operating pressure that a pipe system or liner is anticipated to be exposed to.

- (g) Occasional Surge (emergency or transient) Pressure – Short-term internal pressure events usually caused by emergency operations of the pipe network system (e.g. a rapid valve closure) or malfunction (e.g. power failure, component failure, etc.).

### E12.3 Reference Standards

E12.3.1 The following reference standards may be applicable to this specification:

- (a) AWWA Manual of Water Supply Practice M28 – Rehabilitation of Water Mains
- (b) AWWA Report – Structural Classifications of Pressure Pipe Linings, Suggest Protocol for Product Classifications
- (c) NSF/ANSI Standard 61: Drinking Water System Components – Health Effects

E12.3.2 All reference standards shall be inferred to be the latest revision of the specific reference standard, unless a specific year is specified.

### E12.4 Submittals Before Starting Work

E12.4.1 Provide the required submittals to the Contract Administrator a minimum of twenty (20) Business Days before starting pre-work at each site or as noted below, whichever is sooner.

E12.4.2 Submit shop drawings for the proposed liner. Shop drawings shall demonstrate the suitability of the proposed liner system (and diameter) to meet the requirements of the contract.

E12.4.3 Submit a site planning and operations protocol that provides information on the following.

- (a) An excavation, staging, and sampling plan that details:
  - (i) All required shaft locations, shaft sizes and shoring/excavation safety requirements.
  - (ii) Temporary water system layout (if required).
  - (iii) Required storage and staging area.
- (b) Traffic management to accommodate the full construction footprint at each site. See E8.
- (c) Details of the host pipe preparation requirements. See cleaning protocol submission (E10.4.1) for cleaning requirements. Identify any additional preparation works required prior to lining.
- (d) Liner installation plan, including:
  - (i) All equipment and operations required to install the liner.
  - (ii) Provide the maximum allowable axial and longitudinal tensile stress for the liner and the arrangement for monitoring pull-in forces during installation.

E12.4.4 Submit a liner termination plan providing the following information:

- (a) Details of the termination seals and end rings to facilitate the transition from the installed liner to existing water mains.
- (b) Product description and applicable product literature.
- (c) Identify any water main modifications required to utilize the proposed system. Where permanent water main modifications are required beyond what has been shown on the Drawings, the Contractor shall provide a liner termination drawing or drawings clearly showing the configuration of liner termination and connections to the existing water main piping. The drawing(s) shall illustrate the permanent piping configuration complete with all fittings, couplings, restraints, corrosion protection features, bedding and backfill requirements, and any other pertinent detail required for evaluation by the Contract Administrator and construction. The drawing shall be sealed and signed by a Professional Engineer, registered in the Province of Manitoba and experienced in the design pressure pipelines.
- (d) A detailed installation procedure.

- (e) A minimum of three (3) examples of where the system has been used complete with liner design pressures and applicable pressure testing results.

## E12.5 Liner Material and Design Requirements

### E12.5.1 Liner Rehabilitation Systems

- (a) The pulled in place liner system shall be a manufactured flexible liner, brought to site and installed within the host pipe. No curing or on-site manufacturing beyond installation and securing of the termination points is permitted.
- (b) The liner system shall be designed to support the MAOP and Occasional Surge Pressures identified herein independent from the host pipe. i.e. the liner must be able demonstrate an ability to support the identified pressures in independent tests without confinement. The liner system is not required to have external load carrying capacity or resistance to internal vacuums.
- (c) The following products are accepted for use for this project:
  - (i) Primus Line; or,
  - (ii) approved equal in accordance with B7.

Notwithstanding general acceptance for use, the proposed lining system shall be required to meet all project specific requirements to be considered for use in the City of Winnipeg.

- (d) Liner rehabilitation system shall be certified to NSF 61 Drinking Water System Components – Health Effects as Pipe liner- Immediate Return to Service for the pipe sizes and conditions specified herein.

### E12.5.2 Liner Operational Requirements

- (a) Hydrostatic Pressure Loads:
  - (i) MAOP (for design) – 1034 kPa (150 psi)
  - (ii) Occasional Surge Pressure – 275 kPa (40 psi)
  - (iii) MAP (for design) – 1310 kPa (190 psi)
  - (iv) Test pressure – 862 kPa (125 psi).
- (b) Minimum nominal liner diameter: 200 mm.

## E12.6 Liner Terminations

- (a) Where specified the Contractor shall install end terminations for the purposes of ensuring a hydrostatically integral connection between the liner and the adjacent water main.
- (b) Liner termination systems shall be capable of being connected to the existing water main, through a flange, grooved end ring, or similar mechanical means. The supplied system shall be compatible with the existing piping or alternative piping modifications proposed in accordance with these specifications.
- (c) Liner terminations shall provide a water tight seal between the liner and the mechanical connection to the existing watermain.
- (d) Liner terminations shall be supplied complete with fusion bonded epoxy coatings.

## E12.7 Construction Methods

### E12.7.1 Installation of Pulled in Place Liners

- (a) All equipment shall be equipment dedicated for use in potable water pipelines and shall not have any prior use in sewer or storm sewer applications.
- (b) All equipment being used within a potable water pipeline shall be spray or swab disinfected using a 200 mg/L free chlorine solution prior to entering or coming in contact with the pipe.

- (c) Installation shall not commence until liner preparation work has been completed and accepted by the liner manufacturer.
- (d) Liner installation shall conform to the submitted installation methods, including monitoring of and adherence to maximum pulling forces.

#### E12.7.2 Cleaning and Disinfection

- (a) Cleaning and Flushing
  - (i) Clean and flush the lined water main in accordance with CW 2125.
- (b) Disinfection
  - (i) Disinfect water mains in accordance to CW 2125 and E13.

#### E12.7.3 Quality Assurance Requirements

- (a) The liner manufacturer and Contractor shall have in place a formal Quality Assurance Program. As a minimum the Quality Assurance Program shall be designed to verify that design intent is achieved in the construction process.
- (b) Maintain the following Quality Control records of the work and provide to the Contract Administrator after completion of the work, including but not limited to pulling force used to pull liners into place in the host pipe and measured liner elongation.

#### E12.7.4 Acceptance Testing

- (a) Carry out tests, secure samples and arrange for third party tests at the laboratory noted herein. The following Acceptance Testing is required:
  - (i) Carry out a pressure test on each liner installed in accordance with CW 2125. Minimum test pressure shall be 862kPa (125 psi).
    - ◆ Leakage allowance is an “apparent” leakage allowance to account for entrapped air, etc... Any visible or readily apparent leaks shall be repaired irrespective of leakage allowance.
    - ◆ The pipe shall be pressurized at test pressure for 3 hours prior to test to allow for stabilization of the liner.
    - ◆ Allowable apparent leakage shall be calculated as 0.077 litres per millimetre of pipe diameter per kilometer of pipe per hour.
- (b) If additional testing is required beyond the minimum testing noted above it shall be reviewed in the context as defective work testing or Owner requested additional testing. Owner requested additional testing shall be paid for by the Owner, while additional testing required as a direct result of deficient work shall be borne by the Contractor.

### E12.8 Measurement and Payment

#### E12.8.1 Water Main Liner Installation

- (a) Water main liners will be measured on a length basis and paid for at the Contract Unit Price per metre for “Supply and Install 250 mm Pulled in Place Liner”. 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 measured between the liner terminations.
- (b) Payment for “Supply and Install 250 mm Pulled in Place Liner” will include all labour and materials required to complete the work as specified, including but not limited to:
  - (i) Provision of all required submissions;
  - (ii) Supply and installation of liner system;
  - (iii) Flushing, chlorination, and health testing; and,
  - (iv) Supply and installation of liner terminations.
- (c) 90% payment will be made upon satisfactory installation and Acceptance Testing of the liner and returning the water main to service. The remaining 10% of the payment

will be made upon delivery and acceptance of all required submissions, shop drawings, and reports.

- (d) Disinfection of pipelines, health testing, and disposal of chlorinated water will be considered incidental to "Supply and Install 250 mm Pulled in Place Liner" and will not be measured for payment. No additional payment will be made.

#### E12.8.2 Liner Terminations

- (a) The installation of liner terminations shall be considered incidental to "Supply and Install 250 mm Pulled in Place Liner" and will not be measured for payment. No additional payment will be made.

### **E13. WATER MAIN DISINFECTION**

#### E13.1 Description

E13.1.1 This specification covers the disinfection of water mains and fittings.

#### E13.2 Disinfection

E13.2.1 Disinfection of water mains shall be completed in accordance with CW2125 and AWWA C651.

E13.2.2 The Contractor shall take every reasonable precaution during construction to prevent debris from entering the pipeline. If, in the opinion of the Contract Administrator, deleterious substances have entered the pipeline, the Contractor shall flush the pipeline with sanitized pipeline cleaning equipment.

E13.2.3 Further to CW 2125, segments of water mains not disinfected and used as temporary fittings as noted above, shall be disinfected by swabbing as outlined in Section 3.3.16 of CW 2125.

E13.2.4 Upon completion of disinfection, chlorinated water shall be pumped from the pipeline at the lowest point(s) in the system. Chlorinated water shall not be directly discharged to the environment and shall be disposed of in accordance with E13.4.

E13.2.5 Bi-directional flushing may be required to remove chlorine from the pipeline.

E13.2.6 All equipment being used within a potable water pipeline shall be spray or swab disinfected using a 200 mg/L free chlorine solution prior to entering or coming in contact with the pipe.

E13.2.7 Blind flanges shall be supplied with ports adequate to achieve desired flushing velocities.

E13.2.8 The Contractor shall ensure hoses, hydrants, meters, and other appurtenances used for flushing operations are protected from freezing.

E13.2.9 The Contractor shall ensure that the selected means of disposing of chlorinated water does not result in unsafe site conditions as a result of freezing atmospheric temperatures.

#### E13.3 Health Testing

E13.3.1 The pipeline shall be refilled with potable water and water samples for health tests taken in accordance to CW 2125, except test samples shall be taken each day at least 24 hours apart for three (3) successive days.

#### E13.4 Disposal of Chlorinated Water

E13.4.1 Chlorinated water shall be treated by one of the following methods, as recommended in AWWARF – Guidance Manual For The Disposal Of Chlorinated Water:

- (a) Discharged into nearby WWS MH's if possible. The Contractor shall not exceed the capacity of the sewer while discharging.
- (b) De-chlorination of water with discharge into the LDS system or directly to the river. If discharging directly to the river the Contractor shall take all necessary precautions to



prevent erosion of the riverbank. De-chlorination may be accomplished using the following:

- (i) Sodium Ascorbate,
- (ii) Vita-D-Chlor TM by Integra Chemical,
- (iii) or approved equal in accordance with B7.

(c) Contain chlorinated water on Site until chlorine has dissipated to acceptable limits.

E13.4.2 The contractor shall submit a chlorinated water disposal plan in writing to the Contract Administrator a minimum of five (5) working days prior to performing any cleaning or flushing of water main or feeder mains. The disposal plan shall at a minimum include the following:

- (a) Intended means of disposal for each site
- (b) Means of de-chlorination (if required)
- (c) Means of storing water for discharge (if required)

E13.5 Measurement and Payment

E13.5.1 Disinfection, Health Testing, and Disposal of Chlorinated Water

- (a) Disinfection, flushing, and health testing shall be considered incidental to "Supply and Install 250 mm Pulled in Place Flexible Liner" and will not be measured for payment. No additional payment will be made.
- (b) Disposal of chlorinated water will be considered incidental to "Pipeline Access" and will not be measured for payment. No additional payment will be made.

## **E14. RESTORATION**

E14.1 Description

E14.1.1 This specification covers the restoration of work sites.

E14.2 Restoration Works

- (a) Regrade sites back to original condition upon completion of work.
- (b) Reconstruct asphalt pavements and overlays in accordance with CW3410.
- (c) Sidewalks:
  - (i) Reconstruct existing asphalt sidewalks with 75 mm of Type 1A asphaltic concrete pavement conforming to CW3410. The sidewalk shall be constructed with 50 mm (min) of compacted base material and 150 mm (min) of sub-base material.
  - (ii) Reconstruct existing non reinforced concrete sidewalks with a 100 mm non-reinforced concrete conforming to CW3325 and SD-228A. The sidewalk shall be constructed with 100 mm (min) of compacted base material.
  - (iii) Reconstruct of the existing reinforced concrete sidewalks with a 150 mm reinforced concrete conforming to CW3235 and SD-237. The sidewalk shall be constructed with 100 mm (min) of compacted base material. To be used for private approaches.
- (d) Reconstruct concrete curbs in accordance with CW3240 and SD-206A.
- (e) Sod all grassed areas in accordance with CW3510.

E14.3 Measurement and Payment

E14.3.1 Payment for restoration works will be limited to areas disturbed to facilitate construction. Surface restoration outside of the designated construction areas shall be at the Contractors expense.

E14.3.2 Site Regrading

- (a) Regrading of sites to original elevations or as shown on the Drawings will be considered incidental to "Pipeline Access" and will not be measured for payment. No additional payment will be made.

E14.3.3 Concrete Barrier Curb Replacement

- (a) the renewal of concrete barrier curbs shall be measured on a linear metre basis and paid for at the Contract Unit Price for "Concrete Barrier Curb Renewal " as listed in Form B: Prices. Measurement will be made for each linear metre of concrete curb acceptably replaced.
- (b) Payment for "Concrete Barrier Curb Renewal" shall include all base and sub base preparation, and the supply and placement of concrete curbing.

E14.3.4 Sidewalk Patches

Construction of sidewalk patches will be measured on a square metre basis at the Contract Unit Price for "Sidewalk Patches - Unreinforced concrete up to 100 mm thick" as listed in Form B: Prices. Measurement will be made for each square metre of sidewalk acceptably replaced.

- (a) Payment for "Sidewalk Patches - Unreinforced concrete up to 100 mm thick" shall include all base and sub base preparation, supply and placement of concrete and asphalt pavements.

E14.3.5 Sodding

- (a) Supply and installation of sod using imported topsoil shall be measured and paid in accordance with CW 3510.

**E15. TREE PROTECTION, PRUNING, AND REMOVAL**

E15.1 Description

E15.1.1 This specification covers the pruning and removal of existing trees as required to facilitate construction.

E15.1.2 This specification amends CW 3110 Clearing and Grubbing.

E15.2 Quality Control

E15.2.1 Person performing work shall possess a valid Manitoba Arborists License.

E15.3 Materials

E15.3.1 Wound Dressing

- (a) Wound dressing shall be horticultural accepted non-hardening bituminous emulsion, free of materials toxic to callus formation, containing disinfectant for fungal and other diseases.

E15.4 Construction Methods

E15.4.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities to existing boulevard trees within the limits of the construction area:

- (a) The Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.
- (b) Trees in close proximity to the work and moving equipment are to be strapped with 25 x 100 x 2400 mm wood planks, or suitably protected.
- (c) Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the excavation shall be a minimum of 1.5 times the diameter (measured in inches), with

the outcome read in feet, from the closest edge of the trunk. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation.

- (d) Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of trees. The dripline of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.
- (e) Work on-site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to branches does occur, they shall be neatly pruned.

E15.4.2 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or his/her designate.

E15.4.3 Scheduling of Work

- (a) The Contractor shall review work with Contract Administrator prior to starting work.
- (b) The Contractor shall schedule the work in accordance with the restrictions set out in the federal Migratory Birds Convention Act, 1994.

E15.4.4 Removal

- (a) If the Contractor requires removing trees to access the Site or facilitate construction, the Contractor shall submit a plan to the Contract Administrator for review, a minimum of ten (10) Business Days prior to removal. No removals of trees shall be made without written acceptance by the Contract Administrator and the City of Winnipeg's Forestry Department. The plan shall at a minimum indicate:
  - (i) Trees requiring removal complete with size and species, and description of requirement for removal.
- (b) Replanting requirements will be determined by the level of tree removals proposed and accepted by the Contract Administrator and City of Winnipeg's Forestry Department.

E15.4.5 Pruning

- (a) Prune individual trees as indicated by the Contract Administrator. Remove dead, dying, diseased, interfering, objectionable and weak growth in order to promote healthy development suitable to the purpose for which plant material is grown.
- (b) Prune in accordance with Agriculture Canada Publication 1505-1977, The Pruning Manual.
- (c) Employ clean sharp tools and make cuts flush with main branch, smooth and sloping as to prevent accumulation of water. Remove projecting stumps on trunks or main branches. Remove dead and injured branches and branches that rub causing damage to bark. Trim trees without changing their natural shape. Do not damage lead branches or remove smaller twigs along main branches.

E15.4.6 Cut Back

- (a) Eliminate narrow crotches as much as possible; avoid cutting back to small suckers. Remove smaller limbs and twigs to leave foliage evenly distributed.
- (b) When reducing overall size, make symmetrical in appearance to maintain tree-like form typical of species.
- (c) Do not remove more than one-third of total branching at single operation.

E15.4.7 Repair and Protection

- (a) Repair cuts and old scars in accordance with Agriculture Canada Publication 1505-1977, The Pruning Manual.

(b) Paint new cuts 100mm in diameter and over with wound dressing.

**E15.5 Method of Measurement and Basis of Payment**

**E15.5.1** Pruning and removal of trees will be considered incidental to "Pipeline Access" and will not be measured for payment. No additional payment will be made.

## PART F - SECURITY CLEARANCE

### F1. SECURITY CLEARANCE

- F1.1 Each individual proposed to perform the following portions of the Work:
- (a) any Work on private property;
  - (b) any Work within City facilities other than:
    - (i) an underground structure such as a manhole;
    - (ii) in areas and at times normally open to the public;
  - (c) communicating with residents and homeowners in person or by telephone;
- F1.1.1 Each Individual shall be required to obtain a Police Information Check from the police service having jurisdiction at his/her place of residence. Or
- (a) 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
  - (b) Commissionaires (Manitoba Division), forms to be completed can be found on the website at: <https://www.commissionaires.ca/en/manitoba/home>; or
  - (c) FASTCHECK Criminal Record & Fingerprint Specialists, forms to be completed can be found on the website at: <https://myfastcheck.com>.
- F1.2 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 such Work.
- F1.3 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 specified in F1.1.
- F1.4 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.
- F1.5 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 specified in F1.1.