THE CITY OF WINNIPEG

TENDER

TENDER NO. 310-2025

CHARLESWOOD-ASSINIBOIA FEEDER MAIN RIVER CROSSING REHABILITATION

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 CHARLESWOOD-ASSINIBOIA FEEDER MAIN RIVER CROSSING REHABILITATION

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, May 5, 2025.

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

B3. SITE INVESTIGATION

B3.1 Further to C3.1, the Contract Administrator or an authorized representative will be available at the Site at 9:00 am on April 22, 2025, to provide Bidders access to the Site. Bidders are to meet at the North Valve Chamber at Assiniboine Ave and Rouge Road.

B3.2 The Bidder shall not be entitled to rely on any information or interpretation received at the Site investigation unless that information or interpretation is the Bidder's direct observation, or is provided by the Contract Administrator in writing.

B3.3 The lids for both valve chambers will be opened for viewing, but confined space entry into the chambers will not be permitted.

B3.4 Further to C3.1, the Bidder may view the Site without making an appointment.

B3.5 The Bidder/Proponent is responsible for inspecting the Site, the nature of the Work to be done and all conditions that might affect their Bid/Proposal or their performance of the Work, and shall assume all risk for conditions existing or arising in the course of the Work which have been or could have been determined through such inspection

B4. ENQUIRIES

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

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

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

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

B4.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B1 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.

B6.4 The Bidder is responsible for ensuring that they have 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 B1, enquiries related to an Addendum may be directed to the Contract Administrator indicated in D6.

B7. SUBSTITUTES

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

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

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

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

(a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;

(b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;

(c) identify any anticipated cost or time savings that may be associated with the substitute;

(d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same

function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;

(e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.

B7.5 The Contract Administrator, after assessing the request for approval of a substitute, may in their 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 they wish 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 their 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.

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 their own name, their 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 their 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 their 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 their duly authorized officer or officers;

(d) if the Bidder is carrying on business under a name other than their 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 D41. Any such costs shall be determined in accordance with D41.

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) Insituform Technology Ltd. – Constructability Review

(b) Radlinger Primus Line GmbH – Constructability Review

(c) FER-PAL Infrastructure Ltd – Constructability Review

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 their 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 their 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 their 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 their 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 their 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 their sole discretion:

(a) disqualify a Bidder that fails to disclose a perceived, potential or actual Conflict of Interest of the Bidder or any of their 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 their 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 their 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 their 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.

(d) submit a completed Social Procurement Plan.

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, Purchasing Division website at https://www.winnipeg.ca/matmgt/Templates/files/debar.pdf

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

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

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

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

(d) have completed the Accessible Customer Service online training required by the Accessibility for Manitobans Act (AMA) (see B13.10 and D9)

(e) upon request of the Contract Administrator, provide the Security Clearances in accordance with PART F - Security Clearances;

B13.4 Further to B13.3(a), the Bidder or any proposed Subcontractor completing installation of the Pulled in Place Liner must be able to demonstrate the following specific qualifications in accordance with B13.12:

(a) A minimum of three (3) examples of successful Flexible Fabric Reinforced Pipe (FFRP) Liner installations, with a minimum nominal diameter of 300 mm within the last five (5) years;

(b) A minimum of one (1) example of a potable water (NSF-61) FFRP Liner installation in the last five (5) years;

B13.5 Further to B13.3(a), the Bidder must demonstrate following specific qualifications for key project personnel (proposed project manager or site superintendent) in accordance with B13.12:

(a) Three (3) examples of successful FFRP Liner installations with a minimum nominal diameter of 300 millimeters in the past five (5) years.

B13.6 Further to B13.3(a) 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 B13.4 and B13.5.

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 FFRP 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(a), the Bidder and/or Subcontractor completing rehabilitation of the existing valve chambers must be able to demonstrate the following specific qualifications in accordance with B13.12:

(a) A minimum of three (3) examples of successful installations of 600 mm butterfly valves; and,

(b) A minimum of one (1) successful project example involving construction or modification of valve chambers for large diameter water main (≥450 mm) piping.

B13.9 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, Purchasing Division website at http://www.winnipeg.ca/matmgt/.

B13.10 Further to B13.1(d), the Bidder shall within five (5) Business Days of a request by the Contract Administrator, provide a completed Social Procurement Plan.

B13.11 Further to B13.3(d), the Bidder acknowledges they and all Subcontractors have obtained training required by the Accessibility for Manitobans Act (AMA) available at Accessibility Training for anyone that may have any interaction with the public on behalf of the City of Winnipeg.

B13.12 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. 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.

B13.13 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 their 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 at Form_G1_Bid_Bond_&_Agreement_to_Bond.

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

(a) The version submitted by the Bidder must have valid digital signatures and seals;

(b) The version submitted by the Bidder must be verifiable by the City with respect to the totality and wholeness of the bond form, including: the content; all digital signatures and digital seals; with the surety company, or an approved verification service provider of the surety company.

(c) The version submitted must be viewable, printable and storable in standard electronic file formats compatible with the City, and in a single file. Allowable formats include pdf.

(d) The verification may be conducted by the City immediately or at any time during the life of the bond and at the discretion of the City with no requirement for passwords or fees.

(e) The results of the verification must provide a clear, immediate and printable indication of pass or fail regarding B14.2(a).

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

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

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

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

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

B15. OPENING OF BIDS AND RELEASE OF INFORMATION

B15.1 Bids will not be opened publicly.

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

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.

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 their 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 B4 (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 their Bid or in other information required to be submitted, that they are qualified.

B18.4 Further to B18.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.

B18.4.1 Bidders are advised that the calculation indicated in B18.4 will prevail over the Total Bid Price entered in MERX.

B18.4.2 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.

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 their 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 D41 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 their 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, Purchasing Division website at 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. FORM OF CONTRACT DOCUMENTS

D2.1 Notwithstanding C4.1(c) and C4.4, the Contract Documents will be provided to the Contractor electronically and there will be no requirement for execution and return to the City by the Contractor. Accordingly, the provisions under C4.4(a) and C4.4(b) are no longer applicable.

D3. SCOPE OF WORK

D3.1 The Work to be done under the Contract shall consist of the rehabilitation of 600 mm feeder main crossing under the Assiniboine River and two adjacent valve chambers.

D3.2 The major components of the Work are as follows:

(a) Pipeline and valve chamber access excavations and disassembly to facilitate the work;

(b) Pipe dewatering as required to complete the work;

(c) Pipeline cleaning, preparation, and CCTV inspections;

(d) Installation of a Pulled in Place Flexible Fabric Reinforced Pipe (FFRP) liner;

(e) Modifications of existing feeder main fittings to facilitate the lining work;

(f) Internal and external repairs to existing steel pipe and fittings as required;

(g) Rehabilitation of the adjacent valve chambers, including replacement and reconfiguration of valving and piping in both valve chambers;

(h) Reassembly of existing chambers and feeder main piping; and,

(i) Site restoration.

D3.3 The following shall apply to the Work:

(a) City of Winnipeg Green Building Policy: New City-Owned Buildings and major additions;
http://clkapps.winnipeg.ca/DMIS/DocExt/ViewDoc.asp?DocumentTypeId=2&DocId=5989

(b) Universal Design Policy
http://clkapps.winnipeg.ca/DMIS/DocExt/ViewDoc.asp?DocumentTypeId=2&DocId=3604

D4. SITE INVESTIGATION DUE DILIGENCE AND RISK

D4.1 Notwithstanding C3.1, the Contractor acknowledges that the site investigation reports and other site information included in this Tender have been provided to it and may be relied upon by the Contractor to the extent that the Contractor uses Good Industry Practice in interpreting such report(s) and site information and carries out the Work in accordance with Good Industry Practice based upon such report(s) and the information contained in them and such other site information. In the event that a site condition related to:

(a) the location of any utility which can be determined from the records or other information available at the offices of any public authority or person, including a municipal corporation and any board or commission thereof, having jurisdiction or control over the utility;

(b) the Site conditions, including but not limited to subsurface hazardous materials or other concealed physical conditions;

(c) the location, nature, quality or quantity of the materials to be removed or to be employed in the performance of the Work;

(d) the nature, quality or quantity of the Plant needed to perform the Work;

(e) all matters concerning access to the Site, power supplies, location of existing services, utilities or materials necessary for the completion of the Work; and

(f) all other matters which could in any way affect the performance of the Work;

that could not have been "properly inferable", "readily apparent" and readily discoverable" using Good Industry Practice by the Contractor, results in additional Work which is a direct result of this newly discovered site condition, such additional Work will be considered by the City under Changes in Work.

D5. DEFINITIONS

D5.1 When used in this Tender:

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

(b) "**ASTM**" means American Society for Testing and Materials;

(c) "**ASME**" means American Society or Mechanical Engineers;

(d) "**AWWA**" means American Water Works Association;

(e) "**CSA**" means American Water Works Association;

(f) "**FFRP**" means Flexible Fabric Reinforced Pipe liner;

(g) "**Host Pipe**" means the existing sewer or water main intended for rehabilitation through the installation of a FFRP Liner;

(h) "**ISO**" means International Organization for Standardization;

(i) "**NACE**" means National Association of Corrosion Engineers;

(j) "**NSF**" means NSF International;

(k) "**PCCP**" means Prestressed Concrete Pressure Pipe;

(l) "**Payment Certification**" means the Contract Administrator's statement of the sums certified to be paid by the City to the Contractor with reference to its interim and final progress estimates and/or the Contractor's Proper Invoice;

(m) "**Proper Invoice**" means the definition within *The Builders' Liens Act*, R.S.M. 1987, c. B91 and any subsequent amendments thereto, and also includes the criteria to be included in an invoice, as set out in the Measurement and Payment provisions of the Contract;

(n) "**Pulled In Place Liner**" means a reinforced flexible tube capable of supporting all internal pressures, which is installed within an existing pipe;

(o) "**SSPC**" means Society for Protective Coatings;

(p) "**Supply Chain Disruption"** means an inability by the Contractor to obtain goods or services from third parties necessary to perform the Work of the Contract within the schedule specified therein, despite the Contractor making all reasonable commercial efforts to procure same. Contractors are advised that increased costs do not, in and of themselves, amount to a Supply Chain Disruption; and,

(q) "**The Builders' Liens Act**" or "**the BLA**" means The Builders' Liens Act, R.S.M. 1987, c. B91 and any subsequent amendments thereto.

D6. CONTRACT ADMINISTRATOR

D6.1 The Contract Administrator is Stantec, represented by:

Adam Braun, P.Eng.
Senior Municipal Engineer

Telephone No. 204-955-1210
Email Address adam.braun@stantec.com

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

D7. SOCIAL PROCUREMENT

D7.1 The Contractor shall commit to providing skills and training opportunities.

D7.2 This commitment is inclusive of subcontractor employment of individuals accessing skills and training individuals and the Contractor will be required to report on their subcontractor's skills and training individuals if the subcontractor contract is greater than $100,000.

D7.3 The Contractor shall commit to providing # of individuals who are working on the project as apprentices, paid interns, and paid work experience positions on the delivery of this Contract.

X = # of individuals working as apprentices, paid interns, and paid work experience positions working on this Contract

D7.4 The Contractor shall keep detailed records of the total number of skills and Training individuals. The Contractor shall report on the following:

(a) The number of individuals that the Contractor will commit to provide to apprentices, paid interns, and paid work experience positions working on this Contract; and

(b) A projection for the number of individuals to work in future months of the Contract by apprentices, paid interns, and paid work experience positions, including a planned schedule for the achievement of number of these individuals.

D7.5 The Contractor shall provide the Contract Administrator a progress report midway through the Contract period and upon completion of the Contract period.

D7.5.1 The Social Value Reporting Template has been included as a resource see Form O: Social Value Clause Reporting Template

D7.6 Definitions:

(a) Trainee: A trainee is someone who is undergoing training for a particular job or profession. Trainees are typically new to the field and are learning the necessary skills and knowledge to perform their job effectively. This period of training can be part of an internship, apprenticeship, or other training program within a company. Trainees shadow a senior person or supervisor, they can't perform work tasks independently. Trainees may be paid or unpaid.

(b) Paid Work Experience: Paid work experience refers to any job or position where an individual who fits the definition of Trainee is compensated for their work as part of training. This can include internships, apprenticeships, part-time jobs, full-time positions, and temporary work. The key aspect is that the individual receives payment for the work they perform, which can help them gain practical experience and develop skills relevant to their career.

(c) Apprentices: Apprentices are a subset of Trainees. These are individuals who are learning a trade or profession through a combination of on-the-job training and classroom instruction for project specific learning. Apprentices are typically engaged in part of a structured program that lasts for a specific period, during which Apprentices work under the guidance of experienced professionals. They often receive a wage while they learn and, upon completion, are usually qualified to work independently in their chosen field.

(d) Paid Interns: Interns are individuals, often students or recent graduates, who work temporarily at a company or organization to gain practical experience in a particular field. Internships can typically last for a set period, such as a few months. Interns perform tasks and projects under the supervision of experienced professionals, allowing them to apply

their academic knowledge in a real-world setting, develop new skills, and build professional networks.

D8. CONTRACTOR'S SUPERVISOR

D8.1 At the pre-construction meeting, the Contractor shall identify their designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D9. ACCESSIBLE CUSTOMER SERVICE REQUIREMENTS

D9.1 The Accessibility for Manitobans Act (AMA) imposes obligations on The City of Winnipeg to provide accessible customer service to all persons in accordance with the Customer Service Standard Regulation ("CSSR") to ensure inclusive access and participation for all people who live, work or visit Winnipeg regardless of their abilities.

D9.1.1 The Contractor agrees to comply with the accessible customer service obligations under the CSSR and further agrees that when providing the Goods or Services or otherwise acting on the City of Winnipeg's behalf, shall comply with all obligations under the AMA applicable to public sector bodies.

D9.1.2 The accessible customer service obligations include, but are not limited to:

(a) providing barrier-free access to goods and services.

(b) providing reasonable accommodations.

(c) reasonably accommodating assistive devices, support persons, and support animals.

(d) providing accessibility features e.g. ramps, wide aisles, accessible washrooms, power doors and elevators.

(e) inform the public when accessibility features are not available.

(f) providing a mechanism or process for receiving and responding to public feedback on the accessibility of all goods and services; and

(g) providing adequate training of staff and documentation of same.

D10. SUPPLIER CODE OF CONDUCT

D10.1 The Contractor has reviewed and understands the City's Supplier Code of Conduct. This document is located at: https://www.winnipeg.ca/media/4891

D10.2 The Contractor agrees to comply with the Supplier Code of Conduct as it may be amended or replaced from time to time. The Contractor is responsible for periodically checking the above link for updates to the Supplier Code of Conduct. Contract signature on Form A: Bid/Proposal from the Contractor signifies agreement to the Supplier Code of Conduct which comes into effect once the Contract starts.

D10.3 If there is a conflict between the Contract and the Supplier Code of Conduct – the Contract will prevail.

D11. UNFAIR LABOUR PRACTICES

D11.1 Further to C3.2, the Contractor declares that in bidding for the Work and in entering into this Contract, the Contractor and any proposed Subcontractor(s) conduct their respective business in accordance with established international codes embodied in United Nations Universal Declaration of Human Rights (UDHR) https://www.un.org/en/about-us/universal-declaration-of-human-rights International Labour Organization (ILO) https://www.ilo.org/global/lang--en/index.htm conventions as ratified by Canada.

D11.2 The City of Winnipeg is committed and requires its Contractors and their Subcontractors, to be committed to upholding and promoting international human and labour rights, including

fundamental principles and rights at work covered by ILO eight (8) fundamental conventions and the United Nations Universal Declaration of Human Rights which includes child and forced labour.

D11.3 Upon request from the Contract Administrator, the Contractor shall provide disclosure of the sources (by company and country) of the raw materials used in the Work and a description of the manufacturing environment or processes (labour unions, minimum wages, safety, etc.).

D11.4 Failure to provide the evidence required under D11.3, may be determined to be an event of default in accordance with C18.

D11.5 In the event that the City, in its sole discretion, determines the Contractor to have violated the requirements of this section, it will be considered a fundamental breach of the Contract, and the Contractor shall pay to the City a sum specified by the Contract Administrator in writing ("Unfair Labour Practice Penalty"). Such a violation shall also be considered an Event of Default, and shall entitle the City to pursue all other remedies it is entitled to in connection with same pursuant to the Contract.

D11.5.1 The Unfair Labour Practice Penalty shall be such a sum as determined appropriate by the City, having due regard to the gravity of the Contractor's violation of the above requirements, any cost of obtaining replacement goods/ services or rectification of the breach, and the impact upon the City's reputation in the eyes of the public as a result of same.

D11.5.2 The Contractor shall pay the Unfair Labour Practice Penalty to the City within thirty (30) Calendar Days of receiving a demand for same in accordance with D11.5. The City may also hold back the amount of the Unfair Labour Practice Penalty from payment for any amount it owes the Contractor.

D11.5.3 The obligations and rights conveyed by this clause survive the expiry or termination of this Contract, and may be exercised by the City following the performance of the Work, should the City determine, that a violation by the Contractor of the above clauses has occurred following same. In no instance shall the Unfair Labour Practice Penalty exceed the total of twice the Contract value.

D12. FURNISHING OF DOCUMENTS

D12.1 Upon award of the Contract, the Contractor will be provided with 'issued for construction' Contract Documents electronically, including Drawings in PDF formal only.

SUBMISSIONS

D13. AUTHORITY TO CARRY ON BUSINESS

D13.1 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.

D14. SAFE WORK PLAN

D14.1 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.

D14.2 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, Purchasing Division website at
http://www.winnipeg.ca/matmgt/Safety/default.stm

D14.3 Notwithstanding B13.4 at any time during the term of the Contract, the City may, at their 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.

D15. INSURANCE

D15.1 The Contractor shall provide and maintain the following insurance coverage:

(a) commercial general liability insurance, in the amount of at least two million dollars ($2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability, broad form property damage cover and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;

(b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than $2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence.

(c) property insurance for all mobile offices, portable toilets, machinery and equipment

D15.2 All Subcontractors performing Work on the Project shall provide the Contractor with evidence of Insurance as outlined in D15.1 (a) and (b) above and be registered with Workers Compensation Board of Manitoba and maintain insurance and workers compensation coverage throughout the performance of the Work, the Contractor shall provide the Contract Administrator with evidence of same prior to the commencement of any Work by the Subcontractor.

D15.3 Deductibles shall be borne by the Contractor.

D15.4 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.

D15.5 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.

D16. SOCIAL PROCUREMENT PLAN TEMPLATE

D16.1 The Contractor shall provide the Contract Administrator with a Social Procurement Plan Template (Form M: Social Procurement Plan Template) within five (5) Business Days of a request by the Contract Administrator as per B13.1(d).

D17. CONTRACT SECURITY

D17.1 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, 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, Form_H2_Labour_and_Material_Bond , in an amount equal to fifty percent (50%) of the Contract Price.

D17.1.1 Bonds are available at:

(a) Performance Bond https://www.winnipeg.ca//media/4928/

(i) Performance Bond – Schedule A - Form of Notice
https://www.winnipeg.ca/media/4831/

(ii) Performance Bond – Schedule B – Surety's Acknowledgement
https://www.winnipeg.ca/media/4832/

(iii) Performance Bond – Schedule C – Surety's Position
https://www.winnipeg.ca/media/4833/

(b) Labour & Material Payment Bond https://www.winnipeg.ca//media/4930/

(i) L&M Bond – Schedule A – Notice of Claim
https://www.winnipeg.ca/media/4834/

(ii) L&M Bond – Schedule B – Acknowledgement of a Notice
https://www.winnipeg.ca/media/4835/

(iii) L&M Bond – Schedule C – Surety's Position
https://www.winnipeg.ca/media/4836/

D17.1.2 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 D17.1.2(b).

D17.1.3 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 their discretion, exercised reasonably, allows.

D17.1.4 Digital bonds passing the verification process will be treated as original and authentic.

D17.2 The Contractor shall provide the Contract Administrator identified in D6 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.

D17.3 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 D17.1(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.

D18. SUBCONTRACTOR LIST

D18.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least

two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the General Conditions for the return of the executed Contract Documents, if applicable.

D19. EQUIPMENT LIST

D19.1 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.

D20. DETAILED WORK SCHEDULE

D20.1 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.

D20.2 The detailed work schedule shall consist of the following:

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

(b) a Gantt chart for the Work based on the C.P.M. schedule;

all acceptable to the Contract Administrator.

D20.3 Further to D20.2(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 to site;

(b) Chamber and piping access and disassembly;

(c) Water main cleaning and prep work;

(d) Installation of FFRP liner;

(e) Chamber modifications and valve replacements;

(f) Chamber and piping reassembly;

(g) Coating rehabilitation;

(h) Acceptance testing;

(i) Pipeline disinfection; and,

(j) Restoration.

D20.4 Further to D20.2(b), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.

D21. REQUIREMENTS FOR SITE ACCESSIBILITY PLAN

D21.1 The Contractor shall provide the Contract Administrator with an Accessibility 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.

D21.2 The Accessibility Plan shall demonstrate how the Contractor will accommodate the safe passage of pedestrians and cyclists in accordance with the Manual of Temporary Traffic Control, the Contract Drawings, Staging Plans, and Streets By-Law No. 1481/77 at all times for the duration of the Construction. Unless noted in the Contract, the Accessibility Plan must include a written plan for the following:

(a) How the Contractor will maintain at least one crossing in each direction for each intersection (one north/south crosswalk and one east/west crosswalk).

(b) How the Contractor will maintain access to bus stops within the site.

(c) How the Contractor will maintain access to pedestrian corridors and half signals.

(d) How the Contractor will maintain cycling facilities.

(e) How the Contractor will maintain access to residents and businesses unless otherwise noted in the Contract.

(f) Any required detour signage at adjacent crossings to facilitate sidewalk or active transportation pathway closures.

D21.3 The Accessibility Plan may also include figures, sketches, or drawings to demonstrate the proposed plan.

D21.4 The Accessibility Plan shall include written details on how the Contractor intends to review, maintain, and document all items related to the Accessibility Plan on-site during Construction, including, but not limited to:

(a) Signage

(b) Temporary Ramping

(c) Transit Stops

(d) Detour Signage

D21.5 At minimum, the Contractor shall review the site conditions on a daily basis to ensure that all features related to the Accessibility Plan are in place. The site review is intended to correct deficiencies as a result of unforeseen events such as wind, traffic, or the general public. Deficiencies that are direct result of the Contractors actions must be corrected immediately.

D21.6 Any changes to the Accessibility Plan must be approved by the Contract Administrator.

D21.7 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the site has been maintained.

D21.8 Deficiencies as a direct result of actions by the Contractor that are not immediately corrected and/or failure to produce records that demonstrate that the site was maintained in compliance with the Accessibility Plan may result in a pay adjustment via the monthly Progress Payment. The rate of pay adjustment will be as per the following schedule:

(a) First Offence – A warning will be issued and documented in the weekly or bi-weekly site meeting.

(b) Second Offence – A field instruction to immediately correct the site will be issued by the Contract Administrator.

D21.9 Third and subsequent Offences – A pay reduction will be issued in the amount of $250.00 per instance and per day.

SCHEDULE OF WORK

D22. COMMENCEMENT

D22.1 The Contractor shall not commence any Work until they are in receipt of an award letter from the Award Authority authorizing the commencement of the Work.

D22.2 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 D13;

(ii) evidence of the workers compensation coverage specified in C6.15;

(iii) the Safe Work Plan specified in D14;

(iv) evidence of the insurance specified in D1;

(v) the contract security specified in D17;
(vi) the Subcontractor list specified in D18;
(vii) the equipment list specified in D19;
(viii) the detailed work schedule specified in D20;
(ix) the Requirements for Site Accessibility Plan specified in D21;
(x) the Social Procurement Plan; and
(xi) the direct deposit application form specified in D35.2

(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.

D22.3 The City intends to award this Contract by June 6, 2025

D22.3.1 If the actual date of award is later than the intended date, the dates specified for Critical Stages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D23. WORK BY OTHERS

D23.1 Further to C6.25, the Contractor's attention is directed to the fact that other Contractors, the personnel of Utilities and the staff of the City may be working within the project limit, approach roadway, adjacent roadways or right-of-way. The activities of these agencies may coincide with the Contractors execution of Work, and it will be the Contractor's responsibility to cooperate to the fullest extent with other personnel working in the area, and such cooperation is an obligation of the Contractor under the terms of Contract.

D23.2 Work by others on or near the Site will include but not necessarily be limited to:

(a) N/A.

D23.2.1 Further to D23.1 the Contractor shall cooperate and coordinate all activities with all parties performing required Work by Others identified in D23.1 and accommodate the necessary area on Site required for the Work by Others to complete the Work

D24. WORKING DAYS

D24.1 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.

D24.2 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.

D24.3 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.

D24.4 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.

D24.5 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.

D24.6 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 (D20), whichever occurs first.

D25. SCHEDULE RESTRICTIONS

D25.1 Feeder Main Shutdowns

D25.1.1 Feeder main shutdowns will be scheduled based on a number of factors including routine maintenance and repair work, water demand, weather and other factors. The City shall endeavour to make the specified time periods available to the Contractor to schedule his Work requiring isolation and draining of various feeder mains, without limiting the City's control over the operation of the regional water system to complete other work, maintain adequate system service and maintain the integrity of the infrastructure. The City shall reserve the right to cancel and/or delay these schedule dates at any time, due to any circumstances that could adversely affect water supply system operation, including but not limited to high water demand, abnormal weather, failures of related water system components and/or security concerns.

D25.1.2 The feeder main shutdown will only be permitted between the September Long Weekend and the May Long Weekend of a given year (September 2, 2025 to May 15, 2026).

D25.1.3 The feeder main shall be handed over to the City ready for return to service within thirty-five (35) Calendar Days of shutdown and hand over to the Contractor for commencement of the work. Calendar Days will be counted starting the next Calendar Day after isolation by City forces and notification for the Contractor to commence with draining and work.

D26. CRITICAL STAGES

D26.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:

(a) Feeder Main Shutdown – Shutdown for rehabilitation of the crossing and valve chamber piping shall be completed within thirty-five (35) Calendar Days as measured in D25.

D27. SUBSTANTIAL PERFORMANCE

D27.1 The Contractor shall achieve Substantial Performance within thirty (30) consecutive Working Days of the commencement of the Work as specified in D22, or by November 28, 2025, whichever comes first.

D27.2 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.

D27.3 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.

D28. TOTAL PERFORMANCE

D28.1 The Contractor shall achieve Total Performance within forty (40) consecutive Working Days of the commencement of the Work as specified in D22, or by June 26, 2026, whichever comes first.

D28.2 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.

D28.3 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.

D29. LIQUIDATED DAMAGES

D29.1 If the Contractor fails to achieve, Critical Stages, 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 or Calendar Day as noted below for each and every Working Day (or Calendar Day) following the days fixed herein for same during which such failure continues:

(a) Critical Stage 1 - – Five Hundred dollars ($500) per Calendar Day;

(b) Substantial Performance – Nineteen Hundred dollars ($1,900) Per Working Day; and,

(c) Total Performance – Nine Hundred dollars ($900) per Working Day.

D29.2 The amounts specified for liquidated damages in D29.1 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.

D29.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D30. SUPPLY CHAIN DISRUPTION SCHEDULE DELAYS

D30.1 The City acknowledges that the schedule for this Contract may be impacted by the Supply Chain Disruption. Commencement and progress of the Work shall be performed by the Contractor with due consideration to the delivery requirements and schedule identified in the Contract in close consultation with the Contract Administrator.

D30.2 If the Contractor is delayed in the performance of the Work by reason of the Supply Chain Disruption, 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.

D30.3 A minimum of seven (7) Calendar Days prior to the commencement of Work, the Contractor shall declare whether a Supply Chain Disruption will affect the start date. The Contractor shall provide sufficient evidence that the delay is directly related to a Supply Chain Disruption, including but not limited to ordering of Material or Goods, production and/or manufacturing schedules or availability of staff as appropriate.

D30.4 For any delay related to Supply Chain Disruption 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 D30.3. Failure to provide this notice will result in no additional time delays being considered by the City.

D30.5 The Work schedule, including the durations identified in D24 to D28 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.

D30.6 Where Work not previously identified is being carried over solely as a result of delays related to Supply Chain Disruption, 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 Supply Chain Disruption, a partial consideration of the cost of temporary works will be considered by the Contract Administrator.

D30.7 Any time or cost implications as a result of Supply Chain Disruption and in accordance with the above, as confirmed by the Contract Administrator, shall be documented in accordance with C7.

D31. SCHEDULED MAINTENANCE

D31.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

(a) Landscaping as specified in CW 3510.

D31.2 Determination of Substantial Performance and Total Performance shall be exclusive of scheduled maintenance identified herein. All scheduled maintenance shall be completed prior to the expiration of the warranty period. Where the scheduled maintenance cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the scheduled maintenance.

CONTROL OF WORK

D32. JOB MEETINGS

D32.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.

D32.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever they deem it necessary.

D33. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

D33.1 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).

D34. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

D34.1 Further to B13.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at their sole discretion and acting reasonably, require updated proof of compliance, as set out in B13.4.

INVOICES & MEASUREMENT AND PAYMENT

D35. MEASUREMENT AND PAYMENT

D35.1 C12.2 is deleted and replaced with the following:

C12.2 The amounts to be paid by the City to the Contractor shall be as set out in the Payment Certification. In the event the Payment Certification does not align with the Contractor's Proper Invoice and payment by the City to the Contractor is not made, or not going to be made, for the invoiced amount within 28 Calendar Days of receipt of the Proper Invoice, the City will issue a notice of non-payment to the Contractor in accordance with the BLA.

C12.2.1 For unit price Contracts, such sums shall be determined by the Contract Administrator upon the basis of the unit prices for the various classes of the Work stated on Form B:

Prices. The total amount to be paid to the Contractor for the Work will be the amount arrived at by measuring the amount of each class of the Work listed on Form B: Prices and performed in accordance with the Contract, and pricing the same, in accordance with the unit prices stated thereon.

C12.2.2 For lump sum Contracts, such sums shall be determined by the Contract Administrator upon the basis of the lump sum price stated on Form B: Prices, if applicable, but in any event the lump sum price broken down into the percentage completed for each portion of the Work, commonly referred to as detailed prices.

D35.2 C12.7 to C12.15 are deleted and replaced with the following:

C12.7 By the seventh (7) Calendar Day after the end of each month, the Contract Administrator shall issue to the Contractor a progress estimate indicating its opinion of the quantity and value of Work performed during the previous month. The Contractor may use the progress estimate to form part of its Proper Invoice as support of the type and quantity of Work performed. In the event the Contractor choses to produce its own documentation of the type and quantity of Work performed to form part of its Proper Invoice, the content shall be in accordance with C12.2 and the format of such documentation should follow that of a typical progress estimate, including all evidence and records of measurement that the Contract Administrator would require to certify payment. In either event the Contractor shall include such supporting documentation as part of its invoice.

C12.8 If the Contractor agrees with the progress estimate provided by the Contract Administrator it should indicate that on its Proper Invoice. If the Contractor does not agree with the progress estimate provided by the Contract Administrator it should attempt to reconcile the discrepancy, which could result in a revised progress estimate to be provided by the Contract Administrator or a revised invoice by the Contractor, so that the progress estimate and the Proper Invoice align. In the event that the discrepancy is not reconciled then the Contractor should detail the items within the progress estimate that it disagrees with in order that the value on the Proper Invoice aligns with and is supported by the progress estimate with noted discrepancies.

FINAL PAYMENT

C12.13 The Contractor shall indicate on its invoice if it is the final invoice for Work performed under the Contract. Payment Certification, in response to receipt of the final Proper Invoice by the Contractor, shall be subject to the following conditions:

(a) issuance by the Contract Administrator of a certificate of Total Performance;

(b) receipt by the City of a certificate from the Workers Compensation Board stating that full payment has been made to the Board with respect to all assessments owing.

C12.14 Payment on account of the holdback made by the City pursuant to The Builders' Liens Act, shall be paid to the Contractor when the time for filing liens or trust claims has elapsed, unless the City is in receipt of a lien or trust claim.

C12.15 Neither the issuance of a certificate of Total Performance nor the payment of the final Proper Invoice shall relieve the Contractor from their responsibilities either under C13 or as a result of any breach of the Contract by the Contractor including, but not limited to, defective or deficient Work appearing after Total Performance, nor shall it conclude or prejudice any of the powers of the Contract Administrator or the Chief Administrative Officer hereunder.

C12.16 Subject to C12.17, acceptance by the Contractor of payment on account of the final Proper Invoice shall constitute a waiver and release by them of all claims against the City whether for payment for Work done, damages or otherwise arising out of the Contract.

C12.17 If the Contractor disputes a Payment Certification related to a notice of non-payment by the City to the Contractor in accordance with the BLA, the Contractor may appeal the determination of the Contract Administrator to the Chief Administrative Officer as provided for in C21. If prior to the appeal being concluded, the Contractor gives a notice of adjudication to the City pursuant to the BLA, the appeal process will be discontinued.

INVOICES

D35.3 Further to C12, the Contractor:

(a) shall submit invoices for Work performed during the previous calendar month in accordance with the instruction on the City's website at: https://www.winnipeg.ca/finance/corporate-accounts-payable.stm; and

(b) should copy the Contract Administrator on submission of its invoice.

D36. PAYMENT

D36.1 Further to C12, the City shall make payments to the Contractor by direct deposit to the Contractor's banking institution, and by no other means. Payments will not be made until the Contractor has made satisfactory direct deposit arrangements with the City. Direct deposit application forms are at https://winnipeg.ca/finance/files/Direct_Deposit_Form.pdf.

D36.2 Further to E5.2.1(b)(i), no payment will be made for Cash Allowances other than as set out in E6.4.

D37. FUEL PRICE ADJUSTMENT

D37.1 The Contract is subject to a fuel price adjustment which will be calculated monthly based on eligible Work completed utilizing the following mathematical formulas;

(a) where the price of fuel has increased - ((CFI/BFI)-1.15) x Q x FF; and

(b) where the price of fuel has decreased - ((CFI/BFI)-0.85) x Q x FF; where

(i) BFI = base fuel index

(ii) CFI = current fuel index

(iii) FF = fuel factor

(iv) Q = monetary value of Work applied in the calculation.

D37.1.1 Eligible Work will be determined in accordance with D37.5.

D37.1.2 The base fuel index (BFI) will be the retail price of fuel identified on the Submission Deadline based on latest published "Monthly average retail prices for gasoline and fuel by geography" for Winnipeg, published by Statistics Canada, Table 18-10-0001-01. The BFI is a blended rate based on 15% regular unleaded gasoline at self-service filling stations and 85% diesel fuel at self-service filling stations.

D37.1.3 The current fuel index (CFI) based on the above blended rate will be determined for each monthly progress estimate and applied on the following progress estimate as a change order once rates are published by Statistics Canada.

D37.1.4 A Fuel Factor (FF) rate of the monetary value of all eligible Work completed that month based on the Contract unit prices will be used to calculate the assumed apportioned cost of fuel.

D37.2 Fuel cost adjustments may result in additional payment to the Contractor or credit to the City within the Contract by way of a monthly change order.

D37.3 The fuel escalation or de-escalation adjustment will not be applied if the CFI is within ±15% of the BFI.

D37.4 Fuel escalation adjustments will not be considered beyond the Substantial Performance/Critical Stages except where those dates/Working Days are adjusted by change order. Fuel de-escalation adjustments will apply for Work that extends beyond the dates/Working Days specified for Substantial Performance/Critical Stages.

D37.5 The Fuel Factor (FF) rates will be set as follows:

(a) The Fuel Factor rate will be set at 1.2% of the monitory value for all Work identified on Form B: Prices related to Water & Waste Work.

WARRANTY

D38. WARRANTY

D38.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) year thereafter unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

D38.2 Notwithstanding C13.2 or D38.1, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if:

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

D38.2.1 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

DISPUTE RESOLUTION

D39. DISPUTE RESOLUTION

D39.1 If the Contractor disagrees with any opinion, determination, or decision of the Contract Administrator, the Contractor shall act in accordance with the Contract Administrator's opinion, determination, or decision unless and until same is modified by the process followed by the parties pursuant to D39.

D39.2 The entire text of C21.4 is deleted, and amended to read: "Intentionally Deleted"

D39.3 The entire text of C21.5 is deleted, and amended to read:

(a) If Legal Services has determined that the Disputed Matter may proceed in the Appeal Process, the Contractor must, within ten (10) Business Days of the date of the Legal Services Response Letter, submit their written Appeal Form, in the manner and format set out on the City's Purchasing Website, to the Chief Administrative Officer, and to the Contract Administrator. The Contractor may not raise any other disputes other than the Disputed Matter in their Appeal Form.

D39.4 Further to C21, prior to the Contract Administrator's issuance of a Final Determination, the following informal dispute resolution process shall be followed where the Contractor disagrees with any opinion, determination, or decision of the Contract Administrator ("Dispute"):

(a) In the event of a Dispute, attempts shall be made by the Contract Administrator and the Contractor's equivalent representative to resolve Disputes within the normal course of project dealings between the Contract Administrator and the Contractor's equivalent representative.

(b) Disputes which in the reasonable opinion of the Contract Administrator or the Contractor's equivalent representative cannot be resolved within the normal course of project dealings as described above shall be referred to a without prejudice escalating

negotiation process consisting of, at a minimum, the position levels as shown below and the equivalent Contractor representative levels:

(i) The Contract Administrator;

(ii) Supervisory level between the Contract Administrator and applicable Department Head;

(iii) Department Head.

D39.4.1 Names and positions of Contractor representatives equivalent to the above City position levels shall be determined by the Contractor and communicated to the City at the pre-commencement or kick off meeting.

D39.4.2 As these negotiations are not an adjudicative hearing, neither party may have legal counsel present during the negotiations.

D39.4.3 Both the City and the Contractor agree to make all reasonable efforts to conduct the above escalating negotiation process within twenty (20) Business Days, unless both parties agree, in writing, to extend that period of time.

D39.4.4 If the Dispute is not resolved to the City and Contractor's mutual satisfaction after discussions have occurred at the final escalated level as described above, or the time period set out in D39.4.3, as extended if applicable, has elapsed, the Contract Administrator will issue a Final Determination as defined in C1.1(v), at which point the parties will be governed by the Dispute Resolution process set out in C21.

INDEMNITY

D40. INDEMNITY

D40.1 Indemnity shall be as stated in C17.

D40.2 Notwithstanding C17.1, the Contractor shall save harmless and indemnify the City in the amount of twice the Contract Price or five million dollars ($5,000,000), whichever is greater, against all costs, damages or expenses arising from actions, claims, demands and proceedings, by whomsoever brought, made or taken as a result of negligent acts or negligent omissions of the Contractor, their Subcontractors, employees or agents in the performance or purported performance of the Work, and more particularly from:

(a) accidental injury to or death of any person whether retained by or in the employ of the contractor or not, arising directly or indirectly by reason of the performance of the Work, or by reason of any trespass on or damage to property;

(b) damage to any property owned in whole or in part by the City, or which the City by duty or custom is obliged, directly or indirectly, in any way or to any degree, to construct, repair or maintain;

(c) damage to, or trespass or encroachment upon, property owned by persons other than the City;

(d) any claim for lien or trust claim served upon the City pursuant to The Builders' Liens Act;

(e) failure to pay a Workers Compensation assessment, or Federal or Provincial taxes;

(f) unauthorized use of any design, device, material or process covered by letters patent, copyright, trademark or trade name in connection with the Work;

(g) inaccuracies in any information provided to the City by the Contractor.

D40.3 Further to C17, The City shall save harmless and indemnify the Contractor in the amount of twice the Contract Price or five million dollars ($5,000,000), whichever is greater, against all costs, damages or expenses arising from actions, claims, demands and proceedings, by whomsoever brought, made or taken as a result of negligent acts or negligent omissions of the City, their employees or agents in the performance of its obligation under the Contract.

THIRD PARTY AGREEMENTS

D41. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS

D41.1 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.

D41.2 Further to D41.1, in the event that the obligations in D41 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.

D41.3 For the purposes of D41:

(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.

D41.4 Modified Insurance Requirements

D41.4.1 If not already required under the insurance requirements identified in D1, 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 their Ministers, officers, employees, and agents shall be added as additional insureds.

D41.4.2 If not already required under the insurance requirements identified in D1, 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.

D41.4.3 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.

D41.4.4 Further to D15.4, 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.

D41.4.5 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.

D41.5 Indemnification By Contractor

D41.5.1 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.

D41.5.2 The Contractor agrees that in no event will Canada or Manitoba, their respective officers, servants, employees or agents be held liable for any damages in contract, tort (including negligence) or otherwise, for:

(a) any injury to any person, including, but not limited to, death, economic loss or infringement of rights;

(b) any damage to or loss or destruction of property of any person; or

any obligation of any person, including, but not limited to, any obligation arising from a loan, capital lease or other long term obligation; in relation to this Contract or the Work.

D41.6 Records Retention and Audits

D41.6.1 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.

D41.6.2 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 D41.6.1 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.

D41.7 Other Obligations

D41.7.1 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.

D41.7.2 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.

D41.7.3 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.

D41.7.4 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.

D41.7.5 The Contractor represents and warrants that no current or former public servant or public office holder, to whom the Value and Ethics Code for the Public Sector, the Policy on Conflict of Interest and Post Employment, or the Conflict of Interest Act applies, shall derive direct benefit from this Contract, including any employment, payments, or gifts, unless the provision or receipt of such benefits is in compliance with such codes and the legislation.

D41.7.6 The Contractor represents and warrants that no member of the House of Commons or of the Senate of Canada or of the Legislative Assembly of Manitoba is a shareholder, director or officer of the Contractor or of a Subcontractor, and that no such member is entitled to any benefits arising from this Contract or from a contract with the Contractor or a Subcontractor concerning the Work.

ADJUSTMENTS FOR CHANGES IN LAWS, TAXES, OR TARIFFS

D42. ADJUSTMENTS FOR CHANGES IN LAWS, TAXES, OR TARIFFS

D42.1 Further to C12.4 and subject to C6.13, the Contract Price shall be adjusted if any change in a law or tax imposed under the Excise Act, the Excise Tax Act, the Customs Act, the Customs Tariff, The Mining Tax Act (Manitoba), or The Retail Sales Tax Act (Manitoba), by an act of the Congress of the United States of America, or by Executive Order by the President of the United States under the International Emergency Economic Powers Act of the United States of America or similar legislation:

(a) occurs after the Submission Deadline;

(b) applies to Material; and

(c) affects the cost of that Material to the Contractor.

D42.2 Further to C12.5, if a change referred to in C12.4 occurs, the Contract Price shall be increased or decreased by an amount equal to the amount that is established, by an examination of the relevant records of the Contractor, to be the increase or decrease in the cost incurred that is directly attributable to that change, and which the Contractor has proven to the Contract Administrator represents the minimum amount of increase necessary in order to obtain necessary Material or Plant. For the avoidance of doubt, the Contractor shall be required to provide satisfactory proof that it has investigated alternative options for obtaining equivalent Material or Plant and reducing or eliminating the increase in Contract Price, up to and including entering into purchase agreements with vendors located in other jurisdictions, in order for Contractor to be able to avail itself of the increase in Contract Price permitted.

FORM J: SUBCONTRACTOR LIST
(See D18)

CHARLESWOOD-ASSINIBOIA FEEDER MAIN RIVER CROSSING REHABILITATION

Name	Address

FORM K: EQUIPMENT
(See D19)

CHARLESWOOD-ASSINIBOIA FEEDER MAIN RIVER CROSSING REHABILITATION

1. Category/type:

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

2. Category/type:

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

3. Category/type:

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

FORM K: EQUIPMENT
(See D19)

CHARLESWOOD-ASSINIBOIA FEEDER MAIN RIVER CROSSING REHABILITATION

4. Category/type:

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

5. Category/type:

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

6. Category/type:

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

FORM L: CONTRACTOR EXPERIENCE
(See B4)

CHARLESWOOD-ASSINIBOIA FEEDER MAIN RIVER CROSSING REHABILITATION

Attach additional resumes and documents as required. Indicate whether Projects/Project Personnel are for the Bidder, Subcontractor, or Key Personnel.

Project References:

Project Client/Contact: _____
(Name)

_____
(Address)

_____
(phone) (email)

Year	Description of Project	Value

Project References:

Project Client/Contact: _____
(Name)

_____
(Address)

_____
(phone) (email)

Year	Description of Project	Value

FORM M: SOCIAL PROCUREMENT PLAN

Every purchase has an economic, social, environmental, and cultural impact. Sustainable Procurement is about capturing the economic, social, environmental, and cultural impacts of purchasing decisions to foster healthy and vibrant communities.

Historically, procurement has been about choosing the supplier offering the lowest price while still meeting technical requirements of providing high quality products or services with minimal risk. By expanding the premise of 'best value' in procurement, to include the generation of positive societal benefits, alongside high quality and competitive bids, the City of Winnipeg is working to maximize community benefits and deliver improved socio-economic returns for stakeholders, within the existing spend.

The Contractor shall provide the Contract Administrator with a Social Procurement Plan Template (Form M: Social Procurement Plan Template) within five (5) Business Days of a request by the Contract Administrator as per B13.1(d).

Both Question 1 and 2 must be filled out responding to all criteria. Question 2 must explain the commitment to Question 1 within the context of the Contract.

1. The Contractor commits to _____ # of individuals working as apprentices, paid interns, and paid work experience positions working on this Contract.

Enter the number of individuals and any other applicable information

2. Provide a detailed strategy for how the Contractor will meet the above commitment, including how the Contractor proposes to engage these individuals during the life of the Contract.

Skills and training responses could include: We have 8 apprentices on our team and project 6 will participate in this project. We offer a summer internship program for 4 students and 2 of them will be working on this project.

Enter detailed strategy here.

FORM O: SOCIAL VALUE RREPORTING TEMPLATE

Every purchase has an economic, social, environmental, and cultural impact. Sustainable Procurement is about capturing the economic, social, environmental, and cultural impacts of purchasing decisions to foster healthy and vibrant communities.

The data reported here is a contractual requirement to encourage and measure social, Indigenous, and environmental outcomes from the City's procurement. The City reserves the right to verify the information reported.

Company Name _____

Contract Number _____

Reporting Period Start Date _____

Reporting Period End Date _____

1. Skills and Training (# of Skills and Training individuals)

The Contractor commits to _____ # of individuals that will be provided by apprentices, paid interns, and paid work experience positions working on this Contract.

A. Number of individuals for **apprentices** working on the Contract during the reporting period	_____ individuals
B. Number of individuals for **paid interns** working on the Contract during the reporting period	_____ individuals
C. Number of individuals for **paid work experience positions** working on the Contract during the reporting period	_____ individuals
D. Total number of individuals for apprentices, paid interns, and paid work experience positions working on the Contract during the reporting period (D = A + B + C)	_____ individuals

Please describe any successes or challenges related to your commitment for the reporting period.

Describe any successes or challenges.

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 their 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, Purchasing 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:

Appendix No.	Appendix Title
A	Record Drawings
B	Site Photos
C	Stantec Confined Space Entry Safe Work Practice
D	Pipeline Electromagnetic Inspection Report

Drawing No.	Drawing Name/Title
1-0798E-D0005-001	COVER PAGE
1-0798E-D0006-001	INDEX PAGE - DRAWING INDEX, CONSTRUCTION NOTES, LEGEND & ABBREVIATIONS
1-0798E-C0010-001	RIVER CROSSING - PLAN & PROFILE
1-0798E-C0011-001	RIVER CROSSING - DETAILS
1-0798B-C0009-001	SOUTH CHAMBER – PLANS & SECTIONS
1-0798B-C0010-001	NORTH CHAMBER – PLANS & SECTIONS
1-0798B-C0011-001	NORTH CHAMBER PLAN & SECTIONS AND MISCELLANEOUS DETAILS

GENERAL REQUIREMENTS

E2. SHOP DRAWINGS

E2.1 Description

E2.1.1 This Specification shall revise, amend, and supplement the requirements of CW 1110.

(a) The term “Shop Drawings” means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data, which are to be provided by the Contractor to illustrate details of a portion of the Work.

(b) 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.

E2.1.2 Shop Drawings

(a) Original drawings are to be prepared by the Contractor, Subcontractor, Supplier, Distributor, or Manufacturer, which illustrate the appropriate portion of Work; showing fabrication, layout, setting, or erection details as specified in appropriate sections.

(b) Additional submittal requirements for each component of the Work may be listed within the relevant specification section.

E2.2 Contractor's Responsibility:

(a) Review shop drawings, product data, and samples prior to submission and stamp and sign drawings indicating conformance to the Contract requirements.

(b) Verify:

(i) Field measurements

(ii) Field construction criteria

(iii) Catalogue numbers and similar data

(c) Coordinate each shop drawing submission with the requirements of the Work and Contract Documents. Shop drawings of separate components of a larger system will not be reviewed until all related drawings are available.

(d) Notify Contract Administrator, in writing at time of shop drawing submission, of deviations from requirements of Contract Documents.

(e) Responsibility for deviations in Shop Drawing submissions from the requirements of Contract Documents is not relieved by the Contract Administrator's review of submission, unless the Contract Administrator gives written acceptance of specified deviations.

(f) Responsibility for errors and omissions in Shop Drawing submission is not relieved by the Contract Administrator's review of the submittals.

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

(h) After the Contract Administrator has reviewed and returned the copies, distribute the copies to sub-trades as appropriate.

(i) Maintain one (1) complete set of reviewed shop drawings, filed by Specification Section Number, at the Site for use and reference by the Contract Administrator and Subcontractors.

E2.3 Submission Requirements

E2.3.1 Schedule submissions at least ten (10) Business Days before the dates the reviewed submissions will be needed and allow for a five (5) Business Day period for review by the Contract Administrator of each individual submission and re-submission, unless noted otherwise in the Contract Documents.

E2.3.2 Submit one (1) digital copy (PDF) of shop drawings.

E2.3.3 Accompany shop drawing submissions with a transmittal letter containing:

(a) Date

(b) Project title and Tender number

(c) Contractor's name and address

(d) Number of each shop drawing, product data, and sample submitted

(e) Specification Section, Title, Number, and Clause

(f) Drawing Number and Detail/Section Number

(g) Other pertinent data

E2.3.4 Shop drawing submissions shall include:

(a) Date and revision dates.

(b) Project title and Bid Opportunity number.

(c) Name of:

(i) Contractor
(ii) Subcontractor
(iii) Supplier
(iv) Manufacturer

(d) Separate detailer when pertinent

(e) Identification of product or material.

(f) Relation to adjacent structure or materials.

(g) Field dimensions, clearly identified as such.

(h) Specification section name, number and clause number or drawing number and detail/section number.

(i) Applicable standards, such as CSA or CGSB numbers.

(j) Contractor's stamp, initialled or signed, certifying review of submission, verification of field measurements, and compliance with Contract Documents.

E2.3.5 Shop Drawings not meeting the requirements of CW 1110 or the requirements specified herein will be returned to the Contractor without review for resubmission.

E2.3.6 Shop drawing submissions will be limited to 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 charged to the Contractor.

E2.4 Other Considerations:

(a) Fabrication, erection, installation, or commissioning may require modifications to equipment or systems to conform to the design intent. Revise pertinent shop drawings and resubmit.

(b) Material and equipment delivered to the Site will not be paid for until pertinent shop drawings have been submitted and reviewed.

(c) Incomplete shop drawing information will be considered as stipulated deductions for the purposes of progress payment certificates.

(d) No delay or cost claims will be allowed that arise because of delays in submissions, re-submissions, and review of shop drawings.

E2.5 Measurement and Payment

(a) Preparation and submission of Shop Drawings will be considered incidental to the Work and will not be measured for payment. No additional payment will be made.

E3. EXPEDITED SHOP DRAWINGS

E3.1 Further to E2, in order to expedite Shop Drawings with critical timelines, the lowest responsive Bidder, as outlined in B18, will be required, after receiving a written request from the Contract Administrator, to arrange for the preparation of Shop Drawings for the following items with critical timelines:

(a) FFRP liner (E21)

(b) FFRP termination coupler (E21)

(c) 600x500 mm FlxFl reducer (E17)

(d) 600 mm Victaulic couplings (E17)

(e) 600 mm Victaulic end ring (E17)

(f) 600 mm AWWA Class D flange (E17)

(g) 300 mm dismantling couplings (E17)

(h) 300 mm FlxFl AWWA C509 gate valve (E17))

(i) 300 mm FlxFl steel spool pieces (E17)

E3.2 Measurement and Payment

E3.2.1 If no Contract is awarded, then the City of Winnipeg will pay the requested Bidder up to a maximum of five hundred dollars ($500.00) for each of the requested submissions for the preparation and delivery of expedited Shop Drawings. Delivery of expedited Shop Drawings to the City and payment of the above amounts will constitute full and final consideration of each party to the other and neither party will have any further liability to the other with respect to this Bid Opportunity.

E3.2.2 If Award is made to the lowest responsive Bidder, then as per E2.5, expedited Shop Drawings will be considered incidental to the Work and will not be measured for payment. No additional payment will be made.

E4. OFFICE FACILITIES

E4.1 The Contractor shall supply office facilities meeting the following requirements:

(a) The field office shall be for the exclusive use of the Contract Administrator.

(b) The building shall be conveniently located near the site of the Work.

(c) The building shall have a minimum floor area of 25 square meters, a height of 2.4 m, two windows for cross-ventilation, and a door entrance with a suitable lock.

(d) The building shall be suitable for all weather use. It shall be equipped with an electric heater and air conditioner so that the room temperature can be maintained between either 16-18 °C or 24-25 °C.

(e) The building shall be adequately lighted with florescent fixtures and have a minimum of three wall outlets.

(f) The building shall be furnished with one desk, one drafting table, table 3 m x 1.2 m, one stool, one four-drawer legal size filing cabinet, and a minimum of 12 chairs.

(g) A portable toilet shall be located near the field office building. The toilet shall have a locking door and be for the exclusive use of the Contract Administrator and other personnel from the City.

(h) The field office building and the portable toilet shall be cleaned on a weekly basis immediately prior to each site meeting. The Contract Administrator may request additional cleaning when deemed necessary.

E4.2 Contractor shall coordinate or otherwise provide power for the office.

E4.3 Measurement and Payment

(a) The Contractor shall be responsible for all installation and removal costs, all operating costs, and the general maintenance of the office facilities.

(b) The provision of a site office and associated facilities and work identified herein will be considered incidental to the Work and will not be measured for payment. No additional payment will be made.

E5. MOBILIZATION AND DEMOBILIZATION PAYMENT

E5.1 Description

(a) This Specification shall govern mobilization and demobilization from site.

E5.2 Measurement and Payment

E5.2.1 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.

(b) Payment will be made on the following schedule:

(i) 50% payment of the Mobilization and Demobilization lump sum price will be paid once the Contractor has completed the necessary site access modifications, site setup, and commenced with work on site.

(ii) The remaining 50% of the Mobilization and Demobilization lump sum price will be paid subsequent to the completion of the works, site cleanup, removal of temporary access roads, rough grading, and temporary restoration.

E6. CASH ALLOWANCE FOR ADDITIONAL WORK

E6.1 Additional Work may be necessitated due to unforeseen circumstances that may arise during the course of the project due to:

(a) Additions to the scope of Work by the Contract Administrator, beyond that defined herein.

E6.2 A cash allowance has been included on Form B: Prices.

E6.3 The City reserves the right to delete any or all of the Cash Allowance from the Contract if the Work intended to be covered by the Cash Allowance is not required, or if the Works intended are found to be more extensive than the provisional Cash Allowance.

E6.4 Cost of additional work shall be evaluated by the methods outlined in C7.4, and a Change Order prepared by the Contract Administrator. Cost of the Change Order will be paid on the Progress Estimate and deducted from the Cash Allowance. If the valuation of the authorized work exceeds the Value of the Cash Allowance, the Contract Value will be adjusted by the shortfall.

E6.5 Additional services and/or Work will not be initiated for:

(a) Reasons of lack of performance or errors in execution.

(b) Scheduling changes initiated by the City, where at least 24 hours' notice is given prior to the Contractors schedule time to be on Site.

E6.6 Should it be determined that additional material or services are required, the Contract Administrator shall approve the Work, prior to commencement of the additional Work.

E6.7 Material Mark-Up Factors in accordance with C7:

(a) The base cost is to be the wholesale cost of the material, regardless of the Contractor or Subcontractor supplying the material.

(b) In general, the party (Contractor or Subcontractor) supplying the material is the party that purchases the material from a supplier who does not perform any work on Site, unless otherwise determined by the Contract Administrator.

(c) Where the Contractor is supplying the material, the mark-up on the material is limited to fifteen percent (15%).

(d) Where the Contractor's immediate Subcontractor is supplying the material the total mark-up on the material including all Subcontractors and the Contractor is limited to twenty-five percent (25%)

(i) The Subcontractor's mark-up on the material is limited to fifteen percent (15%).

(ii) The Contractor's mark-up on the material is limited to ten percent (10%).

(e) A Third-Level Subcontractor is a Subcontractor of a Subcontractor of the Contractor.

(i) No Third-Level Subcontractors on this project are approved for additional mark-up.

(ii) In the event that a Third-Level Subcontractor is utilized, that is not approved for additional mark-up, the Contractor is responsible for coordinating the split of the maximum approved mark-up between the Contractor and Subcontractors.

E7. TRAFFIC CONTROL

E7.1 Further to clauses 3.6, 3.7 and 3.8 of CW 1130:

(a) Where directed by the Contract Administrator, the Contractor shall construct and maintain temporary asphalt ramps to alleviate vertical pavement obstructions such as manholes and planning drop-offs to the satisfaction of the Contract Administrator.

(b) In accordance with the Manual of Temporary Traffic Control on City Streets (MTTC), the Contractor ("Construction Agency" in the manual) shall be responsible for supplying, placing, maintaining and removing the appropriate temporary traffic control devices as specified by the MTTC, the Contract Drawings, Staging Plans, and Traffic Management Plans or by the Traffic Management Branch of the City of Winnipeg Public Works Department. The Contractor shall bear all costs associated with the supply, placement and maintenance of temporary traffic control devices by their own forces or subcontractor.

(c) In addition, the Contractor shall be responsible for removing, placing, and maintaining all regulatory signing including but not limited to:

(i) Parking restrictions,

(ii) Stopping restrictions,

(iii) Turn restrictions,

(iv) Diamond lane removal,

(v) Full or directional closures on a Regional Street,

(vi) Traffic routed across a median,

(vii) Full or directional closure of a non-regional street where there is a requirement for regulatory signs (turn restrictions, bus stop relocations, etc.) to implement the closure.

(viii) Approved Designated Construction Zones with a temporary posted speed limit reduction. Traffic Services will be responsible for placing all of the advance signs and 'Construction Ends' (TC-4) signs. The Contractor is still responsible for all other temporary traffic control including but not limited to barricades, barrels and tall cones.

E7.2 Submissions

E7.2.1 Traffic Management Plans

(a) The Contractor shall submit a detailed traffic management plan for works at the sites identified below. The traffic management plan shall be submitted a minimum of twenty (20) Business Days prior to commencement of work on each site to allow sufficient time for review by the Contract Administrator and Traffic Management Branch. Traffic control plans shall include, but not necessarily be limited to, the following:

(i) Details of lane closures on regional and non-regional streets; detours; access accommodations for local businesses; and access accommodations for pedestrians throughout any and all stages of construction.

(ii) Traffic control drawings with all signage.

(b) Traffic management plans shall be submitted for the following locations:

(i) N/A

E7.2.2 Any changes to approved traffic management plans must be submitted to the Contract Administrator a minimum of (five) 5 Working Days prior to the required change for approval.

E7.2.3 Lane Closure Requests

(a) The Contractor shall submit all lane closure requests to the Contract Administrator a minimum of five (5) Business Days prior to the planned work.

(b) Requests for full or directional closures, median crossovers, speed limit reductions, or designated construction zones shall be submitted to the Contract Administrator a minimum of fifteen (15) Business days prior to the planned work.

(c) Requests for regional lane closures shall include all required information for submission required by the City's online request form. It is recommended that the Contractor fill out the online form, print to pdf, and submit the pdf to the Contract Administrator. The Contractor is solely responsible for the correctness of lane closure requests and responsible for any costs and/or delays resulting from the submission of inaccurate lane closures requests.

(d) A link to the form can be found here:

https://laneclosures.winnipeg.ca/

E7.2.4 All submitted traffic control plans are subject to review and acceptance by City of Winnipeg Traffic Management and Traffic Services divisions.

E7.3 General Requirements

E7.3.1 Refer to Drawings for site specific traffic control requirements.

E7.3.2 Intersecting private approach access shall be maintained at all times unless excavation operations require temporary closure.

E7.3.3 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.

E7.3.4 The Contractor shall maintain access to all businesses during business hours, except where written authorization has been provided by the business.

E7.3.5 The Contractor shall maintain access to all schools, community centres, and other public buildings at all times.

E7.3.6 Bus traffic must be maintained at all times or as accepted by the Contract Administrator and Winnipeg Transit. Winnipeg Transit shall have the authority to determine the level of accommodation at bus stops in work zones. Bus stops may be closed, relocated, or maintained in a work zone at Winnipeg Transit's discretion.

E7.3.7 Ambulance/emergency vehicle access must be maintained at all times.

E7.3.8 Designated, permanent, and/or temporary bicycle routes shall be safely maintained throughout the work, or temporary traffic control put in place to reroute bicycle traffic around the work area. Temporary traffic control chosen for the closure or modification of an active transportation route shall match the level of safety provided by the route that is being closed or modified.

E7.3.9 Pedestrian access must be maintained on the one side at all times. One pedestrian crossing in the east-west direction and one pedestrian crossing in the north-south direction must be maintained at each intersection at all times. If this cannot be maintained, 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. Refer also to D9.

E7.3.10 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.

E7.3.11 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.

E7.3.12 During the project, temporary snow fence shall be installed adjacent to existing and temporary sidewalks as necessary to prevent access to the construction area and to provide separation from the excavation area. The Contractor shall be responsible for maintaining the snow fence in a proper working condition. No measurement for payment shall be made for this work.

E7.3.13 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.

E7.3.14 Flag persons may be necessary to maintain the flow of traffic during certain work operations.

E7.3.15 Notwithstanding the requirements noted herein and CW 1130, the Contractor shall maintain the minimum site-specific traffic control requirements indicated on the Drawings.

E7.4 Regional Streets

E7.4.1 The following traffic control requirements shall apply to work on Regional Streets under this contract.

E7.4.2 Regional Streets in this Contract are:

(a) N/A

E7.4.3 The Contractor will have access to the open lane(s) of traffic provided flag persons are used in accordance with the most current edition of The City of Winnipeg Manual for Temporary Traffic Control on City Streets to maintain traffic safety.

E7.4.4 Further to E7.1, should the Contract Administrator require that Work on a Regional Street be carried out at night, on Sundays, on public holidays or that Work be restricted or suspended during peak traffic hours, the Contractor shall comply without any additional compensation being considered to meet these requirements.

E7.4.5 The City reserves the right to restrict, reject, or cancel Regional Street lane closures at any time due to the occurrence of special events or conflicting third party work.

E7.5 Residential Streets

E7.5.1 Traffic Control on Non-Regional Streets during construction shall be as follows:

(a) Maintain one lane of traffic with street signed as “Road Closed – No Exit”;

(b) Intersecting streets and private approaches will be maintained at all times; and

(c) Bus traffic will be maintained at all times.

(d) A minimum of one lane of traffic shall be maintained on one-way and dead end residential streets at all times.

(e) Where 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.

E7.6 Site Specific Traffic Control Requirements:

(a) N/A

E7.7 Regulatory Signage

(a) Further to E7.1(c), the Contractor shall make arrangement with the Traffic Services Branch of the City of Winnipeg to supply regulatory signs as required.

(b) The Contractor shall remove and stockpile any regulatory signage not required during construction such as but not limited to parking restrictions, turn restrictions and loading restrictions.

(c) Further to E7.1(c)(iii) and E7.1(c)(iv) the Contractor shall make arrangements with the Traffic Services Branch of the City of Winnipeg to reinstall the permanent regulatory signs after the Contract Work is complete. At this time the Contractor shall make arrangements to drop off the stockpiled materials to Traffic Services at 495 Archibald Street.

E7.8 Maintenance of Traffic Control

(a) Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the Site has been maintained.

(b) If the Contract Administrator determines that the Contractor is not performing Traffic Control in accordance with this specification, Traffic Services Branch may be engaged to perform the Traffic Control. In this event the Contractor shall bear the costs associated charged to the project by the Traffic Services Branch of the City of Winnipeg in connection with the required Works undertaken by the Contractor.

E7.9 Measurement and Payment

(a) Traffic management will be considered incidental to the Work and will not be measured for payment. No separate payment will be made.

E8. CONFINED SPACE ENTRY AND INSPECTION SUPPORT

E8.1 Description

(a) This specification covers provision of confined entry and access support for the Contract Administrator, the City, and representatives of the butterfly valve supplier (third party entrants).

E8.2 General

E8.2.1 The Contractor shall be aware that Hydrogen Sulphide Gas may be present in all underground structures in concentrations sufficient to cause serious harm or death to personnel who are not using adequate personal protective equipment.

E8.2.2 The Contractor's attention is drawn to the Province of Manitoba Workplace Safety and Health Act ('the Act"), and the Regulations and Guidelines there-under pertaining to Confined Space Entry Work and in particular the requirements for conducting hazard/risk assessments and providing personal protective equipment (PPE).

E8.2.3 Entrants require dedicated confined entry support services for the purposes of inspection. The Contractor shall provide confined space support as required throughout the course of the Work.

E8.3 Methods

E8.3.1 Be fully responsible for confined entry access on site, in accordance to Manitoba Workplace Health and Safety Regulation 217/2006 and subsequent amendments.

E8.3.2 Safety Personnel shall be dedicated to confined entry access when inspection personnel are in confirmed areas.

E8.3.3 Maintain confined entry permit logs.

E8.3.4 Hazard Assessment

(a) In conjunction with securing the site and obtaining underground clearances, the Contractor shall conduct a hazard assessment for each site requiring work within a confined space. The assessment shall identify and evaluate the hazards, including but not be limited to review of the following as it pertains to the work to be performed:

(i) nature of the work;

(ii) structural condition of the existing structure; and,

(iii) atmospheric conditions in the structure.

(b) The hazard assessment shall be based on the Contractors review of structures and external conditions. Prior to the inspection, the Contractor shall conduct the necessary atmospheric monitoring of the affected structures to establish acceptable entry conditions.

E8.3.5 Safe Work Plan

(a) Subsequent to performing a hazard assessment the Contractor shall develop a safe work plan to address the potential hazards associated with each site. In addition to addressing the potential hazards the safe work plan shall address but not be limited to the following:

(i) guidelines for confined space entry work established by The Manitoba Workplace Safety and Health Act;

(ii) provision for emergency response;

(iii) training and duties for entry personnel;

(iv) rescue and emergency services;

(v) requirement for purging, ingesting, flushing and/or continuous ventilation to eliminate or control atmospheric hazards;

(vi) requirement for and provision of supplied air;

(vii) communication between members of the repair crew in the pipe/trench and on the ground's surface;

(viii) current and forecasted weather conditions;

(ix) provision of back-up equipment;

(x) method of ingress into the structure; and,

(xi) method of egress out of the structure.

(b) The Contactor shall not enter the structures to begin the work until they have completed a hazard assessment and safe work plan for the specific repair and reviewed the plans with their designated safety officer for acceptance. The safe work plan procedures and practices shall conform to all federal, provincial and municipal codes, regulations and guidelines including Manitoba Workplace Safety and Health Regulations.

E8.3.6 Third Party Inspections

(a) The Contractor's safe work plan and confined space entry procedures for inspections involving third party entrants shall meet or exceed all requirements outlined in Stantec's Safe Work Procedure, attached in Appendix C and those of any third party entrants.

(b) The Contractor shall provide confined space support for third party entrants. Entrants will provide personal PPE. Support shall include but is not limited to:

(i) Furnishing all confined space entry documentation and permits. Copies of the signed and closed out permits shall be provided to the Contract Administrator within five (5) Business Days of the confined space entry;

(ii) Provision of an attendant and supervisor dedicated to the confined space entry;

(iii) Provision of a retrieval tripod, complete with retractable winch line;

(iv) Provision of confined space harnesses. Harnesses shall be certified in accordance with the manufacturer's recommendations;

(v) Provision of atmospheric monitors for each entrant. Atmospheric monitors shall be calibrated and tested in accordance with the manufacturer's recommendations; and,

(vi) The Contractor shall complete and document atmospheric monitoring prior to and during entry in accordance with submitted confined space procedures.

(c) Inspections may be delayed or postponed where onsite confined space procedures, hazard mitigation measures, or confined space entry support do not meet the Contractor's submitted and accepted safe work plan and procedures until such a time that discrepancies have been addressed to the satisfaction of the entrants. Claims for delays resulting from improper confined space operations will not be considered.

E8.4 Measurement and Payment

(a) Confined entry support will be considered incidental to the Work and will not be measured for payment. No additional payment will be made.

E9. ENVIRONMENTAL PROTECTION

E9.1 The Contractor shall be aware that feeder 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.

E9.2 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.

E9.3 The Contractor is advised that at least the following Acts, Regulations, and By-laws apply to the Work:

E9.3.1 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

(e) Fisheries Act (c. F-14)

(f) The Canadian Navigable Waters Act

E9.3.2 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.

E9.3.3 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.

E9.4 The Contractor is advised that the following environmental protection measures apply to the Work.

E9.4.1 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.

E9.4.2 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 30 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.

E9.4.3 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 burning of waste (on-site or elsewhere) 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.

E9.4.4 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.

E9.4.5 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 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.

(i) The on-site emergency response coordinator shall contact The Canadian Coast Guard, Selkirk (204) 785-6030, if the spill material reaches and is on or in the Assiniboine River.

E9.5 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. Any application must be conducted by a licensed individual.

(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 with the requirements outlined herein, or as directed by the Contract Administrator.

E9.6 The Contractor is advised that the following environmental permits and submittals apply to the Work.

E9.6.1 Site Specific Environmental Management Plan (SSEMP)

(a) The Contractor will prepare a SSEMP. The plans will be submitted to the Contract Administer a minimum of ten (10) Business Days prior to construction start. Construction shall not commence until each plan has been reviewed and confirmed to

be in compliance with the requirements of the contract. At a minimum, the SSEMP shall:

(i) Be site specific and prepared by the Contractor with detail on activities to facilitate both temporary and permanent works (e.g., water control plan, dewatering, discharge points, etc.).

(ii) Include details on erosion and sediment control products used, their placement location and maintenance. Include measures necessary to protect exposed areas in the work sites from erosion and potential sediment release considering precipitation events and freeze/thaw conditions. Describe how maintenance and removal or erosion and sediment control measures will be conducted to satisfy both contractual and regulatory requirements

(iii) Include a Site Plan providing sufficient detail, description, or illustration to clearly show all environmental management and protection measures to be used on the site(s) by the Contractor during construction. This includes spill containment, waste storage/handling, etc. Noting a mark up of general arrangement can form part of this information.

(iv) Identify all access, staging, laydown areas and applicable construction procedures and activities. Including sub-contractor activities

(v) Identify and describe how the installation of all environmental protection measures shall be in accordance with the manufacturer's specifications / recommendations

(vi) Provide product data and specifications for environmental protection measures and products to be used on site

(vii) Contain an emergency response plan

(viii) Describe any proposed or required regulatory monitoring and reporting requirements

E9.7 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.

E10. ASSINIBOINE RIVER WATER LEVELS

E10.1 The Assiniboine River can have elevated water levels, particularly during Spring freshet. Elevated river levels may impact work at the site, including but not limited to;

(a) Access to site;

(b) Increased leakage into subterranean structures;

(c) Increased infiltration into pipelines.

E10.2 The Contractor shall consider potential river elevations in his work plan.

E10.3 Historic Spring Flood Levels and dates that peak flood levels occurred, back to 1996, can be viewed at https://winnipeg.ca/waterandwaste/flood/floodHistory.stm. The elevations shown are in imperial measurement and are referenced to "James Avenue Datum" which is elevation 221.76 metres (727.57 feet) geodetic. Note, river elevations shown are on the Red River at the James Avenue gauge and levels along the Assiniboine river are generally higher.

E10.4 Assiniboine River water levels rise considerably in the spring (typically mid March) due to ice break-up and snow melt. River crest elevations of 233.00 m geodetic or higher are not unusual.

E10.5 River elevation may also increase in the summer due to heavy rainfall in the areas south of Winnipeg. Summer river crests are usually lower and of shorter duration than spring crests.

E10.6 No work on riverbanks or areas potentially in flood plain shall be scheduled after March 15th of a given year. The Contractors shall be prepared at all times to evacuate the work area due to sudden changes in river elevations and flows.

E10.7 Measurement and Payment

(a) Protection of the site from river levels will be considered incidental to the Work and will not be measured for payment. No additional payment will be made.

E11. RIVER CROSSINGS SITE ACCESS

E11.1 Site Access Requirement and Constraint

(a) Charleswood-Assiniboia Feeder Main (Assiniboine Avenue at Rouge Road to Berkley Street at Southboine Dr.)

(i) Access to chambers on both sides of the river is via a grassed right-of-way off residential streets.

(ii) Provide access to both chambers for preparation, cleaning, and inspection work.

(iii) Contractor shall limit disturbance of existing grassed areas to a single access path (6 m wide max) and an area near the work site as required to complete modifications and pipeline investigation.

(iv) Construction trailers and all vehicles not required to complete work shall be parked on adjacent residential streets.

(v) Contractor shall maintain access to all private approaches.

(vi) Contractor shall protect existing landscaping, including but not limited to:

(i) interlocking paving stone pathways;

(ii) signage and historical displays; and,

(iii) Trees and plantings.

(b) Notwithstanding E11.1(a)(iii), the Contractor may use the City Right of Way on the north side of the river for staging and laydown of construction materials. All disturbed grass areas shall be restored in accordance with CW 3510 and these Specifications.

E11.2 Measurement and Payment

(a) Development of site access will be considered incidental to “Mobilization and Demobilization” and will not be measured for payment. No separate payment will be made.

E12. OPERATING CONSTRAINTS FOR WORK IN CLOSE PROXIMITY TO THE CRITICAL WATER INFRASTRUCTURE

E12.1 Description

E12.1.1 This Specification details operating constraints for all Work to be carried out in close proximity to critical water infrastructure. Close proximity shall be deemed to be any construction activity within a 5 m horizontal offset from the centreline of a feeder main/large diameter watermain, within 5 m of valve chambers, and any other critical infrastructure identified below.

E12.2 Critical Water Infrastructure

E12.2.1 The following shall be considered critical pipelines and water infrastructure for this project:

(a) 600 mm Charleswood-Assiniboia Feeder Main (south of the Assiniboine River), constructed from 600 mm PCCP;

(b) 600 mm Rouge Road Feeder Main (north of the Assiniboine River), constructed from 600 mm PCCP;

(c) 600 mm Charleswood-Assiniboine Feeder Main River crossing constructed of 600 mm Steel Pipe; and,

(d) Feeder Main valve chambers on north and south sides of Assiniboine River.

E12.3 General Considerations for Work in Close Proximity to Critical Water Infrastructure

E12.3.1 Feeder mains and large diameter water mains are a critical components of the City of Winnipeg's regional water supply and distribution system and work in close proximity to critical water infrastructure shall be undertaken with an abundance of caution. Feeder mains and large diameter water mains cannot typically be taken out of service for extended periods to facilitate construction and inadvertent damage caused to the pipe would likely have catastrophic consequences.

E12.3.2 Work around critical water infrastructure shall be planned and implemented to minimize the time period that Work is carried out in close proximity the pipeline/structure and to ensure that the pipeline/structure is not subjected to excessive construction related loads, including excessive vibrations and/or concentrated or asymmetrical lateral loads during backfill placement.

E12.3.3 Large diameter pressure pipe generally has limited ability to withstand increased earth and live loading. PCCP typically fails in a non-ductile mode and has the potential to cause extensive consequential damage to infrastructure if failure should occur. Therefore, every precaution must be undertaken to ensure that applied loading during all phases of construction is within accepted loading parameters.

E12.4 Submittals

E12.4.1 Submit proposed construction equipment specifications to the Contract Administrator for review a minimum of ten (10) Business Days prior to construction. The equipment submission shall include:

(a) equipment operating and payload weights;

(b) equipment dimensions, including wheel or track base, track length or axle spacing, track widths or wheel configurations; and

(c) load distributions in the intended operating configuration.

E12.4.2 Submit a construction method statement to the Contract Administrator a minimum of ten (10) business days prior to construction. The construction method statement shall contain the following minimum information:

(a) proposed construction plan including excavation locations, haul routes, excavation equipment locations, and loading positions;

(b) excavation plans, including shoring designs, for excavations occurring in close proximity to feeder mains (within 5 m horizontal of the pipe's centerline) where the excavation/shoring system is to be extended below the top of the feeder mains embedment zone (150 mm above the pipe); and,

(c) any other pertinent information required to accurately describe the construction activities in close proximity to the feeder main and permit the Contract Administrator to review the proposed construction plans.

E12.4.3 Submit the following documentation for inclusion in the City's feeder main shutdown protocol for each planned feeder main shutdown a minimum of twenty (20) Business Days prior to the proposed shutdown and the Contractor shall allow for a ten (10) Business Day review period by the City once accepted by the Contract Administrator.:

(a) a detailed schedule for the work, including a step-by-step list of a tasks to be undertaken during the shutdown;

(b) a contingency plan for any problems, issues, or unforeseen circumstance that might occur. The contingency plan shall include a detailed procedure and schedule for putting the feeder main back into service on an emergency basis; and,

(c) check list of equipment, materials, tools required to complete the work that need to be on site prior to undertaking the shutdown.

E12.5 Feeder Main Shutdowns

E12.5.1 Refer to D25.1 for feeder main shutdown scheduling restrictions. Work shall be scheduled to minimize the duration of all shutdowns.

E12.5.2 The Contractor shall provide notice to the Contract Administrator in writing, a minimum of fifteen (15) Business Days prior to requiring the shutdown. The City will endeavour to schedule the shutdown as requested, pursuant to D25.1.

E12.5.3 Feeder main shutdowns and disassembly of feeder main components will not be permitted until all required submissions and protocols have been reviewed and accepted by the Contract Administrator and City. Further, all materials shall be on site, inspected, and test fit prior to disassembly of the feeder mains.

E12.5.4 Isolation of the feeder main crossings will be completed by City forces using mainline valves and secondary valves wherever possible.

E12.5.5 The Contractor shall be responsible for dewatering the feeder main.

E12.6 Lock-out and Tag-out Procedures

E12.6.1 The City of Winnipeg will endeavor to provide redundant valve closures (double blocking) of pressurized pipelines that enter the workspace where possible. However, there are locations within the system where it is impractical to provide double blocking without widespread service disruption. Where regional water system network does not allow double blocking, non-redundant valve closures (single blocking) will be provided.

(a) For this project single blocking is available on the identified 600 mm feeder mains.

(b) Single blocking is available on the 300 mm local water main take-off.

E12.6.2 At locations where only single valve blocking is practical, additional safety measures and monitoring will be required in order to provide a safe work environment for employees. Development of adequate safety plans in accordance to the Workplace Safety and Health Act and Regulation 217/06 are the responsibility of the Contractor, but as a minimum shall include:

(a) Provision of adequate egress from confined spaces including removal of removable roof slabs and manhole covers, and provision of ladders and other means of site exit

(b) Use of body harnesses and safety hoisting equipment at all times when pressurized systems are disassembled and protected only by single block valves.

(c) Monitor and assess water leakage in closed system prior to disassembly of system. Monitor water leakage rate and advise Contract Administrator immediately of change in inflow rates. Evacuate confined space if necessary.

E12.6.3 The Contractor, City of Winnipeg Water and Waste Department, and Contract Administrator will all be required to lock out all valves closed in order to facilitate this work. Where site access and lockout space on system valves is limited, the following lockout/tag out procedures will be implemented;

(a) lockout locations for valves will be identified by the City;

(b) City of Winnipeg will provide a single lock, chains and other devices to adequately secure valves within pits and chambers. The Contractor has the right to inspect the installation and satisfy that the lockout system is adequate. All locks utilized will be commonly keyed;

(c) key(s) for single locked valves will be placed in secure lock box at the site. City staff, Contractors, and Contract Administrator will place personal/company locks complete with identification and tag out information on this lock box;

(d) key(s) placed within the secure lock box will not be removed until all City staff, Contractor, and Contract Administrator locks have been removed from the lock box, and verified that the work is completed; and,

(e) City staff will then unlock all valves, and will commence with restoration of the systems to service.

E12.7 Pre-Work, Planning and General Execution

E12.7.1 No work shall commence in close proximity to feeder mains, large diameter watermains, chambers, and other critical infrastructure until the equipment specifications and construction method statement have been submitted and accepted, and feeder main locations have been clearly delineated in the field. Work over feeder mains shall only be carried out with equipment that has been reviewed and quantified in terms of its loading implications on the pipe.

E12.7.2 Notify the Contract Administrator five (5) Business Days prior to commencement of any work near the critical water infrastructure.

E12.7.3 The Drawings provide the location of the feeder mains, chambers, and critical pipelines through the construction site. Pipe locations noted on the Drawings are based on the original record drawings. Locate critical infrastructure and confirm their position horizontally and vertically (if required) prior to undertaking work in close proximity to said infrastructure. Visually delineate all critical infrastructure identified herein on Site by use of paint, staking/flagging, construction fencing, snow fencing, or other suitable methods

E12.7.4 Only utilize construction practices and procedures that do not impart excessive vibratory loads on feeder mains and chambers or that would cause settlement of the subgrade below feeder mains and critical pipelines.

E12.7.5 Where the existing road structure must be removed, crossing of critical infrastructure shall be prohibited from the time the existing roadway structure is removed until the completion of granular base construction. At all times prior to completion of final paving; reduce equipment speeds to levels that minimize the effects of impact loading to the critical infrastructure.

E12.7.6 Only equipment and construction practices stipulated in the accepted construction method statement and the supplemental requirements noted herein may be utilized in close proximity to feeder mains, chambers, and other critical infrastructure identified herein.

E12.7.7 Construction operations should be staged in such a manner as to limit multiple construction loads at one time, (e.g., offset crossings sufficiently from each other, rollers should remain a sufficient distance behind spreaders to limit loads. A reasonable offset distance is 3 m between loads).

E12.7.8 Granular material, construction material, soil, and/or other material shall not be stockpiled on the pipelines or within 3 m of any critical infrastructure identified herein.

E12.7.9 The Contractor shall ensure that all crew members understand and observe the requirements of working near feeder mains, valve chambers, and critical infrastructure. Prior to commencement of on-Site work, the Contractor shall jointly conduct an orientation meeting with the Contract Administer, all superintendents, foreman, and heavy equipment operators to make all workers on the Site fully cognizant of the limitations of altered loading on, the ramifications of inadvertent damage to, and the constraints associated with work in close proximity to feeder mains and critical pipelines. New personnel introduced after commencement of the Project need to be formally orientated as outlined herein. It is recommended that restrictions associated with the crossing, consistent with the Contractor’s submitted method statement be posted on Site and near the crossing.

E12.8 Demolition, Excavation, and Shoring

E12.8.1 Use of pneumatic concrete breakers within 3 m of a feeder main, valve chamber, or critical pipeline is prohibited. Pavement shall be full depth sawcut and carefully removed. Use of handheld jackhammers for pavement removal will be allowed.

E12.8.2 Offset excavation equipment a minimum of 3 m from the centerline of critical pipelines when undertaking excavations.

E12.8.3 Utilize only smooth edged excavation buckets, soft excavation, or hand excavation techniques where there is less than 1.5 m of earth cover over the pipeline. Where there is less than 1.0 m of soil cover above the pipeline, provide full time supervision and complete the excavation utilizing hand excavation or soft excavation methods.

E12.8.4 Equipment should not be allowed to operate while positioned directly over a feeder main or critical pipeline except were permitted herein, outlined in the reviewed and accepted construction method statement.

E12.8.5 Excavations within 3 m of the outside edge of a feeder main (hydrovac holes for confirming trenchless installations excluded) and which extend below obvert of the feeder main shall utilize shoring methods that precludes the movement of native in-situ soils (i.e. a tight shoring system).

E12.8.6 Pre-bore all piles to below the invert of critical infrastructure within 5 m (horizontally) of the pipeline's outside edge. Piles shall have a minimum 500 mm clear separation from the feeder main.

E12.8.7 Offset pile driving equipment a minimum of 3 m (horizontally) from the centerline of the pipeline during piling operations.

E12.9 Backfill and Subgrade Construction

E12.9.1 Embedment of existing pipelines shall be completed with bedding sand meeting the requirements of CW 2030. Bedding sand shall be placed to a minimum of 150 mm above the pipe and 300 mm beyond the outer edges of the pipe.

E12.9.2 Subgrade and backfill compaction within 3 metres (horizontal) of a critical pipeline or valve chamber shall be limited to non-vibratory methods only. Small walk behind vibratory packers will be permitted.

E12.9.3 Subgrade, sub-base and base course construction shall be kept in a rut free condition at all times. Construction equipment is prohibited from crossing pipelines if the grade is insufficient to support the equipment without rutting.

E12.9.4 Subgrade conditions should be inspected by personnel with competent geotechnical experience (e.g. ability to adequately visually classify soils and competency of subgrade, subbase, and base course materials). In the event of encountering unsuitable subgrade materials above a critical pipeline, proposed design revisions shall be submitted to the Contract Administrator for review to obtain approval from the Water and Waste Department relative to any change in conditions.

E12.9.5 Fill material shall not be dumped directly on pipelines but shall be stockpiled outside the limits noted in these recommendations and shall be carefully bladed in-place

E12.9.6 Only use compaction equipment approved by the Contract Administrator to compact fill materials above critical pipelines. Compaction of fill materials shall be completed using static methods only, no vibratory compaction will be allowed within the limits noted in these recommendations.

E12.9.7 Construction operations shall be staged to minimize the time period between excavation to subgrade and placement of granular subbase materials. Should bare subgrade be left overnight, measures shall be implemented to protect the subgrade against inadvertent travel over it and to minimize the impact of wet weather.

E12.10 Subbase and Base Course Construction

E12.10.1 Subbase or base course materials shall not be dumped directly on pipelines but shall be stockpiled outside limits noted in these recommendations and shall be carefully bladed in-place.

E12.10.2 Subbase compaction within 3 m horizontal of the centreline of a critical pipeline shall be either carried out by static methods (without vibration) or with smaller approved equipment such as handheld plate packers or smaller roller equipment.

E12.11 Paving

E12.11.1 When constructing asphalt pavements only non-vibratory compaction should be used within 3 m (horizontal) of the center of critical pipelines.

E12.12 Measurement and Payment

(a) Protection of critical water infrastructure will be considered incidental to the Work and will not be measured for payment. No separate payment will be made.

E13. WORKING AROUND MANITOBA HYDRO NATURAL GAS INFRASTRUCTURE

E13.1 General

E13.1.1 Further to CW 1120, be advised that the Work will be completed in the vicinity of Manitoba Hydro high pressure natural gas mains. The approximate locations of the natural gas mains are provided on the Drawings. This Section details operating constraints for all work to be carried out in close proximity to Manitoba Hydro high pressure natural gas mains.

E13.2 General Requirements

E13.2.1 The following general requirements for work around natural gas mains or services shall be adhered to, unless modified in following sections where the most stringent requirements shall apply or as directed otherwise by the Contract Administrator:

(a) all requirements of Manitoba Hydro's Safe Excavation and Safety Watch guidelines shall apply. All natural gas mains and services must be properly located and marked by Manitoba Hydro personnel. This can be arranged by visiting ClickBeforeYouDigMB.com or call 1-800-940-3447. Construction operations are not to commence unless these conditions are adhered to;

(b) all excavations within 1.0 m of any natural gas main or service must be completed by hand or hydro-excavated;

(c) a minimum vertical separation of 300 mm from natural gas mains and 100 mm from natural gas services lines must be maintained between any Manitoba Hydro facility and any new installations;

(d) a minimum 600 mm of cover shall be maintained in all areas where equipment will be crossing, traveling, or compacting over natural gas mains. Vibratory compaction cannot be used over or within 1.0 m of a main;

(e) a minimum 450 mm of cover shall be maintained in all areas where equipment will be crossing, traveling, or compacting over the gas service lines. Vibratory compaction cannot be used over or within 1.0 m of a service;

(f) less than the minimum depth of cover, earth bridging, or steel plates shall be placed over the main and extend a minimum of 1.0 m on either side at each crossing location;

(g) all construction operations within the vicinity of natural gas mains or services are to take place in a manner so as not to damage or cause detriment to the integrity of the natural gas pipeline; and,

(h) Any damages to the coating must be reported to and repaired at no cost by Manitoba Hydro prior to backfilling.

E13.3 High Pressure Natural Gas Mains

E13.3.1 The following requirements for work around high pressure natural gas mains shall be adhered to, unless modified in following sections where the most stringent requirements shall apply or as directed otherwise by the Contract Administrator

(a) Approximate locations of the existing high pressure natural gas mains are as follows:

(i) 350 mm main crossing the Assiniboine River between Berkley Street and Rouge Road (Site 2).

(b) A Manitoba Hydro High Pressure Safety Watch is required for all construction activities within 3.0 m of the high pressure natural gas mains.

(c) Contact "Click before you dig" a minimum of 2 weeks prior to any Work commencing within 3.0 m of the high pressure natural gas main to arrange for the main to properly

located and marked by Manitoba Hydro personnel at ClickBeforeYouDigMB.com or Call 1-800-940-3447. Upon receiving clearances, the excavator will be provided with the phone number of the appropriate District in order to coordinate a Manitoba Hydro High Pressure Safety Watch.

(d) Prior to construction at these locations, the Contractor shall expose the main by hand or hydro-excavation in order to confirm elevation of the pipe. The Contractor shall provide a minimum of five (5) Calendar Days notice to the Contract Administrator of conducting utility exposures, such that the Contract Administrator can measure depths of the exposed utility.

(e) A minimum 900 mm of cover shall be maintained in all areas where equipment will be crossing, traveling or compacting over the high pressure natural gas mains. Vibratory compaction cannot be used over or within 3.0 m of a high pressure natural gas main.

(f) If equipment must cross, travel, or compact over the gas main with less than the minimum depth of cover, earth bridging or steel plates shall be placed over the main and extend a minimum of 1.0 meter on either side at each crossing location.

(g) A smooth edged bucket shall be used for any excavations within 3.0 m of a high pressure natural gas main.

(h) Caution must be used to ensure the integrity of the pipeline coating. Any damages to the coating must be reported to and repaired at no cost by Manitoba Hydro prior to backfilling.

E13.4 Measurement and Payment

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

E14. EXCAVATIONS AND PIPELINE ACCESS

E14.1 Description

(a) This Specification shall cover excavations, shoring, and modifications to existing chamber manholes as required for pipeline access to facilitate the proposed rehabilitation work.

E14.2 Submittals

(a) Shop Drawings and Excavation Plans for all excavation shoring (where required) shall be prepared and submitted a minimum of twenty (20) 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.

E14.3 Shoring Design

(a) Shoring shall be provided for excavations in accordance with CW 2030 and E14.1(a).

(b) Excavation shoring shall be designed to accommodate all existing and new piping and associated infrastructure.

(c) All shoring systems shall comply with Manitoba Workplace Safety and Health requirements.

E14.4 Methods

E14.4.1 Protection of Existing Trees

(a) The Contractor shall take the following precautionary steps to avoid damage from his construction activities to existing boulevard trees within and adjacent to the limits of construction:

(i) The Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of any tree.

(ii) Mature tree trunks shall be strapped with 25 x 150 x 2400 (1" x 6" x 8") wood planks. Smaller trees shall be similarly protected using appropriately sized wood planks.

Excavations shall be carried out in such a manner so as to minimize damage to existing root systems. Roots over 50 mm in diameter that must be cut to facilitate an excavation shall be neatly pruned with a saw prior to excavation and coated with an appropriate wound dressing to prevent infection.

(iii) Operation of equipment within the dripline of trees shall be kept to the minimum required to perform the work. 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.

(iv) Work on site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to tree branches does occur, the Contractor shall neatly prune the damaged branch.

(b) American elm trees are not to be pruned between April 1st and August 1st and Siberian elm trees between April 1st and July 1st of any year under provisions of The Dutch Elm Disease Act.

(c) All damages to existing trees caused by the Contractor's construction activities shall be repaired to the requirements and satisfaction of the City of Winnipeg, Parks and Open Space Division, Urban Forestry Branch.

E14.4.2 Excavation

(a) Construction materials and excavation spoils shall not be stockpiled over pipelines.

(b) Excess excavation material from excavations shall be disposed of off-site.

(c) Granular bedding in the vicinity of existing pipelines shall be dewatered and stabilized prior to undermining pipes to prevent loss of granular pipe foundation.

(d) Soft dig to locate and expose the top of the existing wye assemblies prior to proceeding with bulk excavation of the site.

(e) 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.

(f) 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.

(g) See E12 for additional restrictions when working in close proximity to critical water infrastructure.

(h) Provide heating and hoarding around the lower portion of the excavation and pipe during freezing conditions.

E14.4.3 Pipeline Access Modifications

(a) In order to gain access to the pipeline to facilitate cleaning, inspection, and lining, the contractor may remove the existing wye assemblies on both sides of the crossing.

(b) The existing wye assemblies with dismantling joints shall be reinstalled upon completion of lining.

(c) Provide new hardware and gaskets for all flanged connections in accordance with E17

E14.4.4 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.

(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.

E14.5 Measurement and Payment

E14.5.1 Excavations and Pipeline Access Modifications

(a) Pipeline access will be paid on a Lump Sum basis for each site at the Contract Unit Price for "Excavations and Pipeline Access" as listed in the Form B: Prices.

(b) Payment for "Excavations and Pipeline Access" shall include all costs associated with providing access to the pipeline to accommodate pipe and chamber rehabilitation, including but not limited to: excavations, shoring, demolition, temporary pipeline modifications, backfill, and all other materials, labour, and equipment required to complete the work as specified. Payment will be made on the following schedule:

(i) 50% payment of the lump sum price for each site will be paid upon completion of excavation work and commencement of pipeline cleaning.

(ii) The remaining 50% payment of the lump sum price for each site will be paid upon completion and acceptance of backfill and temporary restoration at each site.

E14.5.2 Protection of Existing Trees

(a) The protection of existing trees will be considered incidental to the Work and will not be measured for payment. No additional payment will be made.

E15. WATER SUPPLY

E15.1 Further to Section 3.14 of CW 2140 and Section 3.7 of CW 1120 of the General Requirements water supply for the Work may be taken from City of Winnipeg hydrants.

E15.2 The Contractor shall make the following arrangements for hydrant turn on and turn off.

(a) Contact City of Winnipeg Water Services Division (WSD) for hydrant turn on and turn off required between 0800 hours and 1500 hours Monday to Friday. Notice for turn on and turn off shall be provided on the previous Business Day.

(b) Contact Emergency Services Branch (986-2626) with a minimum of 2 hours notice for hydrant turn on and turn off required outside of the above hours.

(c) The Contractor shall wait at the hydrant from the requested turn on or turn off time until City staff arrives to turn on or turn off the hydrant.

E15.3 Hydrants shall be considered to be "in the Contractor's control" from the time the City has turned the hydrant on until the City has turned the hydrant off.

E15.4 Between November 1st and April 30th 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.

E15.5 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.

E15.6 The Contractor shall provide a traffic ramp for hydrant connection hoses that cross roadways. The ramp shall be designed and constructed to not present a hazard to vehicles travelling over it and to ensure that no part of the hose is run over by a motor vehicle. Traffic ramps shall be satisfactory to the Contract Administrator.

E15.7 Measurement and Payment

(a) Charges incurred for the permits and water meters shall be paid for by the Contractor when the permit is 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.

(b) All other costs associated with sourcing construction water will be considered incidental to the Work and will not be measured for payment. No additional payment will be made.

E16. FEEDER MAIN DISINFECTION

E16.1 Description

(a) This specification covers the disinfection of water mains, feeder mains, and fittings.

E16.2 General

(a) The feeder main crossing required disinfection and health testing after completion of rehabilitation.

E16.3 Disinfection

(a) Disinfection of water mains and feeder mains shall be completed in accordance with CW2125 and AWWA C651.

(b) 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.

(c) 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.

(d) 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 E16.5.

(e) Bi-directional flushing may be required to remove chlorine from the pipeline.

(f) All new components and 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.

(g) Blind flanges shall be supplied with ports adequate to achieve desired flushing velocities.

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

(i) 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.

E16.4 Health Testing

E16.4.1 Feeder Main Crossing

(a) The feeder main crossing shall be disinfected and health tests completed by the Contractor prior to turn over to the City. This may be completed in conjunction with pressure tests, prior to reassembly of the feeder main piping.

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

E16.4.2 Valve Chamber Piping and Adjacent Feeder Mains

(a) Following completion of the work and turnover of the feeder main to the City, the City will fill the feeder main in preparation for health testing. The Contractor shall coordinate with the City and support flushing operations to facilitate additional health testing as required by the City. Flushing operations are anticipated to include hose connections and disposal of chlorinated water. The Contractor shall supply all materials to facilitate flushing operations.

(b) Water samples for health tests taken in accordance with CW 2125, except test samples shall be taken each day at least 24 hours apart for three (3) successive days.

E16.5 Disposal of Chlorinated Water

E16.5.1 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. Allowable discharge rates for nearby WWS manholes have been provided on the Drawings. The Contractor may store water as required to meet allowable discharge rates.

(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.

E16.5.2 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)

E16.5.3 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.

E16.6 Measurement and Payment

E16.6.1 Disinfection, Health Testing, and Disposal of Chlorinated Water

(a) Disinfection, health testing, and disposal of chlorinated water will be considered incidental to the Work and will not be measured for payment. No additional payment will be made.

E17. VALVE CHAMBER PIPING MODIFICATIONS

E17.1 Description

(a) This Specification shall cover the modification of valve chambers and feeder mains as required for the Work.

E17.2 Description of Work:

E17.2.1 The Work includes the following major activities. See the Drawings for details on required chamber and piping rehabilitation and modifications:

(a) Remove existing inspection wyes assemblies to facilitate work on the feeder main river crossing;

(b) Modify existing steel feeder main piping to facilitate installation of new fittings, including welding of new pipe flanges to existing piping;

(c) Reinstall existing inspection wye assemblies upon completion of the liner installation;

(d) Restoration and reconfiguration of existing valve chambers, including valve replacements; and,

(e) Backfill and restore site as shown on the Drawings and in accordance with E14.

E17.3 Existing Conditions

(a) External weld repairs were completed on existing buried steel pipe and fittings where they were exposed in 2019 to complete the work at that time. The Contractor shall complete a similar inspection of any exposed buried piping components and review the findings with the Contract Administrator to determine if additional in-place repairs are required.

E17.4 Submissions:

E17.4.1 Submit Shop Drawings for all permanent and temporarily installed fittings, valves, piping and couplings in accordance with E2.

E17.5 Products

E17.5.1 Fasteners

(a) Bolts for all flange connections shall be ASTM A307 or ASTM F568M, grade B.

(b) Nuts for all flange connections shall be ASTM A563 or ASTM A563M, grade B.

(c) Bolts for all sleeve style couplings and/or restraints shall be ASTM F593 or ASTM F738M, type 316 stainless steel.

(d) Nuts for all sleeve style couplings and/or restraints shall be ASTM F594 or ASTM F836M, type 316 stainless steel.

(e) Anti-seize compound shall be used on all bolts.

(f) Dielectric washers and sleeves meeting the requirements of E17.5.17 shall be used wherever stainless steel hardware is used on ferrous metal fittings.

(g) For flanged connections, bolt size, type and diameter shall be in accordance with AWWA C207. Bolt length suitable for coupling AWWA C207 Class D flange.

(h) All steel bolting hardware shall be liquid epoxy coated in accordance with AWWA C116, E17.5.16 after assembly.

E17.5.2 Flange Gaskets

(a) 3mm, full-faced, SBR rubber gaskets or neoprene in accordance with AWWA C207.

(b) Gaskets shall be one piece construction where possible.

(c) Segmented gaskets shall be constructed of a minimum number of segments and joints shall be of dovetailed construction, or other jointing methods approved by the Contract Administrator.

E17.5.3 Blind Flanges

(a) Steel blind flanges shall be AWWA C207 Class D.

(b) Cast and ductile blind flanges shall be ASME/ANSI B16.1 Class 125.

(c) Steel blind flanges to be fusion bonded epoxy coated in accordance with AWWA C213, E17.5.16, and E17.6.5.

(d) Cast and ductile blind flanges shall be fusion bonded epoxy coated in accordance with AWWA C116, E17.5.16, and E17.6.5

E17.5.4 Ductile Iron Fittings

(a) Flanged ductile iron fittings conforming to AWWA C110.

(b) Fittings shall meet the following minimum criteria:

(i) Fittings shall be cement-mortar lined in accordance with AWWA C104.

(ii) Fittings to be liquid epoxy coated to AWWA C210, E17.5.15,or fusion bonded coated (interior and exterior) in accordance with AWWA C213, E17.5.16.

E17.5.5 Ductile Iron Pipe

(a) Ductile iron pipe conforming to AWWA C151.

(b) Pipe shall meet the following minimum criteria:

(i) Thickness Class 54 (minimum).

(ii) Pipe shall be cement-mortar lined in accordance with AWWA C104

(iii) Pipe to be liquid epoxy coated in accordance with AWWA C210, E17.5.15, and E17.6.5 or fusion bonded coated (interior and exterior) in accordance with AWWA C213, E17.5.16, and E17.6.5.

E17.5.6 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.

E17.5.7 Fabricated Steel Pipe and Fittings

(a) Steel pipe and fittings shall conform to AWWA C200, AWWA C208, and meet the following requirements:

(i) Minimum steel yield strength of 240 MPa (35,000 psi)

(ii) Minimum wall thickness of 9.5 mm for all sizes.

(b) Threaded steel nipples shall be Schedule 80 (minimum) conforming to ASTM A53.

(c) Pipe and Fittings shall be liquid epoxy coated (interior and exterior) in accordance with AWWA C210, E17.5.15, and E17.6.5 or fusion bonded coated (interior and exterior) in accordance with AWWA C213, E17.5.16, and E17.6.5.

E17.5.8 Flanges for Pipe and Fittings

(a) Steel flanges shall conform to AWWA C207, minimum Class D Flange

(b) Threaded ductile iron flanges shall conform to AWWA C115 ASME/ANSI B16.1 Class 125.

E17.5.9 Pipe Couplings, Dismantling Couplings, and Flange Adaptors

(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) Minimum requirements for flange adaptors:

(i) Flanges shall conform to AWWA C207, Class D or ASME/ANSI B16.1, Class 125.

(d) Restraining end rings shall be supplied where axial thrust restraint is specified on the Drawings. Restraint rings shall be specifically designed for the material type of the pipes being joined.

(e) All hardware shall be type 316 stainless steel in accordance with E17.5.1 and shall utilize di-electric insulating boots in accordance with E17.5.17.

(f) Couplings to be fusion bonded epoxy coated in accordance with E17.5.16 and E17.6.5.

(g) All transition couplings larger than 300 mm in diameter, with differential outside pipe diameters greater than 25 mm, shall be restrained to prevent movement of the coupling due to differential thrust forces. Tie rods placed in compression for the purpose of restraining differential thrust forces shall be no longer than 150 mm and the Contractor must demonstrate they are capable of withstanding the applied forces.

(h) Approved Dismantling Joint products:

(i) DJ400 Series Dismantling Joint as manufactured by Romac Industries ltd.,

(ii) 7900DJ Series Dismantling Joint manufactured by Robar Industries Ltd.,

(iii) or approved equal in accordance with B7.

E17.5.10 Grooved Joints and Couplings

(a) Direct grooved ends shall conform to AWWA C606.

(b) Grooved flange adaptors shall be compatible with AWWA C606 grooved end joints. Confirm compatibility to existing piping and fittings. Specifically, Victaulic Style 44 grooved end fittings and valves.

(c) Grooved couplings and adaptors shall be constructed from ductile iron conforming to ASTM A536, grade 65-45-12.

(d) Grooved end fittings shall be epoxy coated in accordance with E17.5.15 or E17.5.17 and E17.6.5.

(e) Bolting hardware for grooved end fitting shall meet the requirements of E17.5.1 and be stainless steel.

(f) Replacement end ring shall conform to Victaulic Style 44 coupling dimensions and be fabricated to match existing pipe ends.

(g) Approved manufacturer: Victaulic or approved equal in accordance with B7.

E17.5.11 Gate Valves

(a) Gate valves shall conform to CW2110, City of Winnipeg Specification AT-4.21.1.7, AWWA C509, and shall be supplied with the following:

(i) Flanged joints conforming to AWWA 509.

(ii) Fusion bonded epoxy coating conforming to AWWA C550.

(iii) 50 mm AWWA operating nut and handwheel.

(iv) Operating direction in accordance with SD-008.

E17.5.12 Stainless Steel Ball Valves

(a) Stainless steel flanged ball valves shall be stainless steel valves complete with Stainless Steel ball, ASME B16.1 CLASS 125 flanges and stem.

(b) Acceptable product: Series 4001 as manufactured by American Valve Inc. or approved equal in accordance with B7.

E17.5.13 PVC Backwater Valves and Piping

(a) PVC pipe and fittings shall conform to CSA B182.1 and B182.2.

(b) Drain piping shall utilize a solvent weld joint type.

(c) Piping conforming to CSA 182.2 shall have a dimension ratio of 35.

(d) The backwater valve shall utilize an EPDM seat rated to 275 kPa of back pressure.

(e) The backwater valve shall conform to ASME A112.14.1

E17.5.14 Coatings

(a) Unless otherwise specified herein coatings for all metal chamber piping and fittings shall be a liquid epoxy meeting the requirements of E17.5.15. As an alternative to liquid epoxy, the Contractor shall have the option to use fusion bonded epoxy in accordance with E17.5.16.

(b) Field-applied pipe coatings for above ground piping shall be a liquid epoxy meeting the requirements of E17.5.15.

E17.5.15 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) Interior pipe linings shall be a 100% solids liquid epoxy product. Approved products: Enviroline 230, Bar-Rust 234P, Specialty Polymer Coatings SP-7888, or approved equal in accordance with B7.

(e) 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.

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

E17.5.16 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 10 mils or the thickness recommended by the manufacturer for immersion service.

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

E17.5.17 Flange Isolation Kits

(a) Flange isolation kits shall be used where noted, where dissimilar metal piping or fittings are joined.

(b) Flange isolation kits shall be to City of Winnipeg specification except as modified below.

(c) Each kit shall be double flange isolation kit with insulating sleeves and washers for each flange of the bolted connection.

(d) Bolt sleeves shall be comprised of G10 or G11 epoxy glass.

E17.5.18 Continuity Bonding

(a) Wires for continuity bonding shall be No.10 American Wire Gauge (AWG) 7-strand copper conductor with black TWU insulation.

(b) Thermite weld products shall be properly selected based on the wire size, pipe size and material.

(c) Thermite weld caps shall be constructed from 20 mil high-density polyethylene and may be either prefilled or field filled with a bituminous mastic coating or approved equal.

E17.5.19 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.

E17.5.20 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 outer wrap

(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.

E17.6 Methods

E17.6.1 Pre-Construction Valve Chamber Inspection

(a) The Contractor shall inspect the existing components and confirm all dimensions prior to procuring components during a pre-construction chamber inspection. The Contractor shall provide all necessary traffic control and access support to facilitate the inspection.

(b) The Contractor shall be prepared to clean components to obtain accurate measurements. The Contractor shall coordinate to have appropriate qualified representatives from material suppliers present to ensure accurate measurements are obtained to facilitate procurement of materials.

(c) These inspections shall be completed as soon as possible following Award as to not delay material procurement and construction.

E17.6.2 The feeder mains shall be securely blocked and sealed overnight and during other periods where the Contractor is not operating to prevent contamination of the existing feeder mains.

E17.6.3 All disassembled piping shall be inspected for defects after sandblasting. The Contract Administrator shall be notified of any defects affecting the long-term performance of the piping, such as cracks and pitting which may require repair prior to coating works.

E17.6.4 Victaulic Components

(a) Confirmation of Victaulic Components
  (i) The Contractor shall confirm the diameter and style of existing Victaulic couplings and adjoining pipes prior to procurement of materials.
  (ii) The Contractor shall clean the existing couplings sufficiently to identify the coupling style and required replacement components.
  (iii) A qualified representative of Victaulic shall be present at the investigation to confirm the coupling style.

(b) New couplings shall be used for reassembly of piping upon completion of the work.

E17.6.5 Coatings

(a) Where indicated on the Drawings and directed by the Contract Administrator, prepare metal surfaces for recoating using the following methods:
  (i) Steel - Prepare steel surfaces for recoating by blast cleaning to near-white metal as specified by Joint Surface Preparation Standard NACE No.2/SSPC-SP10.

(ii) Cast and Ductile Iron - Prepare ductile iron surface in accordance with NAPF 500-03.

(iii) Remove all dust and loose residues from the prepared surfaces and surrounding area. The surface shall be roughened to a degree suitable for the coating system employed.

(b) Protect valve seals, machined surfaces, threads, and nameplates from sandblasting.

(c) Primer coat to follow immediately after completion of sandblasting and prep.

(d) Apply liquid epoxies of prepared surfaces in accordance with AWWA C210 and the manufactures recommendations.

(e) Apply fusion bonded epoxies of prepared surfaces in accordance with AWWA C213 and the manufactures recommendations.

(f) Provide adequate ventilation and heat to facilitate curing of coatings.

(g) Interior linings for pipes and fittings shall be applied and cured as recommended by the manufacturer prior to placing into service. Linings must be fully cured for immersion service prior to installation and reinstating the line into service. Where accelerated cure times are required for assembly and water immersion, a coating and curing plan shall be submitted to the Contract Administrator in accordance with E2 a minimum of five (5) Business Days prior to application.

E17.6.6 Field Welding of Steel Pipelines and Fittings.

(a) Field welding of steel pipes shall conform to AWWA C206

(b) Connections to existing pipelines shall be accomplished with a full penetration butt weld or a fillet welded split sleeve (external).

(c) Patches on steel pipelines shall be of equal thickness of the host pipe and shall be filet welded.

(d) All fillet welds shall have minimum leg lengths equal to the thickness of the material being welded.

(e) All welds shall be inspected using magnetic particle testing methods by a qualified inspector in accordance with ASTM E1444.

E17.6.7 Assembly of Flanged Piping Systems

(a) All flanges shall be assembled in accordance with AWWA M11 and AWWA C604.

E17.6.8 Install Corrosion Protection Wrap on Existing Feeder Main

(a) Following reassembly of the pipeline, the Contractor shall clean all pipe intended for direct burial and wrap these locations with a petroleum corrosion protection wrap in accordance with E17.5.20 and E17.6.7.

E17.6.9 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 25 mm 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 outer wrap, using sufficient tension to make a tight-fitting cover, over the petrolatum tape.

E17.6.10 Bedding

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

E17.7 Measurement and Payment

E17.7.1 Valve Chamber and Piping Rehabilitation

(a) Removal and replacement of all chamber components will be measured and paid for on a lump sum basis for each chamber at the Contract Unit Price for "Valve Chamber and Piping Rehabilitation" as listed in Form B: Prices.

(b) Payment for "Valve Chamber and Piping Rehabilitation" will include payment for all labour and materials to complete the work as specified. Included the following:

(i) disassembly and cleaning of existing chambers to facilitate the Work;

(ii) removal of existing and installation of new piping components;

(iii) sandblasting and coating of exposed steel components;

(iv) reassembly of the chambers; and,

(v) installation of insulation and associated works.

(c) Installation and commissioning of new butterfly valves will be paid in accordance with E18.

E17.7.2 Supply of Replacement Pipe Components for Provisional Work

(a) The supply of replacement pipe components for provisional work will be measured and paid for on a unit basis at the applicable Contract Unit Price for each component as listed in Form B: Prices.

(b) Number of units to be paid for will be the total number of components supplied in accordance with this specification, accepted and measured by the Contract Administrator.

E17.7.3 Provisional – Supply of Manhole Components

(a) The supply of replacement of existing manhole components will be measured and paid for on a unit basis for the component supplied at the applicable Contract Unit Price in Form B. Payment for replacement manhole components shall include supply to site only, except where noted in Form B.

(b) Number of units to be paid for will be the total number of components supplied and/or installed in accordance with this specification, accepted and measured by the Contract Administrator.

E17.7.4 Provisional Work

(a) Steel Pipe Exterior Weld Repairs – In Place

(i) Payment for weld repairs made to existing steel piping components, as directed by the Contract Administrator, will be measured on an hourly basis and paid for at the Contract Unit Price for "Steel Pipe Exterior Weld Repairs – In Place" as listed in Form B: Prices.

(ii) Payment at the defined hourly rate shall include all labour, equipment, and consumable materials required to complete the Work.

(b) Steel Pipe Exterior Coating Repairs – In Place

(i) Payment for sandblasting and recoating of existing buried steel piping components exterior to the valve chambers will be measured and paid on a lump sum basis at the Contract Lump Sum price for "Steel Pipe Exterior Coating Repairs – In Place" as listed in Form B: Prices.

(ii) Payment will be made upon completion of the Work, testing, and submission of all quality control (QC) reports, and shall include all labour, equipment, and consumable materials required to complete the Work.

(c) Steel Pipe Interior Cementitious Mortar Repairs – In Place

(i) Payment for repairs to existing interior cement mortar linings, as directed by the Contract Administrator, will be measured on an hourly basis and paid for at the Contract Unit Price for “Steel Pipe Interior Cementitious Mortar Repairs – In Place” as listed in Form B: Prices.

(ii) Payment at the defined hourly rate shall include all labour, equipment, and consumable materials required to complete the Work.

(d) Sandblast, Weld, and Coating Repairs – Pipe Fittings – Off Site

(i) Payment for repairs made on removable fittings at an off-site location will be measured and paid for on a Unit Price basis at the Contract Unit Price for “Sandblast, Weld, and Coating Repairs – Pipe Fittings – Off Site” as listed in Form B: Prices.

(ii) Payment shall include all labour, equipment, and consumable materials required to complete the Work on each fitting sent for repair.

(e) Install New 600 mm Victaulic End Ring on Existing PCCP Fitting

(i) Install new 600 mm Victaulic end ring on existing PCCP fitting will be measured and paid for on a unit basis at the Contract Unit Price for “Install New 600 mm Victaulic End Ring on Existing PCCP Fitting” as listed in Form B: Prices.

(ii) Payment shall include payment for all labour and materials to complete the work as specified.

(f) Install New 600 mm AWWA C209 Flange Ring on Existing PCCP Fitting

(i) Install new 600 mm AWWA C209 flange ring on existing PCCP fitting will be measured and paid for on a unit basis at the Contract Unit Price for “Install New 600 mm AWWA C209 Flange Ring on Existing PCCP Fitting” as listed in Form B: Prices.

(ii) Payment shall include payment for all labour and materials to complete the work as specified.

(g) Partial Demolition of Existing Thrust Blocks and Reconstruction

(i) Partial demolition of existing thrust blocks and reconstruction will be measured and paid for on a lump sum basis at the Contract Unit Price for “Partial Demolition and Reconstruction of Existing Thrust Blocks” as listed in Form B: Prices.

(ii) Payment shall include payment for all labour and materials to complete the work as specified.

(h) Replace Valve Chamber Backflow Valve Assembly

(i) Replacement of the valve chamber backflow valve assembly will be measured and paid for on a unit basis at the Contract Unit Price for “Replace Valve Chamber Backflow Valve Assembly” as listed in Form B: Prices.

(ii) Payment shall include payment for all labour and materials to complete the work as specified.

E18. INSTALLATION OF BUTTERFLY VALVES

E18.1 Description

(a) This Specification shall cover the installation of City supplied butterfly valves.

E18.2 Materials

E18.2.1 Butterfly Valves

(a) Three (3) 600 mm butterfly valves are being supplied for use on this project under a separate Tender, City of Winnipeg Tender No. 323-2024. The contact for the Valve Supply Contract is:

FloCor Inc

Michael Volkmar

(204) 470-6575

(b) Shop drawings for the supplied valves will be provided to the Contractor upon award and once available, whichever comes first.

(c) Delivery:

(i) Delivery Date: To be determined.

(ii) Delivery Address:

552 Plinquet St.

Winnipeg MB, Canada

R2J 0G1

(d) The Contractor shall attend a delivery inspection, with the Valve Supply Contractor, and Contract Administrator. The Supply Contractor, prior to turning valves over to the Installation Contractor, shall rectify any damage noted during the delivery inspection. Written acceptance of the valves and actuators by a duly completed "Certificate of Equipment Delivery (Form 200)" (refer to Tender No. 323-2024) shall constitute acceptance for installation from the Installation Contractor.

(e) The Supply Contractor will perform hydrostatic leakage testing of the valves prior to delivery. Any leakage or defects noted during field testing shall be repaired by the Supply Contractor, prior to the Installation Contractor taking possession.

(f) The Installation Contractor may leave the valve in storage at the City facility until required on-site for installation.

(g) Once removed from storage at the City facility, the Contractor shall provide 24-hour secure storage for the valve. Once delivered to the Site for pre-assembly and installation, the valve shall remain stored in a secure, on-site storage compound.

(h) For the purposes of transportation of the valve from the storage facility to the job site, the Contractor shall ensure the following:

(i) Valve flange faces are protected from damage by installation of a minimum of 20 mm plywood cover on both faces of each valve.

(ii) Valve shall be handled only by methods approved by the manufacturer and properly secured to preclude any damage during transport.

(i) Butterfly Valves are being supplied complete with:

(i) Gear box and actuator.

(ii) Handwheel and 50 mm AWWA operating nut adaptor.

(iii) One (1) litre of touch up paint.

E18.2.2 Stainless Steel Extension Shaft

(a) The Contractor shall supply 50 mm diameter stainless steel extension shafts for use with the City supplied butterfly valves for surface operation as shown on the Drawings. **These are not being supplied with the valves**.

(b) The extension shaft shall be configured for a 50 mm AWWA operating nut and be compatible with the supplied butterfly valves.

(c) The extension shaft shall be located a minimum of 150 mm and maximum of 450 mm from the proposed final grade.

E18.3 Installation

E18.3.1 Installation of Butterfly Valve

(a) Install butterfly valve as shown on the Drawings. Butterfly valve shall be installed with the valve shaft in the horizontal position. The Supply Contractor is obligated to provide installation supervision, and will complete Form 202 (refer to Tender No. 323-2024) upon successful installation.

(b) The Contractor shall install valve stem extensions as shown on the drawings.

E18.3.2 Commissioning of Butterfly Valve

(a) The Contractor shall assist in operation of the butterfly valve for the purpose of commissioning. The Supply Contractor is required to complete Form 203 (refer to Tender No. 323-2024), indicating a qualified representative has checked the installed equipment, and has found the equipment to be installed and operating in accordance to the specifications.

E18.3.3 Protective Coatings

(a) Any touch-up paintwork required during installation shall be undertaken by the installation Contractor utilizing the supplied touch up paint. Note, coating damage prior to hand over will be repaired by the Supply Contractor.

E18.4 Measurement and Payment

(a) Installation of butterfly valves shall be measured on a unit basis for each size of valve acceptably installed at the Contract Unit Price for "Installation of City Supplied 600 mm Butterfly Valves" as listed in Form B: Prices. Payment shall include installation of valves, gearboxes, handwheels, extension shafts and the supply of any associated materials and work required for the installation. Payment will include supply of the valve stem extensions.

(b) Payment will be made on the following schedule:

(i) 90% payment upon successful installation of the valve, and manual gear box; and,

(ii) remaining 10% payment upon successful testing, and commissioning of the valve.

E19. PIPELINE CLEANING

E19.1 Description

E19.1.1 This Specification shall cover the cleaning of the pipelines to be rehabilitated under this Contract.

E19.2 General

E19.2.1 Cleaning Objectives and Methods

(a) Proper cleaning of the host pipe is critical to ensure the liner fits within the host pipe, the host pipe does not contain any defects that would be injurious to the liner, and that the liner is installed in a manner consistent 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. Prior to lining, the host pipe shall be free of defects that would cause defects and stress concentrations on the pulled in place liner.

(i) The existing feeder main crossing was constructed with an exterior coal tar epoxy coating and an interior AWWA C205 cement mortar lining.

(c) The Contractor may employ a combination of high-pressure flushing, pigging, mechanical cleaning, or other methods to ensure the host pipe is cleaned sufficiently to meet the stated design objectives.

E19.2.2 Pipeline Cleaning Options

(a) The Contractor may employ one or more of the following pipeline cleaning methods:

(i) High pressure flushing and jetting.

(ii) Pigging with foam cleaning pigs and scraper pigs, including steel scraper pigs.

(iii) Mechanical cleaning and robotic cutting.

E19.2.3 Existing Conditions

(a) The existing feeder main river crossing was inspected in 2019 and found to have numerous corrosion-related defects along its length, with some locations noted as

having less than 20% remaining wall thickness at that time. These defects could be aggravated by cleaning and construction methods, resulting in additional challenges for installation of the FFRP liners. The Contractor shall be prepared to encounter through-wall holes and related infiltration into the pipe during the course of the work and shall be responsible to remove or otherwise manage water infiltration as required to facilitate work.

(b) The electromagnetic inspection report produced by PICA can be found in Appendix D.

E19.3 Submittals

E19.3.1 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 ten (10) 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.

E19.3.2 Shop Drawings for Cleaning Pigs

(a) Where towed cleaning equipment is prosed, 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.

E19.4 Products

E19.4.1 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.

E19.4.2 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_3)

(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

E19.5 Equipment

E19.5.1 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.

E19.5.2 High velocity flushing equipment shall be specially designed for the purposes of cleaning water mains for rehabilitation

E19.5.3 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 wince 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. Controls on winch output must be implemented when winch lines do not meet the tensile capacities noted herein.

E19.6 Methods

E19.6.1 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.

E19.6.2 The Contractor shall not deviate from the submitted and accepted cleaning plan without notification to and acceptance by the Contract Administrator.

E19.6.3 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.

E19.6.4 Mechanical Cleaning and Pipeline Preparation

(a) Mechanical cleaning (chain flails, robotic grinding) may be employed for the removal of hard debris, encrustation, weld slag, or other interior pipe defects which may be injurious to the liner during installation or over time. 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.

E19.6.5 Alternative Cleaning Methods

(a) Alternative cleaning methods other than those noted herein may only be utilized upon review and acceptance by the Contract Administrator.

E19.6.6 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.

E19.7 Measurement and Payment

E19.7.1 Pipeline Cleaning

(a) For the purposes of payment, Pipeline Cleaning shall be considered any and all efforts to remove loose or accumulated debris, encrustation, and tuberculation from the pipeline. These methods may including high pressure flushing, pigging, and/or scraping of the pipeline.

(b) Pipeline Cleaning will be measured and paid on an hourly basis (up to 10 hours per day) with an hourly overtime rate for time spent beyond 10 hours of cleaning per day, at the respective unit rates for “600 mm Feeder Main Cleaning and Lining Preparation Work” as listed in Form B: Prices.

(c) Time measured will be based on on-site availability of the Contractor’s crews, from the time crews are present on site until work is completed and the site is secured at the end of the shift, as observed and certified by the Contract Administrator.

(d) Efforts required to remove water and debris introduced into the pipe crossing during Work is considered incidental to the Work and included in the time-based measurement and payment for Pipeline Cleaning.

(e) Payment for “Cleaning Rate (Up to 10 Hours Per Day)” and “Overtime Cleaning Rate (Beyond 10 Hours of Cleaning Per Day)” shall include the supply of all labour, equipment and materials required to complete the work as specified herein.

(f) Payment for “Cleaning Rate (Up to 10 Hours Per Day)” and “Overtime Cleaning Rate (Beyond 10 Hours of Cleaning Per Day)” will be made upon acceptance of the cleaning works based on review of the pre-lining video by the Contract Administrator.

E19.7.2 Mechanical Cleaning and Pipeline Preparation

(a) For the purposes of payment, Mechanical Cleaning and Pipeline Preparation shall be considered any efforts beyond those defined as Pipeline Cleaning, including mechanical cleaning or robotic grinding of the interior pipe wall to remove hard protrusions, weld materials, or other defects deemed necessary for removal by the liner manufacturer.

(b) Mechanical Cleaning and Pipeline Preparation will be measured and paid on an hourly basis at the respective unit rate for “Mechanical Cleaning and Pipeline Preparation” as listed in Form B: Prices.

(c) Time measured will be based on on-site availability of the Contractor’s crews, from the time crews are present on site until work is completed and the site is secured at the end of the shift, as observed and certified by the Contract Administrator.

(d) Payment for “Mechanical Cleaning and Pipeline Preparation” shall include the supply of all labour, equipment and materials required to complete the work as specified herein.

(e) Efforts required to remove water and debris introduced into the pipe crossing during the Work is considered incidental to the Work and included in the time-based measurement and payment for “Mechanical Cleaning and Pipeline Preparation”.

(f) Payment for “Mechanical Cleaning and Pipeline Preparation” will be made upon acceptance of the cleaning works based on review of the pre-lining CCTV inspection by the Contract Administrator.

E20. PIPELINE INSPECTION

E20.1 Description

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

E20.2 Equipment

(a) Equipment shall meet the requirements CW 2145 and those identified herein.

(b) 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.

E20.3 Methods

E20.3.1 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.

E20.3.2 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

(b) Confirm measurements and suitability of the manufactured liner with the Contract Administrator prior to lining.

E20.3.3 Perform the following pipeline inspections in accordance with CW 2145 and as outlined herein:

(a) For all CCTV inspections, the host pipe shall be fully dewatered 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) Pre-Lining CCTV inspection shall be provided to the Contract Administrator a minimum of one (1) Business Day prior to lining for review and acceptance prior to proceeding with the liner installation. The Contractor may request arrangements with the Contract Administrator to review pre-lining inspections on site at the time of inspection, pending availability.

(iv) No coding of the submission will be required.

(d) Post-Lining Inspection:

(i) Post-Lining Inspection is not required for FFRP liners.

(e) Warranty Inspection:

(i) Warranty Inspection is not required for FFRP liners.

E20.3.4 Submit all inspection videos to the Contractor Administrator for review in accordance with CW 2145 and as specified herein.

E20.4 Amendments and Supplements to CW 2145

E20.4.1 Further to Section 3.7.4, operators failing to provide copies of their NASSCO certification and / or meet the accuracy requirements on two occasions will not be permitted to code on the remainder of the Contract until they can demonstrate to the Contract Administrator that they can code in accordance with the requirements of the NASSCO PACP and MACP version 7.0.0 of the manual or greater.

E20.4.2 The Contract drawings are based on information contained in the City's GIS database. If the Contractor has trouble interpreting the drawings, or if they believe them to be wrong, the Contract Administrator shall be approached for assistance/clarification.

(a) The Contractor shall assist the Contract Administrator in making any required measurements for the correction of errors found on the Drawings.

E20.4.3 Replace Clause 3.11.1 with: Capture the inspections in digital format in colour from the live video source on HDD to the following minimum requirements.

(a) For pipe diameters less than 1800mm in height the minimum camera lens and recording requirements will be:

(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.

E20.4.4 Further to Clause 3.8 and E20.5.3 video imagery must not contain black or other coloured or other erroneous columns or bands where formatting of lesser resolution camera lens recordings have been resized to meet the Picture Size requirements of this specification. Video will be reviewed by the Contract Administrator with the potential for rejection if these bands or columns are observed.

E20.5 CCTV Inspection Equipment

E20.5.1 In-Line inspection equipment shall be comprised of a self-propelled track-mounted platform bearing multiple inspection sensors / technologies that can undertake simultaneous remote inspection in pipes of all diameter ranges.

E20.5.2 In areas where a self-propelled track-mounted platform is not possible to use during the inspections, the inspections shall be performed using a float or skid system. The Contractor shall notify the Contract Administrator prior to the use of a float or skid platform, tethered by use of flusher hosing capable at distances stated in E20.5.3.

E20.5.3 In-Line CCTV Inspection Platform Minimum Requirements

(a) Independently controlled drive tracks that enable the platform to manoeuvre around bends and climb over debris up to 300 mm in height.

(b) Operable under partially or fully submerged flow conditions, for distances up to 600 m upstream or downstream from a single access point.

(c) Operable in pipes of various cross-section, and constructed of standard pipe materials including brick, clay, concrete, PVC, HDPE, and steel.

(d) Tethered to facilitate the conveyance and extraction of the platform from the pipe, without causing damage to the existing pipe, in the event the equipment fails or otherwise becomes uncontrollable within the pipe.

(e) Equipped with sufficient high intensity lighting to illuminate the pipe for visual inspection at the widest horizontal viewing angle and the pipe's side periphery.

(i) Lighting for the camera shall be waterproof and suitable to allow a clear picture of the entire periphery of the pipe. The camera shall be operative and provide a clear picture in 100 percent humidity conditions.

(ii) An unclear picture due to excessive lighting (image flare), the lack of lighting or the presence of fog, steam, or excessive humidity will be considered unsatisfactory. The Contractor is responsible for identifying and implementing corrective actions to obtain suitable video quality, such as using fans or ventilation systems to dissipate the fog or by the heating of incoming air to mitigate fog.

(iii) Light heads shall be changed upon the request of the Contract Administrator.

(f) A blurred picture due to fats, oil or grease or a failure in one or all of the primary colour additives, Red, Green, Blue (RGB) visuals will be considered unsatisfactory. The Contractor is responsible for identifying and implementing corrective actions to obtain suitable video quality, such as cleaning the mainline, having the camera lens cleaned prior to reinspection of the mainline.

(g) The Contractor is responsible for presenting issues regarding questionable video quality immediately to the attention of the Contract Administrator.

E20.6 Measurement and Payment

E20.6.1 Verification of Host Pipe Dimensions:

(a) Verification of existing host pipe lengths, depths, and dimensions will be considered incidental to the Work and will not be measured for payment. No additional payment will be made.

E20.6.2 Pre-Cleaning Dewatering for Inspection

(a) The initial dewatering of the pipeline to facilitate the Pre-Cleaning CCTV inspection will be measured on a Lump Sum basis and paid upon completion of the Pre-Cleaning CCTV inspection at the Contract Lump Sum price for “Pre-Cleaning Dewatering for Inspection” as listed in Form B: Prices.

(b) Dewatering prior to the Pre-Lining CCTV is considered to be part the cleaning operations and will be paid in accordance with E19.7.1.

E20.6.3 Pipeline Inspections:

(a) The total length of inspection to be paid will be the total length of pipe inspected using CCTV to the satisfaction of the Contract Administrator for each identified inspection. Measurement will be made along the centerline of the host pipe as determined from the calibrated distance counter in the pre-cleaning and pre-lining CCTV inspections.

(b) Payment for each required CCTV inspection will be made at the respective Contract Unit Rates for “600 mm Feeder Main CCTV Inspection” as listed in Form B: Prices.

(c) Additional payments will not be made for inspections re-performed where, upon review of the inspection video, the Contract Administrator has determined the requirements of the specification have not been satisfied.

(d) Additional payments will not be made for inspections re-performed due to incomplete or outstanding cleaning or pipeline preparation work necessary for liner installation as defined herein.

E20.6.4 Inspection Reports:

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

E21. PULLED IN PLACE FFRP LINER

E21.1 Description

E21.1.1 This specification covers the supply and installation of Pulled in Place FFRP Liners for the rehabilitation of potable water mains and other pressure pipelines.

E21.2 Definitions

(a) Pulled in Place FFRP 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.).

E21.3 Reference Standards

E21.3.1 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

(d) ISO 11295 Classification and information on design and applications of plastics piping systems used for renovation and replacement

(e) ISO 9080 Plastics piping and ducting systems — Determination of the long-term hydrostatic strength of thermoplastics materials in pipe form by extrapolation

(f) DVGW VP 643 Flexible fabric-reinforced plastic in liners and associated connectors for gas lines with operating pressures over 16 bar

E21.4 Existing Conditions

(a) The existing feeder main river crossing was inspected in 2019 and found to have numerous corrosion-related defects along its length, with some locations noted as having less than 20% remaining wall thickness at that time. These defects could be aggravated by cleaning and construction methods, resulting in additional challenges for installation of the FFRP liners. The Contractor shall be prepared to encounter through-wall holes and related infiltration into the pipe during the course of the work, and shall be responsible to remove water infiltration as required to facilitate work.

(b) The electromagnetic inspection report produced by PICA can be found in Appendix D.

E21.5 Submittals Before Starting Work

E21.5.1 Submit shop drawings for the proposed liner in accordance with E2. Shop drawings shall demonstrate the suitability of the proposed liner system (and diameter) to meet the requirements of the contract.

E21.5.2 Provide the required submittals to the Contract Administrator a minimum of ten (10) Business Days before starting pre-work at each site or as noted below, whichever is sooner.

E21.5.3 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, if required. See E6.

(c) Details of the host pipe preparation requirements. See cleaning protocol submission (E19.3.1) 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.

E21.5.4 Liner design, qualification testing and Quality Control Certificate

(a) Long term hydrostatic strength test report as per ISO 9080 or equivalent demonstrating extrapolated 50-year design strength.

(b) Manufacturer quality certificate in accordance to DVGW VP 643.

(c) All available manufacturer quality control reporting.

(d) Submit design demonstrating conformance to specified operating pressures and physical environment.

E21.5.5 Submit a liner termination plan providing the following information:

(a) Details of the termination fittings to facilitate the transition from the installed liner to existing feeder main piping.

(b) Product description and applicable product literature.

(c) Identify any pipeline modifications required to utilize the proposed system. Where permanent pipeline modifications are required beyond what has been shown on the Drawings, the Contractor shall provide a liner termination drawing or drawings clearly showing the intended configuration of liner termination and connections to the existing 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.

E21.6 Liner Material and Design Requirements

E21.6.1 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 liner manufacturer shall review the pipeline plan and profile alignments and appropriately derate the ultimate pressure capacity of the liner to account for bends, deflections, and other installation constraints.

(d) 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 of, the proposed lining system shall be required to meet all project specific requirements to be considered for use in the City of Winnipeg.

(e) 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.

E21.6.2 Liner Operational Requirements

(a) Hydrostatic Pressure Loads:
  (i) MAOP (for design) – 1034 kPa (150 psi)
  (ii) Occasional Surge Pressure – 275 kPa (40 psi)
  (iii) Test Pressure – 862 kPa (125 psi)

(b) Minimum nominal liner diameter: 500 mm.

(c) Provide liner derating data as a result of deflections, bends and other constraints.

E21.7 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 watermain, 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.

(e) Liner termination shall not rely on installation methods requiring pushing liner into host pipe.

E21.8 Construction Methods

E21.8.1 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.

E21.8.2 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 with CW 2125 and E16.

E21.8.3 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.

E21.8.4 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:

(b) Pressure Loss Method

(i) Carry out a pressure test on each liner installed in accordance with CW 2125. Minimum test pressure shall be 862 kPa (125 psi), as measured at the lowest system point.

(ii) 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.

(iii) The pipe shall be pressurized at test pressure for 2 hours prior to test to allow for stabilization of the liner.

(iv) Allowable apparent leakage shall be calculated as 0.04 litres per millimetre of pipe diameter per kilometer of pipe per hour.

(c) Pressure Drop Method

(i) Carry out a pressure test on each liner installed. Minimum test pressure shall be 862 kPa (125 psi), as measured at lowest system point.

(ii) Fill test section and flush until air free.

(iii) Apply test pressure.

(iv) After a rest period of 5 minutes with pressure drop, the test pressure must be reapplied by pumping.

(v) The pumping process must repeatedly be applied after 5 minutes of rest.

(vi) The pressure drop should decline after each step compared to the pressure drop measured the step before.

(vii) The reapplication of the test pressure by pumping every 5 minutes has to be repeated until the pressure drop after 5 minutes is no greater than 1.6 Kpa.

(viii) Apply test pressure for a period of two (2) hours. The test is considered a pass if pressure drop does not exceed 20 KPa per hour, and a total pressure drop of 40 KPa in the two hour test.

(d) 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.

E21.9 Measurement and Payment

E21.9.1 FFRP Liner Installation

(a) FFRP liners will be measured on a per meter basis and paid for at the Contract Unit Price for “Supply and Install 500 mm FFRP Liner” as listed in Form B: Prices.

(b) The length to be paid will be the total length of liner in linear metres installed between the liner terminations in accordance with this specification and accepted and the Contract Administrator. The length to be paid will be determined by the total inspected length of the pre-lining CCTV inspection.

(c) Payment for “Supply and Install 500 mm FFRP 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.

(d) 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.

(e) Disinfection of pipelines, health testing, and disposal of chlorinated water will be considered incidental to “Supply and Install 500 mm FFRP Liner” and will not be measured for payment. No additional payment will be made.

E21.9.2 Supply and Install 500 mm FFRP Liner Terminations

(a) Supply and installation of liner terminations will be measured and paid on a unit basis, one for each end of the crossing, at the Contract Unit Price for “Supply and Install 500 mm FFRP Liner Termination Fittings” as listed in Form B: Prices. Payment shall include all labour and materials required to complete the work, including but limited to modifications to the existing feeder main, welding, new fittings, and re assembly of the feeder main.

E22. STRUCTURAL CONCRETE AND VALVE CHAMBERS

E22.1 Description

(a) This Specification shall cover the modification and restoration of existing concrete valve chambers as shown on the Drawings.

E22.2 Shop Drawings

E22.2.1 Provide shop drawings in accordance with E2.

E22.3 Materials

E22.3.1 All materials shall conform to the requirements of this Specification and the requirements of the latest edition of the City of Winnipeg Standard Construction Specification.

E22.3.2 Structural Concrete

(a) Provide concrete mixed in accordance with requirements of CW 2160 and CAN/CSA-A23.2.

(b) Structural concrete design shall be in accordance with performance specification having the following properties:

(i) Class of Exposure: S-1 & F-1

(ii) Minimum Compressive Strength @ 28 days: 35 MPa

E22.3.3 Reinforcing Steel

(a) Further to CW 2160 Sentence 2.6 Materials: Reinforcing Steel, all reinforcing steel shall conform to the requirements of CSA G30.18, Grade 400W.

E22.3.4 Dowel Grout

(a) Epoxy grout shall be Hilti HIT-RE 500-V3 or equivalent as approved by the Contract Administrator. The epoxy grout shall be suitable for horizontal, vertical or overhead dowel grouting application as required.

E22.3.5 Bar Accessories

(a) Bar accessories shall be of type approved by the Contract Administrator. They shall be made from a non-corroding material, and they shall not stain, blemish, or spall the concrete surface for the life of the concrete. Bar chairs are to be PVC; galvanized bar chairs are not acceptable.

(b) Bar accessories shall include bar chairs, spacers, clips, wire ties, wire (18 gauge minimum), or other similar devices. Bar accessories are not shown on the Contract

Drawings. The supply and installation of bar accessories shall be considered incidental to the supply and placing of reinforcing steel.

E22.3.6 Non-Shrink Grout

(a) Grout, if required, shall be Sika Grout 212 or CPD Non Shrink Grout or approved equal in accordance with B7, mixed and applied in accordance with the manufacturer's instructions and of a consistency suitable for the intended application, as approved by the Contract Administrator.

E22.3.7 Concrete Patching Repair Material

(a) Patching repair material shall be polymer modified mortar based Sika Top 123 Plus by Sika Canada Inc., Master Emaco S 488CI by BASF Master Builders Solutions, or approved equal in accordance with B7.

E22.3.8 Discrete Galvanic Protection System

(a) Galvanic anodes installed in wall patch repairs surrounding the steel beam to be Galvashield XPT anodes or approved equal in accordance with B7.

(b) Discrete galvanic units shall be alkali-activated zinc meant to be embedded into concrete repairs and for corrosion prevention only. Nominal dimensions shall be:

(i) For Galvashield® XPT anodes: 100mm x 24mm x 28mm or as approved equal in accordance with B7. The anodes shall be pre-manufactured with a nominal 60 grams of zinc respectively in compliance with ASTM B418 Type II cast around a pair of uncoated, non-galvanized steel tie wires and encased in a highly alkaline cementitious shell with a pH of 14 or greater.

(c) The galvanic anodes shall be alkali-activated and shall contain no intentionally added chloride, bromide or other constituents that are corrosive to reinforcing steel as per ACT 562-13. Anode units shall be supplied with integral unspliced wires for directly tying to the reinforcing steel. Embedded galvanic anodes shall be Galvashield® XPT as shown on the Drawings, available from Vector Corrosion Technologies (www.vector-corrosion.com) USA (813) 830-7566, Canada (204) 489-9611 or approved equal in accordance with B7.

(d) Application for approved equals shall be requested in writing two weeks before submission of project bids. Application for galvanic anode approved equals shall include verification of the following information:

(i) The zinc anode is alkali-activated with an alkaline cementitious shell with a pH of 14 or greater.

(ii) The galvanic anode shall contain no intentionally added constituents corrosive to reinforcing steel, e.g. chloride, bromide, etc.

(iii) The anode manufacturer shall provide documented test results from field installations showing that the anodes have achieved a minimum of 10 years in service.

(iv) The galvanic anode shall have been used in a minimum of ten projects of similar size and application.

(v) The galvanic anode units shall be supplied with solid zinc core (ASTM B418) cast around uncoated, non-galvanized, non-spliced steel tie wires for wrapping around the reinforcing steel and twisting to provide a durable steel to steel connection between the tie wire and the reinforcing steel.

(vi) The anode manufacturer shall provide third party product evaluation, such as from Concrete Innovations Appraisal Service, BBA, or approved equal in accordance with B7.

(e) Repair mortars, concrete, and bonding agents shall be portland cement-based materials with suitable electrical resistivity less than 50,000 ohm-cm. Non-conductive repair materials such as epoxy, urethane, or magnesium phosphate shall not be permitted. Repair materials with significant polymer modification and/or silica fume

content may have high resistivity. Insulating materials such as epoxy bonding agents shall not be used unless otherwise called for in the design.

(f) Deliver, store, and handle all materials in accordance with manufacturer's instructions. Anode units shall be stored in dry conditions in the original unopened containers in a manner to avoid exposure to extremes of temperature and humidity.

E22.3.9 Joint Fillers

(a) Joint Fillers

(i) Joint filler for concrete slab shall be self-leveling, polyurethane sealant to meet requirements of ASTM C920, Type S, Grade P, Class 25, Use T, M, A, O, and I.

(ii) Approved product: Vulkem 45 as manufactured by Tremco, Sikaflex 1C SL, or approved equal in accordance with B7.

(b) Backer rod shall meet requirements of ASTM C1330.

(c) Bond Breaker: pressure sensitive plastic tape, which will not bond to sealants.

(d) Joint Cleaner: xylol, methyl ethyl keton or non-corrosive type recommended by sealant manufacturer and compatible with joint forming materials.

E22.3.10 Extrudable Polyurethane Sealant

(a) Shall be non sag, polyurethane sealant

(b) Approved Products: Sikaflex 2C NSL or approved equal in accordance with B7.

E22.3.11 Extrudable Polyurethane Waterstop

(a) Extrudable polyurethane waterstop shall be a Gun Grade extrudable polyurethane base waterstop.

(b) Approved Products: SikaSwell S by Sika, or approved equal in accordance with B7.

E22.4 Construction Methods

E22.4.1 Construction Method Submission

(a) No Work shall commence on construction of valve chamber until after the Contract Administrator's review of the Contractor's Construction Method submission.

(b) The Contractor shall prepare for the Contract Administrator's review a Construction Method submission detailing:

(i) Construction sequence to be followed including all methods to be employed to ensure no damage occurs to existing structures or adjacent properties within or adjacent to excavation.

(ii) Proposed method of construction.

(iii) Specialized equipment to be used.

(iv) Any design revisions proposed to accommodate the Contractor's proposed construction method.

(v) Flow control considerations including details on the Contractor's proposed method of flow control.

(vi) The Contractor shall respond to any concerns that may be raised by the Contract Administrator after review of the Construction Method submission.

E22.4.2 Removable Slabs

(a) Remove access hatches, covers and removable slabs where indicated on the drawings and as required for cleaning and inspection services. Replace all fasteners and bolts unless otherwise directed by the Contract Administrator.

(b) Replace all hatches and roof panels once cleaning and inspection work is complete.

(c) Installation of Roof Slab

(i) Remove all existing sealants and clean joint surfaces as per sealant manufacturer's instructions.

(ii) Apply sealant to horizontal surfaces in accordance with the sealant manufacturer's instructions.

(iii) Re-install roof slab.

(iv) Apply joint filler as shown on the Drawings and in accordance with the manufacturer's instructions.

(v) Fill all lifting hook recesses with polyurethane sealant.

E22.4.3 Cast-in-Place Concrete Construction

(a) Adjust the location of the reinforcing steel adjacent to openings and in location of the waterstop along the center line of wall to frame those openings in accordance with good practice and maintain the bar spacing intent.

(b) Do not use welded splices for reinforcing steel.

(c) If site conditions necessitate the cutting of rebar for steel beam installation, then a new bar shall be spliced onto the old using a rebar coupler or additional dowel installed using epoxy grout adjacent to the old dowel at the direction of the Contract Administrator. If required, the rebar coupler product specification sheet shall be submitted to the Contract Administrator for approval. The coupler shall be capable of developing the rebar in tension and compression.

(d) Install foundation waterproofing in accordance with Specification CW 2160.

(e) The concrete roof slabs shall not have backfill placed overhead until they have reached suitable concrete strength in accordance with the design.

E22.4.4 Placing of Reinforcing Steel

(a) Reinforcing steel shall be placed accurately in the positions shown on the Contract Drawings. Carefully adjust the location of reinforcing steel adjacent to openings to frame those openings in accordance with good practice and maintain the bar spacing intent.

(b) Splices in reinforcing steel shall be made only where indicated on the Contract Drawings. Prior approval of the Contract Administrator shall be obtained where, in the opinion of the Contractor, other splices must be made. All splices shall have laps of at least 40 bar diameters. Welded splices shall not be used.

(c) A minimum of twenty-four (24) hours notice shall be given to the Contract Administrator prior to the pouring of any concrete to allow for inspection of reinforcing steel.

E22.4.5 Dowels

(a) If required the Contractor shall core or drill holes and place dowels at the direction of the Contract Administrator. Holes for dowels shall be drilled or cored.

(i) The Contractor shall predetermine the locations of existing steel bars prior to drilling or coring, using an effective reinforcing steel bar locator. Dowel hole locations as shown on the Drawings, shall be relocated as required to avoid conflicts with existing reinforcing steel bars as approved by the Contract Administrator.

(ii) Dowel hole diameters shall be in accordance with the recommendations of the epoxy adhesive grout manufacturer.

(iii) All holes shall be thoroughly cleaned prior to the installation of grout and dowels.

(b) The epoxy adhesive grout shall be prepared, placed and cured in accordance with the recommendations of the epoxy adhesive grout manufacturer.

E22.4.6 Concrete Patching

(a) Provide heating and hoarding to maintain the manufacturer's minimum installation and curing substrate temperature.

(b) Use materials in accordance with manufacturer's printed instructions, and as specified.

(c) Remove delaminated, loose, and spalled concrete using lightweight mechanical chipping hammers or other suitable means to sound concrete. Protect reinforcing bars during removal.

(d) Thoroughly clean all surfaces previously chipped of any loose concrete and/or laitance and prepare surface for patching in accordance with printed instructions from the manufacturer of the patching mortar. Use pressure washing to clean and prepare concrete surfaces. Do not damage the structures.

(e) Apply material to concrete substrate in accordance with the manufacturer's printed instructions.

(f) The patch repair and non-shrink grout shall be finished to match the profile of the surrounding concrete.

(g) Wet cure patch repairs and non-shrink grout in accordance with the manufacturer's printed instructions.

E22.4.7 Discrete Galvanic Protection System

(a) The galvanic corrosion protection shall consist of the anodes as indicated on the Drawings. The anode units are connected to the reinforcing steel and encased in a concrete with a minimum of 50 mm of clear concrete cover over the anode units.

(b) Clean exposed reinforcing steel of rust, mortar, epoxy coating, etc. to provide sufficient electrical connection and mechanical bond.

(c) If significant reduction in the cross section of the reinforcing steel has occurred, replace or install supplemental reinforcement as directed by the Contract Administrator.

(d) Secure loose reinforcing steel by tying tightly to other bars with steel tie wire.

(e) Create a clean, sound substrate by removing bond-inhibiting materials from the concrete substrate by high pressure water blasting or abrasive blasting.

(f) Install anode units and repair material immediately following preparation and cleaning of the steel reinforcement.

(g) Anode spacing shall be such to provide full protection for the entire patch perimeter. Anode spacing is dependent on the reinforcing steel density. Maximum anode spacing shall be as per the manufacturer's guidelines to provide a 50 years service life.

(h) Place the galvanic anodes as close as possible to the patch edge while still providing sufficient clearance between anodes and substrate to allow the repair material to fully encase the anode with a minimum concrete or mortar cover over the anode of 25mm. If necessary, increase the size of the repair cavity to accommodate the anodes.

  (i) Place the anode such that the preformed BarFit™ groove fits along a single bar or at the intersection between two bars and secure to each clean bar.

  (ii) If less than 25 mm of concrete cover is expected, place anode beneath the bar and secure to clean reinforcing steel.

(i) The tie wires shall be wrapped around the cleaned reinforcing steel at least one full turn in opposite directions and then twisted tight to create a secure electrical connection and allow no anode movement during concrete placement.

(j) Repair materials with resistivity greater than 50,000 ohm-cm are not to be used.

(k) Electrical Continuity

  (i) Confirm electrical connection between anode tie wire and reinforcing steel by measuring DC resistance (ohm Ω) or DC potential (mV) with a multi-meter.

(ii) Electrical connection is acceptable if the DC resistance measured with the multi-meter is 1 Ω or less or the DC potential is 1 mV or less.

(iii) Confirm electrical continuity of the exposed reinforcing steel within the repair area. If necessary, electrical continuity shall be established by tying discontinuous steel to continuous steel using steel tie wire.

(iv) Electrical continuity between test areas is acceptable if the DC resistance measured with multi-meter is 1 Ω or less or the potential is 1 mV or less.

(l) The discrete galvanic anodes will be connected to the existing, exposed reinforcement. Provide electrical continuity with new dowels embedded into existing concrete as per Manufacturer's guidelines to provide a 50-year design life. Proposed electrical connection details shall be approved by the anode manufacturer and shall be detailed on the shop drawing submittal. Anodes do not need to be connected to corrosion resistant reinforcement (e.g. stainless steel reinforcement).

E22.5 Measurement and Payment

E22.5.1 Chamber Works

(a) Chamber works, including removal and reinstallation of chamber roof panels will be considered incidental to "Valve Chamber and Piping Rehabilitation" and will not be measured for payment. No additional payment will be made.

E22.5.2 Structural Concrete

(a) Structural Concrete repairs for the provisional removal and replacement of thrust blocks as shown on the Drawings will be paid in accordance with E17.

(b) All other structural concrete work will be considered incidental to the Work and will not be measured for payment. No additional payment will be made.

E22.5.3 Provisional – Concrete Patching

(a) Provisional concrete patching will be measured and paid for on a square meter basis at the Contract Unit Price for "Misc. Concrete Patching" as listed in Form B: Prices in locations where patching is required outside of the work specified on the drawings as identified by the Contract Administrator.

(b) Payment for "Misc. Concrete Patching" will include payment for all labour and materials to complete the work as specified.

E23. CHAMBER INSULATION

E23.1 Submittals: Submit Manufacturer's data sheets in accordance with E2.

E23.2 Materials

(a) Rigid Extruded Polystyrene Insulation

(i) High Strength Rigid Insulation for below grade: 50 mm thick rigid insulation to CAN/ULC S701, Type 4 rigid, closed cell type, with integral high density skin, extruded polystyrene insulation, edge treatment: butt edge and ship lapped.

(ii) Approved Manufactures: DOW Chemical, Owens Corning, or approved equal in accordance with B7.

(b) Spray Foam Insulation

(i) Spray Foam Insulation: closed-cell foam with water-resistant outer skin when cured.

(ii) Approved Products: Great Stuff as manufactured by Dow Chemical or approved equal in accordance with B7.

(c) Spray Applied Polyurethane Insulation

(i) Polyurethane foam shall be closed cell, less than 1% open cell content to ASTM D-6226.

(ii) Approved Products: BASF Walltite CM01 or approved equal in accordance with B7

E23.3 Construction Method

(a) Verify insulation boards are unbroken, free of damage, with face membrane undamaged.

(b) Butt edges and ends tight to adjacent board and protrusions.

(c) Ensure Rigid Insulation panels are tight to the substrate. No void is allowed between the Rigid Insulation panel and the substrate. Cut Rigid Insulation panels to suit substrate profile.

(d) Secure the Rigid Insulation to the substrate utilizing the Rigid Insulation Manufacturer's recommended wall adhesive for wet substates or other approved securement methods that will not deteriorate under wet conditions.

(e) Spray foam any voids between rigid insulation sheet joints, around manhole chimneys, and valve boxes.

(f) Spray Applied Polyurethane Insulation

(i) Spray applied polyurethane insulation shall be applied to the exterior of the manhole chamber as shown on the drawings.

(ii) Insulation shall be applied as per the manufacturers recommendations.

E23.4 Measurement and Payment

(a) Supply and installation of rigid insulation will be considered incidental to "Valve Chamber and Piping Rehabilitation" and will not be measured for payment. No separate payment will be made.

E24. TEMPORARY SURFACE RESTORATION

E24.1 Description

E24.1.1 This Specification shall cover the temporary restoration roadways and boulevards. Temporary restoration is required to facilitate construction staging and where atmospheric conditions do not permit permanent restoration upon completion of the work. Temporary restoration shall be completed as specified herein.

E24.2 General

E24.2.1 The Contractor is responsible for maintaining roadways in an acceptable condition for traffic at all times while the Site is under the control of the Contractor. Temporary restoration of the roadway to permit traffic between completion of the work and permanent restoration shall be done in such a manner as to allow normal vehicle traffic. The Contractor shall be responsible for all maintenance of said restoration works.

E24.2.2 Where permanent restoration of roads or turf cannot be completed due to seasonal restrictions, temporary restoration shall be completed and maintained by the Contractor until such time as permanent restoration can be completed.

E24.2.3 In all cases, boulevards and roadways must be made safe for vehicles and pedestrians whenever the Contractor is not actively working on site.

E24.3 Construction Methods

E24.3.1 Further to Clause 3.3 of CW 1130, the Contractor shall temporarily restore surfaces to the following minimum standards:

(a) Backfill and level boulevards and grassed areas to match existing surface elevations.

(b) Cap excavations in street pavement with 100 mm thick layer of "Concrete for Temporary Restoration of Utility Pavement Cuts" as specified in CW 3310.

(c) Cap excavations in sidewalk pavement with a 50 mm thick layer of "Concrete for Temporary Restoration of Utility Pavement Cuts" as specified in CW 3310 or 50 mm of asphalt paving in accordance with CW 3410.

(d) Where curb has been removed as part of the pavement cut, pour temporary curb using “Concrete for Temporary Restoration of Utility Pavement Cuts” as specified in CW 3310.

E24.3.2 Insulate temporary concrete where required during 24 hour curing period.

E24.3.3 Remove all temporary pavements prior to permanent restorations.

E24.3.4 The Contractor shall monitor and maintain temporarily restored surfaces as required until permanent restoration is complete.

E24.3.5 If, in the opinion of the Contract Administrator, temporarily restored surfaces are not being adequately maintained or were not properly constructed and pose a danger to the public, maintenance or reconstruction will be done by the City forces with no advance notification the Contractor. All costs associated with the maintenance or reconstruction of temporary pavement incurred by the City shall be deducted from future payments to the Contractor.

E24.4 Measurement and Payment

E24.4.1 Completion of all temporary restoration will be considered incidental to the Work and will not be measured for payment. No additional payment will be made.

E25. PERMANENT RESTORATION

E25.1 Description

E25.1.1 This Specification covers all permanent restoration of roadways, boulevards and sidewalks.

E25.2 Construction Methods

E25.2.1 The Contractor shall follow the City of Winnipeg Street By-law No. 1481/77 and current revision of the City of Winnipeg “Street Cuts Manual” found at https://winnipeg.ca/publicworks/permitsApprovals/pdf/Street-Cuts-Manual.pdf and for all pavement restoration unless otherwise shown on the drawing or specifications or as directed by the Contract Administrator.

E25.2.2 All street segments within the work area impacted by the Work shall be maintained and restored with the following additional requirements:

(a) Review and record the condition of each street segment with the Contract Administrator and a City Representative from Public Works prior to the initiation of the work. The surface restoration required for each street segment will be agreed upon at this time.

E25.2.3 The street material and condition within the project work area are classified as follows:

Street	Block	Pavement Type	Condition
N/A	N/A	N/A	N/A

E25.3 Permanent pavement restoration shall be in accordance with the City of Winnipeg Street Cuts Manual (2022) for each applicable pavement type.

(a) Construct partial slab patches in accordance with CW 3230.

(b) Construct miscellaneous concrete slab renewals in accordance with CW 3235.

(c) Construct concrete curb renewal in accordance with CW 3240.

(d) Construct asphaltic concrete patches (Type 1A) in accordance with CW 3240. Notwithstanding CW 3410, there will be no maximum width for an asphalt patch.

E25.4 Boulevard and median restoration

(a) Sod all grassed areas in accordance with CW3510.

(b) Seeding restoration in accordance with CW 3520 will not be permitted.

E25.5 Gravel Road Surface Restoration

(a) The contractor shall maintain gravel roads and residential approaches in a clean and passable condition at all times throughout the work.

(b) Where gravel roads or residential approaches are negatively impacted by construction activities, resurfacing of the road will be required upon completion of the Work.

(c) Remove deleterious materials such as clay lumps and organic material prior to road restoration.

(d) Restore gravel roads in accordance with CW 3150.

E25.6 Interlocking Paving Stone Pathways

(a) Restore existing interlocking paving stone in accordance with CW3330 and SD-240A. It is anticipated that existing paving stones can be reused for restoration purposes. The Contractor shall take all necessary steps to not damage existing paving stone surfaces.

E25.7 Measurement and Payment

E25.7.2 Concrete Curb Renewals

(a) Concrete curb renewal shall be measured on a linear meter basis and paid for at the Contract Unit Price per linear meter for “Concrete Curb Renewal - Barrier Curb (SD-204)” for the specified curb type, as identified in Form B. Payment shall include all materials and labour required to complete the work as specified.

(b) All cost incurred for sub base and base course materials shall be included in the unit price for “Concrete Curb Renewal - Barrier Curb (SD-204)”.

(c) Payment for Concrete Curb Renewals will only be considered for areas directly affected by water main installation works within the project limits. Any necessary restorations that fall outside of the immediate project area may not be considered for payment, at the discretion of the Contract Administrator.

E25.7.4 Gravel Road Resurfacing

(a) Gravel road resurfacing will be measured and paid in accordance with CW 3150.

(b) Only material placed within the limits of the resurfacing will be included for payment.

E25.7.5 Interlocking Paving Stones

(a) Repair and reconstruction of existing interlocking paving stone pathways will be measured on a square meter basis and paid for at the Contract Unit Rate for “Restore Interlocking Paving Stone Sidewalk” as listed in Form B: Prices. Measurement will be based on the total area of sidewalk restored to pre-existing condition or better, as measured and accepted by the Contract Administrator. Payment will include all labour and materials required to complete restoration, including but not limited to the supply of replacement stones where damaged during construction.

E25.7.6 Sodding

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

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 their 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 The following is a link to information for obtaining the Police Information Check from the City of Winnipeg Police Service. http://winnipeg.ca/police/pr/PIC.stm

F1.2.1 The original Police Information Check (Form P–612) will be provided by the Winnipeg Police Service to the individual applicant. The original has a validation sticker from the Winnipeg Police Service in the top right hand corner. The applicant shall:

(a) Provide the original Police Information Check (Form P–612) to the Contract Administrator.

F1.3 Prior to the award of Contact, and during the term of the Contract if additional or replacement individuals are proposed to perform Work, the Bidder/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.

F1.4 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.

F1.5 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.

F1.6 Notwithstanding the foregoing, at any time during the term of the Contract, the City may, at their 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.