



THE CITY OF WINNIPEG

TENDER

TENDER NO. 839-2025

ARMSTRONG SEWER RELIEF WORKS (CONTRACT 1)

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 ARMSTRONG SEWER RELIEF WORKS (CONTRACT 1)

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, April 9th, 2026.

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 Bidder may view the Site without making an appointment.

B3.2 The Bidder is responsible for inspecting the Site, the nature of the Work to be done and all conditions that might affect their Bid 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. BIDDERS' CONFERENCE

B4.1 Further to C3.1, the Contract Administrator will hold a Bidders' conference at KGS Group's south office at 895 Waverley Street at:

- (a) 1:00 pm on March 24th, 2026.
- (b) 1:00 pm on March 25th, 2026.

B4.2 If attending, it is recommended to arrive 15 min ahead of the time(s) listed above to be directed to the correct meeting room. Attending the bidders conference meeting is not mandatory.

B5. ENQUIRIES

B5.1 All enquiries shall be directed to the Contract Administrator identified in D5.1. 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.

B5.2 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.

B5.3 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.

B5.4 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B5 unless that response or interpretation is provided by the Contract Administrator in writing.

B5.5 Any enquiries concerning submitting through MERX should be addressed to:
MERX Customer Support
Phone: 1-800-964-6379
Email: merx@merx.com

B6. CONFIDENTIALITY

- B6.1 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.
- B6.2 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.

B7. ADDENDA

- B7.1 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.
- B7.2 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.
- B7.3 Addenda will be available on the MERX website at www.merx.com.
- B7.4 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.
- B7.5 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.
- B7.6 Notwithstanding B5, enquiries related to an Addendum may be directed to the Contract Administrator indicated in D5.

B8. SUBSTITUTES

- B8.1 The Work is based on the Plant, Materials and methods specified in the Tender.
- B8.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B8.3 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.
- B8.4 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.

B8.5 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.

B8.6 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.

B8.6.1 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.

B8.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.

B8.8 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 B19.

B8.9 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.

B9. BID COMPONENTS

B9.1 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.

B9.2 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.

B9.3 The Bid shall be submitted electronically through MERX at www.merx.com.

B9.3.1 Bids will **only** be accepted electronically through MERX.

B9.4 Bidders are advised that inclusion of terms and conditions inconsistent with the Tender document, including the General Conditions, will be evaluated in accordance with B19.1(a).

B10. BID

B10.1 The Bidder shall complete Form A: Bid/Proposal, making all required entries.

B10.2 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.

B10.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B10.2.

B10.3 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.

B10.4 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.

B10.4.1 The name and official capacity of all individuals signing Form A: Bid/Proposal should be entered below such signatures.

B10.5 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.

B11. PRICES

B11.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.

B11.1.1 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 C24. Any such costs shall be determined in accordance with C24.

B11.2 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.

B11.3 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.

B11.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B11.5 The Bidder shall enter the Total Bid Price from Form B: Prices into the Total Bid Price field in MERX.

B11.5.1 Bidders are advised that the calculation indicated in B19.4 will prevail over the Total Bid Price entered in MERX.

B12. DISCLOSURE

B12.1 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.

B12.2 The Persons are:

- (a) Tri-Core – Trenchless Pipe Installation Methods
- (b) J-Con Civil Ltd. - Trenchless Pipe Installation Methods

B13. CONFLICT OF INTEREST AND GOOD FAITH

B13.1 Further to C3.3, Bidders, by responding to this Tender, declare that no Conflict of Interest currently exists, or is reasonably expected to exist in the future.

B13.2 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.

B13.3 In connection with their Bid, each entity identified in B13.2 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.

B13.4 Without limiting B13.3, 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.

B13.5 Without limiting B13.3, 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 B13.4 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.

B13.6 The final determination of whether a perceived, potential or actual Conflict of Interest exists shall be made by the City, in their sole discretion.

B14. QUALIFICATION

B14.1 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.

B14.2 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>

B14.3 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 B14.5 and C6.19)
- (e) upon request of the Contract Administrator, provide the Security Clearances in accordance with PART F - ;
- (f) The Bidder and/or any proposed Subcontractor shall have the following qualifications for the particular Work items listed below:
 - (i) Tunnelling Sewer Construction in accordance with E29:
 - ◆ All operators of Tunnelling Sewer Construction equipment shall have training and a minimum of five (5) years of experience using the same equipment. The Contractor must demonstrate that all operators of the selected Tunneling equipment, have a minimum of two (2) successfully completed projects with the same equipment.
 - ◆ Drive lengths for the current project using the selected equipment must be within the length range successfully completed by the operator on

previous projects without the use of a rescue shaft or change in installation methodology.

- ◆ The Contractor shall provide written documentation confirming the above operator qualifications as part of the Tunnelling submittals. Submittals shall include operator names, project dates, drive locations, equipment type, references, pipe materials and diameters, and drive lengths for the relevant past projects.

(ii) Trenchless Sewer Construction in accordance with E30:

- ◆ All operators of Trenchless Sewer Construction equipment shall have training and a minimum of five (5) years of experience using the same equipment. The Contractor must demonstrate that all operators of the selected trenchless equipment, have a minimum of two (2) successfully completed projects with the same equipment.
- ◆ Drive lengths for the current project using the selected equipment must be within the length range successfully completed by the operator on previous projects without the use of a rescue shaft or change in installation methodology.
- ◆ The Contractor shall provide written documentation confirming the above operator qualifications as part of the trenchless submittals. Submittals shall include operator names, project dates, drive locations, equipment type, references, pipe materials and diameters, and drive lengths for the relevant past projects.

(ii) Pilot Tube Guided Auger Boring Trenchless Crossings in accordance with E31 and E32:

- ◆ The operator shall have Pilot Tube Guided Auger Boring experience as an operator on at least three successful projects using the same equipment required for this project.
- ◆ A detailed description of projects on which this system has been successfully used including the names, addresses and telephone numbers of owner's representatives for these projects as well as length, diameter, and pipe material used.

B14.4 Further to B14.3(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 at <http://www.winnipeg.ca/matmgt/Safety/default.stm>.

B14.5 Further to B14.3(d), the Bidder acknowledges that they and all Subcontractors have obtained training required by the Accessibility for Manitobans Act (AMA) available at <https://accessibilityymb.ca/resources-events-and-training/online-training.html> for anyone that may have any interaction with the public on behalf of the City of Winnipeg.

B14.6 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.

B14.7 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.

B15. BID SECURITY

B15.1 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: <https://www.winnipeg.ca/media/4929/>.

B15.2 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 B15.2(a).

B15.3 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 B19.1(a).

B15.4 Bonds passing the verification process will be treated as original and authentic.

B15.4.1 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.

B15.5 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.

B15.6 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.

B16. OPENING OF BIDS AND RELEASE OF INFORMATION

B16.1 Bids will not be opened publicly.

B16.2 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.

B16.3 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.

B16.4 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).

- B16.4.1 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.

B17. IRREVOCABLE BID

- B17.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid/Proposal.
- B17.2 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.

B18. WITHDRAWAL OF BIDS

- B18.1 A Bidder may withdraw their Bid without penalty at any time prior to the Submission Deadline.

B19. EVALUATION OF BIDS

- B19.1 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 therefrom (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B14 (pass/fail);
 - (c) Total Bid Price;
 - (d) economic analysis of any approved alternative pursuant to B8.
- B19.2 Further to B19.1(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.
- B19.3 Further to B19.1(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.
- B19.4 Further to B19.1(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.
- B19.4.1 Further to B19.1(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.
- B19.4.2 Where MRST is shown on Form B as a separate line item, if that Line item is not completed, the MRST shall be considered to be included in the Total Bid Price.
- B19.4.3 Bidders are advised that the calculation indicated in B19.4 will prevail over the Total Bid Price entered in MERX.
- B19.4.4 Further to B19.1(c), the Total Bid Price shall include Daily Equipment Costs as shown on Form B: Prices. Daily Equipment Costs are formulated as described in E15.

B20. AWARD OF CONTRACT

- B20.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B20.2 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.
- B20.2.1 Without limiting the generality of B20.2, 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.
- B20.3 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 C24 shall immediately take effect upon confirmation of such funding, regardless of when funding is confirmed.
- B20.4 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 B19.
- B20.4.1 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 2025-11-01) 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.
- (a) Further to C2.4:
 - (i) Specifications shall govern over the Geotechnical Baseline Report (GBR)
 - (ii) The GBR shall govern over the Geotechnical Data Report (GDR)
 - (b) Further to C3.1(a), revise clause (ii) with the following:
 - (i) The nature of the surface and subsurface conditions at the Site and reviewed the GRB and GDR appended to these specifications.

D2. BACKGROUND AND PROJECT INFORMATION

- D2.1 The Armstrong Combined Sewer (CS) district is located in the West Kildonan neighbourhood in Winnipeg and will be separated as part of the City's Combined Sewer Overflow program.
- (a) The overall district has a unique boundary that is bisected by the Canadian Pacific Kansas City (CPKC) Rail Winnipeg Beach line. The west half of the district is bounded by McPhillips Street to the west, Kingsbury Avenue to the south and the northern limits of the properties along north side of Leila Avenue to the north. The east half of the district is bounded by Main Street to the east, Royal Avenue to the south, and the North End Sewage Treatment Plant (NEWPCC) to the north.
 - (b) The neighbourhood includes a mixture of single-family homes, high density residential buildings, and commercial businesses with a large commercial hub consisting of Garden City Shopping Centre and Garden City Square.
 - (c) The sewers within Armstrong district are combined. Storm and sanitary flows collected throughout the district are directed to the existing 2700 mm combined trunk sewer that runs along Leila Avenue from McPhillips Street to Salter Street and then snakes its way to Armstrong and ultimately to the commuter station at the northeast corner of Main Street and Armstrong.
 - (d) The existing 2700 mm Combined trunk sewer also collects land drainage flows from several separated districts upstream of the Armstrong CS district.
 - (e) Separation of the Armstrong district is planned to occur over eight contracts using a hybrid separation strategy. This includes installing new wastewater mains and collector sewers to enable conversion of portions of the combined sewer within the Armstrong district to land drainage sewers, as well as installing new land drainage sewers in portions of the district to allow conversion of existing combined sewers into wastewater sewers.
- D2.2 The Work associated with Contract 1 (Tender 839-2025) includes the separation of the Armstrong district along the existing combined sewer trunk from McPhillips to Main Street. The separation scheme involves the installation of a new wastewater trunk sewer on Leila Ave. McGregor St. Aikins St. and Armstrong Street that connects to the Main Street Interceptor.
- (a) The new sanitary trunk sewer is intended to be installed by both Tunnelling and trenchless methods at depths of approximately **6 m to 12 m** as noted on the Drawings and in the Specifications.
 - (b) Contract 1 includes redirecting all of the separated sanitary services to the new separated sanitary system as shown on the Drawings. Due to the depth of the new wastewater trunk sewer, in some locations the services will be redirected to a shallower Collector sewer.

- (c) Seven (7) Collector sewers have been included along Leila Avenue and one along Armstrong Avenue to collect wastewater flows from adjacent properties. These sewers are installed at shallower depths and convey the wastewater to the deeper sanitary trunk sewer through drop manholes.
- (d) Contract 1 also includes separating combined services on eight (8) private properties where the services could be effectively separated into separate storm and sanitary services from the basement of the building or from outside of the building. Separate Drawings have been prepared for the separation of these properties.
- (e) Combined services from properties that could not be effectively separated will remain connected to the existing combined sewer trunk.

D2.3 The Scope of Work describing the main elements of the sewer project is presented below in Section D3.

D2.4 Sensitive crossings exist throughout the project site that requires specific trenchless technologies to mitigate settlement and include:

- (a) Canadian Pacific Kansas City Railway Crossing
 - (i) Pilot Tube Guided Auger Boring is required to support the crossing of the CPKC rail line as shown on Drawings 13640 and 13641.
 - (ii) The crossing will be completed using a steel casing pipe and restrained joint PVC pipe for the carrier pipe.
 - (iii) The CPKC crossing application is anticipated to be approved prior to the commencement of the rail crossing Work. Contractor shall assume that the crossing application will be approved and the City will have the fully executed crossing permit by September 15th, 2026.
 - (iv) Work associated with the CPKC crossing is not permitted during the winter season between the period of December 15th and March 31st of any given year.
- (b) 2700 mm Combined Trunk Sewer Crossings, where the pipe crossing under the trunk sewer is 600 mm or larger.
 - (i) Pilot Tube Guided Auger Boring is required to support the trunk sewer crossings as shown on the Drawings.
 - (ii) The crossing will be completed using a steel casing pipe and restrained joint PVC pipe for the carrier pipe.
 - (iii) Transition collars are required at either end of the crossings to connect back to the pipe types shown on the drawings.

D2.5 Installation methods for the new sewers are intended to be by Tunnelling and trenchless sewer construction methods as presented below, defined in Section D4 (Definitions), and within the Specifications (with the exception of the sensitive crossings identified in Section D2.4.)

- (a) Trenchless methods are intended to be used for:
 - (i) The installation of the sanitary trunk sewers west of the CPKC rail line.
 - (ii) The installation of all Collector Sewers
 - (iii) The installation of all sewer services
- (b) Tunnelling methods are to be used for the installation of all the 900 mm sanitary trunk sewer east of the CPKC rail Crossing.

D2.6 Groundwater Depressurization will be required to support the construction of the deep shafts at specific locations across the Site. The depressurization requirements have been identified in three general zones as defined below:

- (i) **Zone 1 (Shallow Till Zone Shafts)** – The general elevation of the till strata is higher from STN 5+53 to STN 15+55. The new sanitary trunk sewer to be installed in this zone ranges in diameter from 450 mm to 525 mm and is intended to be installed by trenchless means. In this zone the highest observed groundwater levels and baseline groundwater levels result in a factor of safety against uplift (buoyancy) of

less than 1. Specifications have been developed for this zone that include pay items for depressurization to support shaft construction (see E26).

- (ii) **Zone 2 (Tunnelling Shafts)** – Depressurization is required to support shaft construction for the Tunnelling works that initiate from the 900 mm wastewater trunk sewer east of the CPKC rail line and extend to the interceptor sewer. Depressurization along this zone of the Site is at the discretion of the Contractor and will be incidental to Tunnelling Sewer Construction. Specifications have been prepared for this zone that allow for the contractor to use pumping, passive systems or the shoring structure itself to resist uplift (buoyancy) within specified factor of safety values (see E27).
- (iii) **Zone 3 (Main Street Interceptor Connection Shaft)** – The depth of the shaft for the interceptor connection on Main Street requires depressurization to lower the groundwater level within acceptable factors of safety for uplift (buoyancy). Pumped groundwater depressurization is specified at this zone as the shoring and subsequent chamber construction are being installed around the existing (active) Main Street interceptor (see E28).

The Bidder should carefully review the Specifications along with the Geotechnical Data Report and the Geotechnical Baseline Report that includes baseline groundwater levels to be assumed during construction. **The GDR also includes groundwater pumping test information within each of the above noted zones to support Contractors in preparing their bids.**

D2.7 The Main Street Interceptor connection is a complex element of the project that requires special attention. The new sanitary trunk sewer will be connected to the existing 2250 mm interceptor that is approximately located below the southbound median lane on Main Street. The existing interceptor is a cast in place concrete sewer, installed in 1935 at a depth to invert of approximately 14 m. The following considerations have been included within the design:

- (a) The wastewater flows within the interceptor cannot effectively be by-passed. To support the connection, a new concrete chamber will be constructed around the existing interceptor to an elevation above the peak dry weather flow, and the interceptor sewer will be removed from within constructed chamber once the new sanitary trunk has been connected to the chamber, as shown on the Drawings.
 - (i) Divers are assumed to be required to support the final cutting and removal of the interceptor sewer.
- (b) The shoring system for the shaft must be drilled in place rather than hammered in place to avoid impacting the existing interceptor sewer.
- (c) The existing interceptor sewer will need to be strapped and supported once exposed to reduce the risk of bursting from surcharge loads or damage from settlement.
- (d) The chamber construction Work must take place during the dry weather flow (DWF) period from December 1 to Feb 28th
 - (i) Historic data from 2013 show that the interceptor sewer was $\frac{3}{4}$ full of wastewater during the DWF period. The chamber design applied a factor of safety and assumed that the water level during the DWF period could be at or above the pipe obvert.
 - (ii) During wet weather periods the wastewater level surcharges several meters above the pipe.

D2.8 The existing 2250 mm interceptor sewer will become surcharged during wet weather events and may remain surcharged for long periods after the rainfall event. The surcharging will result in combined flows within the new sanitary trunk sewer.

- (a) If the Contractor elects to complete the connection to the Main Street Interceptor prior to the WWS Trunk being in place, then plugs and potentially pumping will be required during the installation of the wastewater trunk sewer. All plugs and pumping required to install the new sanitary sewer will be considered incidental to the sanitary trunk sewer pipe installation.

- D2.9 Wastewater services shall not be connected to the new wastewater trunk sewer until the new trunk sewer is connected by gravity to the Main Street interceptor to avoid the risk of basement flooding.**
- D2.10 The existing 2700 mm CS trunk surcharges during rain events and can remain surcharged for periods after a rainfall event. The contractor should evaluate the water level within the CS pipe prior to making Land Drainage Sewers (LDS) connections for the Green Infrastructure (GI) components or private LDS services. Any bypass pumping that may be required shall be considered incidental to the pipe connection installations.
- D2.11 A significant street renewal project planned by the Public Works Department (PWD) on Leila Avenue and McGregor Avenue is intended to commence immediately following this contract (C1). To support the planned work (by others), and to reduce unnecessary restoration costs under the current project the following considerations have been included with the Work.
- (a) Stub connections to future Armstrong contracts on roadways that intersect with Leila Avenue have been extended beyond the City right-of way limits on Leila Avenue.
 - (i) The stub connections include future wastewater sewer connections to the new sanitary trunk sewer, and future land drainage connections to the existing 2700 mm CS trunk.
 - (b) 750mm dia. x 300mm manhole barrel section and a 50mm adjusting ring have been included on all new manholes within the planned road renewal to accommodate lowering of the future roadway grades.
 - (i) Manholes shall be fitted with 750 dia. and 300mm high manhole barrel section and 50mm adjustment ring providing a total height of 350 mm under the frame.
 - (c) Restoration considerations within the planned PWD project extents will not be required to be permanent to avoid spending tax dollars on infrastructure that needs to be removed. The future road renewal project is planned to extend along Leila Avenue from the intersection of McPhillips Street to McGregor Street, and along McGregor Street from Leila Avenue to locations beyond MH 1-34. The following restoration requirements have been included in the Contract:
 - (i) Areas within the planned PWD project extents shall be restored with temporary asphalt. Detailed temporary asphalt requirements are further described in Construction Methods E39.
 - (ii) Areas outside the planned PWD project extents shall be restored in accordance with City of Winnipeg Standard Construction Specifications. Detailed permanent restoration requirements are further described in E40.
 - (iii) Since the construction schedule allows for winter pipe installation using various trenchless and Tunnelling technologies, winter restorations in accordance with the City of Winnipeg Street Cuts Manual will be required. Detailed winter restoration requirements are provided in E39. **However, Winter Concrete will be considered incidental to the pipe installation.**
 - (iv) All temporary, permanent, **and winter restorations** shall be considered incidental to all trenchless or Tunnelling pipe construction work.
 - (v) Any curbs damaged or removed for shaft installation within the PWD project extents shall be restored using temporary asphalt curbs in preparation for future reconstruction.
 - (vi) For sewer installation shafts located within the PWD project extents on Leila Avenue, the 1.0 m thick cement-stabilized fill beneath the pavement shall be replaced with sub-base material to prepare the roadway for future reconstruction.
- D2.12 GI will be installed (by others) within the boulevards along the project site as part of the future PWD roadway reconstruction project. The Work under this contract includes the downstream drainage elements of the GI and the connections to the existing 2700 mm.
- (a) The designs for the future GI have been included in Appendix F, to provide clarity on the associated elements of the Work included in this contract.

D2.13 The Project area was submitted to the HRB (Heritage Resource Branch) where they determined the Project to have low potential for heritage resources. Therefore, there are no heritage protection measures to be implemented for any known heritage resources within the Project area. However, the Contractor must follow the Heritage Resource Protection Plan (HRPP) in the event of newly discovered heritage resources. See Appendix C for HRPP.

D3. SCOPE OF WORK

D3.1 The Work to be done under the Contract shall consist of installation of a new wastewater sewer system, reconnections of existing sanitary services from the existing combined sewer system to the new wastewater sewers, LDS sewers, and private sewer separations.

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

- (a) Utility locations and elevations are to be confirmed prior to commencement of construction.
- (b) Construction of wastewater sewers ranging in size from 150 mm to 900 mm diameter by trenchless, Pilot Tube Guided Auger Boring and Tunnelling installation methods.
- (c) Installation of new wastewater and LDS manholes.
- (d) Reconnections of existing sanitary services to the new wastewater sewer system.
- (e) Private sewer separations including either installation of new on-site land drainage sewer system and land drainage service or new on-site wastewater sewer system and wastewater service.
- (f) Relocation of existing utilities (temporary or permanent) and regrading of existing sewer and water services (as required) to permit the installation of the new WWS and LDS sewers, manholes and associated construction shafts.
- (g) Installation of new catch basin leads and connections to the existing 2700 CS.
- (h) Installation of 600 mm PVC DR35 wastewater sewer encased within a 900 mm steel casing for the CPKC Railway crossing and for the 2700 mm CS crossing utilizing Auger Boring.
- (i) Installation of 900 mm PVC DR35 wastewater sewer encased within a 1200 mm steel casing for the crossing with the 2700 mm CS utilizing Auger Boring.
- (j) Installation of concrete collars for transition from 600 mm concrete pipe to 600 mm PVC DR35 pipe and vice versa.
- (k) Installation of concrete collars for transition from 900 mm concrete pipe to 900 mm PVC DR35 pipe and vice versa.
- (l) Construction of connection manhole between the new 900 mm WWS Trunk and existing 2250 mm Concrete WWS Interceptor at Main Street/ Armstrong Avenue intersection
- (m) Groundwater depressurization work for the shaft installations on Leila Avenue, at the CPKC Railway crossing and at Main Street/ Armstrong Avenue intersection.
- (n) Surface restorations and related works.

D3.3 The following shall apply to the Work:

- (a) Universal Design Policy

<http://clkapps.winnipeg.ca/DMIS/DocExt/ViewDoc.asp?DocumentTypeId=2&DocId=3604>

D4. DEFINITIONS

D4.1 When used in this Tender:

- (a) **“Benchmark”** means a permanent reference Control Point established by the Contractor;
- (b) **“Carrier Pipe”** means the permanent pipe for operational use that is used to convey flows;

- (c) **“Casing Pipe”** means a structural host pipe, that is inserted trenchlessly into the ground to create a protective, stable support for the carrier pipe.
- (d) **“Collector WWS”** means a shallower wastewater sewer installed parallel to the deep WWS Trunk to intercept wastewater flows from adjacent properties and convey them to designated drop manholes, thereby minimizing the number of direct service connections to the deep trunk sewer.
- (e) **“Contact Grouting”** means grout injected into the theoretical space between the jacking pipe and the ground after the drive is completed;
- (f) **“Controlled Low Strength Material (CLSM)”** means cement stabilized fill, per CW 2160;
- (g) **“Control Point”** means a marker established as a referenced point for survey methods;
- (h) **“CPKC”** means Canadian Pacific Kansas City Railway;
- (i) **“GBR”** means Geotechnical Baseline Report;
- (j) **“GDR”** means Geotechnical Data Report;
- (k) **“Grout Port”** means a port located within the Carrier Pipe, fitted with a one-way valve, for injection of grout into the annular space between the Carrier Pipe and the excavation. Pipe plugs are inserted after grouting is completed;
- (l) **“Jacking Pipe”** means a reinforced concrete pipe jacked behind a TBM. The Jacking Pipe shall be specifically designed to be installed by Pipe Jacking to support the anticipated loading;
- (m) **“Jacking Record”** means a manually automatically recorded report that contains information on Tunnelling (and Pipe Jacking) operations as defined herein;
- (n) **“Microtunneling”** means a remotely controlled, guided, pipe jacking process that provides continuous support to the excavation face and uses a pressurized bentonite slurry spoil removal system. The microtunnelling process does not require routine personnel entry into the tunnel. A key element of microtunnelling is the ability to control the stability of the face by applying fluid and mechanical pressure to balance the earth and groundwater pressures
- (o) **“Open Face Rotary Tunnel Boring Machine”** means a steerable Tunnelling shield that achieves soil excavation by means of a rotating cutter-wheel. Excavation operations are performed from within the shield, and excavated soil is discharged to a conveyor or muck cart where it is transported to the ground surface for disposal. An Earth Pressure Balance Tunnel Boring Machine (EPBTBM) shield may also be used and operated in an open-face mode. The guidance system consists of a laser or theodolite and Electronic Distance Measurement (EDM) device mounted in the launch shaft and at intermediate points along the tunnel communicating a reference line(s) to a target mounted in the tunnel boring machine’s articulated steering head. The target in the tunnel boring machine provides the operator with information about machine attitude and pitch, and allows for accurate steering control;
- (p) **“Pipe Jacking”** means a guided, steerable process that uses a Tunnel Boring Machine jacked at the leading end of a string of Jacking Pipe from a launch shaft to a receiving shaft;
- (q) **“PVC”** means Polyvinyl Chloride;
- (r) **“Pilot Tube Guided Auger Boring”** (PTGAB) is a high-precision trenchless installation method used to achieve strict line and grade for utility pipes. It minimizes surface settlement by employing a limited overcut and combining an optically guided, steerable pilot-tube system with the excavation capability of horizontal auger boring.
- (s) **“Settlement Point”** means a point with elevation and spatial location established by survey prior to construction. The point is re-surveyed periodically to monitor ground movements. The point may be a nail, pin, subsurface settlement rod, borehole extensometer, or other device that can be readily located and surveyed;
- (t) **“Subsurface Monitoring Point”** (SSM) means a cased borehole settlement monitoring point located above the tunnel crown used for detecting settlement between the location

of the Settlement Point and the tunnel excavation. This device serves as a simple borehole extensometer;

- (u) **“Surface Monitoring Point” (SMP)** means monitoring points established to measure elevation of the ground surface;
- (v) **“Standpipe Piezometer”** means a tube inserted into the soil used as a piezometer to measure ground water levels;
- (w) **“Tunnelling”** means the construction method used to install pipelines using a Tunnel Boring Machine and/or Pipe Jacking and/or Two Pass Tunnelling.
- (x) **“Tunnel face”** means the vertical (or near vertical) soil face at the end of the tunnel heading
- (y) **“Two-Pass Tunnelling”** means the process of Tunnelling to install Excavation Support, installing Carrier Pipe within the Excavation Support, and filling all voids between the Excavation Support and the carrier point with grout;
- (z) **“WWS Trunk”** means a generally deeper wastewater sewer that collects wastewater flows directly from adjacent properties and also the Collector WWS sewers and ultimately conveys them to the WWS Interceptor at Main Street and Armstrong Ave.

D5. CONTRACT ADMINISTRATOR

D5.1 The Contract Administrator is KGS Group, represented by:

John Minkevich, P.Eng.
Municipal Project Manager

Telephone No. 204 896 1209
Email Address jminkevich@kgsgroup.com

D5.2 At the pre-construction meeting, John Minkevich will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D6. CONTRACTOR'S SUPERVISOR

D6.1 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.

D7. FURNISHING OF DOCUMENTS

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

SUBMISSIONS

D8. AUTHORITY TO CARRY ON BUSINESS

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

D9. SAFE WORK PLAN

D9.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site.

D9.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Purchasing Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>

D9.3 Notwithstanding B14.4 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.

D10. INSURANCE

D10.1 The City shall provide and maintain the following owner-controlled insurance coverage to remain in place at all times during the performance of the Work:

- (a) wrap up liability insurance, in the amount of at least ten million dollars (\$10,000,000.00) inclusive. The insured parties shall include the City, Contractor and all subcontractor whether named or unnamed in the policy and all others having an insurable interest in the Work. Canadian Pacific Railway Company to be listed as additional insured. Wrap up liability insurance to include but not limited to:
 - (i) products and completed operations
 - (ii) blanket contractual liability
 - (iii) unlicensed motor vehicle liability,
 - (iv) sudden and accidental pollution liability with a minimum sublimit of \$1,000,000
 - (v) City and Contractors protective coverage blasting, tunneling or the removal or weakening of support of any land, whether such support be natural or otherwise,
 - (vi) no XCU exclusion,
 - (vii) cross liability clauses
 - (viii) non-owned automobile liability
 - (ix) shall not exclude operations on or in the vicinity of the railway right of way
 - (x) damage to existing structures
- (b) Wrap up liability insurance shall be maintained from the date of the commencement of the Work until the date of Total Performance of the Work and shall include an additional twenty-four months completed operations coverage that will take affect after Total Performance.
- (c) The City reserves the right to add, delete, revise and redefine insurance requirements and deductibles at any time, at its sole discretion, or as necessitated by the placement, extensions/renewals of the insurance policy, during the term of the Project.

D10.2 Deductibles under the policy not to exceed \$50,000 maximum of any one loss and shall be borne by the Contractor;

D10.3 The Contractor shall provide and maintain the following insurance coverage at all times during the performance of the Work and throughout the warranty period:

- (a) commercial general liability insurance, in the minimum amount of ten million dollars (\$10,000,000) inclusive per occurrence and ten million dollars (\$10,000,000) general aggregate. The said insurance shall include coverage for products and completed operations, blanket contractual, Contractors protective, sudden and accidental pollution, non-owned automobile, unlicensed motor vehicle liability, a cross liability clause, shall not exclude operations on or in the vicinity of the railway right of way and shall not contain any XCU exclusions or limitations and will add the City, Canadian Pacific Railway Company to be added as additional insureds.;
- (b) 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 \$5,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence.

- (c) an all risks Installation Floater carrying adequate limits to cover all supplies and/or materials intended to form party of any installation.
- (d) All risks property insurance for all mobile offices, portable toilets, machinery and equipment including any tunnel boring machinery that may be owned, leased, rented or borrowed.

D10.4 Deductibles shall be borne by the Contractor.

D10.5 All policies shall be taken out with insurers licensed to carry on business in the Province of Manitoba.

D10.6 The Contractor shall provide the Contract Administrator with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in C4 for the return of the executed Contract Documents, as applicable.

D10.7 The Contractor shall not cancel, materially alter, or cause the policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D10.8 The Contractor will be required to cooperate with the City and provide their project experience and project claims history and any other information necessary to obtain owner – controlled project insurance as outlined in D10.1 within five (5) Business days after request.

D10.9 The Contractor shall provide:

- (a) The certificate of insurance, in a form satisfactory to the Supervisor of Insurance, to:

The City of Winnipeg
Risk Management
Insurance Section
185 King Street, 3rd Floor
Winnipeg, MB R3B 1J1

- (b) the Contract Administrator with a copy of the certificate of insurance at least two (2) business days of notification of the award of the Contract prior to the commencement of any Work on the Site.

D11. CONTRACT SECURITY

D11.1 The Contractor shall provide and maintain the performance bond and the labour and material payment bond until the expiration of the warranty period in the form of:

- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the amount of fifty percent (50%) of the Contract Price; and
- (b) labour and material payment bond of a company registered to conduct the business of a surety in Manitoba, in an amount equal to fifty percent (50%) of the Contract Price.

D11.1.1 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/>

- D11.1.2 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 D11.1.2(b).

- D11.1.3 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.

- D11.1.4 Digital bonds passing the verification process will be treated as original and authentic.

- D11.2 The Contractor shall provide:

- (a) the required Contract Security to:

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

- (b) The Contract Administrator with copies of the required Contract Security.

within seven (7) Calendar Days of notification of the award of the Contract and prior to the commencement of any Work on the Site.

- D11.3 The Contractor shall, as soon as practicable after entering into a contract with a Subcontractor:

- (a) give the Subcontractor written notice of the existence of the labour and material payment bond in D11.1(b); and
- (b) post a notice of the bond and/or a copy of that bond in a conspicuous location at the Site of the Work.

D12. SUBCONTRACTOR LIST

- D12.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least two (2) Business Days prior to the commencement of any Work on the Site.

D13. REQUIREMENTS FOR SITE ACCESSIBILITY PLAN

- D13.1 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.
- D13.2 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.
- D13.3 The Accessibility Plan may also include figures, sketches, or drawings to demonstrate the proposed plan.
- D13.4 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
- D13.5 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.
- D13.6 Any changes to the Accessibility Plan must be approved by the Contract Administrator.
- D13.7 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the site has been maintained.
- D13.8 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.
- D13.9 Third and subsequent Offences – A pay reduction will be issued in the amount of \$250.00 per instance and per day.

D14. DETAILED WORK SCHEDULE

- D14.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least two (10) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the General Conditions for the return of the executed Contract.
- D14.2 The detailed work schedule shall consist of the following:
- (a) A critical path method (CPM) schedule for the Work; and
 - (b) A Gantt chart for the Work based on the CPM schedule; as acceptable by the Contract Administrator.
- D14.3 Further to D14.2(a), the CPM schedule shall clearly identify start and completion dates of the following Work items:
- (a) Commencement Date
 - (b) Utility locates
 - (c) Site Preparation
 - (d) Shaft Construction
 - (e) WWS Trunk Installation (each drive, Manhole to Manhole segment)
 - (f) CPKC Rail Crossing Sewer Installation
 - (g) Collector WWS Installations (each drive, Manhole to Manhole segment)
 - (h) Manhole Installations
 - (i) On-site Private Sewer Separations
 - (j) Residential Sewer Services Reconnections
 - (k) Installation of Catch Basins c/w CB leads and connections to existing 2700 CS on Leila Ave. (for the future GI)
 - (l) Critical Stages
 - (m) Commissioning
 - (n) Surface Restorations
 - (o) Substantial Performance
 - (p) Total Performance
- D14.4 Further to D14.2(b), the Gantt chart shall, on a weekly basis, show the time required to carry out the Work of each trade or specification division. Time shall be on the horizontal axis and the type of trade shall be on the vertical axis. The Gantt chart shall have horizontal lines extending across the entire chart to allow for easier reading of the schedule.
- D14.5 The Contractor shall update the schedule to the Contract Administrator prior to each weekly construction site meeting for review and discussion at the meetings.

D15. DEWATERING AND DRAINAGE PLAN

- D15.1 In addition to C6, the Contractor is solely responsible for planning, implementing, maintaining and monitoring an effective dewatering and drainage system for the Site during performance of the Work.
- D15.2 The Contractor is responsible for the control, diversion, storage and pumping of all Site water and wastewater including and without limitation of rain, snow melt, groundwater, leaking infrastructure and water and wastewater in pipes throughout all stages of the Work, including connections to existing.
- D15.3 The Contractor will be responsible for installing and maintaining whatever temporary means (e.g. plugs, weirs, pumping, etc.) throughout construction necessary to support the Work.

- D15.4 The Contractor shall submit a Dewatering and Drainage Plan to the Contract Administrator at least five (5) Calendar Days prior to commencement of Work at the Site. The Contractor must obtain approval of the Dewatering and Drainage Plan prior to implementation. If changes are made to the dewatering plan during construction, the Contractor shall submit these changes to the Contract Administrator for approval in advance of implementation of the changes. The Dewatering and Drainage Plan submittal shall include the following at a minimum:
- (a) A sketch or sketches of the Site clearly showing the methods of controlling flows including temporary and permanent features, pipe route and layout, plug, weir and pump locations, storage elements, or any other elements used to support the anticipated flows during construction;
 - (b) information for all pipe used including material, diameter, length, fittings, connections, restraints, blocking, protection features;
 - (c) monitoring and maintenance plan including Contractor's designated contact person responsible for dewatering and drainage, inspection intervals and means for supervising and monitoring pumping activity;
 - (d) pump sizes, pump power source, and noise attenuation features (to be less than 65 dB), pump power source; and
 - (e) refueling procedures for any fuel-powered equipment, including transfer area contained and fuel storage procedures; and
 - (f) any other related information reasonably requested by the Contract Administrator.
- D15.5 Do not pump or drain any water containing excessive suspended materials or harmful substances into waterways, sewers or other drainage systems. Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with governing authority's limitations and requirements.
- D15.6 The Contractor shall be responsible for all damages within or outside the Site directly resultant from Contractor's actions, omissions or neglect which may be caused by or which may result from water backing up, flowing through, overflowing or excessive surcharge of drainage or sanitary systems.
- D15.7 The Contractor shall organize and bear all costs related to the effective dewatering of excavations and all other pumping and drainage necessary for the proper execution of the Work, including keeping the pipes, structures, shafts, excavations and trenches free of undesirable accumulations of groundwater, seepage, surface water, melt water or rainwater.
- D15.8 All dewatering equipment and discharge hoses shall be protected from freezing and shall remain fully operational in freezing weather.
- D15.9 The Contractor shall dispose of all water drained or pumped as above by discharging it to sewers as reviewed by the Contract Administrator, and in compliance with all local, Municipal, Provincial and Federal environmental regulations, ordinances, bylaws, etc., and provide documentation indicating that authority has been granted to discharge these flows.
- D15.10 All Work associated with the Dewatering and Drainage plan will be considered incidental to Site Development and Restoration.

SCHEDULE OF WORK

D16. COMMENCEMENT

- D16.1 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.
- D16.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:

- (i) evidence of authority to carry on business specified in D8;
 - (ii) evidence of the workers compensation coverage specified in C6.17;
 - (iii) the Safe Work Plan specified in D9;
 - (iv) evidence of the insurance specified in D10;
 - (v) evidence of the contract security specified in D11;
 - (vi) the Subcontractor list specified in D12;
 - (vii) the Requirements for Site Accessibility Plan specified in D13; and
 - (viii) the Dewatering and Drainage Plan specified in D15.
 - (ix) the Contractor's Signage Plan associated with the traffic control plan specified in D31.
 - (x) the direct deposit application form specified in C12.20.
- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.

D16.3 The City intends to award this Contract one week following the July 2nd, 2026, Standing Policy Committee meeting.

D16.3.1 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.

D17. SEQUENCE OF WORK

D17.1 Further to C:6.1, the sequence of Work shall be as follows

- (a) No work on the CPKC Crossing as shown on Drawing 13640 and 13641 from stations 16+96.00 to 17+28.50 shall be completed between December 15th and March 31st due to the restriction within the CPKC Railway Mile 2.93 Winnipeg Beach Spur Crossing permit.
- (b) Any Work associated with the construction of the Chamber to facilitate the connection of the new sanitary trunk sewer to the interceptor sewer at Main Street must be undertaken during the dry weather flow period (between December 1 and February 28th)
- (c) No sanitary service reconnections to the new wastewater trunk sewers shall be completed until the new wastewater trunk sewer is connected by gravity to the Main Street Interceptor and extends up to the services connections intended to be installed.
- (d) For the Tunnelling Work on Leila Avenue at the intersections with McGregor Street and Salter Street, once the shafts are installed, Tunnelling shall proceed continuously until completion, including shaft removal, backfilling, and road restorations. If the Contractor elects to pause Tunnelling activities for a period greater than two weeks, the areas where shafts have been installed shall be reopened to traffic.
- (e) Temporary construction easement agreements between the City and the affected private landowners are in progress and are intended to be in place by September 30th, 2026. The Contractor shall not undertake work within these areas until agreements are in place.

D18. WORK BY OTHERS

D18.1 Further to C6.26, 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 Contractor's 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.

D18.2 Work by others on or near the Site will include but not necessarily be limited to:

- (a) 2026 City of Winnipeg Water Main Renewals – Contract 7 – Tender 242-2026 will be taking place just south of the extents of Contract 1's work on McGregor Avenue. Coordination regarding traffic flows during construction will be required.
- (b) 2028 City of Winnipeg Public Works projects with an anticipated start date of May 2028.

D18.2.1 Further to D18.1 the Contractor shall cooperate and coordinate all activities with all parties performing required Work by Others identified in D18.1 and accommodate the necessary area on Site required for the Work by Others to complete the Work.

D18.2.2 Instructions to Contractor for temporary relocation of light standards by MB Hydro

For coordinating the temporary removal of light standards during construction before scheduling the work the Contractor shall fill out and submit a work request form with a bar code of the light standard referenced in the form and location map of the light standard. See below a list of information required by MB Hydro:

- (a) Date the light standard can be reinstalled.
- (b) Completed work request form (WRAPA)
- (c) Copy of locates.
- (d) Site contact (and alternate) with phone numbers

D19. CRITICAL STAGES

D19.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:

- (a) Critical Stage 1: Work on the tie in to the 2250 mm WWS interceptor sewer and manhole chamber at Main Street shall be completed by March 1st, 2027.
- (b) Critical Stage 2: All roadway surfaces at McGregor Street and Salter Street must be restored with permanent or temporary restorations within three (3) weeks of the completion of pipe Work within these intersections.
 - (i) The Contractor shall maintain any temporary surface restorations until permanent surface restorations are installed.
- (c) Critical Stage 3: All Work on Leila Avenue from McPhillips Street to the eastern limits of McGregor Street (STN 18+25) must be completed including mainline pipe installation, sewer service installation, manhole installation, and final temporary restorations by October 29th, 2027, to allow turn over to the Public Works Department prior to their project starting in early Spring 2028.

D20. WORKING DAYS

D20.1 Notwithstanding C1.1(jj), a Working Day includes a Saturday, Sunday, or a statutory or civic holiday when the Contractor chooses to undertake Work requiring the presence of the Contract Administrator and/or City resources.

D20.2 Notwithstanding C1.1(jj), a Working Day on Saturdays, Sundays and statutory holidays will be from 09:00 to 19:00. If a Contractor wished to commence work earlier than 09:00 on Saturdays, Sundays and statutory holidays a noise by-law exemption to the neighbourhood livability by-law must be applied for, approved, and in place. For the purposes of bidding, the bidder shall assume that Work may not commence until after 09:00 on weekends and statutory or civic holidays.

D20.3 Further to C1.1(jj), 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.

- D20.4 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.
- D20.5 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.
- D20.6 The Contract Administrator will identify the Working Days charged during the regular site meetings.

D21. SUBSTANTIAL PERFORMANCE

- D21.1 The Contractor shall achieve Substantial Performance by December 15th, 2027.
- D21.2 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.
- D21.3 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.

D22. TOTAL PERFORMANCE

- D22.1 The Contractor shall achieve Total Performance by June 15th, 2028. or within 30 days if seasonal inclement weather does not allow permanent restorations to commence immediately after Substantial Performance, whichever comes first. The Contract Administrator will advise the Contractor when seasonal conditions will allow permanent restorations to begin. The Contractor will start final restorations no later than 14 Calendar Days after formal notification by the Contract Administrator.
- D22.2 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.
- D22.3 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.

D23. LIQUIDATED DAMAGES

- D23.1 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 for each and every Working Day following the days fixed herein for same during which such failure continues:
- (a) Critical Stage 1 – two thousand six hundred dollars (\$2,600);
 - (b) Critical Stage 2 – two thousand six hundred dollars (\$2,600);
 - (c) Critical Stage 3 – five thousand two hundred dollars (\$5,200);
 - (d) Substantial Performance - two thousand six hundred dollars (\$2,600);
 - (e) Total Performance - one thousand two hundred dollars (\$1,200).

D23.2 The amounts specified for liquidated damages in D23.1 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.

D23.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D24. SCHEDULED MAINTENANCE

D24.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

(a) Watering and maintenance of all new vegetation until established.

D24.2 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

D25. JOB MEETINGS

D25.1 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.

D25.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever they deem it necessary.

D26. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

D26.1 Further to C6.27, 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).

D27. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

D27.1 Further to B14.4, 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 B14.4.

D28. WORK IN PROXIMITY TO LARGE NATURAL GAS MAINS

D28.1 The Contractor should be familiar with and comply with the requirements of the latest revision of Manitoba Hydro's "Safe Excavation & Safety Watch Guidelines". This document is available at: https://www.hydro.mb.ca/safety/pdfs/safe_excavation_safety_watch_guidelines.pdf

D28.2 Work precautions and procedures required for working near gas mains will be incidental to the Contract.

D29. WORK UNDERNEATH AND IN THE VICINITY OF HYDRO POWER INFRASTRUCTURE

- D29.1 The Contractor is responsible for notifying Manitoba Hydro in advance of Work in the vicinity and underneath Hydro infrastructure (e.g. overhead transmission lines). The Contractor shall follow all Manitoba Hydro requirements for safe working distances and clearances from Hydro infrastructure including but not limited to overhead electrical lines.
- D29.2 Manitoba Hydro requires a minimum vertical clearance from their overhead electrical lines as follows:
- (a) Minimum 10 feet from overhead distribution lines,
 - (b) Minimum 15 feet from overhead transmission lines; and
 - (c) Minimum 20 feet from high voltage transmission lines.

D30. CONFINED SPACE ENTRY

- D30.1 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 Entry Work, and in particular the requirements for conducting hazard/risk assessment and providing personal protective equipment (PPE).
- D30.2 The Contractor shall assist and provide Supplied Air Breathing Apparatus conforming to the requirements of the Act, Regulations and Guidelines for the use of the Contract Administrator where confined entry is required to allow for inspection of the Work.

D31. TRAFFIC CONTROL

- D31.1 Further to clause 3.7 of CW 1130:
- (a) The Contractor shall make arrangements to place temporary regulatory signs. The Contractor shall bear all costs associated with the placement of temporary traffic control devices required to complete the Work.
 - (i) The Contractor shall submit a signage and phasing plan to be reviewed and approved by the Contract Administrator and the City of Winnipeg Public Works Department in accordance with the Manual of Temporary Traffic Control.
 - (b) The Contractor shall not interfere with traffic signals. Any modification of traffic signals shall be done by City of Winnipeg Traffic Signals.
 - (i) One month notice is required to facilitate traffic signal modifications.
 - (c) The Contractor shall make arrangements with Winnipeg Transit for Work that impacts Transit routes or stops.
 - (d) The City of Winnipeg Manual of Temporary Traffic Control on City Streets is available online at:
 - (i) https://legacy.winnipeg.ca/publicworks/transportation/pdf/2022_Rev1_ManualOfTemporaryTrafficControl.pdf
- D31.2 Additional traffic management requirements are outlined in E10.

D32. PEDESTRIAN SAFETY

- D32.1 Further to clause 3.6 of CW 1130:
- (a) The Contractor shall maintain a closed Site around all Work elements to restrict pedestrian and vehicular access. Temporary fencing or an alternative as approved by the Contract Administrator shall be installed at all open excavations, trench cages, cans and shafts for the project duration in accordance with Provincial requirements.
 - (b) The Contractor shall be responsible for maintaining fencing in a proper working condition at all times. Pedestrian Safety requirements shall be incidental to Site Development and Restoration.

D33. GEOTECHNICAL BASELINE REPORT AND GEOTECHNICAL DATA REPORT

- D33.1 The primary purpose of the GBR is to establish a contractual understanding of the geotechnical conditions anticipated to be encountered during the Tunnelling and trenchless construction elements of the project. The GBR sets baselines for geotechnical conditions and material behavior anticipated to be encountered during construction in order to provide a basis for bidding and assist in resolution of disputes that may arise over subsurface conditions. Secondly, the GBR:
- (a) Presents the geotechnical conditions that formed the basis of design.
 - (b) Identifies important considerations, key project constraints, and select requirements that must be addressed by the Contractor during bid preparation and construction
 - (c) Provides information to assist the Contractor in evaluating requirements for excavating and supporting the ground.
 - (d) Provides guidance to the Contract Administrator in administering the contract and monitoring Contractor performance.
- D33.2 The GBR provides the basis for identifying geotechnical and geologic conditions that qualify as a “substantial difference in the nature of the surface or subsurface conditions”, as defined in D36. The geotechnical baseline conditions (baseline) contained within the GBR are not necessarily geotechnical fact. The baseline was developed using judgment to interpolate between borings and extrapolate beyond the boring logs and laboratory test data. The judgment applied in the interpolations and extrapolations reflects the view of the author of the report in describing the baseline. Bidders should use the baseline subsurface conditions and the surface conditions which can be observed during a site visit as the basis for bids. It should be noted that the project design was based on assumed construction methods and levels of workmanship. The behavior of the geologic materials present in the surface and subsurface excavations will be influenced by the Contractor’s selected equipment, means, and methods.
- D33.3 The GDR provides a summary of results for the available geotechnical and groundwater investigations, field testing, and laboratory testing undertaken within the Armstrong project area and along the pipe alignment. When the GBR does not provide a baseline value for a specific geotechnical condition, the Contractor shall interpret the data within the GDR.
- D33.4 Bidders should have a geotechnical engineer and/or engineering geologist review and explain the information presented in the GBR and GDR to assure a complete understanding of the reported information as a basis for submitting a Bid. Additional documents used to develop the GBR are listed in the Sources of Information section of the GBR.
- (a) The GBR was developed in part from the GDR. The technical data contained within the GDR upon which Contractor may rely are: the boring method, the locations and logs of the borings, the measured levels of subsurface water (if any), laboratory test methods and results, geophysical survey data, hydrogeological data, and similar factual data. The Contractor is not entitled to rely upon other technical data.
 - (b) Bore hole information represents subsurface characteristics to the extent indicated, only for the point location of the bore hole and, with regard to the level of subsurface water (if any), only when subsurface water level readings were collected from geotechnical instrumentation.
- D33.5 Risks associated with subsurface conditions consistent with, or less adverse than the baseline conditions are allocated to the Contractor. Those risks associated with subsurface conditions more adverse than the baseline condition are accepted by the City. The provision of a baseline condition in the Contract is not a warranty that the baseline condition will be encountered. The baseline condition is the contractual standard that the City and the Contractor will agree to use when interpreting D36.
- D33.6 The City accepts the risks for subsurface conditions that are more adverse than the stated baseline conditions. The City will negotiate with the Contractor for additional reasonable compensation to the Contractor if these three conditions exist:

- (a) The actual subsurface conditions encountered are more adverse than the baseline conditions.
- (b) The Contractor can document that the subsurface conditions are more adverse than those described in the baseline and that the conditions materially and significantly increased the cost and/or time required to complete the work.
- (c) The Contractor has made diligent efforts to complete the work described in the Contract Documents, including any changes to methods, equipment, labor, and materials made necessary by the adverse conditions using the most cost effective means.

D33.7 If all of the foregoing conditions are satisfactorily met, additional compensation and schedule will be negotiated, based on the provisions described in D36 and E15.

PAYMENT

D34. PAYMENT

D34.1 Further to E14.4, no payment will be made for Cash Allowances other than as set out in E14.4

D34.2 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.

D35. FUEL PRICE ADJUSTMENT

D35.1 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 - $((CFI/BFI)-1.15) \times Q \times FF$; and
- (b) where the price of fuel has decreased - $((CFI/BFI)-0.85) \times Q \times FF$; 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.

D35.1.1 Eligible Work will be determined in accordance with D35.5.

D35.1.2 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.

D35.1.3 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.

D35.1.4 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.

D35.2 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.

D35.3 The fuel escalation or de-escalation adjustment will not be applied if the CFI is within $\pm 15\%$ of the BFI.

D35.4 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.

D35.5 The Fuel Factor (FF) rates will be set as follows:

- (a) The Fuel Factor rate shall be set at 2.7% of the monetary value of all Work based on unit prices except for the portions of the Contract identified below;
- (b) The Fuel Factor rate will be set at 1.9% of the monetary value for ^ identified on Form B: Prices related to bridges and structures Work.
- (c) The Fuel Factor will not apply to ^ identified on Form B: Prices related to Water & Waste Work.

D36. CHANGES IN WORK

D36.1 Amend C7.2.1 (a) to include the following additional clauses:

- (a) Contractor shall notify the Contract Administrator promptly in writing of any changes in geotechnical, geologic or material behaviour conditions that the Contractor considers more adverse than the GBR baseline conditions upon discovery and before they are disturbed, in any event no later than five (5) calendar days after discovery.
- (b) No claim by the Contractor for an equitable adjustment hereunder shall be allowed if asserted after Total Performance under the Contract Documents.
- (c) No claim by the Contractor related to the trenchless or Tunnelling Work shall be allowed under the Changes of Work provisions unless the Contractor investigates and demonstrates that such alleged conditions are materially different from those conditions identified in the Geotechnical Baseline Report and results in an increase in the Contractor's cost of and/or time required for the performance of the Work. The contractor shall within 30 calendar days after notification to the City that Contractor believes a material difference exists, provide the documentation, backup, justification, and compensation for the alleged impact to the Contractor's cost of and/or time required for the performance of the Work. Any and all costs incurred by the Contractor for demonstrating that a material difference exists shall be borne by the Contractor unless the City agrees that the material difference does have a cost and/or time impact.
- (d) If City agrees that there is a material difference that impacts the Contractor's cost and/or time, payment for geologic investigation(s) and testing of the material difference will be paid for by the City. Payment will be made by the City for reasonable and customary prices for geologic investigation(s) and testing. The contractor is encouraged to review geologic investigations and/or testing planned to demonstrate a material difference with the Contract Administrator prior to execution of the same. The City will be sole judge of what is reasonable and customary.
- (e) The Contractor expressly agrees to maintain detailed daily labor, material, production, and equipment logs defining hours and costs for all periods of Contractor performance representing claimed differing site conditions. These logs shall fully separate bid Contract Work from claimed differing site condition work, and the Contractor shall provide these documents to the Contract Administrator for review. These daily logs shall constitute documentation of performance and must be signed on a daily basis both by the Contractor and Contract Administrator. Said signatures do not mean acceptance of the claim or value of adjustment of Contract Price and/or Time but will serve to document the Contractor's use of labor, material, and equipment. If Contract Administrator and City agree that there is a material difference that impacts the Contractor's cost and/or time, payment for the material difference in labour, material, production and equipment will be paid for by the City based on reasonable and customary prices, using the methods defined in C7.4. Equipment rates will be established in accordance with the Daily Equipment Rate listed on Form B and as defined in E15.5(c). The failure of the Contractor to maintain said logs or to obtain signatures on the logs shall render the Contract Administrator daily records definitive.

WARRANTY

D37. WARRANTY

D37.1 Notwithstanding C13.2, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if a 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.

D37.1.1 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

INDEMNITY

D38. INDEMNITY

D38.1 Indemnity shall be as stated in C17.

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 B8. 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 B8.
- E1.4 The following are applicable to the Work:

Drawing No.	Drawing Name/Title
13642	Cover Sheet
13643	Index Sheet & General Notes
13644	Location Plan & Manhole Coordinates Table
13645	Leila Avenue - McPhillips Street to 101.4 E of McPhillips Street
13646	Leila Avenue - 101.4 E of McPhillips Street to 221.4 E of McPhillips Street
13647	Leila Avenue - 221.4 E of McPhillips Street to 132.7 W of Garden Park Drive
13648	Leila Avenue - 132.7 W of Garden Park Drive to 7.7 W of Garden Park Drive
13649	Leila Avenue - 7.7 W of Garden Park Drive to 90.0 E of Garden Park Drive
13650	Leila Avenue - 90.0 E of Garden Park Drive to 6.4 E of Jack Donner Drive
13651	Leila Avenue - 6.4 E of Jack Donner Drive to 84.3 W of Sinclair Street
13652	Leila Avenue - 84.3 W of Sinclair Street to 20.5 E of Sinclair Street
13653	Leila Avenue - 20.5 E of Sinclair Street to 5.7 W of Monsey Street
13654	Leila Avenue - 5.7 W of Monsey Street to 81.5 W of Diplomat Drive
13655	Leila Avenue - 81.5 W of Diplomat Drive to 25.3 E of Diplomat Drive
13656	Leila Avenue - 25.3 E of Diplomat Drive to 43.1 W of Ambassador Row
13657	Leila Avenue - 43.1 W of Ambassador Row to 53.6 E of Ambassador Row
13658	Leila Avenue - 53.6 E of Ambassador Row to 8.2 W Of McGregor Street
13659	Leila Avenue - 8.2 W of McGregor Street to 91.9 E of McGregor Street
13660	Leila Avenue - 91.9 E of McGregor Street to 10.4 E of Andrews Street
13661	Leila Avenue - 10.4 E of Andrews Street to 7.2 E of Weinberg Road
13662	Leila Avenue - 7.2 E of Weinberg Road to 18.9 E of Powers Street
13663	Leila Avenue - 18.9 E of Powers Street to 13.1 E of Salter Street
13664	Leila Avenue - 13.1 E of Salter Street to 113.1 E of Salter Street
13665	Leila Avenue - 113.1 E of Salter Street to 58.9 W of Aikins Street
13666	Leila Avenue - 58.9 W of Aikins Street to Aikins Street

13667	Aikins Street - Leila Avenue to 8.3 S of Newton Avenue
13668	Aikins Street - 8.3 S of Newton Avenue to Armstrong Avenue
13669	Armstrong Avenue - Aikins Street to 84.5 W of Main Street
13670	Armstrong Avenue - 84.5 W of Main Street to Main Street
13671	McGregor Street - 50.0 S of Partridge Avenue to Leila Avenue
13672	Partial Private Sewer Separation - Garden City Shopping Centre
13673	Private Sewer Separation - Partial Sewer Separation at Garden City Square
13675	Private Sewer Separation - The Hedges on Leila Apartments (707 Leila Avenue)
13677	Private Sewer Separation - Leila Square Mall (620-666 Leila Avenue)
13678	Private Sewer Separation - Whitby Courts Townhouse Apartments (549-561 Leila Avenue)
13680	Private Sewer Separation - Apartment Building (445 Partridge Avenue) & McGregor Plaza
13681	Manhole Details - Sheet 1
13682	Manhole Details - Sheet 2
13683	Manhole Details - Sheet 3
13684	Manhole Details - Sheet 4
13685	Miscellaneous Details
13686	Manhole Chamber at Main Street - Specification Notes
13687	Manhole Chamber at Main Street – Plan and Sections
13688	Manhole Chamber at Main Street – Sections and Details
13640	Leila Avenue - CPKC Railway Mile 2.93 Winnipeg Beach Spur
13641	Leila Avenue - CPKC Railway Mile 2.93 Winnipeg Beach Spur - Settlement Monitoring

E2. GEOTECHNICAL INVESTIGATION REPORT

E2.1 Further to C3.1,

E2.2 Geotechnical Data Report (GDR)

- (a) The GDR summarizes the testing and geotechnical conditions observed along the alignments of the proposed pipeline infrastructure within the project area and provides technical support for the GBR. This report includes factual geotechnical data collected at the project site and summary of encountered subsurface conditions along the alignments. A copy of the GDR is included in Appendix A.

E2.3 Geotechnical Baseline Report (GBR)

- (a) The GBR presents an interpretation of geotechnical data collected during the project geotechnical exploration (KGS Group, 2026) and provides baseline values for the subsurface and construction considerations for use by Bidders for Bid preparation and administration of the Contract. Further information is provided in D33 and a copy of the GBR is included in Appendix B.

GENERAL REQUIREMENTS

E3. OFFICE FACILITIES

E3.1 The Contractor shall supply a separate Site trailer for exclusive use by the Contract Administrator.

E3.2 The Site trailer will serve as the Contract Administrators' office facility and shall meet the following requirements:

- (a) The field office shall be for the exclusive use of the Contract Administrator and City staff and will be used for site meetings.

- (b) The field office shall be located near the Site of Work at a location acceptable to the Contract Administrator.
- (c) The building shall have a minimum floor area of 25 square metres, minimum of two windows and a door entrance with suitable lock.
- (d) The building shall be suitable for all-weather use. It shall be equipped with an electric heater and air conditioner capable of maintaining a temperature range between 16 °C and 25 °C.
- (e) The building shall be supplied with adequate lighting and have a minimum of three wall outlets with 120 Volt power supply at all times.
- (f) The building shall be furnished with two desks, two meeting tables, one drafting table, one 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.
- (h) The field office shall be cleaned on a weekly basis, prior to the Site Meetings, to the satisfaction of the Contract Administrator.

E3.3 The office facilities will be provided from the date of the commencement of the Work to the date of Substantial Performance.

E3.4 Measurement and Payment

- (a) The Contractor shall be responsible for all installation, transportation and removal costs, all operating costs, provision of furnishings and equipment, cleaning and the general maintenance of the office facilities.
- (b) Payment for the office facility is included in Site Development and Restoration.

E4. SHOP DRAWINGS

E4.1 Description

E4.1.1 This Specification shall revise, amend and supplement the requirements of CW 1100.

- (a) The term 'shop drawings' means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data, including Site erection drawings which are to be provided by the Contractor to illustrate details of a portion of the Work.
- (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 for Engineering review.

E4.1.2 Shop Drawings

- (a) Original drawings are to be prepared by the Contractor, Subcontractor, Supplier, Distributor, or Manufacturer, which illustrate appropriate portion of Work; showing fabrication, layout, setting or erection details as specified in appropriate sections.
- (b) Shop drawings for the following structural components shall bear the seal of a Registered Professional Engineer in the Province of Manitoba.
 - (i) Shoring and Shaft Layout
 - (ii) Reinforcing Steel
 - (iii) Pre-cast Concrete Structures
 - (iv) Pipe Jacking Pipe
 - ◆ The Contractor must provide pipes that can be installed with their intended means and methods. The pipe class listed on the drawings is intended only to meet the final burial depth of the pipe in accordance with ASTM C76 standards. The Contractor must provide a submission that

demonstrates that the proposed pipe can support the anticipated loading applied to the pipe.

(v) Thrust Blocks

- ◆ A thrust block shop drawing is required for any trenchless technology that requires applying thrust as part of its process. The interaction of the thrust with respect to shoring, existing soil conditions, existing utilities or other site-specific issues must be addressed by the thrust block design.

- (c) Additional submittal requirements for each component of Work may be listed within the relevant specification section.
- (d) Construction of any Work item requiring a shop drawing may not commence until the specific shop drawing submittal has been approved.
- (i) Note that no shaft construction may proceed without approved shop drawings that include engineered stamped drawings demonstrating that the shoring design(s):
- ◆ Meet all provincial regulations.
 - ◆ Is able to support soil and active loading.
 - ◆ Permits the effective installation of the planned works.
 - ◆ Where shafts are used for tunnelling that the shoring also supports the planned tunnelling works as well as interaction with the thrust block design.

E4.1.3 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 submission with requirements of Work and Contract Documents. Individual shop drawings will not be reviewed until all related drawings are available.
- (d) Where a Contractor is providing a shop drawing for an element that contains other elements that require shop drawings, the Contractor is responsible for ensuring that the shop drawings are coordinated with each other (example shoring systems supporting construction activities and structures, or a concrete structure supporting internal piping and other ancillary elements).
- (e) Notify Contract Administrator, in writing at time of submission, of deviations from requirements of Contract Documents.
- (f) Responsibility for deviations in submission from requirements of Contract Documents is not relieved by Contract Administrator's review of submission, unless Contract Administrator gives written acceptance of specified deviations.
- (g) Responsibility for errors and omissions in submission is not relieved by Contract Administrator's review of submittals.
- (h) 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 previous submission.
- (i) After the Contract Administrator's review and return of copies, distribute copies to sub-trades as appropriate.

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

E4.1.4 Submission Requirements

- (a) Schedule submissions at least 10 Calendar Days before dates that the reviewed submissions will be needed and allow for a 10 Calendar Day period for review by the Contract Administrator of each individual submission and re-submission, unless noted otherwise in the Contract Documents.
- (b) Submit one (1) digital copy (PDF) of shop drawings.
- (c) Accompany submissions with transmittal letter, containing:
 - (i) Date
 - (ii) Project title and Bid Opportunity number
 - (iii) Contractor's name and address
 - (iv) Number of each shop drawing, product data and sample submitted
 - (v) Specification Section, Title, Number and Clause
 - (vi) Drawing Number and Detail/Section Number
 - (vii) Other pertinent data
- (d) Submissions shall include:
 - (i) Date and revision dates.
 - (ii) Project title and Bid Opportunity number.
 - (iii) Name of:
 - ◆ Contractor
 - ◆ Subcontractor
 - ◆ Supplier
 - ◆ Manufacturer
 - ◆ Separate detailer when pertinent
 - (iv) Identification of product of material.
 - (v) Relation to adjacent structure or materials.
 - (vi) Field dimensions, clearly identified as such.
 - (vii) Specification section name, number and clause number or drawing number and detail/section number.
 - (viii) Applicable standards, such as CSA or CGSB numbers.
 - (ix) Contractor's stamp, initialed or signed, certifying review of submission, verification of field measurements and compliance with Contract Documents.

E4.1.5 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 of the Works will not be paid for at least 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.

E4.2 Measurements and Payment

- E4.2.1 Preparation and submittal of shop drawings shall be considered incidental to the Works of this Contract and no measurement or payment will be made for this item.

E5. EXPEDITED SHOP DRAWINGS

- E5.1 In order to expedite Shop Drawings with critical timeliness, the Lowest Responsive Bidder will be permitted, after receiving written approval from the Contract Administrator, to arrange for the preparation of Shop Drawings for the following items with critical timelines:
- (a) Shaft Shoring
 - (b) Pre-cast Concrete Structures
 - (c) Pipe
- E5.2 If Award is made to the Lowest Responsive Bidder, then no specific payment for the preparation of Shop Drawings will be made.
- E5.3 If no contract is awarded, then the City of Winnipeg will pay the requested Bidder five hundred dollars (\$500.00) per item listed above. Delivery of the 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 Tender.

E6. ENVIRONMENTAL PROTECTION PLAN

- E6.1 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.
- E6.2 The Contractor is advised that at least the following Acts, Regulations, and By-laws apply to the Work:
- (a) Federal
 - (i) Canadian Environmental Protection Act (CEPA) c.16
 - (ii) Canadian Environmental Assessment Act (CEAA) c.37
 - (iii) Transportation of Dangerous Goods Act and Regulations c.34
 - (b) Provincial
 - (i) The Dangerous Goods Handling and Transportation Act D12
 - (ii) The Endangered Species Act E111
 - (iii) The Environment Act c.E125
 - (iv) The Fire Prevention Act F80
 - (v) The Manitoba Heritage Resources Act H39.1
 - (vi) The Manitoba Noxious Weeds Act N110
 - (vii) The Manitoba Nuisance Act N120
 - (viii) The Public Health Act c.P210
 - (ix) The Workplace Safety and Health Act W120
 - (x) Other current applicable associated regulations.
 - (c) Municipal
 - (i) The City of Winnipeg By-law no. 1/2008
 - (ii) Other applicable Acts, Regulations and By-laws.
- E6.3 The Contractor is advised that the following environmental protection measures apply to the Work.
- (a) Materials Handling and Storage
 - (i) Construction materials and debris shall be prevented from entering drainage pipes or channels.
 - (ii) 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.
 - (b) Fuel Handling and Storage

- (i) The Contractor shall obtain all necessary permits from Manitoba Ministry of Sustainable Development for the handling and storage of fuel products and shall provide copies to the Contract Administrator.
 - (ii) All fuel handling and storage facilities shall comply with The Dangerous Goods and Transportation Act Storage and Handling of Petroleum Products Regulation and any local land use permits.
 - (iii) Fuels, lubricants, and other potentially hazardous materials as defined in The Dangerous Goods and Transportation Act shall be stored and handled within the approved storage areas.
 - (iv) The Contractor shall ensure that all fuel storage containers are inspected daily for leaks and spillage.
 - (v) Products transferred from the fuel storage area(s) to specific Work Sites shall not exceed the daily usage requirement.
 - (vi) 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.
 - (vii) Refuelling of mobile equipment and vehicles shall take place at least 100 metres from a watercourse or LDS inlet.
 - (viii) 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.
 - (ix) 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.
- (c) Waste Handling and Disposal
- (i) The construction area shall be kept clean and orderly at all times during and at completion of construction.
 - (ii) At no time during construction shall personal or construction waste be permitted to accumulate for more than one day at any location on the construction Site, other than at a dedicated storage area as may be approved by the Contract Administrator.
 - (iii) All resulting debris shall be deposited at a Waste Disposal Facility operating under the authority of Manitoba Regulation #150/91. Exceptions are liquid industrial and hazardous wastes which may require special disposal methods (see SC:21.4 D).
 - (iv) Indiscriminate dumping, littering, or abandonment shall not take place.
 - (v) No on-site burning of waste is permitted.
 - (vi) Waste storage areas shall not be located so as to block natural drainage.
 - (vii) Run-off from a waste storage area shall not be allowed to cause siltation of a watercourse (via entry into the LDS sewers).
 - (viii) Waste storage areas shall be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.
 - (ix) Equipment shall not be cleaned near watercourses or LDS inlets; contaminated water from onshore cleaning operations shall not be permitted to enter watercourses.
- (d) Dangerous Goods/Hazardous Waste Handling and Disposal
- (i) Dangerous goods/hazardous wastes are identified by, and shall be handled according to, The Dangerous Goods Handling and Transportation Act and Regulations.
 - (ii) The Contractor shall be familiar with The Dangerous Goods Handling and Transportation Act and Regulations.
 - (iii) The Contractor shall have on-site staff that is trained and certified in the handling of the dangerous/hazardous goods, when said dangerous/hazardous goods are being utilized on-site for the performance of the Work.
 - (iv) Different waste streams shall not be mixed.
 - (v) Disposal of dangerous goods/hazardous wastes shall be at approved hazardous waste facilities.

- (vi) Liquid hydrocarbons shall not be stored or disposed of in earthen pits on-site.
 - (vii) Used oils shall be stored in appropriate drums, or tankage, until shipment to waste oil recycling centres, incinerators, or secure disposal facilities approved for such wastes.
 - (viii) Used oil filters shall be drained, placed in suitable storage containers, and buried or incinerated at approved hazardous waste treatment and disposal facilities.
 - (ix) Dangerous goods/hazardous waste storage areas shall be located at least 100 metres away from the high water line and be dyked.
 - (x) Dangerous goods/hazardous waste storage areas shall not be located so as to block natural drainage.
 - (xi) Run-off from a dangerous goods/hazardous waste storage area shall not be allowed to cause siltation of a watercourse.
 - (xii) Dangerous goods/hazardous waste storage areas shall be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.
- (e) Emergency Response
- (i) The Contractor shall ensure that due care and caution is taken to prevent spills.
 - (ii) The Contractor shall report all major spills of petroleum products or other hazardous substances with significant impact on the environment and threat to human health and safety (as defined in Table 1) to Manitoba Ministry of Sustainable Development, immediately after occurrence of the environmental accident, by calling the 24-hour emergency phone number (204) 944-4888. The Contract Administrator shall also be notified.
 - (iii) The Contractor shall designate a qualified supervisor as the on-site emergency response co-ordinator for the project. The emergency response co-ordinator shall have the authority to redirect manpower in order to respond in the event of a spill.
 - (iv) The following actions shall be taken by the person in charge of the spilled material or the first person(s) arriving at the scene of a hazardous material accident or the on-site emergency response co-ordinator:
 1. Notify emergency-response co-ordinator of the accident:
 - identify exact location and time of accident
 - indicate injuries, if any
 - request assistance as required by magnitude of accident (Manitoba Ministry of Sustainable Development 24-hour Spill Response Line (204) 944-4888, Police, Fire Department, Ambulance, company backup)
 2. Attend to public safety:
 - stop traffic, roadblock/cordon off the immediate danger area
 - eliminate ignition sources
 - initiate evacuation procedures if necessary
 3. Assess situation and gather information on the status of the situation, noting:
 - personnel on-site
 - cause and effect of spill
 - estimated extent of damage
 - amount and type of material involved
 - proximity to waterways, sewers, and manholes
 4. If safe to do so, try to stop the dispersion or flow of spill material:
 - approach from upwind
 - stop or reduce leak if safe to do so
 - dike spill material with dry, inert sorbet material or dry clay soil or sand
 - prevent spill material from entering waterways and utilities by diking
 - prevent spill material from entering manholes and other openings by covering with rubber spill mats or diking. Resume any

effective action to contain, clean up, or stop the flow of the spilled product.

- (v) The emergency response co-ordinator shall ensure that all environmental accidents involving contaminants shall be documented and reported to Manitoba Ministry of Sustainable Development according to The Dangerous Goods Handling and Transportation Act Environmental Accident Report Regulation 439/87.
 - (vi) When dangerous goods are used on-site, materials for containment and cleanup of spill material (e.g. absorbent materials, plastic oil booms, and oversized recovery drums) shall be available on-site.
 - (vii) Minor spills of such substances that may be contained on land with no significant impact on the environment may be responded to with in-house resources without formal notification to Manitoba Environment.
 - (viii) City emergency response, 9-1-1, shall be used if other means are not available.
- (f) Vegetation
- (i) 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 and shall be approved in advance by the Contract Administrator.
 - (ii) Areas where vegetation is removed during clearing, construction, and decommissioning activities, shall be revegetated as soon as possible in accordance with the City of Winnipeg standard construction practices, or as directed by the Contract Administrator.

E6.4 Method of Measurement and Payment

- (a) Adherence to the laws that govern the requirements for Environmental Protection are incidental to the Contract.

E7. SITE DEVELOPMENT AND RESTORATION

E7.1 Description

- (a) This Specification shall cover all aspects of the Site Development and Restoration Work including, but not limited to, mobilization and demobilization, office facilities, Site access, Site security (fencing and gates), utility clearances, traffic control and signage, pipe loading assessments, snow clearing, Site runoff protection, Dewatering and Drainage Plans, maintaining sewer and water flows in existing utilities, tree protection, removal of trees, cleanup, and Site restoration.

E7.2 Submittals

- (a) Access and Layout Plans (including traffic management plans) for review and approval by the Contract Administrator, in accordance with CW 1110, for the following items:
 - (i) Launch and receiving shafts.
 - (ii) Traffic Management Plan
 - (iii) Work on Main Street

E7.3 Equipment

- (a) All equipment, implements, tools and facilities used shall be of a size and type as required to complete the Work effectively and in a reasonable time, approved by the Contract Administrator. The Contractor shall keep all equipment in good working order and have sufficient standby equipment available at all times.

E7.4 Construction Methods

- (a) Site and Construction Access
 - (i) The Contractor shall be responsible to develop suitable Site access. This includes, but is not limited to, temporary bridging over structures, temporary removal and

- reinstallation of safety fencing, any landscaping and grading repairs, removal and restoration of vegetation necessary to restore any Site and construction access areas to their pre-existing condition. Prior to commencing construction, the Contractor shall submit their site access plan to the Contract Administrator for approval.
- (ii) The Contractor is responsible for obtaining and paying for all required permits and permissions that are necessary for Site access.
 - (iii) Potential Contractor Laydown area east of the CPKC Rail in the grassed park enclosed by Leila Avenue, Partridge Avenue and McGregor Street have been identified on Drawing 13658.
- (b) Dewatering and Drainage Plan – The Contractor shall develop and maintain whatever means and methods are required to address the various potential flows and water levels defined in D15, including:
- ◆ Snowmelt, rainfall, water from water main breaks or any other flow traveling through the Site, into excavations, or through pipes being worked on.
 - (ii) The Contractor shall acquire any permits required from the City for redirecting of flows to City sewers.
 - (iii) The Contractor shall schedule and perform Work in a manner that does not cause or contribute to incidences of basement flooding, overflows, releases or spills of sewage from the sanitary sewer system or bypass operations.
 - (iv) The Contractor shall ensure that any component of their Drainage and Dewatering Plans will be adequately protected from damage and protected from freezing.
- (c) Maintaining Flows in Existing Sewers and Providing Temporary Pressurized Water Supply
- (i) The Contractor shall maintain sewer flows in the existing combined sewers, land drainage sewers, and sanitary sewer services; and water flow within water mains and water services that are in conflict with the land drainage sewer installations or are impacted in any way as part of the Work.
 - (ii) Maintaining Flows in Existing Sewer shall be in accordance with City Specification CW 2130.
 - (iii) Provide Temporary Pressurized Water Supply in accordance with City Specification CW 2110.
 - (iv) Where impacting a private service, sewer or water, the Contractor shall provide two (2) business days' notice to the business manager or homeowner of the building being impacted.
 - (v) The Contractor shall be responsible for all damages within or outside the Site directly resultant from Contractor's actions, omissions or neglect which may be caused by or which may result from water or sewage backing up, flowing through, overflowing or excessive surcharge of drainage or sanitary systems.
- (d) Vegetation Removal, Replacement and Protection
- (i) Any sod or other vegetation removed during construction shall be restored following construction.
 - (ii) No tree may be removed from Site without Prior approval by the Contract Administrator and an assessment by the City Arborist.
 - (iii) The City arborist will provide a compensation value (either an amount to be reimbursed to the City Parks Department, or a number of trees to be planted in lieu) for destruction of existing urban trees. The Contractor must meet these compensation requirements for trees removed during the development of their Site.
 - (iv) Trees shall be planted as per section E12.
 - (v) Trees shall be protected from damage as per section E11.
- (e) General Site Cleanup and Restoration

- (i) All areas of the construction Site shall be restored to the same condition or better than the original condition prior to initiation of the Work. This may include, but is not necessarily limited to, the Contractor's lay down areas, shaft location, the removal of the Contract Administrator's Site trailer, and removal of all temporary access paths and fencing. **Note that all Permanent and Temporary surface restorations are considered incidental to the respective Work items being constructed (E39 & E40).**
- (f) Topsoil and Sod
 - (i) All topsoil and sodding Work shall be performed in accordance with CW 3510. Topsoil and Sodding Work shall include all existing grassed areas disturbed by the Contractor during construction. The Contractor shall restore all areas disturbed during construction to the condition prior to the initiation of the Work, or better, using topsoil and sod at their own cost.
- (g) Traffic Control and Signage
 - (i) Coordinate, install and maintain traffic control and signage in accordance with D31 and E10.
 - (ii) At minimum, the Contractor shall install the temporary traffic control measures as shown on the conceptual traffic control figure presented in Appendix E.
- (h) Snow Clearing
 - (i) The Contractor will be required to perform snow clearing and sanding operations on City streets and sidewalks within the Site where access to City snow clearing and sanding crews is blocked due to construction activities or where construction activities have created unsafe, icy conditions.
 - (ii) Snow build-up on sidewalks and roadways shall be maintained to the condition of the surrounding sidewalks and roadways.
- (i) Construction Fencing
 - (i) The erection of temporary construction fencing is required around all laydown areas.
 - (ii) The erection of temporary construction fencing is required around all construction activity and Work activities to ensure provision of a safe Work Site.
 - (iii) Fencing or barriers shall be suitable to protect workers within the Work Site and minimize the impact to vehicular and pedestrian traffic or buildings and infrastructure in proximity to the Work Site.
- (j) Storage of Materials
 - (i) Unless otherwise noted on the Drawings as a Lay-down Area, the Contractor shall not store more than 30 linear meters of pipe 900 mm or larger in diameter within City Right-of-Ways in the construction Site without authorization from the Contract Administrator. The Contractor will be responsible to store their pipe off Site, or to make arrangements with private entities, the City for off Site City R.O.W.s or the City's Parks department for temporary storage facilities in available lands adjacent to the Site.

E7.5 Method of Measurement and Payment

- (a) Site development and restoration will be measured and paid for at the Contract Lump Sum Price for "Site Development and Restoration", which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification.
 - (i) 30% of the Site Development and Restoration unit price will be paid on the first progress payment following commencement of the Work.
 - (ii) 40% of the Site Development and Restoration unit price will be paid on subsequent progress payments on a proportional basis based on the extent of progress up to Substantial Performance, as determined by the Contract Administrator.
 - (iii) 30% of the Site Development and Restoration unit price will be paid on the progress payment following Total Performance.

E8. TRUCK WEIGHT LIMITS

- E8.1 Spring weight restrictions may apply to streets within the area of Work. The City shall not pay for any portion of material which results in the vehicle exceeding the maximum gross vehicle weight allowed under The City of Winnipeg Traffic By-Law, unless such vehicle is operating under special permit.

E9. TRAFFIC CONTROL

- E9.1 In accordance with the Manual of Temporary Traffic Control on City Streets (MTTC), the Contract Administrator shall make arrangements with the Traffic Services Branch of the City of Winnipeg to place, maintain, and remove all regulatory signs and traffic control devices authorized and/or required by the Traffic Management Branch in the following situations:
- (a) Parking restrictions,
 - (b) Stopping restrictions,
 - (c) Turn restrictions,
 - (d) Diamond lane removal,
 - (e) Full or directional closures on a Regional Street,
 - (f) Traffic routed across a median,
 - (g) 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.
 - (h) 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.
- E9.2 Further to E9.1(c), the Contractor shall make arrangement with the Traffic Services Branch of the City of Winnipeg to supply regulatory signs as required.
- E9.3 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the Site has been maintained.
- E9.4 Further to E9.1(c) and E9.1(d) 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.
- E9.5 Any changes to the approved traffic management plan must be submitted to the Contract Administrator a minimum of (five) 5 Working Days prior to the required change for approval.
- E9.6 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.

E10. TRAFFIC MANAGEMENT

- E10.1 Description
- (a) This specification covers activities related to managing traffic throughout the work Site. The provisions herein are supplementary to, and shall be implemented in conjunction with, all applicable City of Winnipeg standards, including the Manual of Temporary Traffic Control (MTTC) and the Standard Construction Specifications.
 - (b) Leila Avenue, Main Street, McPhillips Street, McGregor Street, Salter Street, and Partridge Avenue are Regional Streets with pedestrian, cycling, and vehicular traffic. It is

- a priority to minimize the impact of construction activities related to the Work required to complete this Contract.
- (c) A conceptual preliminary traffic management plan (included in Appendix E) has been developed for use in planning traffic control for this Contract.
 - (i) The traffic management plan includes control measures on Leila Avenue between Main Street and McPhillips Street and on adjacent intersecting streets impacted by the Work.
 - (ii) The traffic management figures that have been prepared for this Contract present a conceptual framework for the overall traffic management approach. The Contractor shall develop and submit a detailed phasing and staging plan identifying sequence, duration, and traffic impacts for each phase, to minimize disruption to traffic flow. The Contractor shall take all measures necessary to limit the duration of lane closures such that lanes will only be closed when work is actively taking place in those areas.
 - (iii) The concept plan has been reviewed and conditionally approved by the City of Winnipeg's Traffic Services Department subject to a final review by their department.
 - (iv) Any modifications to this plan should be submitted to the Contract Administrator for approval prior to starting Work.
 - (d) Additional traffic management plans may be required for other aspects of the project. The below traffic requirements must be adhered to within these traffic management plans.

E10.2 Materials and Equipment

E10.2.1 Further to Clause 3.7 of CW 1130:

- (a) The Contractor shall be responsible for all signage and barricades as identified in the City of Winnipeg Manual of Temporary Traffic Control on City Streets. The Contractor shall provide the Contract Administrator a suitable Traffic Accommodation Strategy covering all the details for traffic management (cones and signage etc.) for each Work element at least three (3) weeks prior to commencement of any lane closures related to the Work.

E10.3 General Requirements

- E10.3.1 Passenger vehicle and delivery truck access to all businesses including Garden City Shopping Center and Garden City Square is to be maintained at all times. Should the Contractor be unable to maintain vehicle and delivery access, the Contractor shall provide at least five (5) days notification to the Contract Administrator to see if modifications can be made.
- E10.3.2 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 or create any other safety concern.
- E10.3.3 Emergency vehicle access must be maintained at all times.
- E10.3.4 Intersecting streets, private approach and lane access shall be maintained at all times (unless approved within the Specifications or by the Contract Administrator).
 - (a) Should the Contractor be unable to maintain an existing 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 hour notification to the affected residence or business and the Contract Administrator, prior to disruption of access.
- E10.3.5 Winnipeg Transit service shall be maintained at all times.
 - (a) Temporary bus stop landings will be required where existing bus stops are impacted by the Work. Not all temporary bus stops are shown on the drawings; the Contractor shall provide temporary bus landings where required to maintain transit operations and in accordance with the City of Winnipeg Manual of Temporary Traffic Control.

- (b) Should the Contractor be unable to maintain bus stops or routes it shall be reviewed with the Contract Administrator at least five (5) days in advance to see if modifications can be made.
- (c) Where the Work or the Contractor's traffic accommodation measures affect existing Winnipeg Transit routes, bus stops, or transit operations, the Contractor shall coordinate with Winnipeg Transit prior to implementing any lane closures, detours, or traffic control measures.
- (d) No traffic control measures affecting transit operations shall be implemented without prior coordination with Winnipeg Transit and approval from the Contract Administrator.

E10.3.6 ReflectORIZED Impact Recovery System Devices (End Treatments) shall be designed and sealed by a Professional Engineer registered with Engineers Geoscientists Manitoba in accordance with the AASHTO Roadside Design Guide, 4th Edition.

- (a) End treatment devices shall conform to NCHRP Report 350 Test Level 3 (TL-3) or MASH (Manual for Assessing Safety Hardware) requirements and shall be non-gating and redirective.
- (b) Any deviation from these requirements shall be supported by written justification prepared and sealed by a Professional Engineer registered with Engineers Geoscientists Manitoba.
- (c) Drawings sealed by a Professional Engineer detailing the placement and selection of end treatments shall be submitted with the lane closure request a minimum of two (2) weeks prior to the proposed installation date.
- (d) The Contractor shall include the sealed drawings as an attachment to the lane closure request and notify Traffic Management through the Lane Closure App that the drawings have been uploaded.

E10.3.7 The Contractor shall provide at least five (5) days notification to the Contract Administrator prior to beginning a new phase of traffic control.[J

- (a) Where a regional-to-regional traffic movement is fully closed, or where advance information signs are required due to significant traffic impacts, the Contractor shall provide a minimum of three (3) weeks' notice to the Contract Administrator.

E10.3.8 The Contractor shall provide the Contract Administrator with an Accessibility Plan at least two (2) weeks prior to the commencement of any Work on the Site.

- (a) 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 on City Streets (MTTC), the Contract Drawings, Staging Plans, and the Streets By-Law No. 1481/77 and Traffic By-Law 1573/77 at all times for the duration of the Construction.
- (b) At minimum, the Contractor shall review site conditions on a daily basis to ensure that all features related to the Accessibility Plan are in place. Any deficiencies resulting from unforeseen events (e.g., weather, traffic) shall be corrected promptly, and any deficiencies caused by the Contractor's actions shall be corrected immediately.
- (c) Any changes to the Accessibility Plan must be approved by the Contract Administrator prior to implementation.
- (d) Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the Site has been maintained in accordance with the approved Accessibility Plan.

E10.4 Regional Street Requirements

E10.4.1 Regional Streets impacted by the Work will include:

- (a) Main Street
- (b) Leila Avenue
- (c) McPhillips Street

- (d) McGregor Street
- (e) Salter Street
- (f) Partridge Avenue

E10.4.2 Review section E10.5 for additional Local/Non-Regional Street Requirement.

E10.4.3 General

- (a) The Contractor shall minimize the duration of road closures as much as possible such that only areas with active construction are closed off.
- (b) The Contractor shall coordinate with Winnipeg Transit and emergency services prior to implementing any intersection restrictions.
- (c) See the Conceptual Traffic Management Plan in Appendix C for additional details and lane configuration concepts.

E10.4.4 Main Street

- (a) Maintain a minimum of two (2) southbound lanes of traffic on Main Street at all times. One (1) lane on the median (east) side shall be closed at the intersection with Armstrong Avenue.
- (b) The curbside (west) and center lanes shall remain open to traffic. Temporary curb removal on the Armstrong Avenue approach shall be performed as required to provide adequate lane width for two (2) open lanes and to maintain a left-turn movement at the intersection, as illustrated in the Traffic Management Plans (Appendix E).
- (c) Concrete barriers (commonly known as jersey barriers) shall be installed to prevent vehicles from encroaching into the work area with appropriate end treatment in accordance with section 5.02.06 of the City of Winnipeg Manual of Temporary Traffic Control.
- (d) The Work shall be completed in phases and stages. The Contractor shall develop and submit a detailed phasing and staging plan to the Contract Administrator for approval prior to implementing any lane closure.

E10.4.5 Leila Avenue

- (a) Maintain a minimum of one (1) lane of traffic per direction along Leila Avenue at all times during all stages of construction.
- (b) Work on Leila Avenue can be described in two general zones:
 - (i) Zone 1: Work east of the railway crossing (one-way traffic)
 - (ii) Zone 2: Work west of the railway crossing (two-way traffic)
 - (iii) The traffic management plan listed in Appendix C shall be adhered to when work is planned to occur in one of these zones. If no work is occurring in a zone or a portion of a zone then the traffic management plan shall not be implemented in that area. Once work is completed in each zone the road shall be reinstated.
- (c) Zone 1: Work east of railway crossing (one-way traffic)
 - (i) The entire westbound curbside (right/left) lanes on Leila Avenue shall be temporarily closed during construction. Access to all intersecting roads, businesses, and residential properties shall be maintained unless otherwise shown in Appendix E.
 - (ii) The work will be done in phases and stages and the contractor shall provide a phasing and staging plan to the contract administrator for approval prior to any lane closures.
 - (iii) Temporary bus stop landings shall be provided as required to maintain transit service.
 - (iv) Pedestrian accommodations shall be provided where applicable.

- (v) Left turns from westbound Leila Avenue will be prohibited at the following locations:
 - ◆ Southbound at Salter Street
 - ◆ Southbound at McGregor Street (trucks and buses only)
 - (vi) Full closure of Weinberg Road will be required to facilitate construction of the sanitary sewer works. If no work is occurring on Leila Avenue at this section, then the traffic management plan shall not be implemented. Once work is completed Weinberg Road shall be reinstated.
- (d) Zone 2: Work west of the railway crossing (two-way traffic)
- (i) The entire westbound curbside lanes on Leila Avenue will be temporarily closed during construction with access to intersecting roads, businesses and residential properties at all times unless other wise shown on the traffic management plan listed in Appendix E.
 - (ii) The work will be done in phases and stages and the contractor shall provide a phasing and staging plan to the contract administrator for approval prior to any lane closures.
 - (iii) Temporary bus stop landings shall be provided as required to maintain transit service.
 - (iv) Pedestrian accommodations shall be provided where applicable.
 - (v) Right turns onto Leila Avenue may be prohibited at the following locations for trucks and buses only:
 - ◆ Southbound at Ambassador Row
 - ◆ Southbound at Diplomat Drive
 - ◆ Public Road (alley)
 - ◆ Southbound at Monsey Street
 - ◆ Southbound at Sinclair Street
 - ◆ Southbound at Jack Donner Drive
 - ◆ Southbound at Garden Park Drive
 - ◆ Southbound at Court Avenue
- (e) Intermittent closures may be required at various locations to accommodate the construction of the intermediate manholes before and after tunnel construction.

E10.4.6 Salter Street

- (a) Maintain one (1) lane of traffic in each direction (northbound and southbound) at all times.
- (b) Lane closures will occur for a short segment north and south of the Salter Street and Leila Avenue intersection.
- (c) Westbound left-turn movements from Leila Avenue onto Salter Street shall not be permitted.
- (d) Ensure that the westbound left-turn movements from Leila Avenue onto Salter Street and McGregor Street are not simultaneously restricted
- (e) Temporary bus stop landings shall be provided as required to maintain transit service.
- (f) Pedestrian accommodations shall be provided where applicable.

E10.4.7 McGregor Street

- (a) Maintain one (1) lane of traffic in each direction at all times.
- (b) Lane closures will occur for a short segment south of the McGregor Street and Leila Avenue intersection. Maintain one (1) lane of traffic open at all times.
- (c) Westbound left-turn movements from Leila Avenue onto McGregor Street shall not be permitted for trucks and buses only.

- (d) Ensure that the westbound left-turn movements from Leila Avenue onto Salter Street and McGregor Street are not simultaneously restricted
- (e) Temporary bus stop landings shall be provided as required to maintain transit service.
- (f) Pedestrian accommodations shall be provided where applicable.
- (g) All traffic control devices shall be configured to maintain safe turning radii and visibility for permitted vehicles.

E10.4.8 Partridge Avenue

- (a) Maintain a minimum of one (1) lane of traffic at all times.
- (b) Embassy Lane will be shut down simultaneously and right turn movements to and from Partridge Avenue at Embassy Lane shall not be permitted.
- (c) The Contractor shall install advance signage on both approaches to warn of the temporary closure.
- (d) Temporary bus stop landings shall be provided as required to maintain transit service.
- (e) Pedestrian accommodations shall be provided where applicable.

E10.4.9 McPhillips Street

- (a) A single right-turn lane closure will be required from the Garden City Shopping Centre parking lot to the Leila Avenue merge lane, including a small portion of the median lane in the same stretch. Refer to the traffic management plan listed in Appendix E.
- (b) Right turns movements from McPhillips Street onto Leila Avenue shall be restricted to passenger vehicles only; trucks and buses shall be prohibited.
- (c) Maintain a minimum of two (2) lanes of through traffic open at all times.
- (d) The Closure shall not restrict access to the Garden City Shopping Center exit.
- (e) Temporary bus stop landings shall be provided as required to maintain transit service.
- (f) Pedestrian accommodations shall be provided where applicable.
- (g) All traffic control devices shall be configured to maintain safe turning radii and visibility for permitted vehicles.

E10.5 Local/Non-Regional Street Requirements

E10.5.1 Local Streets impacted by the Work will include:

- (a) Armstrong Avenue
- (b) Aikins Street
- (c) Weinberg Road
- (d) Embassy Lane

All traffic control measures on local streets shall maintain safe access for pedestrians, cyclists, emergency services, and delivery vehicles, while minimizing disruptions to adjacent residents and businesses.

E10.5.2 Armstrong Avenue

- (a) Full closure of Armstrong Avenue from Main Street to Aikins Street will be required
- (b) Pedestrian accommodations shall be provided where applicable.
- (c) Traffic Control signage shall be installed at the Armstrong Avenue and Newton Avenue intersection to warn vehicles of the Armstrong Avenue road closure ahead.

E10.5.3 Aikins Street

- (a) A single lane closure will be required on Aikins Street from Armstrong Avenue to the Alley between Leila Avenue and Partridge Avenue.
- (b) Pedestrian accommodations shall be provided where applicable.

- (c) Maintain one (1) lane of traffic open, with directional traffic flow as follows:
 - ◆ Northbound traffic from Leila Avenue to Newton Avenue.
 - ◆ Northbound traffic from Alley between Leila Avenue and Partridge Avenue to Leila Avenue.
 - ◆ Refer to the Traffic Management Plans (Appendix E) for details.

E10.5.4 Weinberg Road

- (a) Full closure of Weinberg Road from Leila Avenue to the first intersecting alley will be required.
- (b) Pedestrian accommodations shall be provided where applicable.

E10.5.5 Embassy Lane

- (a) Embassy Lane will be fully closed for the duration of the Work.
- (b) Pedestrian accommodations shall be provided where applicable.

E10.5.6 For all local or non-regional streets, and where not shown otherwise in the Drawings, the Contractor shall:

- (a) Maintain traffic access through the Work area where practical, using appropriate traffic control measures in accordance with the City of Winnipeg Manual of Temporary Traffic Control on City Streets
- (b) Maintain access for garbage/recycling trucks.
- (c) Ambulance/ emergency vehicle access must be maintained at all times.
- (d) Where possible maintain safe pedestrian routes around shaft locations and all other Work areas.

E10.6 Measurement and Payment

- (a) All Work associated with adhering to the Traffic Management requirements identified are incidental to Site Development and Restoration.

E11. PROTECTION, REPAIR, REMOVAL AND REPLACEMENT OF EXISTING TREES

E11.1 The Contractor shall take the following precautionary steps to avoid damage from their construction activities to existing boulevard trees within and adjacent to the limits of construction. Contact the City of Winnipeg Forestry Branch at 204-986-2004 if you require further information on these specifications:

- (a) For trees greater than 100 mm in diameter, attach wood strapping material having a minimum thickness of 25 mm and minimum length of 2,440 mm around tree trunks in a manner that will not harm the trees. Do not use nails or other fasteners that penetrate into trees. The width of strapping should suit the size of the tree being protected. Length of strapping may be reduced to suit the size of tree being protected as approved by the Contract Administrator.
- (b) For trees less than 100 mm in diameter, these shall be similarly protected as Clause E11.1(a) using appropriately sized wood strapping material.
- (c) Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the Work. Equipment shall not be parked, repaired, refueled; construction materials shall not be stored; and earth materials shall not be stockpiled within the driplines of the trees. The dripline of a tree shall be considered as the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposit on areas where trees are located.
- (d) Contractor shall repair, replace and maintain tree protection material during construction of the Work.

- (e) Contractor shall remove strapping material without harming trees as soon as the construction and restoration Work is complete.
- E11.2 Obtain approval from the Contract Administrator to excavate within 2.0 meters of a tree.
- E11.3 Excavate in a manner to minimize damage to root systems. Keep exposed roots in excavations and trenches moist or shaded.
- E11.4 Prune exposed roots with equipment such as trenchers, chain saws, root cutters or other methods acceptable to the Contract Administrator in a manner than will leave a new, clean root end and shall be coated with an appropriate wound dressing to prevent infection.
- E11.5 Take precautions to ensure tree limbs overhanging the Site are not damaged by construction equipment. Consult Forestry Branch on pruning of overhanging or damaged limbs and branches and other unanticipated problems with trees during construction of the Works.
- E11.6 American elm trees 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.
- E11.7 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, Public Works Department, Urban Forestry Branch. Damages must be repaired by an individual with a Manitoba Arborist license or by the Forestry Branch.
- E11.8 The Forestry Branch will remove and replace any trees deemed to have died or that are dying due to damage from carelessness during construction. Removal and replacement costs will be determined by size and market price. The market price will be for a comparable transplantable tree of the same or different species or may be the appraised value of the existing tree, as determined by an evaluation procedure presently used by Forestry Branch in conjunction with the City Claims Branch. The evaluation procedure is in accordance with current International Society of Arboriculture evaluation procedures.
- E11.9 Protection of existing trees, and repair of trees (including pruning of damaged limbs) will not be measured for payment and will be incidental to the Works. Removal and replacement of existing trees by the Forestry Branch deemed to have died or that are dying due to damage from carelessness during construction will be at the Contractor's cost and will be invoiced or deducted from any payments owing.
- E11.10 Removal of trees will be measured and paid for on a per unit basis for each tree removed at the Provisional Contract unit prices for "Tree Removal".
- E11.11 Planting of trees will be measured and paid for on a per unit basis for each tree planted at the Provisional Contract unit prices for "Tree Planting".

E12. TREE PLANTING

- E12.1 Description
 - (a) This Specification shall cover the installation of new trees to replace trees removed as a direct requirement of the Work shown on the Drawings. Trees removed as part of the development of a Contractor's laydown areas will not be covered under this specification and are to be considered part of E7 Site Development and Restoration.
 - (b) The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead labour, materials, and all other things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified.
 - (c) The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification.
- E12.2 Materials

(a) Trees

- (i) Trees shall consist of native species approximately 75 mm in diameter. The number and species of trees to be planted will be based on the number and species of trees removed during construction and will be determined by the Contract Administrator.

E12.3 Construction Methods

(a) Trees

- (i) The trees shall be planted in the general vicinity of where trees were removed prior to the commencement of Works or as directed by the Contract Administrator.

(b) Quality Control

(i) Inspection

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

(ii) Access

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

E12.4 Measurement and Payment

- (a) Replacement of trees removed as a direct impact of the Work shown on the Drawings will be paid at the Provisional Contract unit price of "Tree Planting" for each tree planted in accordance with this Specification.

E13. COLD WEATHER REQUIREMENTS

E13.1 Description

- (a) Should any concrete Work be required to be carried out when the mean daily temperature is below 5°C or anticipated to be below 5°C within the next 24 hours, cold weather requirements will be required as specified herein.
- (b) All freshly placed concrete shall be protected from the elements and from defacements due to construction operations.
- (c) Cold weather concrete placement shall conform to the City of Winnipeg Standard Construction Specifications (CW 2160, CW 3310), except where modified herein.

E13.2 Construction Methods

- (a) The following are minimum requirements for protecting concrete during and after placement during freezing weather, but mere adherence to these requirements will not relieve the Contractor of the necessity for producing concrete which has not been weakened or injured by frost of freezing, or replacing such damaged Work at no additional expense to the City;
- (i) Before any concrete is placed, all ice, snow, and frost shall be completely removed from all formwork, and other surfaces against which concrete temperatures of such surfaces raised above 7°C for 24 hours minimum prior to concreting. Where concrete Work is to come in contact with the ground, the surface of the ground shall be completely free of frost when concrete is placed thereon.
- (ii) Concrete aggregates and water shall be heated to not over 80°C. Concrete shall be not less than 20°C or more than 30°C in temperature when deposited. Concrete when placed during freezing weather, or if freezing is anticipated during curing period, shall be fully enclosed and the temperature of same maintained at not less than 20°C for five (5) days nor less than 5°C for an additional five (5) days.

- (iii) Heating enclosures shall be strong and wind-proof, well ventilated with heating units so located as to prevent local overheating or drying of the concrete or damage from combustion gases. Only indirect fired heaters will be accepted. Units must be vented outside the enclosure. No direct fired units will be accepted.
- (iv) The Contractor shall inform the Contract Administrator well in advance as to the methods of enclosure and frost protection they propose to employ.

E13.3 Measurement and Payment

E13.3.1 Cold weather requirements shall be considered incidental to the construction of cast-in-place concrete, and no measurement or payment will be made for this item.

E14. EXTRA WORK ALLOWANCE

E14.1 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.

E14.2 A cash allowance has been included on Form B: Prices as Extra Work Allowance.

E14.3 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.

E14.4 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.

E14.5 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.

E14.6 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.

E14.7 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.

E15. CHANGE IN CONTRACT CONDITIONS

E15.1 Description

- (a) This specification covers changes identified to the scope of Work including changes in geotechnical and geological conditions that may impact the Work.
- (b) The basis for the geotechnical and geologic conditions is described in the GBR and GDR as defined in D33.
- (c) The method for reviewing, recording and accepting change to geotechnical and geologic conditions or obstructions is described in Section D36.

E15.2 Definitions

- (a) Controlling Diameter
 - (i) For the purposes of determining obstruction size or assessing trenchless advancement conditions, the controlling diameter shall be the largest external dimension of the advancing trenchless installation equipment or of the pipe/casing/excavation support system being installed, whichever is greater. This includes but is not limited to; tunnelling equipment, microtunnelling heads, auger boring tooling, pilot-tube heads, reamers, or any other excavation tooling.

E15.3 Contractor Notification and Documentation

- (a) The Contractor shall promptly notify the Contract Administrator in writing of any conditions they consider to be materially more adverse than the GBR baseline, and in any event no later than five (5) Calendar Days after discovery, and before disturbing the conditions.
- (b) Within thirty (30) Calendar Days of such notification, the Contractor shall submit documentation, backup, and justification demonstrating:
 - (i) the material difference from the GBR baseline conditions,
 - (ii) the resulting impact on cost and/or time, and
 - (iii) the diligent efforts made to continue work using cost-effective means.
- (c) No claim submitted after Total Performance will be considered.
- (d) The Contractor shall maintain detailed daily labour, material, production, and equipment logs that segregate base Contract Work from claimed differing-site-condition Work. Logs must be signed daily by both the Contractor and Contract Administrator. Failure to maintain such logs will render the Contract Administrator's records definitive.

E15.4 Trenchless Obstruction

- (a) If an obstruction prevents the forward progress of trenchless installation equipment, the Contractor shall notify the Contract Administrator immediately. Upon written direction, the Contractor shall remove the obstruction by means of an obstruction-removal shaft or other approved method sized reasonably for removal of the obstruction.
- (b) Eligible Obstructions (Compensable)
 - (i) the Contractor will be compensated only for removal of obstructions that:
 - ◆ consist of metallic debris, reinforced concrete, boulders, or other hard objects, and
 - ◆ have maximum dimensions greater than 30% of the controlling diameter, and
 - ◆ are located partially or wholly within the cross-sectional area of the bore, and
 - ◆ cannot be broken or excavated by the cutting tools with diligent effort.
- (c) Non-Compensable Obstructions
 - (i) The Contractor will receive no additional compensation for removing, clearing, or otherwise enabling the advancement of trenchless equipment past objects such as

cobbles, boulders, wood, non-reinforced concrete, and other non-metallic materials with maximum dimensions less than 30% of the controlling diameter.

- (d) Removal processes that do not allow direct inspection of the obstruction will not be eligible for compensation.
- (e) The first four (4) hours of obstruction handling for each occurrence shall be at the Contractor's cost.

E15.5 Measurement and Payment

- (a) Where a Contractor has made a claim in accordance with C7 or D36, which has been accepted by the Contract Administrator and City, the Contractor will be compensated from the allowance under the Contract unit price "Changes in Contract Conditions" in accordance with C7 and the following supplemental conditions:
 - ◆ Labour rates and material costs associated with the change in contract conditions shall be compensated as per C7.4 (c) and C7.4.1.
 - ◆ Equipment rates for equipment required in change in contract conditions shall be compensated based cost of the equipment established in accordance with E15.5.(c).
 - ◆ Standby equipment at 50% of the established rate as per E15.5 (c) when the equipment cannot reasonably be used elsewhere.
 - (ii) Costs to demonstrate a material difference shall be borne by the Contractor unless the City accepts that such a difference exists. If accepted, reasonable and customary costs for geologic investigations/testing will be paid by the City. The City shall be the sole judge of what is reasonable and customary.
 - (iii) Any Works covered by existing Contract Unit Prices shall be paid at those prices.
- (b) Conditions for Adjustment
 - (a) Additional compensation or schedule adjustments will be negotiated only where all of the following are met:
 - (i) Actual conditions encountered are materially more adverse than the baseline conditions stated in the GBR,
 - (ii) The Contractor documents the material difference and demonstrates cost/time impact, and
 - (iii) The Contractor has made diligent, cost-effective efforts to complete the Work using reasonable construction means.
 - (b) Adjustments shall be made in accordance with D36 and C7.
 - (c) Daily Equipment Costs
 - (a) Daily costs for all equipment, including but not limited to the trenchless equipment, other equipment, construction vehicles, Contractor trucks and their staff's personal vehicles, temporary site/storage facilities, rental equipment, and all other ancillary equipment required to undertake the trenchless Work and Work belonging to the Contractor or their sub-contractors shall be paid for at the daily rate under the contract unit price for each of the following trenchless installation methods:
 - (i) Daily Equipment Rate (Trenchless Sewer Construction)
 - (ii) Daily Equipment Rate (Tunneling Sewer Construction)
 - (iii) Daily Equipment Rate (Pilot Tube Guided Auger Boring)
 - (b) The Contractor shall submit a breakdown of the equipment costs included within the Daily Equipment Rate to be used in assessing delay claims from Change in Work. A breakdown of these costs must be submitted prior to Commencement and add up to the total Daily Equipment Rate entered on Form B used to evaluate the Bids.

E16. PROVISIONAL ITEMS

- E16.1 The Provisional Items listed on Form B: Prices are part of the Contract.
- E16.2 The Contractor shall not perform Work included in the Provisional Items without prior authorization from the Contract Administrator. All Work included in the Provisional Items will be carried out within the construction areas shown on the Drawings.
- E16.3 Notwithstanding C.7, the City reserves the right to diminish all or any portion of the items of Work listed in the Provisional Items and no claim shall be made for damages on the grounds of loss of anticipated profit or for any other reason.

E17. ALLOWANCE FOR VIBRATION MONITORING

- E17.1 There is potential that construction activities will have a negative impact causing vibration and damage to surrounding structures (above and below grade). Inspections and monitoring may be required to mitigate the severity of the damage.
- E17.2 The proximity of sewer installation works to an existing commercial building (1980 Main Street) at the southwest corner of the Main Street and Armstrong Avenue intersection will require vibration monitoring and will be confirmed by the CA. Other buildings may require vibration monitoring but this will be determined by the CA.
- E17.3 Description
- (a) The Contractor is advised that vibration monitors are required to be installed by a suitable testing company for this Contract.
 - (b) Monitoring instruments will be set up on structures near shaft locations and construction activities at the discretion of the Contract Administrator.
 - (c) While a current by-law on acceptable vibrations does not exist for the City of Winnipeg, the monitoring data should be compared to the California Department of Transportation and Construction Guidance Manual (September 2013) which presents probabilistic damages thresholds.
 - (d) The Contractor should select construction methods that they feel results in a vibration tolerance limit that they deem is an acceptable risk.
- E17.4 Construction Methods
- (a) The Contractor or their designate shall complete a pre-construction photographic survey of the existing structures adjacent to the Work (and for which vibration monitors may be installed upon).
 - (b) Where the Contractor is entering properties to undertake the photographic survey notices shall be provided to the businesses or homeowners in advance to arrange for interior inspections. Notices will need to be approved by the Contract Administrator and the City.
 - (c) Any individuals entering into a private residence or meeting private citizens as part of this Work shall have first submitted their security clearances to the Contract Administrator in accordance with Part F of these specifications.
 - (i) The photographic survey should provide a record of foundation, interior walls, door and window frames, existing cracks and other features.
 - (d) Vibration monitors should be installed in or adjacent to structures. The monitors should be capable of measuring 0 – 250 mm/sec, continuously. Where data storage permits continuous monitoring, the data should be downloaded periodically to provide sufficient storage for continuous monitoring.
 - (e) The vibration monitoring will be set up prior to any construction activities to ensure a baseline reading is developed.
 - (f) Data should be recorded and provided to the Contract Administrator.

- (g) The collected data shall be made available and be provided to the homeowners or business owners adjacent to the Work upon request.
- (h) Following construction activities, the Contractor shall arrange for a post construction inspection of any business or residences where preconstruction inspections were undertaken.

E17.5 Measurement and Payment

- (a) The cost for the building inspections and vibration monitors shall be paid for under the Contract unit price for "Vibration Monitoring Allowance". Costs will be based on actual invoiced costs for inspections, equipment, and monitoring with allowable mark-ups in accordance with the General Conditions.

E18. ALLOWANCE FOR MATERIAL SAMPLING AND TESTING

E18.1 Description

- (a) Further to CW 3110, CW3310 and CW 3410 this specification shall cover additional inspection and testing requirements for all materials used in the Work associated with this Tender.
- (b) The Contractor shall be responsible to schedule, coordinate and provide material testing, including test reports, for all construction materials as outlined in CW 2130, CW 3110, CW3310, CW 3410, other relevant City specifications, and the additional specifications within this Bid Opportunity. The Contractor shall engage an independent material inspection and testing agency for the purpose of conducting these material tests and obtaining associated documentation when directed by the Contract Administrator.

E18.2 Construction Methods

- (a) The Contractor shall be responsible for scheduling field test with an independent material inspection and testing Agency. All material tests conducted on Site shall be attended by the Contract Administrator. It is the Contractor's responsibility to coordinate each of the scheduled tests with the Contract Administrator.
- (b) The contact information from the Contract Administrator and City staff shall be provided to the testing agencies and all test results from all laboratory and field tests shall be provided to the Contract Administrator for review and/or approval.
- (c) Copies of invoices from the testing agencies shall be provided monthly to the Contract Administrator.

E18.3 Measurement and Payment

- (a) The cost for material sampling and testing shall be paid for under the Contract unit price for "Material Sampling and Testing". Costs will be based on actual invoiced costs for inspections, equipment, and monitoring with allowable mark-ups in accordance with the General Conditions.

UTILITY COORDINATION

E19. RAILWAY TRACK INSTRUMENTATION AND MONITORING

E19.1 Description

- (a) The Work specified in this Section includes furnishing and installing geotechnical instrumentation to monitor the railway tracks. The work includes, but is not limited to, installing Subsurface Monitoring Points. Also included is furnishing of monitoring equipment before excavation and trenchless work. The locations of monitoring points should be clearly marked as to ensure that repeated surveys can be accurately compared. Monitoring locations within the railway right-of-way must be in agreement with the Canadian Pacific Kansas City (CPKC) Local Track Supervisor. Flagging or other

requirements set forth by CPKC must be adhered to when undertaking installation and monitoring within the CPKC right-of-way.

- (b) The Contract Administrator is responsible for surveying the elevations and locations of the instruments. Baseline readings and elevations shall be determined before shaft or trenchless construction begins to establish a baseline, and during and after operations to monitor any movements related to the trenchless and shaft construction. The Contractor shall coordinate access and flagging requirements on behalf of the Contract Administrator to facilitate the survey monitoring within the CPKC right-of-way.
- (c) Minimum instrumentation requirements are shown on the drawings and specified herein.

E19.2 Materials

- (a) Subsurface Monitoring Point: Install as indicated in the Drawings. The settlement rod shall be installed to 1 m above the obvert of the pipeline casing or as noted otherwise on the Drawings. The settlement rod for the Sub-Surface Monitoring Point shall be installed with a minimum 0.3 m stickup above the ground surface. The Contract Administrator will affix a survey target to the top of each Sub-Surface Monitoring Point.

E19.3 Submittals

- (a) Submittals shall be made in accordance with the requirements identified in E4 and as listed below.
- (b) Submit the following, at least four (4) weeks before scheduled installation of instruments:
 - (i) Instrumentation Installation Schedule: Submit the proposed schedule for installing the instruments.
 - (ii) Description of methods and materials for installing and protecting instruments.
 - (iii) Confirmation that monitoring points will be installed at locations shown in the drawings and as specified herein.
- (c) Reports and Records:
 - (i) Submit pre and post construction surveys including photographs, video, field notes, and sketches along the entire alignment. Surveys should concentrate on significant man-made features along the alignment including buildings, gutters, sidewalks, driveways, and other structures or improvements.

E19.4 Quality Control

- (a) Install all Subsurface Monitoring Points at locations shown in the drawings or as directed by the Contract Administrator.
- (b) Should actual field conditions prevent installation of instruments at the location shown on the Drawings or specified herein, obtain acceptance from the Contract Administrator for new instrument location and elevation.
- (c) Surveying of instrumentation shall be referenced to the same Control Points and Benchmarks established for setting out the work. Control Points shall be tied to Benchmarks and other monuments outside of the zone of influence of the excavation.
- (d) Installation of instrumentation shall, at all times, be performed in the presence of the Contract Administrator.

E19.5 Construction Methods

- (a) Coordination with Railway
 - (i) Contractor shall comply with all standards, terms, conditions and safety requirements defined in E23.
 - (ii) The Contractor must review the frequency of monitoring and threshold of settlement with the CPKC Local Track Supervisor before the commencement of trenchless construction.

- (iii) The Contractor shall attend a virtual pre-construction meeting with CPKC prior to proceeding with any work within the CPKC right-of-way. The meeting will be coordinated by the Contract Administrator.
- (b) General Requirements
 - (i) Instrumentation shall be installed at the locations shown in the Instrumentation Schedule on the Drawings, and as specified herein. Instruments shall be installed in accordance with the submitted and approved installation schedule.
 - (ii) The Contractor shall confirm locations of conduits and underground utilities in all areas where holes are to be drilled and instruments installed. Instrument locations shall be modified, as approved by the Contract Administrator, to avoid interference with the existing conduit and utilities. Repair damage to existing utilities resulting from instrument installations at no additional cost to the City.
 - (iii) Utility locates within the CPKC right-of-way will only be allowed to be scheduled once the crossing permit is received by the City.
 - (iv) CPKC flagger typical working hours are Monday to Friday, 0700 hrs to 1500 hrs (8 hour day) including travel time. Flagging availability on the weekend and for overtime hours will be at the discretion of CPKC and cannot be guaranteed. If overtime is being requested, the Contractor shall ensure that the appropriate fields in the CPKC flagging application form are marked.
- (c) Installation of Instruments
 - (i) Coordinate with CPKC to obtain access to the tracks for instrument installations and daily monitoring. Obtain permits and provide flaggers, as required, and pay all fees associated with providing access to the Contract Administrator for establishing and performing settlement monitoring. Provide all required worker training to access CPKC right-of-way and tracks.
 - (ii) Following completion of the work all instrumentation shall be removed or abandoned according to applicable codes and standards unless otherwise noted.
- (d) Instrument Protection, Maintenance, and Repair
 - (i) Protect the instruments and surface Control Points from damage. Damaged installations shall be replaced or repaired prior to continuing excavation, or trenchless construction, unless permitted otherwise in writing by the Contract Administrator.
- (e) Monitoring during Construction
 - (i) The Contractor shall provide access and assistance to the Contract Administrator for obtaining baseline and daily monitoring surveys, including coordinating track protection with CPKC.
 - (ii) The Contractor shall install all subsurface settlement monitoring devices and coordinate with the Contract Administrator for installation of surface monitoring points and to perform baseline surveys of all devices at least two (2) days prior to the commencement of shaft excavation.
 - (iii) Baseline survey monitoring shall occur twice per day for two (2) days prior to the start of trenchless construction activities.
 - (iv) For CPKC Crossing, once the steel casing installation begins, survey monitoring shall occur at least twice daily.
 - (v) For CPKC Crossing, upon completion of the trenchless construction, where the steel casing is in the final location, survey monitoring shall occur for a minimum of twice daily for three (3) days.
 - (vi) For CPKC Crossing, once trenchless construction commences, and as long as the leading edge of the trenchless construction is within the Zone of Potential Train Loading (ZPTL), survey monitoring shall occur at least twice daily or after each train passage, whichever provides the greatest number of readings.
- (f) Values
 - (i) Instrument Response Values for CPKC:

Feature	Level 1 Warning/Alert Value (Action Required)	Level 2 Critical/Review Value (Shutdown Required)
	mm	mm
Surface Monitoring Point	11	22
Surface/Sub-Surface Monitoring Point	11	22

- (ii) When the instruments indicate movement equal to the Level 1 Value, the Contractor shall meet with the Contract Administrator and the City to discuss their construction means and methods to determine what changes, if any, shall be made to better control ground movement. Instrument readings shall be required prior to commencing further work and will only proceed if the magnitude of movement has stabilized from the previous readings. If further movement is observed, work will be discontinued until movement is stopped at which point the pipe installation will be authorized to proceed.
 - (iii) When the instruments indicate movement equal to the Level 2 Value, the Contractor shall stop all work immediately, and meet with the Contract Administrator, the City, and CPKC representatives to develop and activate a plan to actively control ground movements to prevent further movement. Instrument readings shall be required and work will only be authorized to proceed if there is no movement between at least two readings taken 12 hours apart. If further movement is recorded, survey monitoring will continue until movement has stopped and a revised installation procedure has been submitted. In all cases, CPKC will have the right to carry out maintenance of the track upon completion of the works to restore the track at the expense of the Contractor to the same or better condition as was established in the baseline survey.
- (g) Abandonment of Instruments
- (i) Control Points: All surface Control Points on public property shall remain in place at the completion of the work. Remove all surface Control Points on private property during the cleanup and restoration work, or as required by the Contract Administrator.
 - (ii) Monitoring Instruments:
 - (i) Coordinate with the Contract Administrator for removal of the Surface Monitoring Points.
 - (ii) Surface Monitoring Points shall remain in place unless directed by the Contract Administrator to remove and dispose of the points.
 - (iii) Properly abandon all subsurface and utility settlement monitoring point boreholes, by grouting drilled holes and casing with cement bentonite grout as directed by the Contract Administrator. All monitoring point features sticking up above grade shall be trimmed to a minimum of 0.3 m below grade.

E19.6 Measurement and Payment

- (a) Installation and Monitoring will be paid for each type at the contract unit prices described below:
 - (i) Subsurface Monitoring Points
- (b) The price shall include but not be limited to the installation and protection of the instruments, replacement of damaged utilities, scheduling and coordinating access to the CPKC to facilitate instrument installation and survey monitoring throughout construction and abandoning of the instruments.
- (c) 50% of the price will be paid following the installation of each instrument; and the remaining 50% will be paid once the particular instrument no longer requires monitoring as described within the Specifications.

E20. UTILITY MONITORING POINTS

E20.1 Description

- (a) The Work specified in this Section includes furnishing and installing geotechnical instrumentation to monitor surface features, utilities, and the ground around and above all Tunnelling and trenchless operations, and all excavations. This includes, but is not limited to, monitoring requirements at and around the 2700 mm Combined Sewer (CS) Crossings, where ground movement control is critical. The Work includes installing Utility Monitoring Points (UMPs) at locations instructed by the Contract Administrator, including any additional locations required to effectively monitor the 2700 mm CS Crossings.
- (b) The Contract Administrator will be responsible for surveying the elevations and locations of all instruments. Baseline readings and elevations shall be established prior to shaft construction, trenchless installation, or work in proximity to the 2700 mm CS Crossings and shall continue during and after these operations to monitor any ground or utility movements. The Contractor shall coordinate with the applicable utility providers for all access requirements necessary to facilitate the survey monitoring.

E20.2 Materials

- (a) Utility Monitoring Point:
 - (i) Install as instructed by the Contract Administrator.
 - (ii) Utility Monitoring Points shall be installed using vacuum excavation or other non-destructive soft-dig methods. Drilling is not permitted
 - (iii) Do not damage the existing utility.

E20.3 Submittals

- (a) Submittals shall be made in accordance with the requirements identified in E4 and as listed below.
- (b) Submit the following, at least four (4) weeks before the scheduled installation of instruments:
 - (i) Instrumentation Installation Schedule: Submit the proposed schedule for installing the instruments.
 - (ii) Description of methods and materials for installing and protecting instruments.
 - (iii) Confirmation that monitoring points will be installed at locations shown in the drawings and as specified herein.
- (c) Reports and Records:
 - (i) Submit pre- and post-construction surveys including photographs, video, field notes, and sketches along the entire alignment. Surveys should concentrate on significant man-made features along the alignment including buildings, gutters, sidewalks, driveways, and other structures or improvements.

E20.4 Quality Control

- (a) Install all monitoring points and instrumentation at locations shown in the drawings or as directed by the Contract Administrator.
- (b) Should actual field conditions prevent installation of instruments at the location shown on the Drawings or specified herein, obtain acceptance from the Contract Administrator for new instrument location and elevation.
- (c) Surveying of instrumentation shall be referenced to the same Control Points and Benchmarks established for setting out the work. Control Points shall be tied to Benchmarks and other monuments outside of the zone of influence of the excavation.
- (d) Installation of instrumentation shall, at all times, be performed in the presence of the Contract Administrator.

E20.5 Construction Methods

- (a) General Requirements
 - (i) Instrumentation shall be installed at the locations shown in the Instrumentation Schedule on the Drawings, and as specified herein. Instruments shall be installed in accordance with the submitted and approved installation schedule.
 - (ii) The Contractor shall confirm locations of conduits and underground utilities in all areas where holes are to be drilled and instruments installed. Instrument locations shall be modified, as approved by the Contract Administrator, to avoid interference with the existing conduit and utilities. Repair damage to existing utilities resulting from instrument installations at no additional cost to the City.
 - (iii) Record and report depth of utilities found during Utility Monitoring Point installation.
- (b) Installation of Instruments
 - (i) Following completion of the work all instrumentation shall be removed or abandoned according to applicable codes and standards unless otherwise noted.
- (c) Instrument Protection, Maintenance, and Repair
 - (i) Protect the instruments and surface Control Points from damage. Damaged installations shall be replaced or repaired prior to continuing excavation, or trenchless construction, unless permitted otherwise in writing by the Contract Administrator.
- (d) Monitoring during Construction
 - (i) The Contractor shall provide access and assistance to the Contract Administrator for obtaining baseline and daily monitoring surveys.
 - (ii) The Contractor shall install all monitoring devices and coordinate with the Contract Administrator to perform a baseline survey of all devices at least two (2) days prior to the commencement of construction.
 - (iii) Baseline survey monitoring shall occur twice per day for two (2) days prior to the start of construction.
 - (iv) Upon completion of the construction, where the pipe is in the final location, survey monitoring shall occur twice daily for three (3) days.
- (e) Utility Monitoring Response Values:

PURPOSE	Threshold Value	Response Value	Shutdown Value
	(mm)	(mm)	(mm)
UTILITY MONITORING	10	15	20

- (i) When the instruments indicate movement equal to the Threshold Value, the Contractor shall meet with City to discuss his construction means and methods to determine what changes, if any, shall be made to better control ground movement. Instrument readings shall be required prior to commencing further work and will only proceed if the magnitude of movement has stabilized from the previous readings. If further movement is observed, work will be discontinued until movement is stopped at which point the pipe installation will be authorized to proceed.
- (ii) When the instruments indicate movement equal to the Response Value, the Contractor shall meet with the City and utility representatives to develop and activate a plan to actively control ground movements to prevent reaching the Shutdown Value. Instrument readings shall be required and work will only be authorized to proceed if there is no movement between at least two readings taken 12 hours apart. If further movement is recorded, survey monitoring will continue until movement has stopped and revised installation procedure has been submitted. In all cases, the utility provider will have the right to carry out maintenance of the utility upon completion of the works to restore the utility at the expense of the Contractor to the same or better condition as was established in the baseline survey.

- (iii) When the instruments indicate movement equal to the Shutdown Value, the Contractor shall stop all work immediately, and meet with the City and the utility representatives to develop a plan of action before work can be resumed.
- (f) Abandonment of Instruments
 - (i) Properly abandon all utility settlement monitoring point boreholes, by grouting drilled holes and casing with cement bentonite grout.

E20.6 Measurement and Payment

- (a) Installation and Monitoring will be paid for each type at the contract unit prices described below:
 - (i) Utility Monitoring Points
- (b) The price shall include but not be limited to the installation and protection of the instruments, replacement of damaged utilities, performing baseline measurements, ongoing monitoring, providing electronic monitoring results within 24 hours of taking the measurements, submitting formal data, and abandoning of the instruments to the Contract Administrator.
- (c) 50% of the price will be paid following the installation of each instrument; and the remaining 50% will be paid once the particular instrument no longer requires monitoring as described within the Specifications.

E21. EXPLORATION OF EXISTING UTILITIES AND SERVICES

E21.1 General

- (a) This specification covers the soft dig exploration of existing buried utilities both within the project Site for the current Project (Contract 1), and outside of the project site for the purpose of locating utilities for future contracts.
- (b) Further to CW 1120, the Contractor shall perform exploratory excavations by soft dig methods or other methods suitable to the Contract Administrator to verify and locate buried utilities including, but not limited to, sewers, sewer services, feeder mains, watermains, water services, hydrant leads, gas, power and telecommunications ducts and conduits, traffic signal conduits, street lighting and other communication cables.
- (c) Contractor shall locate all water and sewer services along alignment of any trenchless installations prior to starting any pipe installation in that alignment.

E21.2 Execution

- (a) The onsite exploration shall be done following all utility location surveys and a minimum of four (4) Working Days prior to trenchless sewer construction along the road segment in question (from downstream connection to the extent of the pipe upstream). The information obtained will determine if an alternate vertical or horizontal alignment of the proposed sewer may be beneficial to minimize conflicts with the existing utilities or services.
- (b) All proposed dig locations must be clearly identified and submitted to the Contract Administrator prior to utility exploration Work beginning.
 - (i) The Contract Administrator may add additional locations.
- (c) The Contractor shall arrange for all required utility locations, safety watches and other required notifications.
- (d) The Contractor shall provide a minimum of two (2) Business Days' notice to the Contract Administrator prior to conducting utility exposures.
- (e) The Contractor shall arrange for any required traffic control to be set up in advance of the Work and notify the Contract Administrator to arrange for lane closures as required.
- (f) The Contractor shall use soft digging equipment (i.e. hydro-excavator) to expose the utility under investigation.

- (g) The Contractor shall record the depth of the utility and provide this information to the Contract Administrator.
- (h) The Contractor is responsible for backfill and restoration of all soft dig locations. Contractor to assume soft dig locations to be in paved roadway.

E21.3 Measurement and Payment

- (a) Any exploration of existing utilities and services within the Work Site along the path of the drive lengths, at shafts, service connections, or any other construction activities associated with the Work, whether explicitly shown on the Drawings or not, are the responsibility of the Contractor and are incidental to the cost of the sewer installation.
- (b) Exploration of additional locations identified by the Contract Administrator for future contracts shall be paid at a Per Unit Rate identified as "Utility Exploration" under Provisional Items. The cost shall include all Works described herein for each utility exploration hole identified by the Contract Administrator.
 - (i) Restorations of surface features (e.g. pavement or topsoil and sod) for utility exploration of future contracts will be incidental to the Work included in this Specification.

E22. SUPPORT OR TEMPORARY RELOCATION OF EXISTING PIPES AND UTILITIES

E22.1 The size and locations of shafts to facilitate the Work are at the discretion of the Contractor. Infrastructure in conflict with the Contractor's proposed construction shafts shall be addressed through this specification.

E22.2 The Contractor shall provide support or relocation (temporary and permanent) of existing services and utilities (including but not limited to water mains, sewer mains, gas mains, and electrical or telecommunication conduit/ducts), when excavations/ shafts expose or require the support of these services (due to proximity or other reasons). Support of the services shall be undertaken to the requirements of the utility owner. Services and utilities may only be interrupted with the permission of the Contract Administrator and the utility owner. Contractor shall always maintain flow in the watermain and sewer mains during construction.

- (a) Where these utilities include buried gas or electrical lines, the Contractor shall contact Manitoba Hydro and follow the Safe Excavation & Safety Watch Guidelines listed at https://www.hydro.mb.ca/safety/pdfs/safe_excavation_safety_watch_guidelines.pdf
- (b) For any existing gas lines that are in conflict with or in close proximity to excavations and shafts the contractor shall ensure that suitable temporary support of the gas lines is provided as per Manitoba Hydro standard detail "Temporary Support for Excavated Gas Pipelines" (SD.610.10).
- (c) Watermains shall not be temporarily cut and capped unless permission is given by the Contract Administrator and the City.

E22.3 Measurement and Payment

- (a) Relocation or support of existing pipes and utilities to facilitate the sewer installation and associated excavations not identified on the Form B will be incidental to the cost of the specific work item that is being undertaken.

E23. CPKC RAILWAY RIGHT OF WAY CROSSING REQUIREMENTS

E23.1 Description

E23.1.1 This Specification covers the potential costs borne by the Contractor imposed by CPKC Railway in order to comply with the Crossing agreement. The crossing agreement must be adhered to for all Work shown on the Drawings within the CPKC right-of-way.

E23.1.2 Installation through the CPKC right-of-way is subject to the additional requirements of the railway. The following documents shall apply:

- (a) Minimum Safety Requirements for Contractors Working on CPKC Property in Canada (CPKC)
- (b) CPKC Geotechnical Protocol for Pipeline and Utility Crossing(s) under Railway Tracks (CPKC)
- (c) CP – SP-TS-2.39 – Pipeline and Cable Installations within Railway Right of Way (CPKC)
- (d) Standards Respecting Pipeline Crossings Under Railways – TC E-10 (Transport Canada)

E23.1.3 Crossing Agreement

- (a) The installation of the pipeline through the CPKC right-of-way is dependent on the execution of a crossing agreement between the City of Winnipeg and CPKC. KGS Group submitted the crossing agreement on behalf of the City consisting of Drawings 13640 and 13641 and a geotechnical assessment report. The complete submittal package is included in Appendix D. These appendix documents are for information only and do not form part of the Contract. CPKC has not yet formally approved the crossing application, nor has the crossing agreement been executed. It is anticipated that the agreement will be fully executed by September 15th, 2026.
- (b) Railway Track Monitoring Plan
 - (i) Details of the monitoring plan as identified in E19.

E23.2 Submittals

E23.2.1 The Contractor shall submit an Emergency Response Plan outlining the steps to be followed if the event of excessive soil loss or settlement. The Emergency Response Plan shall include the location and contact information for the nearest cement or grout plant to address voids/sinkholes. The Contractor shall also determine with the CPKC Roadmaster the nearest source of ballast material should tamping/resurfacing of the railway track be required.

E23.3 Methods

E23.3.1 The Contractor is responsible for all coordination with CPKC and any fees required to meet the CPKC requirements before and during the Work.

E23.3.2 Flagging and Signals

- (a) All charges for flagging and signals protection incurred to complete the work listed herein, in the geotechnical report, and shown on Drawings shall be paid by the City.
- (b) Prior to the start of construction, a minimum notice of thirty (30) days must be given to CPKC to arrange flagging protection and to schedule a pre-construction coordination meeting between the Contractor, Contract Administrator, and CPKC.
- (c) The Contractor shall attend a virtual pre-construction meeting with CPKC prior to proceeding with any work within the CPKC right-of-way. The meeting will be coordinated by the Contract Administrator.
- (d) CPKC flagger typical working hours are Monday to Friday, 0700 hrs to 1500 hrs (8 hour day) including travel time. Flagging availability on the weekend and for overtime hours will be at the discretion of CPKC and cannot be guaranteed. If overtime is being requested, the Contractor shall ensure that the appropriate fields in the CPKC flagging application form are marked.

E23.3.3 Settlement and Construction Monitoring

- (a) Refer to Section E19 and the Drawings for monitoring requirements for railway monitoring.

E23.3.4 Railway Safety

- (a) Comply with CPKC Minimum Safety Requirements for Contractors working on Railway Property, including training, protective equipment and procedures.

E23.3.5 Emergency Response Plan

- (a) If an urgent or near urgent defect is detected during monitoring (as defined in E19), an on-site meeting shall be conducted to determine the cause of the defect and remedial action.
- (b) The Contractor will be required to carry-out remedial action as directed by the Contract Administrator and agreed upon by CPKC.

E23.4 Measurement and Payment

- (a) Costs incurred by the Contractor from CPKC associated with the Work shown on the Drawings and described within the Specifications within the CPKC right-of-way, will be paid from the allowance under the Contract Unit Price "CPKC ROW Crossing Allowance".
- (b) The costs paid shall be the actual invoiced costs and any allowable mark-ups as stated within the General Conditions.

SEWER CONSTRUCTION

E24. SUPPLY AND INSTALLATION OF TEMPORARY SHORING

E24.1 Description

- (a) This Specification supplements CW 2030 and covers shoring requirements for the Works.

E24.2 Construction Methods

- (a) Excavation
 - (i) Remove excavated material from the Site immediately. Excavated material shall not be stockpiled on-Site.
 - (ii) All Working areas below grade shall be kept adequately and securely supported during and after excavation until the shoring and bracing is in place to prevent loss of ground or injury to any person from falling material.
- (b) Excavation Security Fence
 - (i) Further to Clause 3.1 of CW 1130, completely cover the excavation and provide a security fence to completely surround the excavation when unattended generally in accordance with the following:
 - ◆ Security fence shall be chain link fence as per CW 3550 or approved equal in accordance with B8, a minimum 1.80 metres high with metal support posts embedded far enough into the ground and spaced close enough together so the fence will not sag or collapse.
 - ◆ Attach fencing securely to posts.
 - ◆ Secure the gate or end of the fencing to a post with chain and a padlock.
- (c) Shoring
 - (i) The type, strength, and amount of shoring and bracing shall be provided consistent with the nature of the ground surface and subsurface conditions, taking into account property lines, existing slopes, utilities and roadways.
 - (ii) Shoring and bracing shall be so spaced and dimensioned as to prevent caving, loss of ground, surface settlement, or squeezing of the soil beyond the neat lines of excavation. It shall be free from defects that might impair its strength or suitability for the Work. Sheeting/shoring and bracing shall conform to the latest revisions of the "Construction Safety Act" of the Department of Labour of the Government of Manitoba and in accordance with Province of Manitoba "W210 The Workplace Safety and Health Act" and "Guidelines for Excavation Work".
 - (iii) Shoring shall protect against basal heave with a Factor of Safety of 1.3 in accordance with the Canadian Foundation Engineering Manual (CFEM)
 - (iv) Submit supporting design calculations as required to facilitate review of the submission for conformance with the Contract Documents.

- (v) Submit AutoCAD Shop Drawings and design calculations for the shoring/excavation system designed and sealed by a Professional Engineer registered or licensed to practice in the Province of Manitoba and experienced in the structural design of shoring systems. The designer of the shoring system shall inspect the system during construction and certify, in writing to the Contract Administrator, that construction is in conformance with the approved design.
 - (vi) Shoring and bracing shall be installed such that the structure size and wall thickness shown on the shop drawings can be effectively installed and or constructed subsequent to installation of the shoring system.
 - (vii) Shoring and bracing shall be designed and installed to prevent settlement and damage to existing structures. In the event of damage, the Contractor will be held liable, and shall be required to provide appropriate restoration at his cost, to the satisfaction of the Contract Administrator.
 - (viii) Shoring and bracing shall remain in place until it is no longer required to complete the Work. If the Work is delayed at a shaft it is expected that the shoring must be able to continue to be effective in preventing settlement and damage to existing structures.
- (d) Monitoring Movement of Shoring
- (i) The Contractor shall submit to the Contract Administrator a plan for monitoring the movement of trench shoring during construction a minimum of two (2) Working Days prior to the installation of trench shoring. The monitoring plan shall be performed by approved survey methods for vertical or horizontal movement of the shoring, acceptable to the Contract Administrator. Costs for monitoring shall be incidental to the installation of the temporary shoring.

E24.3 Measurement and Payment

- (a) Shoring required for shafts to complete the Work will be incidental to the components of the Work to which shoring is required. No additional payment will be made for supplying materials and performing all operations herein described and all other items incidental to the Work included in this Specification.

E25. EXCAVATION, BEDDING AND BACKFILL

E25.1 General

- (a) This Specification supplements requirements for excavation, bedding and backfill identified in CW 2030.

E25.2 Related Specifications

- (a) Environmental Protection Plan - Section E6
- (b) Exploration of Existing Utilities and Services - Section E21
- (c) Tunnelling Sewer Construction – Section E29
- (d) Trenchless Sewer Construction – Section E30
- (e) Pilot Tube Guided Auger Boring Sewer Installation – Section E31

E25.3 Submittals

- (a) Submit shoring designs to Contract Administrator, in accordance with E4 and E24.

E25.4 Existing Utilities

- (a) Arrange and pay for any required safety watches around existing utilities as per CW 1120.
- (b) The Contractor shall arrange and provide temporary or permanent relocation of existing utilities, and or temporary support of existing utilities required for the excavation of the shafts. Work on private utilities may not occur without submittal and approval of your utility plan to the Contract Administrator and approval from the utility owner.

- (c) See Specification Section E22 for further requirements.

E25.5 Disposal of Unsuitable or Surplus Excavated Material

- (a) The Contractor is responsible for arranging for a disposal site for all excavated material, and associated Works including transportation and payment of tipping fees.
- (b) There shall be no measurement of surplus soil material disposed of at any disposal site. No additional payment will be made for disposal of surplus soil materials. It shall be considered incidental to the cost of the Work.

E25.6 Foundation and Bedding and Initial Backfill

- (a) Foundation and bedding to be Class B, Sand Bedding for shafts with pipe, in accordance with City of Winnipeg standard detail SD-001.
- (b) Bedding for concrete collar connecting 600 mm dia. concrete WWS to 600 mm dia. PVC WWS and for connecting 900 mm dia. concrete WWS to 900 mm dia. PVC WWS to be Class A, with Cement Stabilized Fill in accordance with CW 2160 Bedding.

E25.7 Backfill

- (a) Excavations under or within one (1) metre of paved areas on Leila Avenue (between McPhillips Street and McGregor Street) and on McGregor Avenue shall be backfilled to **Class 1 (Modified)** in accordance with SD-002. **Class 1 (Modified)** shall consist of replacing the existing 1.0 m thick cement-stabilized fill with Granular A sub-base, to accommodate the forthcoming Public Works Department (PWD) street renewal project on Leila Avenue and McGregor Avenue.
- (b) Excavations under or within one (1) metre of paved areas on Leila Avenue (between McGregor Street and Aikins Street) shall be Class 1 as per SD-002 unless otherwise noted below or on the Drawings.
- (c) Excavations under or within one (1) metre of paved areas on other roadways shall be Class 3 as per SD-002 (Class 2 backfill would also be acceptable, but at no additional cost), unless otherwise noted below or on the Drawings.
- (d) Material excavated when frozen, or when air temperature is less than 0°C, shall not be used as fill or backfill until material completely thaws.
- (e) The Contractor shall have personnel available for immediate repairs of settlement at shaft locations from the start of construction until final restoration is complete.
- (f) CLSM
 - (i) Controlled Low-Strength Material (CLSM) / Cement Stabilized Fill shall be in accordance with CW 2030 and Table CW 2160.1 unless otherwise indicated on the Drawings. Further to Table CW2160.1 the maximum compressive strength at 28 days to be no more than 1 MPa.
 - ◆ The Contractor shall install fill in lifts and provide sufficient supports to resist uplift of piping or structures due to backfilling.
 - (ii) Excavations made within the path of the new sewer Works prior to Trenchless Sewer Construction operations shall be backfilled with CLSM.

E25.8 Measurement and Payment

- (a) All costs associated with Excavation, Bedding and Backfill as described herein are incidental to the installation of the sewer piping covered in Trenchless Sewer Construction (E30), Tunneling Sewer Construction (E29) and Pilot Tube Guide Auger Boring sewer construction (E32).

E26. ZONE 1 (SHALLOW TILL ZONE SHAFTS) GROUNDWATER DEPRESSURIZATION

E26.1 Description

- (a) This specification covers the provision for drawdown and depressurization of the groundwater pressures to facilitate the construction of the new wastewater trunk sewer from approximately station STN 5+53 to STN 15+55 where the till strata is elevated compared to the remainder of the Site. In this zone, observed and baseline groundwater levels (pressures) result in a factor of safety against uplift (buoyancy) of less than 1 when calculated in accordance with the CFEM.
- (b) The pipe diameter along this section of the wastewater trunk sewer ranges from 450 mm to 525 mm.
- (c) For the purposes of estimating groundwater depressurization in this zone, it is assumed that the pipe will be installed using horizontal earth coring with shafts spacing at a minimum of 15 m requiring approximately 67 shafts; with the shafts assumed to be installed as drilled shafts, sleeved with circular steel support.
 - (i) Note that while this process is used to develop the tender pricing for depressurization, the actual method of installation selected for construction shall be in accordance with the Trenchless Sewer Construction (Section E30), and less shafts may be required to undertake the work.
- (d) This specification provides a mechanism for payment of the depressurization within Zone 1 that will be implemented during construction.
- (e) The Contractor will be required to lower the groundwater within this zone with a pumped depressurization system to protect against uplift (buoyancy) of the foundation in accordance with the Canadian Foundation Engineering Manual (CFEM). The factor of safety required for the shored excavations is as follows:
 - (i) Uplift (buoyancy) FOS = 1.1
- (f) A single pump test was undertaken at station 8+00 (within Zone 1) which is presented in the GDR in Appendix A.
 - (i) The pump test data demonstrates that a relatively small zone of influence was observed. As such, for bidding purposes, it is assumed that a well will be drilled at each of the 67 shafts.
 - (ii) The pump test data demonstrates that a relatively low water production rate was available due to tight bedrock conditions at the pumping and monitoring well locations. The low pumping rate in Zone 1 was able to control groundwater within the small zone of influence. As such, for bidding purposes, based on the locations drilled, it is assumed that lower capacity pumps may be required to be installed within the wells to control groundwater.
 - (iii) Bedrock fracturing can be highly variable which directly controls groundwater flow. The single pump test in Zone 1 may not be representative for the entire zone of elevated till strata. As such, for bidding purposes, it is assumed that higher capacity pumps may also be required to be installed within the wells to control groundwater pressures.
- (g) The contract includes provisions for Pump Testing that covers groundwater investigations at two additional locations within Zone 1 prior to the development of the depressurization plan for Zone 1.
- (h) During Construction, the depressurization must be limited to areas where active pipe installation Work is occurring. Depressurization of the groundwater outside of active Work areas will not be covered by this Specification.
 - (i) **A maximum of three (3) shafts may be constructed to depth requiring depressurization within this zone at any given time.**
 - (ii) Shafts shall not be excavated below the depth requiring depressurization unless pipe installation work is intended to occur within two calendar days to avoid unnecessary depressurization costs.
- (i) The Contractor shall be responsible for all permitting, and approvals necessary to perform the Work.

- (j) Notwithstanding C:7.5, the City reserves the right to diminish all or any portion of the items of work listed in the Zone 1 (Shallow Till Zone Shafts) Groundwater Depressurization Items and no claim shall be made for damages on the grounds of loss of anticipated profit or for any other reason.

E26.2 Methods

E26.2.1 Pump Testing

- (a) The Contractor shall conduct two groundwater investigations at locations, between STN 5+53 and STN 15+55, as directed by the Contract Administrator.
- (b) The Contractor shall install one new 150 mm Pump Testing Well within each of the locations identified above. Pump Testing Wells (PTW) shall extend a minimum of 6 m into bedrock.
- (c) The Contractor shall install two new 50 mm Monitoring Wells (MW) at each PTW location. Each MW shall extend a minimum of 3 m into bedrock. One MW shall be installed 3 m from the PTW, and the second MW shall be installed 30 m from the PTW, as directed by the Contract Administrator.
- (d) Pump testing in the 150 mm diameter wells shall be performed at the anticipated maximum pumping rate for a two (2)-hour Pumping and Recovery Test. The test shall monitor PTW and MW drawdowns throughout pumping and recovery and shall be used to determine well capacity and aquifer hydrogeological parameters.
 - (i) If a pumping rate of 100 USgpm is determined to be too high for the aquifer, the Contractor shall utilize a smaller-capacity pump for the Depressurization Plan design.
- (e) Records of the pump testing shall be provided to the Contract Administrator for review within two (2) days of completing the Work and shall follow the requirements of the MECC Groundwater Exploration Permit for the Site and the Guide to Groundwater Withdrawal Approvals (2013). The submitted records shall include ongoing groundwater displacement measurements during the pumping and recovery phases, maximum drawdowns in the PTW and in any MWs at various distances, and aquifer properties such as transmissivity, zone (radius) of influence, and storativity.

E26.2.2 Depressurization Plan

- (a) Prior to construction the Contractor shall submit a Zone 1 Depressurization System Plan designed and sealed by a Professional Engineer or Professional Geologist registered to practice in the Province of Manitoba for review by the Contract Administrator consistent with the Contractors actual shaft locations to support the trenchless installation of the new sanitary trunk within Zone 1 including:
 - (i) Number of pumping wells, including location, size, pumps, and installation details.
 - (ii) Size (pumping capacity) of each pump.
 - (iii) An evaluation of static groundwater conditions and required drawdown elevations for successful completion of the Work.
 - (iv) Permissible groundwater levels (pressures) at various stages of excavation and backfill to prevent uplift of soil layers and other disturbance to the in-situ foundation soils due to any excess groundwater pressures.
 - (v) Confirmation of the elevation to which the excavation may proceed before the pumping system commences operation.
 - (vi) Confirmation of the elevation to which backfill must be completed before the pumping system can cease operation.

E26.2.3 Depressurization Program

- (a) Depressurization system shall control ground water levels and pressures to protect against uplift (buoyancy):
 - (i) The depressurized system shall include a bedrock pumping well system.

- (ii) Once required, the well system shall operate continuously to achieve the factor of safety values indicated above.
 - (iii) The Contractor shall be responsible to obtain a Temporary Authorization Water Use Licence from the Province of Manitoba for their proposed depressurization system, and any other permits necessary for operation of the depressurization system.
- (b) The Contractor shall construct 150 mm diameter Depressurization Pumping Wells to drawdown groundwater levels (pressures) adjacent to each shaft installed within the zone to support the trenchless installation of the new sanitary trunk sewer.
 - (i) The wells shall be installed within **1 m** of the shaft location.
 - (ii) Wells shall be drilled to a sufficient depth into bedrock to support installation of pumping wells.
- (c) The Contractor shall install and activate the pumps within the appropriate pumping well to support the active zone of sanitary sewer trunk Work. The number of pumps and capacity of the pumps shall be based on the Zone 1 Depressurization Plan and as accepted by the Contract Administrator.
- (d) Depressurization shall be run 24 hours a day, 7 days a week, until approved backfilling and compaction levels are completed.
 - (i) The Contractor shall ensure that they have sufficient generators, staffing and fuel to maintain pumping for 24 hours per day over evenings between the time Work has ceased for one day and commenced on the following day.
 - (ii) Pumping for shafts for trenchless Work will be paid for over weekends if pipe installation work extends through the weekend but will not be covered during extended shutdowns (shutdowns outside of weekends).
 - (iii) Pumping costs will not be covered once the Contractor has backfilled the shafts above the elevation requiring depressurization as identified in their Depressurization Plan.
- (e) The Contractor shall decommission pump wells following commissioning of the sanitary sewer trunk.
- (f) The Contractor shall provide adequate power/generators and fuel to support the pumping needs.
- (g) The Contractor shall provide the required discharge hosing to support the depressurization and dewatering needs.
- (h) Construction Submittals
 - (i) The Contractor shall provide daily records of the number of pumps required to support active Work areas.
 - (ii) The pump records shall specify the following:
 - ◆ Which shaft being supported by each pump.
 - ◆ Pump Capacity of pump(s) in use.
 - ◆ The start date of each pump within each active segment of sanitary sewer trunk Work.
 - ◆ The end date of each pump within each active segment of sanitary sewer trunk Work.
- (i) The depressurization system discharge water quality parameters shall be sampled, analysed, and compared to applicable regulatory guidelines. With required permits and approvals in place, discharge of excavation seepage and aquifer depressurization waters may be directed to surface, or other conveyances, while considering that the discharged water is not recirculating back into the local groundwater system or active excavation areas, creating a recharge loop. If water quality or other considerations are not acceptable for surface discharge, an alternative design for collection and proper disposal shall be required.

- (j) Depressurization wells shall be decommissioned prior to completing restoration works in accordance with E39 and E40.

E26.3 Measurement and Payment

E26.3.1 Pump Testing

- (a) Pump testing shall be measured on a lump sum basis and paid for at the Contract Unit Price for “Pump Testing and Depressurization Plan”.
- (b) The price shall be payment in full for performing all operations described herein under “Pump Testing”. This includes but is not limited to mobilization of drill rigs and other equipment, **drilling of the two PTW and four MW**, installation of casing, caps and seals, installation of pumps, generators, discharge and discharge hoses, erosion control, permitting, operations/staffing, and preparation of the Depressurization Plan.

E26.3.2 Well Construction

- (a) Overburden Drilling
 - (i) The well construction in overburden (above the bedrock) shall be paid for at the Contract Unit Price for “Overburden Drilling” for each Item of Work listed below.
Items of Work:
 - ◆ 150 mm Pump Well
 - (ii) The well construction in overburden shall be measured on a vertical meter basis from the surface to the end of the well installed within the overburden zone.
 - (iii) Costs include all items described herein and incidental to the completion of the work including drilling, the supply and installation of PVC casing, Casagrande tips, well cap, grouting, and related works.
 - (iv) Overburden refers to all subsurface layers above the bedrock including organics, clay, silt, sand, gravel, cobbles, boulders, inclusions and till.
- (b) Bedrock Drilling
 - (i) The well construction in bedrock shall be paid for at the Contract Unit Price for “Bedrock Drilling” for each Item of Work listed below.
Items of Work:
 - ◆ 150 mm Pump Well
 - (ii) The well construction in bedrock shall be measured on a vertical meter basis from the top of the bedrock surface to the end of the well installed within the bedrock zone.
 - (iii) Costs include all items described herein and incidental to the completion of the work including drilling, well development, the supply and installation of PVC casing, Casagrande tips, well cap, well seal, grouting, and related works.

E26.3.3 Pump Supply

- (a) The supply of the Well Pumps shall be paid at the Contract Unit Price for “Pump Supply” for each Item of Work listed below:
 - (i) 5 USgpm Well Pump
 - (ii) 100 USgpm Well Pump
- (b) The pumps shall be used by the Contractor to support work on this project and then turned over to the City at Substantial Completion.
- (c) If the Contractor’s Zone 1 Depressurization System Plan requires pump with capacities different than those listed herein then the contractor shall provide quotes for the pumps listed herein and the pumps capacities required for depressurization and the difference will be paid out through the Extra Work Allowance.

E26.3.4 Depressurization Pump Operations

- (a) The daily operation of the depressurization pumps will be paid for at the daily rate under the contract unit price of “Daily Pump Operation”.
 - (i) The price shall cover the costs for each day that the pumping is used (where a day is considered 24 hours of operation) to maintain the GWL below the threshold described herein.
 - (ii) The costs shall include pump (installation), generator, fuel cost, electrical supply and hook-up, outlet hoses, flowmeter to measure discharge, permits, staffing, and any other appurtenances associated with the daily operation of the depressurization system.
 - (iii) Where more than one pump is running on any given day, a unit one day will be paid out for the operation of each pump (note that no more than three pumps may be running at any given time).
 - (iv) Depressurization installation will only be paid for where groundwater levels indicate that depressurization is required, in accordance with this specification.

E26.3.5 Well Decommissioning

- (a) Decommissioning of each well shall be paid for at the Contract Unit Price for “Well Decommissioning” for each item listed below:
 - Items of Work:
 - ◆ 50 mm Monitoring Well
 - ◆ 125 mm Pump Well
 - ◆ 150 mm Pump Well
- (b) The amount to be paid for shall be the total number of wells or sumps decommissioned in accordance with the approved Zone 1 Depressurization Plan.
- (c) Three 125 mm Pump Wells and six 50 mm Monitoring Wells were installed in January 2026 for the preliminary pumping test conducted by KGS Group must be decommissioned by the Contractor, as directed by the Contract Administrator.

E27. ZONE 2 (TUNNELING SHAFTS) GROUNDWATER DEPRESSURIZATION

E27.1.1 Description

- (b) This specification covers the provision for drawdown and depressurization of the bedrock groundwater pressures, if necessary, due to elevated groundwater levels (GWLs), to facilitate the construction of the shafts to support the Tunnelling Sewer Construction.
- (c) Elevations of the observed groundwater levels and baseline groundwater levels to be assumed during construction are identified in the GDR and GBR, respectively.
- (d) The Contractor should be aware that the GWL varies seasonally and annually.
- (e) The Contractor is responsible to evaluate data provided within the GDR and GBR and determine what if any depressurization needs will be required to protect against uplift (buoyancy) of the foundation for any deep shaft excavation (including launch shaft and receiving shafts). The factor of safety required for the shored excavations shall be calculated in accordance with the Canadian Foundation Engineering Manual (CFEM) and are as follows:
 - (i) Uplift (buoyancy) FOS = 1.1
- (f) The contractor may address the depressurization in any manner that supports the work including:
 - (i) Pumped depressurization
 - (ii) Passive depressurization using wells installed into the till/bedrock zones
 - (iii) Alternatively, the Contractor may elect to design their shafts to overcome construction issues associated with elevated groundwater levels.

E27.1.2 Submittals

- (g) Shaft Excavation Depressurization System Plan: Submit the following describing the shaft excavation depressurization plan, designed and sealed by a Professional Engineer or Professional Geologist registered to practice in the Province of Manitoba and including:
- (i) An evaluation of static groundwater conditions
 - (ii) Required drawdown elevations for successful completion of the Project excavations (if pumped depressurization is the selected method for depressurization).
 - (iii) Permissible groundwater levels (pressures) at various stages of excavation and backfill to prevent uplift of soil layers and to prevent any other disturbance to the in-situ foundation soils due to any excess groundwater pressures.
 - (iv) Confirmation of the elevation to which the excavation may proceed before the well system (or alternate depressurization method) commences operation.
 - (v) Confirmation of the extent to which chamber construction and backfill must be completed before the well system can cease operation.
 - (vi) Number of wells, including location, size, pumps and installation details required to support depressurization.
 - (vii) Schedule of monitoring, maintenance, manpower estimates, and interpretation of groundwater levels throughout the duration of the Project, and include discharge water quality sampling for laboratory analyses to satisfy the Groundwater Exploration Permit, discharge-to-sewer permit, or similar requirements applicable to the system being implemented.

E27.1.3

Methods

- (a) The Contractor shall monitor the GWL at each of their shaft locations to ensure that the potential for uplift (buoyancy) is controlled within the levels indicated in the GBR.
 - (i) Standpipe piezometers shall be drilled into the till and bedrock allowing for monitoring of the till and bedrock pressures.
 - (ii) The piezometer shall be drilled within 1-3 m of edge of shaft/excavation.
- (b) The Contractor is required to monitor the groundwater levels in accordance with the following monitoring schedule:
 - (i) If monitoring to ensure GWL are below threshold that requires depressurization – minimum one reading per day.
 - (ii) If monitoring active depressurization to determine impact of pumping on GWL – Minimum twice per day.
- (c) Depressurization system shall control GWLs and pressures and protect against excavation blowout from uplift.
 - (i) The depressurized system shall include a well system or an alternate approved design in accordance with B8 and as approved by the Contract Administrator.
 - (ii) Once required, the well system will be required to operate continuously during excavation, construction and backfill activities.
- (d) The Contractor shall be responsible for any permits necessary for operation of their depressurization system.
- (e) The depressurization system discharge water quality parameters shall be sampled, analysed, and compared to applicable regulatory guidelines. With required permits and approvals in place, discharge of excavation seepage and aquifer depressurization waters may be directed to surface, or other conveyances, while considering that the discharged water is not recirculating back into the local groundwater system or active excavation areas, creating a recharge loop. If water quality or other considerations are not acceptable for surface discharge, an alternative design for collection and proper disposal shall be required.

E27.1.4

Measurement and Payment

- (a) The Work required for depressurization of the GWL, or alternate methods of controlling GWL to facilitate construction including, Tunnelling (launch, receiving and rescue shafts), and manholes as described herein is incidental to the Contract prices

for the components of Work for which control of the GWL is required. No additional payment will be made for supplying materials, equipment and performing all operations herein described and all other items incidental to the Work included in this Specification.

E28. ZONE 3 (MAIN STREET INTERCEPTOR CONNECTION SHAFT) GROUNDWATER DEPRESSURIZATION

E28.1.1 Description

- (a) This specification covers the provision for drawdown and depressurization of the groundwater pressures to facilitate the construction of the shaft/chamber around the Main Street interceptor and the connection of the new wastewater trunk sewer to the chamber.
- (b) The existing 2,250 mm Main Street interceptor is approximately 14 m deep and will remain active during the construction of the shaft, and the associated Work that includes the Main Street Interceptor Connection chamber described in Section E37, and the connection of the new Sanitary Trunk Sewer to the Main Street Interceptor Connection Chamber. A pumped solution is required for groundwater depressurization to construct the shaft around this interceptor that will be in place until the Work is completed.
- (c) Restrictive timelines exist to undertake this work (See Section D17)
- (d) Elevations of the observed groundwater levels and baseline groundwater levels to be assumed during construction are identified in the GDR and GBR, respectively.
- (e) The Contractor should be aware that the GWL varies seasonally and annually.
- (f) The Contractor will be required to lower the groundwater at the Main Street interceptor shaft location with a pumped depressurization system to protect against uplift (buoyancy) of the foundation. The factor of safety required for the shored excavations shall be calculated in accordance with the Canadian Foundation Engineering Manual (CFEM) and are as follows:
 - (i) Uplift (buoyancy) FOS = 1.1
- (g) Groundwater depressurization shall remain active until the new chamber on Main Street is backfilled to a height that achieves the FOS levels listed above without the need for lowering of the groundwater level.
- (h) **A pump test was undertaken in the vicinity of the Main Street Interceptor Shaft to support Contractors in bidding this work. The pump test data is available within the GDR in Appendix A.**
 - (i) **Notably, a two-hour pump test was performed in which groundwater levels were observed to be lowered by approximately 3.4 m at a distance of 3 m from the pump well, 2.9 m at a distance of 30 m from the pump well, and 4.5 m within the pump well at a pumping rate of 100 USgpm.**

E28.1.2 GWL Monitoring/ Excavation Depressurization

- (a) The Contractor shall monitor the groundwater level (GWL) at the shaft location to ensure that the potential for uplift (buoyancy) is controlled to the factor of safety levels indicated above.
 - (i) A standpipe piezometer shall be drilled into the till allowing for monitoring of the till pressures.
 - (ii) The piezometer shall be drilled within 1-3 m of edge of the shaft/excavation.
 - (iii) The Contractor is required to monitor the groundwater levels in accordance with the following monitoring schedule:
 - ◆ If monitoring to ensure GWL are below threshold that requires depressurization – minimum one reading per day.
 - ◆ If monitoring active depressurization to determine impact of pumping on GWL – Minimum twice per day.

- (b) Depressurization system shall control ground water levels and pressures to protect against uplift:
 - (i) The depressurized system shall include a bedrock pumping well system.
 - (ii) Once required, the well system shall operate continuously to achieve the factor of safety values indicated above.
 - (iii) The Contractor shall be responsible to obtain a Temporary Authorization Water Use Licence from the Province of Manitoba for their proposed depressurization system, and any other permits necessary for operation of the depressurization system.
- (c) Prior to construction the Contractor shall submit an excavation depressurization system plan designed and sealed by a Professional Engineer or Professional Geologist registered to practice in the Province of Manitoba for review by the Contract Administrator including:
 - (i) Number of pumping wells, including location, size, pumps, and installation details.
 - (ii) Size (pumping capacity) of each pump.
 - (iii) An evaluation of static groundwater conditions and required drawdown elevations for successful completion of the Work.
 - (iv) Permissible groundwater levels (pressures) at various stages of excavation and backfill to prevent uplift of soil layers and to prevent other disturbance to the in-situ foundation soils due to any excess groundwater pressures.
 - (v) Confirmation of the elevation to which the excavation may proceed before the well system commences operation.
 - (vi) Confirmation of the extent to which chamber construction and backfill must be completed before the depressurization well system can cease operation.

E28.1.3 Measurement and Payment

- (a) The setup of the depressurization system and daily operation of the depressurization system shall be paid as follows:
 - (i) The installation of the depressurization will be paid at the lump sum price at the Contract unit price of "Main Street Interceptor Shaft Depressurization System"
 - ◆ This cost shall cover drilling of depressurization wells, pumps, electrical supply and hook-up, outlet hoses, flowmeter to measure discharge, permits, staffing, and any other appurtenances associated with the set up of the depressurization system.
 - ◆ The price shall cover the continuous operational costs to maintain the GWL below the threshold described herein. The costs shall include pumps, generator, fuel cost, staffing, and any other costs associated with the daily operation of the depressurization system.

E29. TUNNELING SEWER CONSTRUCTION

E29.1 Description

- (a) Tunnelling methods shall be used for the installation of the new WWS Trunk sewers 900 mm or larger as shown on the drawings beginning east of the CPKC rail crossing and continuing to the connection to the interceptor sewer on Main Street (with the exception of the crossings of the existing 2700 mm Trunk sewer that will be installed in accordance with E31).
- (b) This Specification supplements and amends City of Winnipeg Standard Construction Specification CW 2130 Gravity Sewers and shall cover the installation of Sewers with diameters 900 mm or larger as shown on the drawings.

E29.2 Materials

- (a) Pipe Classes indicated on Drawings or within the Bid documents represent long term design conditions and loading based on depth of bury. The Contractor shall verify that the pipe class, strength, reinforcing and joint design of the pipes being installed are suitable for their proposed installation methods and procedures. Design of any pipe to suit installation methods is the responsibility of the Contractor.

E29.3 Construction Methods

- (a) Sewers shall be installed in accordance with CW 2130.
- (b) Selection of equipment for Tunneling Sewer Construction shall be one of the Tunneling methods described as defined in section D4.1(w), or an approved alternative in accordance with B8.
- (c) Selection of the equipment by the Contractor shall be made based on the expected soil conditions inferred from the geotechnical reports (see Appendices A & B).
- (d) The Contractor may select tunneling equipment larger than 900 mm provided that:
 - (i) The tunnelling equipment does not conflict with other utilities
 - (ii) If the Contractor's proposed installation method requires upsizing of the pipes, that the Contractor shall be responsible for all additional costs associated with the pipe size change;
 - (iii) If the Contractor's proposed installation method requires upsizing of the pipes and consequently requires increases in manhole sizes, the Contractor shall be responsible for all additional costs associated with the manhole size changes and any other changes to the project associated with the upsizing of the pipes.
 - (iv) No additional payment will be made for additional shoring, excavation, excavation support or pipe materials associated with the upsizing of the sewers.

E29.4 Submittals

- (a) **Shaft Construction** - No shaft construction may proceed without approved shop drawings in accordance with E4 sealed by an Engineer licensed in the Province of Manitoba.
 - (i) Shaft Shop Drawings shall demonstrate at minimum:
 - ◆ Shoring design meets all Province of Manitoba regulations.
 - ◆ Shoring is satisfactory to support soil, active and construction loading.
 - ◆ Excavation and shoring space permits the effective installation of the planned trenchless works and other design elements shown on the Drawings.
 - (ii) **Thrust Support** - Where shafts are used for Tunnelling, the shop drawings shall identify the anticipated thrust and shall consider the interaction of the thrust with respect to shoring, existing soil conditions, utilities, or other site-specific items.
- (b) **Jacking Pipe** – If pipe is being installed by Pipe Jacking methods, the Contractor shall submit shop drawings sealed by and Engineer in the Province of Manitoba demonstrating that the pipe can support the selected installation method.
 - (i) The submission shall include the design calculations for the specific drive lengths, depth, soil conditions and materials selected.
- (c) **Excavation Support** – If the pipe is being installed by Two-pass tunnelling, the Contractor shall submit shop drawings sealed by and Engineer in the Province of Manitoba demonstrating that the excavation supports can support the selected installation method.
 - (i) The submission shall include the design calculations for the specific drive lengths, depth, soil conditions and materials selected.
 - (ii) The excavation support shall be capable of withstanding the overburden loading, thrust loading and other forces applied by the selected installation method

- (d) **Grade Control** - The Contractor shall provide a submission demonstrating the method of grade control used on their tunnelling equipment. Contractor shall demonstrate that their grade control can be used effectively for their proposed drive lengths.
- (e) **Quality Control Survey** –The Contractor shall provide a submission demonstrating their Quality Control plan for measuring the grade and alignment of the new pipe with respect to the design. The submission shall explain the method to be used to survey the pipe (separate from the Grade Control). The frequency of quality control shall at minimum be as follows:
 - (i) 10 m
 - (ii) 30 m
 - (iii) 60 m
 - (iv) 100 m and every subsequent 50 m lengths
 - (v) Frequency shall increase at the discretion of the Contract Administrator if the Contractor's QC survey deviates from allowable tolerances in the Specifications.
- (f) Contractor to submit QC data to the Contract Administrator on a daily basis.

E29.5 Measurement and Payment

- (a) Measurement and payment for Tunneling Sewer Construction shall be in accordance with CW 2130 for the diameter, class, bedding and backfill requirements listed on the Form B with the supplemental items listed below:
 - (i) Excavation, Bedding and Backfill, as described in E25, are incidental to Tunneling Sewer Construction.
 - (ii) Surface Restorations (temporary and permanent), as described in E39 and E40, are incidental to Tunneling Sewer Construction.
 - (iii) Payment for the temporary or permanent relocation of existing utilities, and or temporary support of existing utilities required for the placement of shafts shall be incidental to Tunneling Sewer Construction as specified in E22.
 - (iv) Cost of shaft construction and associated shoring required for the installation of the works described herein, is incidental to Tunneling Sewer Construction.
 - (v) Costs associated with depressurization of the shafts as described in Section E27, is considered incidental to Tunnelling Sewer Construction.
 - (vi) Methods for dealing with and paying for Tunnelling excavation obstructions are shown in Section E15.

E30. TRENCHLESS SEWER CONSTRUCTION

E30.1 Description

- (a) This Specification supplements and amends City of Winnipeg Standard Construction Specification CW 2130 Gravity Sewers and shall cover the installation of sewers ranging in diameters from 150 mm to 900 mm.
- (b) Further to Clause 3.4.1 of CW 2130, sewers shall be installed by trenchless methods. Where necessary, tie-ins to existing sewers may be through open cut methods.

E30.2 Materials

- (a) Pipe Classes indicated on Drawings or within the Bid documents represent long term design conditions and loading based on depth of bury. The Contractor shall verify that the pipe class, strength, reinforcing and joint design of the pipes being installed are suitable for their proposed installation methods and procedures. Design of any pipe to suit installation methods is the responsibility of the Contractor.

E30.3 Construction Methods

- (a) Sewers shall be installed in accordance with CW 2130.

- (b) Selection of excavation equipment for installation of sewers up to 900 mm diameter by trenchless methods shall be the responsibility of the Contractor and shall be made based on expected soil conditions inferred from the geotechnical reports (see Appendices A & B).
- (c) Trenchless Sewer Construction may be by any suitable methods including horizontal earth coring, horizontal earth boring, Pilot Tube Guided Auger Boring, Tunnelling, or other methods that meet the design grades and objectives. However, Horizontal Directional Drilling (HDD) will not be permitted as it cannot achieve the sewer grades on the Drawings.
- (d) The Contractor may select trenchless equipment larger than the pipe sizes shown on the Drawings provided that:
 - (i) The trenchless equipment does not conflict with other utilities
 - (ii) If the Contractor's proposed installation method requires upsizing of the pipes, that the Contractor shall be responsible for all additional costs associated with the pipe size change; and
 - (iii) If the Contractor's proposed installation method requires upsizing of the pipes and consequently requires increases in manhole sizes, the Contractor shall be responsible for all additional costs associated with the manhole size changes and any other changes to the project associated with the upsizing of the pipes.
 - (iv) No additional payment will be made for additional shoring, excavation, excavation support or pipe materials associated with the upsizing of the sewers.

E30.4 Submittals

- (a) Shaft Construction - No shaft construction may proceed without approved shop drawings in accordance with E4 sealed by an Engineer licensed in the Province of Manitoba.
 - (i) Shaft Shop Drawings shall demonstrate at minimum:
 - ◆ Shoring design meets all Province of Manitoba regulations.
 - ◆ Shoring is satisfactory to support soil, active and construction loading.
 - ◆ Excavation and shoring space permits the effective installation of the planned trenchless works and other design elements shown on the Drawings.
- (b) If the contractor elects to use a Tunneling method for the Trenchless Sewer Construction Works, then then Contractor shall provide the submittals listed in E29.

E30.5 Measurement and Payment

- (a) Measurement and payment for trenchless sewer construction shall be in accordance with CW 2130 for the diameter, class, bedding and backfill requirements listed on the Form B with the supplemental items listed below:
 - (i) Excavation, Bedding and Backfill, as described in E25, are incidental to Trenchless Sewer Construction.
 - (ii) Surface Restorations (temporary, permanent, and winter), as described in E39 and E40, are incidental to Trenchless Sewer Construction.
 - (iii) Payment for the temporary or permanent relocation of existing utilities, and or temporary support of existing utilities required for the placement of shafts shall be incidental to Trenchless Sewer Construction as specified in E22.
 - (iv) Cost of shaft construction and associated shoring required for the installation of the works described herein, is incidental to Trenchless Sewer Construction
 - (v) Methods for managing, measuring, and compensating for trenchless excavation obstructions shall be in accordance with E15.

E31. PILOT TUBE GUIDED AUGER BORING TRENCHLESS CROSSINGS

E31.1 Description

- E31.1.1 This Specification supplements and amends CW 2130 and shall cover the installation of sewer Works by Pilot Tube Guided Auger Boring (PTGAB) for crossings requiring high-accuracy line and grade control, including:
- (a) the CPKC Railway Right-of-Way Crossing, and
 - (b) the 2700 mm Combined Sewer (CS) Trunk Crossings.
- E31.1.2 PTGAB is the only permitted installation method for these crossings.
- E31.1.3 PTGAB Works are subject to the settlement monitoring requirements in E19 and E20. The Contractor shall coordinate sequencing, access, and monitoring schedules accordingly.
- E31.2 Materials
- E31.2.1 Steel Casing Pipe
- (a) Seamless or welded steel pipe: to ASTM A252/A252M. Grade: 2 or better (as indicated in the Contract Documents).
 - (b) Wall thickness: as shown on the Drawings. Contractor is responsible to independently assess the need to increase the wall thickness based on their estimated installation loads.
 - (c) End finish: beveled to an angle of 30 +5°, -0°.
 - (d) Pipe joints: to be complete joint penetration (CJP) groove weld butt joints to CSA W59.
 - (i) Joints welded from one side without backing are not prequalified CJP groove welds under CSA W59 and require qualification in accordance with CSA W47.1.
- E31.2.2 Carrier Pipe
- (a) 600 mm PVC SDR35 and 900 mm PVC SDR35.
 - (b) All pipe joints within the steel casing pipe shall be installed with mechanical restraints.
 - (c) Restrained joints may include integrally restrained joints or external mechanically restrained joints.
 - (d) The Contractor is responsible to ensure that integrally and external mechanical restraints will fit properly within the casing pipe and are compatible with the casing spacers.
- E31.2.3 Casing Spacers:
- (a) Shell/band: 14-gauge steel, 304 stainless or carbon with shop coat.
 - (b) Risers: 10-gauge steel, 304 stainless or carbon with shop coat, MIG welded to shell/band when runner height extension is required.
 - (c) Runners: glass reinforced polymer plastic.
 - (d) Fasteners: 304 stainless steel.
 - (e) Configuration:
 - (i) Centered if no backfill grout is specified on the Drawings.
 - (ii) Centered and restrained if backfill grout is specified on the Drawings.
 - (iii) The Contractor may elect to use self-restraining casing spacers where applicable.
 - (iv) The Contractor is responsible to ensure that casing spacers will fit properly within the casing pipe prior to ordering.
- E31.2.4 End Seals:
- (a) Manufactured end seals: synthetic rubber with 304 stainless steel banding straps.
- E31.2.5 10.9 Kilogram Zinc Anode

- (a) to comply with City of Winnipeg approved products.

E31.3 Construction Methods

E31.3.1 Installation of steel casing pipe shall be by PTGAB in accordance with E32.

E31.4 Measurement and Payment

(a) Trenchless CPKC Railway Crossing

- (i) Trenchless CPKC Railway Crossing shall be measured on a linear metre basis and paid at the contract unit price for "Trenchless CPKC Railway Crossing". The price shall include all work described herein and includes but shall not be limited to the boring/tunnelling, casing and carrier pipe, end seals, pipe restraints, construction of shaft including excavation and shoring, supply and installation of excavation support, bedding, backfilling, surface reinstatement and all appurtenances and miscellaneous materials.

(b) Trenchless 2700 mm CS Crossing

- (i) Trenchless 2700 mm CS Crossing shall be measured on a linear metre basis and paid at the contract unit price for "Trenchless 2700 mm CS Crossing". The price shall include all work described herein and includes but shall not be limited to the boring/tunnelling, casing and carrier pipe, end seals, pipe restraints, construction of shafts including excavation and shoring, supply and installation of excavation support, bedding, backfilling, surface reinstatement and all appurtenances and miscellaneous materials.

- (c) Measurement for length of pipe will be made horizontally at grade above the centreline of pipe through shafts from drive face of drive shaft to receiving face at receiving shaft.
- (d) Repair of damage to underground and surface structures due to surface subsidence and soil heaving caused by the installation will be at the Contractor's own expense.
- (e) Bedding and backfill described in E25 will be incidental to the trenchless crossings.
- (f) Shoring described in E24 will be incidental to the trenchless crossings.

E32. PILOT TUBE GUIDED AUGER BORING INSTALLATION

General

E32.1 Reference Standards

- (a) ASTM International (Latest Edition):
 - (i) ASTM A252/A252M, Standard Specification for Welded and Seamless Steel Pipe Piles.
- (b) CSA Group (Latest Edition):
 - (i) CSA A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.
 - (ii) CSA A3000, Cementitious Materials Compendium.
 - (iii) CSA W47.1, Certification of Companies for Fusion Welding of Steel.
 - (iv) CSA W59, Welded Steel Construction.
 - (v) CSA Z662, Oil and Gas Pipeline Systems.

E32.2 Action and Informational Submittals

- (a) Submit in accordance with E4.
- (b) Pilot Tube Guided Auger Boring work plan:
 - (i) Submit a detailed description of the Pilot Tube Guide Auger Boring (PTGAB) casing installation procedure at least twenty (20) working days prior to the scheduled mobilization for the crossing. The equipment selected by the Contractor shall be compatible with the geologic conditions described within the Geotechnical Baseline

Reports and Geotechnical Data Report. The Contractor is solely responsible for evaluating the ground conditions and ensuring the appropriate equipment and installations procedures are employed during the work. The work plan shall include:

- (i) Detailed description of the PTGAB installation methodology (method statement).
 - (ii) PTGAB installation equipment specifications and capabilities.
 - (iii) Description of alignment control and steering systems, including manufacturer's literature.
 - (iv) Description of thrusting systems and estimate of jacking forces to complete the crossing.
 - (v) Description of the excavation system including: cutterhead details; tooling; location of the cutterhead relative to the leading edge of the casing; casing banding, shoe, and/or leading-edge reinforcement details; soil plug length (if required, or otherwise specified on the Drawings); and radial overcut dimensions.
 - (vi) Lubrication system details (if used) including water source, lubricant mix design and proposed additives, rheological properties and planned testing, additive safety data sheets (SDSs), injection system details, and injection pressures.
 - (vii) Site layout plan including locations and dimensions of all trenchless shafts.
 - (viii) Shaft excavation Shop Drawings detailing support structures or alternative methods for stabilizing the walls. Support structure Shop Drawings and specifications are required to be authenticated by a Professional Engineer registered to practice in the Province of Manitoba, as required by Manitoba OH&S Legislation.
 - (ix) Groundwater management plan for shaft excavations and the casing.
 - (x) Casing pipe jointing procedure, including welding procedure data sheets (WPDSs) and/or welding procedure specifications (WPS) to CSA W47.1.
 - (xi) Welder qualifications.
 - (xii) Carrier pipe insertion plan, including carrier pipe jointing procedures and mitigation strategies to limit carrier pipe joint damage and over-insertion/over-belling (where applicable).
 - (xiii) Settlement monitoring plan.
 - (xiv) Contingency procedures to address the following:
 - ◆ Inadvertent utility strikes, including power, natural gas, water, sewer, or telecommunication lines.
 - ◆ Obstruction, inability to advance, or damaged tooling/equipment.
 - ◆ Unexpected ground conditions.
 - ◆ Deviation from the design line and grade exceeding the specified tolerances.
 - ◆ Ground movement exceeding the specified tolerances.
 - ◆ Schedule of the work including sequence of shaft excavations, casing pipe installation, carrier pipe insertion, and shaft backfill.
- (c) Product Data:
- (i) Submit mill test certificates/mill test reports for the casing pipe steel.
 - (ii) Submit manufacturer's instructions, printed product literature and data sheets for carrier pipes, casing spacers, casing end seals, joint restraint systems, and shaft backfill materials.

E32.3 Closeout Submittals

- (a) Field Notes:
- (i) A daily logbook must be kept for all installations and submitted upon crossing completion. The daily logbook shall include, at a minimum:

- (i) The position of the casing pipe in relation to the design line and grade.
- (ii) The date, starting time, and finish time for each casing pipe segment installed.
- (iii) Advance rates.
- (iv) Jacking forces.
- (v) Quantity and type of lubrication, if used.
- (vi) Quantity of spoil excavated.
- (vii) Settlement monitoring survey results.

E32.4 Delivery, Storage and Handling

- (a) Deliver, store and handle Materials in accordance with manufacturer's written instructions.
- (b) Delivery and Acceptance Requirements: deliver Materials to site in original factory packaging, labelled with manufacturer's name and address.
- (c) Storage and Handling Requirements:
 - (i) Store Material in accordance with manufacturer's recommendations.
 - (ii) Store and protect Materials from damage.
 - (iii) Replace defective or damaged Materials with new.

Execution

E32.4.2 Pre-Commencement

- (a) All subsurface utilities within 25 m of the proposed alignment must be identified and location marked on the surface. Owners of subsurface utilities within 25 m of the proposed alignment must be notified of the impending work through Click Before You Dig Manitoba or directly if not a member of the service.
- (b) Install Utility Monitoring Points as directed by the Contract Administrator and as per E20.
- (c) Contractor to daylight and protect utility crossings in accordance with the relevant crossing agreements.

E32.4.3 Shaft Excavation

- (a) Do excavation Work in accordance with CW 2030 and all relevant Manitoba OH&S Legislation.
- (b) Shaft dimensions and means of wall stabilization/support shall be determined by the Contractor based on the site conditions and constraints, anticipated ground and groundwater conditions, and the proposed trenchless installation equipment.
- (c) Shaft dimensions shall conform to constraints specified on the Drawings.
- (d) Support structures shall be designed and authenticated by a Professional Engineer registered to practice in the Province of Manitoba, as required by Manitoba OH&S Legislation.
- (e) The Contractor shall manage the inflow of groundwater and surface water as required to keep working pits free of water during the performance of the work.
- (f) Groundwater Depressurizations Work, if required, shall be in accordance with E26 or E27 based on the location of the crossing.

E32.4.4 Pilot Tube Guided Auger Boring Casing Installation

- (a) The Contract Administrator must be notified 48 hours in advance of starting work. Trenchless crossings shall not begin until the Contract Administrator is present at the job site and agrees that proper preparations for the operation have been made. The Contractor's approval for beginning the installation shall in no way relieve the Contractor of the ultimate responsibility for the satisfactory completion of the work as authorized under the Contract.

- (b) The Contractor is responsible for establishing all reference lines and grades. For PTGAB installations, the digital theodolite and optical guidance equipment shall be mounted on stable, independent control points isolated from the jacking frame, thrust block, and excavation support. The Contractor must ensure a continuous, unobstructed line of sight between the theodolite and the pilot tube target, including measures to prevent interference from dust, moisture, or equipment.
- (c) Install casing pipe as required to satisfy the line and grade of the carrier pipe as shown on the Drawings, the tolerance for line shall be ± 100 mm horizontal deviation and the tolerance for grade shall be 25 millimeters above grade and 50 millimeters below grade at any one location.
- (d) If the casing pipe installation does not meet the specified tolerances for line and grade, the Contractor shall correct the installation including any necessary redesign of the pipeline or structures and acquisition of necessary easements. Corrective work shall be completed at no additional cost to the Owner and is subject to approval by the Contract Administrator.
- (e) Trenchless installations shall be executed such that settlement and/or heave is minimized, the in-place steel casing shall have full bearing against earth, and no voids are left in any portion of the Work. The radial overcut shall not exceed the wall thickness of the steel casing pipe.
- (f) The Contractor shall monitor spoil material, quantity, and consistency, and make suitable changes to the trenchless installation method to control ground movements and minimize over excavation as required.
- (g) Spoil material from the trenchless operations shall be disposed of off-site by the Contractor at an appropriate facility.
- (h) Spoil material demonstrating unexpected ground conditions must be stored on site for review by the Contract Administrator.
- (i) Jacking Forces and Lubrication:
 - (i) Jacking forces shall be continuously monitored and shall not exceed the allowable axial load capacity of the steel casing pipe, including all welds. The Contractor shall adjust installation methods as necessary to prevent overstressing the casing or welded joints.
 - (ii) Lubrication may be used to reduce skin friction between the casing and surrounding ground. Where lubrication is used, injection pressures shall not exceed the confining pressure of the ground or cause hydraulic fracturing, hydraulic jacking, or ground heave. Lubrication systems shall be designed and operated in accordance with recognized industry models including, but not limited to, Delft, Queen's, or comparable methodologies.
 - (iii) Lubrication activities shall be coordinated with jacking force monitoring such that changes in jacking load, spoil characteristics, or ground response are evaluated together and corrective measures implemented immediately as required.
- (j) The Contractor is responsible for the inspection of all welds. Support the pipe segments in the shaft and tack weld as required to ensure a straight joint before full circumferential welding. Complete welding in accordance with the submitted WPS and/or WPDSs.
- (k) If it is necessary to abandon a crossing, the casing and any overcut shall be filled with grout. Equipment that is not internally retrievable in locations where surface intervention/rescue is not permitted will be abandoned in place.

E32.4.5

Carrier Pipe Inspection

- (a) Handle and join carrier pipes in accordance with CW 2130.
- (b) Use approved blocking method to guide carrier pipe into casing in true alignment.
- (c) Place casing spacers within 0.3 m of carrier pipe joints.

- (d) Spacers for the remaining pipe barrel shall not exceed a separation of 1.8 m, or less, as based on manufacturer's recommendations for carrier pipe support.
- (e) Place casing spacers within 0.3 m of each end of the casing.
- (f) Clearance between casing spacer risers and the casing pipe shall be a maximum of 25 mm when carrier pipe is in position in a centered and restrained spacer configuration.
- (g) Join carrier pipes one length at a time outside of the casing. Push or pull the carrier pipe into position.
 - (i) Prevent over-insertion/over-belling of the carrier pipe joints if the pipe is pushed into position.
 - (ii) Prevent separation of the carrier pipe joints if the pipe is pulled into position.
- (h) Place end seals on each end of the casing.
- (i) Manufacturer's recommendations for installation shall be followed where applicable.

E32.4.6 Shaft Backfill

- (a) Backfill shafts as per E25.

Measurement and Payment

E32.4.7 Pilot Tube Guided Auger Boring

- (a) There shall be no separate measurement or payment for the work associated with PTGAB Installation. Payment for PTGAB Installation and all associated works shall be paid as per E31.4.

E33. LARGE DIAMETER MANHOLES

E33.1 Description

- (a) This Specification supplements and amends City of Winnipeg Standard Construction Specification CW 2130 Gravity Sewers and shall cover the installation of large diameter manholes and large diameter drop manholes.
- (b) For the purposes of this specification, large diameter manholes are manholes larger than 1500 mm in size. For reference see Drawing 13681, 13682, 13683, 13684 and 13685.

E33.2 Materials

- (a) Precast concrete sections and adjusting rings, ladder rungs, joint gaskets and cast-iron frames and covers shall be in accordance with CW 2130 and as shown on the Drawings.

E33.3 Submittals

- (a) Submit shop drawings for each manhole size listed on the Drawings in accordance with E4.

E33.4 Construction Methods

- (a) Manhole installation as per CW 2130 and as shown on the Drawings.
- (b) Manhole benching shall be completed in the field and approved by the Contract Administrator. All surfaces shall slope to the manhole outlet and the channel shall extend from inlet to outlet. Benching shall be constructed as follows:
 - (i) Depth of bench to invert: minimum one-half of largest pipe diameter.

E33.5 Method of Measurement and Basis of Payment

- (a) Large Diameter Manholes

Construction of large diameter manholes shall be measured on a vertical metre basis for each diameter of "Large Diameter Manhole" listed on Form B: Prices by base diameter, base height, and associated riser sections. The price shall include, but not be limited to,

excavation, shoring, backfill, reducers, adjusting rings, frames and covers, benching, rungs, couplings and all appurtenances, and miscellaneous metals and materials.

E34. CAST-IN-PLACE CONCRETE CONSTRUCTION

E34.1 Description

- (a) This Specification covers all Work associated with the construction of cast-in-place concrete and supplements, revises, and amends CW 2160.

E34.2 Materials

- (a) Concrete Mix Design
 - (i) The Contractor is responsible for the design and performance of all concrete mixes. Concrete shall comply with CSA A23.1-19 and shall meet the minimum properties listed for each application below.

E34.2.1 Concrete Chamber Construction

- (i) Class of Exposure: S-1
- (ii) Maximum Size of Aggregate: 20mm
- (iii) Cement Type: HS
- (iv) Minimum Compressive Strength at 28 Day: 30 MPa
- (v) Minimum Compressive Strength at 56 Day: 35 MPa
- (vi) Slump/Flow: 80 mm +/- 20 mm
- (vii) Maximum Water/Cement ratio: 0.40
- (viii) Air Content: 4%-7%

E34.2.2 Concrete Collar Construction

- (i) Class of Exposure: S-2
- (ii) Maximum Size of Aggregate: 20 mm
- (iii) Cement Type: HS
- (iv) Minimum Compressive Strength at 28 Days: 30 MPa
- (v) Minimum Compressive Strength at 56 Days: 32 MPa
- (vi) Slump/Flow: 80 mm +/- 20 mm
- (vii) Maximum Water/Cement ratio: 0.45
- (viii) Air Content: 4%-7%

E34.2.3 Lean Mix Concrete (Working Base)

- (i) Cement Type: HS
- (ii) Maximum Water/Cementing Materials Ratio: 0.49
- (iii) Minimum Compressive Strength at 28 Days: 15 MPa
- (iv) Slump/Flow: 80 mm
- (v) Air Content: nil

E34.2.4 Cement-stabilized backfill (for Concrete Collars bedding)

- (i) Cement Type: GU
- (ii) Maximum Compressive Strength at 28 Days: 3 MPa
- (iii) Slump/Flow: 80 mm
- (iv) Air Content: nil

E34.2.5 Provide a Mix Design Statement for each concrete type, identifying all constituent materials and proportions. Submit at least two (2) weeks before delivering concrete to the Site and include test data demonstrating strength, workability, and yield compliance.

E34.2.6 Admixtures

- (i) All admixtures shall be compatible.

- (ii) Air entraining agent shall meet ASTM C260.
- (iii) Chemical water reducing admixtures shall meet ASTM C494.

E34.2.7 Grout

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

E34.2.8 Reinforcing Steel

- (i) Reinforcement is new deformed billet steel bar conforming to CSA G30.18 (Latest). Grade 400.
- (ii) Unless noted otherwise, reinforcement clear concrete cover distances shall be a minimum of:
 - ◆ 75 mm for concrete cast against earth.
 - ◆ 50 mm for all other concrete.
- (iii) Reinforcing steel shall be clean, free of rust, dirt, loose scale, oil, grease or any material that could reduce bond with the concrete.

E34.2.9 Water Stop

- (i) Sika Swellstop or approved equivalent in accordance with B8.

E34.2.10 Bonding Agent

- (i) Sika Latex R, Acryl 60 or approved equivalent in accordance with B8.

E34.2.11 Shop Drawings:

- (i) Provide shop drawings in accordance with E4 of this Specification.
- (ii) Submit shop drawings for reinforcing steel a minimum of two (2) weeks prior to the fabrication of any reinforcing steel.

E34.3 Construction Methods

(a) Construction Method Submission

- (i) No Work shall commence on construction of cast-in-place concrete until after the Contract Administrator's review of the Contractor's Construction Method submission.
- (ii) The Contractor shall prepare for the Contract Administrators review a Construction Method submission detailing:
 - ◆ Construction sequence to be followed including all methods to be employed.
 - ◆ Specialized equipment to be used.
 - ◆ Any design revisions proposed to accommodate the Contractor's proposed construction method.
- (iii) The Contractor shall respond to any concerns that may be raised by the Contract Administrator after review of Construction Method submission.

(b) Cast-in-place Concrete Chamber Construction

- (i) Construct cast in place concrete in accordance with CW 2160, except as supplemented, revised or amended in this Specification and as indicated in the construction notes on the Drawings.
- (ii) Adjust the location of reinforcing steel adjacent to openings to frame those openings in accordance with good practice, and maintain the bar spacing intent. Provide additional reinforcement around openings as shown on the drawings.
- (iii) Do not use welded splices for reinforcing steel.
- (iv) Order all wall reinforcement steel in lengths to best suit the spacing of walers so that reinforcing bars will not be bent or malformed in order to remove the walers.

(c) Backfill

- (i) Place and compact backfill material as indicated in the drawings and in accordance with CW 2030.

- (ii) Do not place backfill material in a frozen state.
 - (iii) Supply heating and hoarding in accordance with CW 2160 if required to ensure material does not freeze before compaction is complete.
 - (iv) Notify the Contract Administrator at least one (1) full Working Day in advance of any backfilling operation. No Backfill shall be placed against concrete until approved by the Contract Administrator and in no case before field cured test cylinders show the concrete strength to be 75% of that specified.
- (d) Grout
- (i) Mix and apply grout in accordance with the manufacturer's instructions. Consistency is to be suitable for the intended application.

E34.4 Measurement and Payment

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

E35. SUPPLY AND INSTALLATION OF SEWER CLEANOUT

E35.1 Description

- (a) This Specification supplements the City of Winnipeg Standard Construction Specification CW 2130 Gravity Sewers, and shall cover:
 - (i) The supply and installations of sewer cleanouts at the private sewer services at Whitby Courts Apartments and 236 Armstrong Avenue.

E35.2 Materials

- (a) Materials shall conform to the City of Winnipeg Approved Products List or be an approved equivalent in accordance with E4.

E35.3 Construction Method

- (a) Install new clean-outs on the private sanitary services within the limits of private property, in accordance with Drawings 13669, 13678, and the applicable details on Drawing 13685.

E35.4 Measurement and Payment

- (a) Supply and Installation of sewer cleanouts will be paid at the Contract Unit Price for "150 mm Sewer Cleanout" and "200 mm Sewer Cleanout," measured on a per-unit basis. The unit price shall include all labour, materials, equipment, and incidentals necessary to complete the Work as specified and as shown on the Drawings.

E36. TEMPORARY PLUGS

E36.1 Description

- (a) This Specification covers the supply and installation of temporary plugs for the diameter and locations as indicated on the drawings. As part of Contract 1, future stubs are being extended beyond the Leila Avenue right-of-way to support the planned PWD roadway reconstruction projects and to facilitate connections required for future Armstrong contracts.

E36.2 Materials

- (a) The temporary plugs shall match the sewer pipe material on the Drawings or an alternate as approved by the Contract Administrator in accordance with B8.

E36.3 Construction Methods

- (a) Clean interior contact surfaces of pipe and install temporary plug.

- (b) Plugs shall be watertight and capable of withstanding internal water pressure (surcharge to surface) and external soil pressures without leakage.
- (c) Provide the Contract Administrator with reasonable access and accommodations to survey and verify plug locations.
- (d) Where plugs are installed at the end of a pipe section without a manhole, install above-grade markers to indicate the location of the plug and future pipe connection:
 - (i) Grassed Areas:
 - ◆ Install a 19 mm diameter rebar, 1 m long, driven into the ground with 50 mm remaining exposed above grade. Install a 1.5 m long 4×4 wooden post adjacent to the rebar, with 0.6 m embedded below grade and 0.9 m exposed above grade.
 - (ii) Concrete or Asphalt Surfaces:
 - ◆ Install a 3-inch bolt drilled and grouted into the surface, with the bolt head set 3 mm below the finished surface.

E36.4 Measurement and Payment

- (a) Supply and installation of temporary plugs and associated markers will be measured on a per-unit basis, for each plug diameter and material type. The Contract Unit Price shall be payment in full for providing all labour, materials, equipment, and incidentals necessary to complete the Work as specified herein and as shown on the Drawings.

E37. MAIN STREET INTERCEPTOR CONNECTION CHAMBER

E37.1 Description

- (a) The specification supports the construction of the new chamber to be installed around the existing 2250 mm Main Street interceptor that will act as the connection point for the new Sanitary Trunk Sewer.
- (b) The Main Street Interceptor will be active throughout construction and flow through the pipe shall not be impacted by the Work
- (c) The Work associated with the construction of the chamber, including the shoring to support the chamber construction and connections to the chamber must occur within the dry weather flow period identified in the Sequence of Work (Section D17).
- (d) This Specification supplements and amends City of Winnipeg Standard Construction Specification CW 2130 "Gravity Sewers", CW2160 "Concrete Underground Structures and works" and shall cover Main Street Manhole chamber installation.

E37.2 Materials

- (a) The construction of the cast-in-place Manhole base (floor and walls) and precast roof slab shall be in accordance with Cast-in-Place Concrete Construction E34, Drawing 13686, Drawing 13687 and Drawing 13688.
- (b) The roof of the chamber shall be two (2) separate precast concrete sections as per the Drawings.
 - (i) The roof was designed in two precast sections to permit each section to be lowered into the shaft and placed upon the walls after the interceptor sewer has been removed and the chamber is filled with wastewater. Two sections were designed to reduce the overall weight of the roof slab.
 - (ii) The Contractor shall ensure that precast sections are constructed following construction of the walls to ensure that dimensions address any field changes. Contractor to take final measurements of cast in place walls after wall construction.
 - (iii) The Contractor shall ensure that the manhole risers mate with the roof slab based on the approved manhole shop drawings.

- (c) Manhole access to the chamber shall extend from the chamber roof to within 0.6 m of surface as 1.2 m diameter precast concrete risers. The manhole access shall include a flat top reducer to a standard manhole frame and cover.
- (d) The cast in place chamber to be constructed on a concrete working base with thickness as per the Drawings and as per table CW 2160.1 of City of Winnipeg Standard Construction Specification CW 2160.

E37.3 Construction

E37.3.1 Shoring

- (a) **The shoring system selected to support the chamber construction shall be drilled in place to avoid impacting the interceptor from vibrations or soil displacement.**
- (b) Shoring and associated submittals shall be in accordance with E24 and E25 unless otherwise noted on the Drawings or herein.

E37.3.2 Depressurization

- (a) Depressurization of the groundwater is required to facilitate the chamber construction and temporary shoring in accordance with E28.

E37.3.3 Chamber Construction

- (a) The Contractor shall exercise extreme caution when excavating around the existing 2250 mm monolithic concrete interceptor pipe.
 - (i) All excavation within 1 m of the top of the pipe shall be undertaken with soft digging methods.
 - ◆ Contractor to verify top of pipe elevation prior to excavation and submit readings to the Contract Administrator.
 - ◆ Contractor to verify the DWF water level prior to excavation and submit readings to the Contract Administrator.
 - (ii) The existing interceptor shall be supported at all times to inhibit settlement during the excavation. The Contractor shall submit strapping and support plan to the Contract Administrator for approval with their temporary shoring drawings.
 - (iii) The Contractor shall undertake a CCTV inspection of the existing interceptor during DWF periods from the manhole upstream of the chamber location to the manhole downstream of the chamber before shoring commences and prior to commencing backfilling of the chamber to ensure that the existing interceptor has not been damaged and that no debris from construction has been left in the sewer. Damage to the existing interceptor caused by construction shall be repaired by the Contractor and is incidental to the Main Street Interceptor Connection Chamber. The CCTV inspections shall be completed in accordance with CW2145.
- (b) A detailed sequencing plan shall be submitted to the Contract Administrator with the temporary shoring drawings for approval. The sequence of work for chamber installation shall include the following elements that are incidental to the Main Street Interceptor Connection Chamber Work (unless otherwise noted):
 - (i) Complete preconstruction CCTV inspection of Interceptor Sewer
 - (ii) Install temporary shoring system to support the planned work
 - (iii) Expose the existing 2250 mm monolithic concrete interceptor sewer and apply tension straps around the interceptor sewer to mitigate the risks of bursting from surcharge. The entire surface area of the exposed pipe shall be strapped.
 - (iv) Install vertical supports to surface and/or steel supports to support the pipe and mitigate any deflection of the pipe.

- (v) Install new 900 mm concrete sewer pipe between MH 1-65 on Armstrong Avenue and the chamber (this item is paid for under Tunnelling Sewer Construction).
- (vi) Install concrete working base for the chamber. No formwork for the chamber shall start until the foundation has cured to the required strength.
- (vii) Install formwork and rebars for the chamber as per structural Drawings 13686, 13687 and 13688.
- (viii) Install adhesive water stops around the existing 2250 mm and the new 900 mm concrete pipes at the wall protrusion before pouring the concrete for the chamber.
- (ix) Pour concrete for the chamber base (floor and walls)
- (x) Pour benching around the 2250 mm concrete pipe and around the new 900 mm concrete connection in the chamber as shown on Drawing 13687.
- (xi) Conduct Operational Impact meeting as described below.
- (xii) Install hoisting lugs on top of the interceptor pipe, cut the upper section of the interceptor pipe as show on Drawings and remove the pipe top from the chamber.
 - ◆ The pipe cut lines must match the line of the benching daylighting to the interceptor pipe surface to provide a smooth transition between new 900 mm sewer and existing interceptor.
 - ◆ Professional divers will be required to assist with the removal of pipe obvert and to ensure that no debris is left within the chamber or interceptor pipe.
- (xiii) Cast and install precast roof slab sections
 - ◆ The Contractor shall submit a lifting and lowering plan for review and approval by the Contract Administrator
- (xiv) Install 1.2 m diameter riser sections complete with flat top reducer, manhole frame and cover to match existing surface grades.
- (xv) Complete postconstruction CCTV inspection of Interceptor Sewer
- (xvi) Backfill around shaft with Class 1 backfill.
- (xvii) Restore pavements in accordance with E39 and E40.

E37.3.4 Operational Impact Meeting

- (a) The Contractor shall meet with the Contract Administrator and the City of Winnipeg a minimum of two week prior to the planned removal of the Main Street Interceptor Sewer obvert. The meeting will include the City's Consultant Contract Administrator from the Design and Construction Branch, staff from Wastewater Collection system Operations, and the Operations Manager (or designate) from NEWPCC.
- (b) The purpose of the meeting is to review the plan (date, time, processes) as well as the risks associated with the work.
- (c) Collection System Operations staff are included to identify other activities are planned in the area that may impact the wastewater flows or level in the interceptor sewer.
- (d) NEWPCC operations staff will be included to identify if there are activities at NEWPCC that may impact the wastewater flows or level in the interceptor sewer.

E37.4 Measurement and Payment

- (a) Installation of Main Street Interceptor Connection Chamber shall be paid for at the Contract Lump Sum Price and shall included all work described herein for the chamber installation including shoring, excavation, strapping/bracing/supporting existing interceptor sewer, cast-in-place concrete chamber (floor, walls and roof), Benching, Connection of 900 mm wastewater trunk sewer, precast manhole riser, reducer, manhole frame, commissioning, backfill, pavement restoration and all other items (including

materials, equipment and resources) required to completed the Work included in this Specification and shown on the Drawings.

- (i) Cost of shaft construction and associated shoring required for the installation of the works described herein, is incidental to the Main Street Interceptor Connection Chamber.
- (ii) Surface Restorations (temporary and permanent), as described in E39 and E40, are incidental to the Main Street Interceptor Connection Chamber
- (iii) The installation of the 900 mm trunk sewer from Manhole 1-65 to the chamber will be paid separately as part of Tunnelling Sewer Construction.
- (iv) The cost of the pre and post construction CCTV inspection of the Interceptor sewer is considered incidental to the Main Street Interceptor Connection Chamber.
- (v) Groundwater depressurization to support the shaft for the chamber Work is paid separately as per E28.

E38. CONSTRUCTION OF CONCRETE COLLAR

E38.1 Description

- (a) All concrete work in this project, materials and construction methods, shall be according to the Drawings, Details and this Specification.

E38.2 Materials

- (a) Concrete Mix Design
 - (i) Concrete mix design and steel reinforcement shall be as indicated on the Drawings and in accordance with E34. – Cast In Place Concrete Construction.
- (b) Cold Weather Requirements
 - (i) Cold weather requirements shall be in accordance with E13 – Cold Weather Requirements.

E38.3 Construction Methods

- (a) Cast in place Concrete Construction
 - (i) Construct cast in place concrete in accordance with CW 2160, except as supplemented, revised or amended in this specification and as indicated in the construction notes on the Drawings.
 - (ii) Adjust the location of reinforcing steel adjacent to openings to frame those openings in accordance with good practice and maintain the bar spacing intent.
 - (iii) Do not use welded splices for reinforcing steel.
 - (iv) Order all wall reinforcing steel in lengths to best suit the spacing of walers so that reinforcing bars will not be bent or deformed in order to remove the walers.
- (b) Backfill
 - (i) Place and compact backfill material as indicated on the Drawings in accordance with CW 2030.
 - (ii) Do not place backfill material in a frozen state.
 - (iii) Supply heating and hoarding in accordance with CW 2160 if required to ensure material does not freeze before compaction is complete.
 - (iv) Notify the Contract Administrator at least one (1) full Working Day in advance of any backfilling operation. No Backfill shall be placed against concrete until approved by the Contract Administrator and in no case before field cured test cylinders show the concrete strength to be 75% of that specified.
- (c) Grout
 - (i) Mix and apply grout in accordance with the manufacturer's instructions. Consistency to be suitable for the intended application.

E38.4 Measurement and Payment

- (a) Construction of the concrete collar will be measured on a unit basis and paid for at the Contract Unit Price for “Items of Work” listed below. Said price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this specification.
- (b) Cold weather requirements shall be considered incidental to the construction of cast-in-place concrete, and no measurement or payment will be made for this item.
- (c) Items of Work: Construction of Concrete Collar
 - (i) Connect 600 mm (C76-V) WWS to 600 mm PVC (SDR35) WWS
 - (ii) Connect 900 mm (C76-V) WWS to 900 mm PVC (SDR35) WWS

RESTORATIONS

E39. TEMPORARY SURFACE RESTORATIONS

E39.1 General

- (a) The future road renewal project is planned to extend along Leila Avenue from the intersection of McPhillips Street to McGregor Street, and along McGregor Street from Leila Avenue to locations beyond MH 1-34. Areas within the planned PWD project extents shall be restored with temporary asphalt.
- (b) Winter restorations in accordance with the 2025 City of Winnipeg Street Cuts Manual will be required.

E39.2 Construction Methods

- (a) Temporary Restorations within PWD project extents:
 - (i) Backfill excavation as per E25.
 - (ii) Cap excavation in pavement with a minimum of 75 mm thick layer of asphalt.
 - (iii) Cap excavations in sidewalks with a minimum of 50 mm thick layer of asphalt.
- (b) Winter Restorations:
 - (i) Backfill excavation as per E25.
 - (ii) Cap excavation in pavement as per the most recent version of the City of Winnipeg Street Cuts Manual.
 - (iii) Cap excavation in sidewalks as per the most recent version of the City of Winnipeg Street Cuts Manual.
 - (iv) Following April 30th of any given year, winter restorations are to be removed and replaced with Temporary Surface Restorations within the PWD project extents.
- (c) Boulevard Restoration as per CW 2130.
- (d) Any curbs damaged or removed for shaft installation within the PWD project extents shall be restored using temporary asphalt curbs.

E39.3 Maintenance

- (i) The Contractor shall monitor and maintain all temporarily restored surfaces until the end of the warranty period, or until final handover to the Public Works Department for the PWD project, whichever occurs sooner.
- (ii) 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 to the Contractor.
- (iii) All costs associated with the maintenance or reconstruction of temporary pavement incurred by the City shall be deducted from future payments to the Contractor.

E39.4 Measurement and Payment

- (a) All costs associated with Temporary Surface Restorations and Winter Restorations as described herein are incidental to the Work items for the Work activity being carried out,

including but not limited to Trenchless Sewer Construction, Tunnelling Sewer Construction installation of Manholes, installation of Catch Basin Leads, Connecting of Catch Basin Lead, Catch Basin, Catch Pits or Manholes, Sewer Services, and Watermains, and other works shown on the Drawings. No payment will be made for restoring the roadways from these Works.

E40. PERMANENT SURFACE RESTORATIONS

E40.1 Description

- (a) This specification identifies the requirements for permanent surface restorations in areas outside the planned PWD project extents as identified in E39.
- (b) The specification amends Surface Restorations defined in CW 2130.

E40.2 General Requirements

- (a) Permanent surface restoration shall take place as soon as possible following the completion of backfill, but within a maximum two (2) weeks after completion of backfill.

E40.3 Pavement Restoration Requirements

- (a) The Contractor will follow the most recent version of the City's Street By-law No. 1481/77 and Street Cuts Manual for all pavement restoration unless otherwise shown on the drawing or specifications or as directed by the Contract Administrator.
- (b) The Street Classification and Surface Type within the project Work area are classified as follows:

Street Name	Segment	Pavement Type	Condition
McPhillips Street	Kingsbury Avenue to Leila Avenue (northbound lanes)	Asphalt over Concrete	Fair
	Kingsbury Avenue to Leila Avenue (southbound lanes)	Asphalt over Concrete	Good
Leila Avenue	McPhillips Street to Sinclair Street (eastbound lanes)	Asphalt over Concrete	Poor
	McPhillips Street to Garden Park Drive (westbound lanes)	Asphalt over Concrete	Poor
	Garden Park Drive to Sinclair Street (westbound lanes)	Asphalt over Concrete	Good
	Sinclair Street to Embassy Lane (westbound and eastbound lanes)	Asphalt over Concrete	Poor
	Embassy Lane to McGregor Street (westbound lanes)	Asphalt over Concrete	Poor
	McGregor Street to Aikins Street (westbound lanes)	Asphalt over Concrete	Good
Partridge Avenue	Embassy Lane to McGregor Street (eastbound lanes)	Asphalt over Concrete	Poor
McGregor Street	Leila Avenue to Partridge Avenue (south and northbound lanes)	Asphalt over Concrete	New
	Partridge Avenue to Royal Crescent (south and northbound lanes)	Asphalt over Concrete	Good
Sinclair Street	Leila Avenue to 1 st backlane to the south	Asphalt over Concrete	Good
Jack Donner Drive	Leila Avenue to dead end	Concrete	Poor

Sinclair Street	Leila Avenue to Hillhouse Road	Asphalt over Concrete	Good
Embassy Lane	Leila Avenue to Doug McKay Pl	Asphalt over Concrete	Good
Andrew Street	Leila Avenue to Partridge Avenue	Asphalt over Concrete	New
Weinberg Road	Leila Avenue to Weinburg Road	Concrete	Fair
Powers Street	Leila Avenue to Partridge Avenue	Asphalt over Concrete	New
Salter Street	Leila Avenue to Partridge Avenue	Asphalt over Concrete	Good
	Leila Avenue to Vera By	Asphalt over Concrete	Good
Aikins Street	Leila Avenue to Armstrong Avenue	Concrete	Poor
Armstrong Avenue	Aikins Street to Main Street	Asphalt	Good
Main Street	Templeton Avenue to Newton Avenue (southbound lanes)	Asphalt over Concrete	Fair
NOTE: Values were obtained from the City of Winnipeg Street Conditions Map available at http://winnipeg.ca/publicworks/maps/streetconditions.asp and may not reflect existing conditions.			

- (c) All street segments within the Work area impacted by the Work as determined by the Contract Administrator shall be maintained and restored with the following additional requirements.
- (i) 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 Work.
 - (ii) Review and record the condition of each street segment with the Contract Administrator and a City Representative from Public Works prior to surface restoration. The surface restoration required for each street segment will be agreed upon at this review meeting.
- (d) Pavement Restoration Guidelines from the City of Winnipeg Street Cuts Manual are summarized below:
- (i) Asphalt & Asphalt over concrete.

Rated Pavement Condition of Segment	Regional (Priority I)		Collector (Priority II)		Local (Priority III)	
	Action Required	Responsibility	Action Required	Responsibility	Action Required	Responsibility
New	Grind & repave full lane width & length of project or excavation	Utility conducting work	Grind & repave full lane width & length of project or excavation	Utility conducting work	Grind & repave full lane width & length of project or excavation	Utility conducting work
Good						
Fair	Decision after inspection by Public Works Department <i>See Note (A-2)</i>		Decision after inspection by Public Works Department <i>See Notes (A-2) & (A-3)</i>		Decision after inspection by Public Works Department <i>See Notes (A-2) & (A-3)</i>	
Poor			Isolated repairs accepted	Utility conducting work	Isolated repairs accepted	Utility conducting work

(ii) Portland cement concrete

Rated Pavement Condition of Segment	Regional (Priority I)		Collector (Priority II)		Local (Priority III)	
	Action Required	Responsibility	Action Required	Responsibility	Action Required	Responsibility
New	Full panel repair	Utility conducting work	Full panel repair	Utility conducting work	Full panel repair	Utility conducting work
Good						
Fair	Decision after inspection by Public Works Department <i>See Note (B-2)</i>		Decision after inspection by Public Works Department <i>See Note (B-2)</i>		Decision after inspection by Public Works Department <i>See Note (B-2)</i>	
Poor			Isolated repairs accepted	Utility conducting work	Isolated repairs accepted	Utility conducting work

E40.4 Methods

- (a) The Contractor shall permanently restore all existing surface areas disturbed by construction activities including, but not limited to, areas disturbed by construction of Works shown on the Drawings, construction equipment, placement of equipment and trailers, and material laydown areas, shall be restored as follows:
 - (i) Boulevards, ditches and grassed areas - sodding using imported topsoil in accordance with CW 3510. The Contractor shall restore all areas disturbed during construction to existing condition or better, using topsoil and sod at its own cost.
 - (ii) Asphalt surfaces – match existing base course and asphalt thickness or a minimum of 150 mm of base course and 75 mm of Type 1A Asphaltic Concrete, whichever is greater, in accordance with CW 3410.
 - (iii) Miscellaneous concrete slabs, including sidewalk - in accordance with CW 3235

- (iv) Interlocking stones – in accordance with CW 3330.
 - (v) Concrete curb and gutter – in accordance with CW 3240.
 - (vi) Trees - requiring replacement due to construction activities (as directed by the Contract Administrator) shall be installed in accordance with CW 3510 and as per E12.
 - (vii) Topsoil - All Topsoil Work shall be performed in accordance with CW 3510. Topsoil Work shall include all existing grassed areas disturbed by the Contractor during construction. The Contractor shall restore all areas disturbed during construction to existing condition or better, using topsoil and sod at its own cost.
- (b) Pavement surface restorations shall be in accordance with E40.3(d), based on the condition of the existing pavement listed in E40.3(b), with the exception of any restoration works withing planned public works project area as described in D2.11 where the following deviations from the specification will apply.
- (c) Winter Restorations:
- (i) Backfill excavation as per E25.
 - (ii) Cap excavation in pavement as per the most recent version of the City of Winnipeg Street Cuts Manual.
 - (iii) Cap excavation in sidewalks as per the most recent version of the City of Winnipeg Street Cuts Manual.
 - (iv) Following April 30th of any given year, winter restorations are to be removed and replaced with Permanent Surface Restorations.

E40.5 Measurement and Payment

- (a) This specification amends CW 2130 such that:
- (i) All costs associated with Permanent Surface Restorations and Winter Restorations as described herein are incidental to the Work items for the Work activity being carried out, including but not limited to Trenchless Sewer Construction, Tunnelling Sewer Construction installation of Manholes, installation of Catch Basin Leads, Connecting of Catch Basin Lead, Catch Basin, Catch Pits or Manholes, Sewer Services, and Watermains, and other works shown on the Drawings. No payment will be made for restoring the roadways from these Works.
 - (ii) Permanent pavement repairs for provisional items not identified on the Drawings including sewer and water service regrading will be paid out in accordance with the pavement unit prices listed in the provisional items of the Form B: Prices.

PART F - SECURITY CLEARANCE

F1. SECURITY CLEARANCE

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