



THE CITY OF WINNIPEG

TENDER

TENDER NO. 350-2023

MCLEOD CREEK DRAINAGE IMPROVEMENTS

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 MCLEOD CREEK DRAINAGE IMPROVEMENTS

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, May 25, 2023.

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

B3. SITE INVESTIGATION

B3.1 The Bidder is advised that access to the portions of the Site is restricted as private property authorization is required. As such, the Contract Administrator has coordinated with the private property owners to allow Bidders to view the Site **only during the designated timeslot and date identified below**. During this the time the Contract Administrator will be on Site to answer any questions that the Bidder may have. Accessing the private properties outside of this date and timeslot is not permitted. At a minimum, the Bidder's personnel viewing the Site shall ensure they are wearing high visibility vests to clearly identify themselves as Contractor personnel. Viewing of the Site is not mandatory and is intended to further supplement the Drawings and to provide Bidder's a better look at access constraints and existing conditions.

(a) 131 Irving Place – May 16, 2023 from 1:00pm to 3:00pm

(b) 131 Irving Place – May 18, 2023 from 1:00pm to 3:00pm

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

B3.3 The Bidder/Proponent is responsible for inspecting the Site, the nature of the Work to be done and all conditions that might affect their Bid/Proposal or their performance of the Work, and shall assume all risk for conditions existing or arising in the course of the Work which have been or could have been determined through such inspection.

B4. ENQUIRIES

B4.1 All enquiries shall be directed to the Contract Administrator identified in D7.1.

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

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

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

B4.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to 0 unless that response or interpretation is provided by the Contract Administrator in writing.

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

Email: merx@merx.com

B5. CONFIDENTIALITY

- B5.1 Information provided to a Bidder by the City or acquired by a Bidder by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator. The use and disclosure of the confidential information shall not apply to information which:
- (a) was known to the Bidder before receipt hereof; or
 - (b) becomes publicly known other than through the Bidder; or
 - (c) is disclosed pursuant to the requirements of a governmental authority or judicial order.
- B5.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Tender to the media or any member of the public without the prior written authorization of the Contract Administrator.

B6. ADDENDA

- B6.1 The Contract Administrator may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Tender, or clarifying the meaning or intent of any provision therein.
- B6.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.
- B6.3 Addenda will be available on the MERX website at www.merx.com.
- B6.4 The Bidder is responsible for ensuring that they have received all addenda and is advised to check the MERX website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.
- B6.5 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid/Proposal. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.
- B6.6 Notwithstanding B4, enquiries related to an Addendum may be directed to the Contract Administrator indicated in D7.

B7. SUBSTITUTES

- B7.1 The Work is based on the Plant, Materials and methods specified in the Tender.
- B7.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B7.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.
- B7.4 The Bidder shall ensure that any and all requests for approval of a substitute:
- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
 - (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
 - (c) identify any anticipated cost or time savings that may be associated with the substitute;

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

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

B7.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Bidder who requested approval of the substitute.

B7.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons they wish to inform.

B7.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.

B7.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base their Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B18.

B7.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B8. BID COMPONENTS

B8.1 The Bid shall consist of the following components:

- (a) Form A: Bid/Proposal;
- (b) Form B: Prices;
- (c) Form G1: Bid Bond and Agreement to Bond.

B8.2 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely.

B8.3 The Bid shall be submitted electronically through MERX at www.merx.com.

B8.3.1 Bids will **only** be accepted electronically through MERX.

B8.4 Bidders are advised that inclusion of terms and conditions inconsistent with the Tender document, including the General Conditions, will be evaluated in accordance with B18.1(a).

B9. BID

B9.1 The Bidder shall complete Form A: Bid/Proposal, making all required entries.

- B9.2 Paragraph 2 of Form A: Bid/Proposal shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in their own name, their name shall be inserted;
 - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
 - (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
 - (d) if the Bidder is carrying on business under a name other than their own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.
- B9.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B9.2.
- B9.3 In Paragraph 3 of Form A: Bid/Proposal, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.
- B9.4 Paragraph 13 of Form A: Bid/Proposal shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in their own name, it shall be signed by the Bidder;
 - (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
 - (c) if the Bidder is a corporation, it shall be signed by their duly authorized officer or officers;
 - (d) if the Bidder is carrying on business under a name other than their own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.
- B9.4.1 The name and official capacity of all individuals signing Form A: Bid/Proposal should be entered below such signatures.
- B9.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.
- B10. PRICES**
- B10.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.
- B10.1.1 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 D34. Any such costs shall be determined in accordance with D34
- B10.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.
- B10.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.
- B10.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).
- B10.5 The Bidder shall enter the Total Bid Price from Form B: Prices into the Total Bid Price field in MERX.
- B10.5.1 Bidders are advised that the calculation indicated in B18.4 will prevail over the Total Bid Price entered in MERX.

B11. DISCLOSURE

B11.1 Various Persons provided information or services with respect to this Work. In the City's opinion, this relationship or association does not create a conflict of interest because of this full disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.

B11.2 The Persons are:

- (a) LaFarge Canada – Manhole sizing review.
- (b) Accurate HD – Trenchless Bergen Cutoff crossing constructability review.
- (c) Secure-Energy – Trenchless Bergen Cutoff crossing constructability and cost review.

B12. CONFLICT OF INTEREST AND GOOD FAITH

B12.1 Further to C3.2, Bidders, by responding to this Tender, declare that no Conflict of Interest currently exists, or is reasonably expected to exist in the future.

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

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

that could or would be seen to:

- (ii) 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
- (iii) compromise, impair or be incompatible with the effective performance of a Bidder's obligations under the Contract;
- (e) has contractual or other obligations to the City that could or would be seen to have been compromised or impaired as a result of their participation in the Tender process or the Work; or
- (f) has knowledge of confidential information (other than confidential information disclosed by the City in the normal course of the Tender process) of strategic and/or material relevance to the Tender process or to the Work that is not available to other bidders and that could or would be seen to give that Bidder an unfair competitive advantage.

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

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

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

acceptable to the City, in their sole discretion, to avoid or mitigate the impact of such Conflict of Interest.

- B12.5** Without limiting B12.3, and in addition to all contractual or other rights or rights at law or in equity or legislation that may be available to the City, the City may, in their sole discretion:
- (a) disqualify a Bidder that fails to disclose a perceived, potential or actual Conflict of Interest of the Bidder or any of their employees proposed for the Work;
 - (b) require the removal or replacement of any employees proposed for the Work that has a perceived, actual or potential Conflict of Interest that the City, in their sole discretion, determines cannot be avoided or mitigated;
 - (c) disqualify a Bidder or employees proposed for the Work that fails to comply with any requirements prescribed by the City pursuant to B12.4 to avoid or mitigate a Conflict of Interest; and
 - (d) disqualify a Bidder if the Bidder, or one of their employees proposed for the Work, has a perceived, potential or actual Conflict of Interest that, in the City's sole discretion, cannot be avoided or mitigated, or otherwise resolved.
- B12.6** The final determination of whether a perceived, potential or actual Conflict of Interest exists shall be made by the City, in their sole discretion.

B13. QUALIFICATION

- B13.1** The Bidder shall:
- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba; and
 - (b) be financially capable of carrying out the terms of the Contract; and
 - (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.
- B13.2** The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:
- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <https://www.winnipeg.ca/matmgt/Templates/files/debar.pdf>
- B13.3** The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:
- (a) have successfully carried out work similar in nature, scope and value to the Work; and
 - (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
 - (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);
 - (d) have completed the Accessible Customer Service online training required by the Accessibility for Manitobans Act (AMA) (see B13.5 and D9).
- B13.4** Further to B13.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:
- (a) Written confirmation of a safety and health certification meeting SAFE Work Manitoba's SAFE Work Certified Standard (e.g., COR™ and SECOR™) in the form of:

- (ii) 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
 - (iii) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
 - (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>).
- B13.5 Further to B13.3(d), the Bidder acknowledges they and all Subcontractors have obtained training required by the Accessibility for Manitobans Act (AMA) available at <http://www.accessibilitymb.ca/training.html> for anyone that may have any interaction with the public on behalf of the City of Winnipeg.
- B13.6 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.
- B13.7 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.
- B13.8 The Bidder shall submit the following qualifications for the operator(s) completing work on the Bergen Cutoff crossing pipe ramming works prior to commencement:
 - (a) The operator shall have pipe ramming experience as an operator on at least three pipe ramming projects using the same equipment required for this project.
 - (b) 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. BID SECURITY**
- B14.1 The Bidder shall include in their Bid Submission bid security in the form of a digital bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in Form G1: Bid Bond and Agreement to Bond, available on The City of Winnipeg, Corporate Finance, Materials Management Division website at <https://www.winnipeg.ca/MatMgt/templates/files/eBidsecurity.pdf>.
- B14.2 Bid security shall be submitted in a digital format meeting the following criteria:
 - (a) The version submitted by the Bidder must have valid digital signatures and seals;
 - (b) The version submitted by the Bidder must be verifiable by the City with respect to the totality and wholeness of the bond form, including: the content; all digital signatures and digital seals; with the surety company, or an approved verification service provider of the surety company.
 - (c) The version submitted must be viewable, printable and storable in standard electronic file formats compatible with the City, and in a single file. Allowable formats include pdf.
 - (d) The verification may be conducted by the City immediately or at any time during the life of the bond and at the discretion of the City with no requirement for passwords or fees.
 - (e) The results of the verification must provide a clear, immediate and printable indication of pass or fail regarding B14.2(a).

- B14.3 Bonds failing the verification process will not be considered to be valid and the bid shall be determined to be non-responsive in accordance with B18.1(a).
- B14.4 Bonds passing the verification process will be treated as original and authentic.
- B14.4.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.
- B14.5 The bid security of the successful Bidder and the next two lowest evaluated responsive and responsible Bidders will be released by the City when a Contract for the Work has been duly formed with the successful Bidder and the contract securities are furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.
- B14.6 The bid securities of all Bidders will be released by the City as soon as practicable following notification by the Contract Administrator to the Bidders that no award of Contract will be made pursuant to the Tender.

B15. OPENING OF BIDS AND RELEASE OF INFORMATION

- B15.1 Bids will not be opened publicly.
- B15.2 Following the Submission Deadline, the names of the Bidders and their Total Bid Prices (unevaluated and pending review and verification of conformance with requirements) will be available on the MERX website at www.merx.com.
- B15.3 After award of Contract, the name(s) of the successful Bidder(s) and their Contract amount(s) will be available on the MERX website at www.merx.com.
- B15.4 The Bidder is advised that any information contained in any Bid may be released if required by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law or by City policy or procedures (which may include access by members of City Council).
- B15.4.1 To the extent permitted, the City shall treat as confidential information, those aspects of a Bid Submission identified by the Bidder as such in accordance with and by reference to Part 2, Section 17 or Section 18 or Section 26 of The Freedom of Information and Protection of Privacy Act (Manitoba), as amended.

B16. IRREVOCABLE BID

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

B17. WITHDRAWAL OF BIDS

- B17.1 A Bidder may withdraw their Bid without penalty at any time prior to the Submission Deadline.

B18. EVALUATION OF BIDS

- B18.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Tender, or acceptable deviation there from (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B13 (pass/fail);

- (c) Total Bid Price;
- (d) economic analysis of any approved alternative pursuant to B7.

B18.2 Further to B18.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.

B18.3 Further to B18.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in their Bid or in other information required to be submitted, that they are qualified.

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

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

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

B19. AWARD OF CONTRACT

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

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

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

- (a) the prices exceed the available City funds for the Work;
- (b) the prices are materially in excess of the prices received for similar work in the past;
- (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with their own forces;
- (d) only one Bid is received; or
- (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.

B19.3 If funding for the Work is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, Bidders are advised that the terms of D34 shall immediately take effect upon confirmation of such funding, regardless of when funding is confirmed.

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

B19.4.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of their Bid upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2020-01-31) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm
- C0.2 A reference in the Tender to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Construction*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

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

D2. FORM OF CONTRACT DOCUMENTS

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

D3. BACKGROUND

D3.1 The project area is located within the historical McLeod Creek drainage system. The existing land drainage sewer piping is to be abandoned as part of this project and was installed within the old creek bed, portions of which have been noted to be on private property.

D3.2 The existing LDS piping partially collapsed in the spring of 2020. City personnel have been operating a temporary pump station to prevent localized flooding ever since.

D3.3 A large concrete arch culvert was installed beneath Bergen Cutoff as part of the former McLeod Creek drainage system. This arch culvert is to be abandoned as part of this project.

D3.4 The sand/gravel composition of the Bergen Cutoff, coupled with a high groundwater level presents unique geotechnical challenges to this project. Bidders are strongly encouraged to review the Geotechnical Investigation Report included in the Appendix A.

D3.5 As part of the replacement of the McLeod Creek drainage system, combined sewer separation is also being completed along Kildonan Drive and Irving Place.

D4. SCOPE OF WORK

D4.1 The Work to be done under the Contract shall consist of combined sewer separation along Kildonan Drive and Irving Place. Land Drainage Sewer (LDS) replacement will also be completed through the Bergen Cutoff and on Essar Avenue, and replacing an existing manhole north of the Essar Avenue back lane. The LDS piping is intended to replace an existing failed LDS pipe network located primarily on private property.

D4.2 The major components of the Work are as follows:

- (a) Construction of LDS ranging in size from 300 mm to 1350 mm primarily by trenchless methods.
- (b) Bergen Cutoff crossing by pipe ramming.
- (c) Installation of new manholes and catch basins.
- (d) Abandonment of existing catch basin leads to combined sewers.
- (e) Abandonment of existing failed LDS piping.
- (f) Surface restoration and related works.

D5. SITE INVESTIGATION DUE DILIGENCE AND RISK

D5.1 Notwithstanding C3.1, the Contractor acknowledges that the site investigation reports and other site information included in this Tender have been provided to it and may be relied upon by the Contractor to the extent that the Contractor uses Good Industry Practice in interpreting such

report(s) and site information and carries out the Work in accordance with Good Industry Practice based upon such report(s) and the information contained in them and such other site information. In the event that a site condition related to:

- (a) the location of any utility which can be determined from the records or other information available at the offices of any public authority or person, including a municipal corporation and any board or commission thereof, having jurisdiction or control over the utility;
- (b) the Site conditions, including but not limited to subsurface hazardous materials or other concealed physical conditions;
- (c) the location, nature, quality or quantity of the materials to be removed or to be employed in the performance of the Work;
- (d) the nature, quality or quantity of the Plant needed to perform the Work;
- (e) all matters concerning access to the Site, power supplies, location of existing services, utilities or materials necessary for the completion of the Work; and
- (f) all other matters which could in any way affect the performance of the Work;

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

D6. DEFINITIONS

D6.1 When used in this Tender:

- (a) “**Pipe Ramming**” means a non-steerable system of forming a bore by driving an open-ended casing using a percussive hammer from a pit and only displacing the wall thickness of the case. The soil will remain in the casing until the bore has been completed and then may be removed by water, auguring, jet-cutting or compressed air;
- (b) “**PVC**” means Polyvinyl Chloride;
- (c) “**Supply Chain Disruption**” means an inability by the Contractor to obtain goods or services from third parties necessary to perform the Work of the Contract within the schedule specified therein, despite the Contractor making all reasonable commercial efforts to procure same. Contractors are advised that increased costs do not, in and of themselves, amount to a Supply Chain Disruption.

D7. CONTRACT ADMINISTRATOR

D7.1 The Contract Administrator is KGS GROUP, represented by:

Tristan Eldridge C.E.T.
Municipal Engineering Technologist
Telephone No. 204-896-1209
Email Address teldridge@ksgroup.com

D7.2 At the pre-construction meeting, Tristan Eldridge will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D8. CONTRACTOR'S SUPERVISOR

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

D9. ACCESSIBLE CUSTOMER SERVICE REQUIREMENTS

- D9.1 The Accessibility for Manitobans Act (AMA) imposes obligations on The City of Winnipeg to provide accessible customer service to all persons in accordance with the Customer Service Standard Regulation ("CSSR") to ensure inclusive access and participation for all people who live, work or visit Winnipeg regardless of their abilities.
- D9.1.1 The Contractor agrees to comply with the accessible customer service obligations under the CSSR and further agrees that when providing the Goods or Services or otherwise acting on the City of Winnipeg's behalf, shall comply with all obligations under the AMA applicable to public sector bodies.
- D9.1.2 The accessible customer service obligations include, but are not limited to:
- (a) providing barrier-free access to goods and services;
 - (b) providing reasonable accommodations;
 - (c) reasonably accommodating assistive devices, support persons, and support animals;
 - (d) providing accessibility features e.g. ramps, wide aisles, accessible washrooms, power doors and elevators;
 - (e) inform the public when accessibility features are not available;
 - (f) providing a mechanism or process for receiving and responding to public feedback on the accessibility of all goods and services; and
 - (g) providing adequate training of staff and documentation of same.

D10. UNFAIR LABOUR PRACTICES

- D10.1 Further to C3.2, the Contractor declares that in bidding for the Work and in entering into this Contract, the Contractor and any proposed Subcontractor(s) conduct their respective business in accordance with established international codes embodied in United Nations Universal Declaration of Human Rights (UDHR) <https://www.un.org/en/about-us/universal-declaration-of-human-rights> International Labour Organization (ILO) [https://www.ilo.org/global/lang--en/index.htm](https://www.ilo.org/global/lang-en/index.htm) conventions as ratified by Canada.
- D10.2 The City of Winnipeg is committed and requires its Contractors and their Subcontractors, to be committed to upholding and promoting international human and labour rights, including fundamental principles and rights at work covered by ILO eight (8) fundamental conventions and the United Nations Universal Declaration of Human Rights which includes child and forced labour.
- D10.3 Upon request from the Contract Administrator, the Contractor shall provide disclosure of the sources (by company and country) of the raw materials used in the Work and a description of the manufacturing environment or processes (labour unions, minimum wages, safety, etc.).
- D10.4 Failure to provide the evidence required under D10.3, may be determined to be an event of default in accordance with C18.
- D10.5 In the event that the City, in its sole discretion, determines the Contractor to have violated the requirements of this section, it will be considered a fundamental breach of the Contract and the Contractor shall pay to the City a sum specified by the Contract Administrator in writing ("Unfair Labour Practice Penalty"). Such a violation shall also be considered an Event of Default, and shall entitle the City to pursue all other remedies it is entitled to in connection with same pursuant to the Contract.
- D10.5.1 The Unfair Labour Practice Penalty shall be such a sum as determined appropriate by the City, having due regard to the gravity of the Contractor's violation of the above requirements, any cost of obtaining replacement goods/ services or rectification of the breach, and the impact upon the City's reputation in the eyes of the public as a result of same.

D10.5.2 The Contractor shall pay the Unfair Labour Practice Penalty to the City within thirty (30) Calendar Days of receiving a demand for same in accordance with clause D10.5. The City may also hold back the amount of the Unfair Labour Practice Penalty from payment for any amount it owes the Contractor.

D10.5.3 The obligations and rights conveyed by this clause survive the expiry or termination of this Contract, and may be exercised by the City following the performance of the Work, should the City determine, that a violation by the Contractor of the above clauses has occurred following same. In no instance shall the Unfair Labour Practice Penalty exceed the total of twice the Contract value.

D11. FURNISHING OF DOCUMENTS

D11.1 Upon award of the Contract, the Contractor will be provided with 'issued for construction' Contract Documents electronically, including Drawings in PDF format only.

SUBMISSIONS

D12. AUTHORITY TO CARRY ON BUSINESS

D12.1 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.

D13. SAFE WORK PLAN

D13.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.

D13.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>

D13.3 Notwithstanding B13.4 at any time during the term of the Contract, the City may, at their sole discretion and acting reasonably, require an updated COR Certificate or Annual Letter of good Standing. A Contractor, who fails to provide a satisfactory COR Certificate or Annual Letter of good Standing, will not be permitted to continue to perform any Work.

D14. INSURANCE

D14.1 The Contractor shall provide and maintain the following insurance coverage:

- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability, broad form property damage cover and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
- (b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence.

- (c) an all risks Installation Floater carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.

D14.2 Deductibles shall be borne by the Contractor.

D14.3 The Contractor shall provide the City Solicitor with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, as applicable.

D14.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D15. CONTRACT SECURITY

D15.1 The Contractor shall provide and maintain the performance bond and the labour and material payment bond until the expiration of the warranty period in the form of:

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

D15.1.1 Where the contract security is a performance bond, it may be submitted in hard copy or digital format. If submitted in digital format the contract security must meet the following criteria:

- (a) the version submitted by the Contractor must have valid digital signatures and seals;
- (b) the version submitted by the Contractor must be verifiable by the City with respect to the totality and wholeness of the bond form, including: the content; all digital signatures and digital seals; with the surety company, or an approved verification service provider of the surety company.
- (c) the version submitted must be viewable, printable and storable in standard electronic file formats compatible with the City, and in a single file. Allowable formats include pdf.
- (d) the verification may be conducted by the City immediately or at any time during the life of the bond and at the discretion of the City with no requirement for passwords or fees.
- (e) the results of the verification must provide a clear, immediate and printable indication of pass or fail regarding D15.1(b).

D15.1.2 Digital bonds failing the verification process will not be considered to be valid and may be determined to be an event of default in accordance with C18.1. If a digital bond fails the verification process, the Contractor may provide a replacement bond (in hard copy or digital format) within seven (7) Calendar Days of the City's request or within such greater period of time as the City in their discretion, exercised reasonably, allows.

D15.1.3 Digital bonds passing the verification process will be treated as original and authentic.

D15.2 The Contractor shall provide the Contract Administrator identified in D7 with the required performance and labour and material payment bonds within seven (7) Calendar Days of notification of the award of the Contract by way of an award letter and prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.

D15.3 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 D15.1(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.

D16. SUBCONTRACTOR LIST

D16.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the General Conditions for the return of the executed Contract Documents, if applicable.

D17. REQUIREMENTS FOR SITE ACCESSIBILITY PLAN

D17.1 The Contractor shall provide the Contract Administrator with an Accessibility Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.

D17.2 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.

D17.3 The Accessibility Plan may also include figures, sketches, or drawings to demonstrate the proposed plan.

D17.4 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

D17.5 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.

D17.6 Any changes to the Accessibility Plan must be approved by the Contract Administrator.

D17.7 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the site has been maintained.

- D17.8 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.
- D17.9 Third and subsequent Offences – A pay reduction will be issued in the amount of \$250.00 per instance and per day.

D18. DEWATERING AND DRAINAGE PLAN

- D18.1 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.
- (a) The Contractor is advised that City of Winnipeg personnel have a temporary pumping setup south of the Irving Place back lane to prevent localized flooding due to the existing collapsed LDS system. City personnel will maintain this pumping setup throughout construction until the new LDS system is operational. Contractor to coordinate works with the City to ensure pumping capabilities are not disrupted.
- D18.2 The Contractor is responsible for the control, diversion, storage and pumping of all 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.
- D18.3 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.
- D18.4 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 dBA), pump power source; and
 - (e) any other related information reasonably requested by the Contract Administrator.
- D18.5 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.
- D18.6 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.

- D18.7 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.
- D18.8 All dewatering equipment and discharge hoses shall be protected from freezing and shall remain fully operational in freezing weather.
- D18.9 The Contractor shall dispose of all water drained or pumped as above by discharging it to sewers, drainage ditches or natural water course 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.
- D18.10 Dewatering and drainage during construction will be considered incidental to Site Development and Restoration.

D19. DETAILED WORK SCHEDULE

- D19.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least ten (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.
- D19.2 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.
- D19.3 Further to D19.2(a), the CPM schedule shall identify the start and completion dates of the following Work items:
- (a) Commencement date
 - (b) Utility locates
 - (c) Site preparation and access
 - (d) Supply and installation of LDS piping and manholes
 - (e) Completion of Bergen Cutoff crossing works
 - (f) Pipe abandonment works
 - (g) Site restoration
 - (h) Additional Critical Dates
 - (i) Substantial Performance
 - (j) Total Performance
- D19.4 Timelines and staging for pedestrian and traffic management identified in E5 as required to complete the Work should be included in the schedule.
- D19.5 The Contractor shall update the schedule and provide it to the Contract Administrator prior to each weekly construction site meeting for review and discussion at the meetings.

SCHEDULE OF WORK

D20. COMMENCEMENT

- D20.1 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.
- D20.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) qualifications of pip ramming operator as specified in B13;
 - (ii) evidence of authority to carry on business specified in D12;
 - (iii) evidence of the workers compensation coverage specified in C6.15;
 - (iv) the Safe Work Plan specified in D13;
 - (v) evidence of the insurance specified in D14;
 - (vi) the contract security specified in D15;
 - (vii) the Subcontractor list specified in D16;
 - (viii) the Requirements for Site Accessibility Plan specified in D17;
 - (ix) the Drainage and Dewatering Plan specified in D18; and
 - (x) the direct deposit application form specified in D30.
 - (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.
- D20.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the award letter.

D21. CRITICAL STAGES

- D21.1 The Contractor shall achieve Critical Stages of the Work in accordance with the following requirements:
- (a) All Work associated with the Irving Place back lane must be complete, including temporary pipe installation, concrete works, testing and restoration as directed by the Contract Administrator by October 1, 2023.

D22. SUBSTANTIAL PERFORMANCE

- D22.1 The Contractor shall achieve Substantial Performance within one hundred (100) consecutive Working Days of the commencement of the Work as specified in D20.
- D22.2 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.
- D22.3 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.

D23. TOTAL PERFORMANCE

- D23.1 The Contractor shall achieve Total Performance by June 14, 2024.
- D23.2 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.

D23.3 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.

D24. LIQUIDATED DAMAGES

D24.1 If the Contractor fails to achieve Substantial Performance or Total Performance in accordance with the Contract by the day fixed herein for same, the Contractor shall pay the City the following amounts per Working Day for each and every Working Day following the day fixed herein for same during which such failure continues.

- (a) Critical Stage D21.1(a) – two thousand dollars (\$2000)
- (b) Substantial Performance – two thousand dollars (\$2000)
- (c) Total Performance – one thousand dollars (\$1000)

D24.2 The amount specified for liquidated damages in D24.1 is 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 day fixed herein for same.

D24.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D25. SUPPLY CHAIN DISRUPTION SCHEDULE DELAYS

D25.1 The City acknowledges that the schedule for this Contract may be impacted by the supply chain disruption. Commencement and progress of the Work shall be performed by the Contractor with due consideration to the delivery requirements and schedule identified in the Contract in close consultation with the Contract Administrator.

D25.2 If the Contractor is delayed in the performance of the Work by reason of the supply chain disruption, the Work schedule may be adjusted by a period of time equal to the time lost due to such delay and costs related to such delay will be determined as identified herein.

D25.3 A minimum of seven (7) Calendar Days prior to the commencement of Work, the Contractor shall declare whether a supply chain disruption will affect the start date. The Contractor shall provide sufficient evidence that the delay is directly related to a supply chain disruption, including but not limited to ordering of Material or Goods, production and/or manufacturing schedules or availability of staff as appropriate.

D25.4 For any delay related to supply chain disruption and identified after Work has commenced, the Contractor shall within seven (7) Calendar Days of becoming aware of the anticipated delay declare the additional delay and shall provide sufficient evidence as indicated in D25.3. Failure to provide this notice will result in no additional time delays being considered by the City.

D25.5 The Work schedule, including the durations identified in D21 to D23 where applicable, will be adjusted to reflect delays accepted by the Contract Administrator. No additional payment will be made for adjustment of schedules except where seasonal work, not previously identified in the Contract, is carried over to the following construction season.

D25.6 Where Work not previously identified is being carried over solely as a result of delays related to supply chain disruption, as confirmed by the Contract Administrator, the cost of temporary works to maintain the Work in a safe manner until Work recommences, will be considered by the Contract Administrator. Where the Work is carried over only partially due to supply chain disruption, a partial consideration of the cost of temporary works will be considered by the Contract Administrator.

D25.7 Any time or cost implications as a result of supply chain disruption and in accordance with the above, as confirmed by the Contract Administrator, shall be documented in accordance with C7.

D26. SCHEDULED MAINTENANCE

D26.1 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 installed grass and sod as specified in E9;

D26.2 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

D27. JOB MEETINGS

D27.1 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.

D27.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever they deem it necessary.

D28. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

D28.1 Further to C6.26, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

D29. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

D29.1 Further to B13.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at their sole discretion and acting reasonably, require updated proof of compliance, as set out in B13.4.

MEASUREMENT AND PAYMENT

D30. PAYMENT

D30.1 Further to C12, the City shall make payments to the Contractor by direct deposit to the Contractor's banking institution, and by no other means. Payments will not be made until the Contractor has made satisfactory direct deposit arrangements with the City. Direct deposit application forms are at https://winnipeg.ca/finance/files/Direct_Deposit_Form.pdf.

D31. FUEL PRICE ADJUSTMENT

D31.1 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

- (ii) BFI = base fuel index
- (iii) CFI = current fuel index
- (iv) FF = fuel factor
- (v) Q = monetary value of Work applied in the calculation.

D31.1.1 Eligible Work will be determined in accordance with D31.5.

D31.1.2 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.

D31.1.3 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.

D31.1.4 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.

D31.2 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.

D31.3 The fuel escalation or de-escalation adjustment will not be applied if the CFI is within $\pm 15\%$ of the BFI.

D31.4 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.

D31.5 The Fuel Factor (FF) rates will be set as follows:

- (a) The Fuel Factor rate shall be set at 1.2% of the monetary value of all Work identified on Form B: Prices related to Water and Waste Work.

WARRANTY

D32. WARRANT

D32.1 Warranty is as stated in C13.

DISPUTE RESOLUTION

D33. DISPUTE RESOLUTION

D33.1 If the Contractor disagrees with any opinion, determination, or decision of the Contract Administrator, the Contractor shall act in accordance with the Contract Administrator's opinion, determination, or decision unless and until same is modified by the process followed by the parties pursuant to D33.

D33.2 The entire text of C21.4 is deleted, and amended to read: "Intentionally Deleted"

D33.3 The entire text of C21.5 is deleted, and amended to read:

- (a) If Legal Services has determined that the Disputed Matter may proceed in the Appeal Process, the Contractor must, within ten (10) Business Days of the date of the Legal Services Response Letter, submit their written Appeal Form, in the manner and format set out on the City's Materials Management Website, to the Chief Administrative Officer,

and to the Contract Administrator. The Contractor may not raise any other disputes other than the Disputed Matter in their Appeal Form.

D33.4 Further to C21, prior to the Contract Administrator's issuance of a Final Determination, the following informal dispute resolution process shall be followed where the Contractor disagrees with any opinion, determination, or decision of the Contract Administrator ("Dispute"):

- (a) In the event of a Dispute, attempts shall be made by the Contract Administrator and the Contractor's equivalent representative to resolve Disputes within the normal course of project dealings between the Contract Administrator and the Contractor's equivalent representative.
- (b) Disputes which in the reasonable opinion of the Contract Administrator or the Contractor's equivalent representative cannot be resolved within the normal course of project dealings as described above shall be referred to a without prejudice escalating negotiation process consisting of, at a minimum, the position levels as shown below and the equivalent Contractor representative levels:
 - (i) The Contract Administrator;
 - (ii) Supervisory level between the Contract Administrator and applicable Department Head;
 - (iii) Department Head.

D33.4.1 Names and positions of Contractor representatives equivalent to the above City position levels shall be determined by the Contractor and communicated to the City at the pre-commencement or kick off meeting.

D33.4.2 As these negotiations are not an adjudicative hearing, neither party may have legal counsel present during the negotiations.

D33.4.3 Both the City and the Contractor agree to make all reasonable efforts to conduct the above escalating negotiation process within twenty (20) Business Days, unless both parties agree, in writing, to extend that period of time.

D33.4.4 If the Dispute is not resolved to the City and Contractor's mutual satisfaction after discussions have occurred at the final escalated level as described above, or the time period set out in D33.4.3, as extended if applicable, has elapsed, the Contract Administrator will issue a Final Determination as defined in C1.1(v), at which point the parties will be governed by the Dispute Resolution process set out in C21.

THIRD PARTY AGREEMENTS

D34. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS

D34.1 In the event that funding for the Work of the Contract is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, the following terms and conditions shall apply, as required by the applicable funding agreements.

D34.2 Further to D34.1, in the event that the obligations in D34 apply, actual costs legitimately incurred by the Contractor as a direct result of these obligations ("Funding Costs") shall be determined by the actual cost to the Contractor and not by the valuation method(s) outlined in C7.4. In all other respects Funding Costs will be processed in accordance with Changes in Work under C7.

D34.3 For the purposes of D34:

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

D34.4 Modified Insurance Requirements

- D34.4.1 If not already required under the insurance requirements identified in D14, the Contractor will be required to provide wrap-up liability insurance in an amount of no less than two million dollars (\$2,000,000) inclusive per occurrence. Such policy will be written in the joint names of the City, Contractor, Consultants and all sub-contractors and sub-consultants and include twelve (12) months completed operations. The Government of Manitoba and their Ministers, officers, employees, and agents shall be added as additional insureds.
- D34.4.2 If not already required under the insurance requirements identified in D14, the Contractor will be required to provide builders' risk insurance (including boiler and machinery insurance, as applicable) providing all risks coverage at full replacement cost, or such lower level of insurance that the City may identify on a case-by-case basis, such as an installation floater.
- D34.4.3 The Contractor shall obtain and maintain third party liability insurance with minimum coverage of two million dollars (\$2,000,000.00) per occurrence on all licensed vehicles operated at the Site. In the event that this requirement conflicts with another licensed vehicle insurance requirement in this Contract, then the requirement that provides the higher level of insurance shall apply.
- D34.4.4 Further to D14.3, insurers shall provide satisfactory Certificates of Insurance to the Government of Manitoba prior to commencement of Work as written evidence of the insurance required. The Certificates of Insurance must provide for a minimum of thirty (30) days' prior written notice to the Government of Manitoba in case of insurance cancellation.
- D34.4.5 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.
- D34.5 Indemnification By Contractor
- D34.5.1 In addition to the indemnity obligations outlined in C17 of the General Conditions for Construction, the Contractor agrees to indemnify and save harmless the Government of Canada and the Government of Manitoba and each of their respective Ministers, officers, servants, employees, and agents from and against all claims and demands, losses, costs, damages, actions, suit or other proceedings brought or pursued in any manner in respect of any matter caused by the Contractor or arising from this Contract or the Work, or from the goods or services provided or required to be provided by the Contractor, except those resulting from the negligence of any of the Government of Canada's or the Government of Manitoba's Ministers, officers, servants, employees, or agents, as the case may be.
- D34.5.2 The Contractor agrees that in no event will Canada or Manitoba, their respective officers, servants, employees or agents be held liable for any damages in contract, tort (including negligence) or otherwise, for:
- (a) any injury to any person, including, but not limited to, death, economic loss or infringement of rights;
 - (b) any damage to or loss or destruction of property of any person; or
 - (c) any obligation of any person, including, but not limited to, any obligation arising from a loan, capital lease or other long term obligation;
- in relation to this Contract or the Work.
- D34.6 Records Retention and Audits
- D34.6.1 The Contractor shall maintain and preserve accurate and complete records in respect of this Contract and the Work, including all accounting records, financial documents, copies of contracts with other parties and other records relating to this Contract and the Work during the term of the Contract and for at least six (6) years after Total Performance. Those records bearing original signatures or professional seals or stamps must be preserved in paper form; other records may be retained in electronic form.
- D34.6.2 In addition to the record keeping and inspection obligations outlined in C6 of the General Conditions for Construction, the Contractor shall keep available for inspection and audit at

all reasonable times while this Contract is in effect and until at least six (6) years after Total Performance, all records, documents, and contracts referred to in D34.6.1 for inspection, copying and audit by the City of Winnipeg, the Government of Manitoba and/or the Government of Canada and their respective representatives and auditors, and to produce them on demand; to provide reasonable facilities for such inspections, copying and audits, to provide copies of and extracts from such records, documents, or contracts upon request by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada and their respective representatives and auditors, and to promptly provide such other information and explanations as may be reasonably requested by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada from time-to-time.

D34.7 Other Obligations

- D34.7.1 The Contractor consents to the City providing a copy of the Contract Documents to the Government of Manitoba and/or the Government of Canada upon request from either entity.
- D34.7.2 If the Lobbyists Registration Act (Manitoba) applies to the Contractor, the Contractor represents and warrants that it has filed a return and is registered and in full compliance with the obligations of that Act, and covenants that it will continue to comply for the duration of this Contract.
- D34.7.3 The Contractor shall comply with all applicable legislation and standards, whether federal, provincial, or municipal, including (without limitation) labour, environmental, and human rights laws, in the course of providing the Work.
- D34.7.4 The Contractor shall properly account for the Work provided under this Contract and payment received in this respect, prepared in accordance with generally accepted accounting principles in effect in Canada, including those principles and standards approved or recommended from time-to-time by the Chartered Professional Accountants of Canada or the Public Sector Accounting Board, as applicable, applied on a consistent basis.
- D34.7.5 The Contractor represents and warrants that no current or former public servant or public office holder, to whom the Value and Ethics Code for the Public Sector, the Policy on Conflict of Interest and Post Employment, or the Conflict of Interest Act applies, shall derive direct benefit from this Contract, including any employment, payments, or gifts, unless the provision or receipt of such benefits is in compliance with such codes and the legislation.
- D34.7.6 The Contractor represents and warrants that no member of the House of Commons or of the Senate of Canada or of the Legislative Assembly of Manitoba is a shareholder, director or officer of the Contractor or of a Subcontractor, and that no such member is entitled to any benefits arising from this Contract or from a contract with the Contractor or a Subcontractor concerning the Work.

FORM H1: PERFORMANCE BOND
(See D15)

KNOW EVERYONE BY THESE PRESENTS THAT

_____ ,
(hereinafter called the "Principal"), and

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

_____ dollars (\$_____)

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

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

TENDER NO. 350-2023

MCLEOD CREEK DRAINAGE IMPROVEMENTS

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

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

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

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

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

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

_____ day of _____, 20____.

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

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

FORM H2: LABOUR AND MATERIAL PAYMENT BOND
(See D15)

KNOW EVERYONE BY THESE PRESENTS THAT

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

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

_____ dollars (\$_____)

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

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

TENDER NO. 350-2023

MCLEOD CREEK DRAINAGE IMPROVEMENTS

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

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

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

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

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

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

_____ day of _____, 20_____ .

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

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

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 *The City of Winnipeg Standard Construction Specifications* in 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, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4(d), Specifications included in the Tender shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 Bidders are reminded that requests for approval of substitutes as an approved equal or an approved alternative shall be made in accordance with B7. In every instance where a brand name or design specification is used, the City will also consider approved equals and/or approved alternatives in accordance with B7.
- E1.4 The following are applicable to the Work:

Drawing No.	Drawing Name/Title
LD-12120	COVER SHEET
LD-12121	INDEX PAGE & KEYPLAN
LD-12122	KILDONAN DRIVE – STA 1+55 TO STA 2+85
LD-12123	KILDONAN DRIVE – STA 2+85 TO STA 4+15
LD-12124	KILDONAN DRIVE – STA 4+15 TO STA 5+20
LD-12125	KILDONAN DRIVE – STA 5+20 TO STA 6+00
LD-12126	BERGEN CUTOFF – STA 1+50 TO STA 2+10
LD-12127	BERGEN CUTOFF – STA 2+10 TO STA 3+25
LD-12128	McLEOD CREEK – STA 0+90 TO STA 2+00
LD-12129	McLEOD CREEK – STA 2+00 TO STA 3+00
LD-12130	IRVING PLACE – STA 1+00 TO STA 2+25
LD-12131	ALLEY SOUTH OF IRVING PLACE – STA 1+00 TO STA 2+15
LD-12132	McLEOD CREEK LDS - ABANDONMENT PLAN
LD-12133	MISCELLANEOUS DETAILS
LD-12134	MANHOLE DETAILS
LD-12135	RESTORATION AND FENCING LIMITS

E2. SOILS INVESTIGATION REPORT

- E2.1 Further to C3.1, a geotechnical soils investigation was completed and geotechnical test holes have been drilled in the vicinity of the proposed Works to determine the character of the subsurface soil to facilitate the design of the Work. The information listed is considered accurate at the locations indicated on the Drawings and at the time of the investigation. However, considerable variations in the soil conditions may exist between test holes and fluctuations in ground water levels can be expected seasonally. The geotechnical investigation report with test hole logs is included in Appendix A.

GENERAL REQUIREMENTS

E3. HERITAGE RESOURCES PROTECTION AND MONITORING PROGRAM

- E3.1 The Contractor shall plan and implement the Work of this Contract strictly in accordance with the requirements of the Heritage Resources Act (1986), Section 12, which outlines the protections against the disturbance of heritage resources.
- E3.2 Description
- E3.2.1 The Historic Resources Branch (HRB) in their assessment of the heritage potential for the project (AAS File # AAS-22-20162), issued conditional approval for all areas of the project except Bergen Cutoff Park and Essar Playground.
- E3.2.2 A Heritage Resource Impact Assessment (HRIA) must be completed prior to any construction activities taking place within Bergen Cutoff Park from STA 1+50 to STA 3+25 (plans LD12126 and LD-12127) and Essar Playground from STA 0+90 to STA 2+00 (plans LD-12128 to LD-12129). This work must be monitored by a qualified archaeologist under an approved Heritage Permit to Search for or Excavate a Heritage Object.
- E3.2.3 The Contractor shall not commence or proceed with any ground disturbance activities within the area described in the provisions above without a qualified archaeologist presence to monitor said activities.
- E3.3 HRIA Methods
- E3.3.1 The Contractor shall contract an archaeologist qualified to conduct an HRIA in the Province of Manitoba.
- E3.3.2 The Archaeologist shall secure a Heritage Permit to Search for or Excavate a Heritage Object from HRB for the project.
- E3.3.3 The Archaeologist shall monitor all ground disturbance activities within the area described in the provisions above and inspect all shafts, trenches and their removed sediments for heritage resources. The Archaeologist shall maintain written field notes and a photographic record.
- E3.3.4 The Archaeologist shall document any heritage features and identify and collect any heritage resources exposed during the construction activities. All heritage objects will be treated according to HRB management standards.
- E3.3.5 Upon conclusion of the fieldwork, the Archaeologist shall complete a HRIA report following HRB guidelines and submit the report to HRB for review.
- E3.3.6 Heritage objects recovered during the course of the monitoring are owned by the Crown with the custody residing in the HRB. All archaeological materials will be processed, packaged, and submitted to the HRB by the date specified on the relevant Heritage Permit and in accordance to Archaeological Artifact Submission Standards (2009).
- E3.3.7 The Contractor shall be responsible for the development and implementation of a Heritage Resources Protection Plan (HRPP) that details the procedures to be followed in the event that heritage resources are accidentally encountered during construction activities. The plan shall be submitted to, discussed with, and approved by the Contract Administrator prior to mobilization.
- E3.3.8 The Archaeologist must also be notified of any heritage resources that are accidentally encountered during construction activities, even in areas outside of the provisions above. The Contractor must follow the procedures of the HRPP.
- E3.3.9 The following minimum expectations are anticipated to be required as part of the Work:
- (a) Supervision of all shaft excavations required for both trenchless sewer installation and pipe ramming operations.
- E3.4 Basis of Payment

- E3.4.1 The cost for the development of the HRPP and the HRIA shall be paid for under the Contract unit price for "Allowance for Heritage Resources Mitigation Measures". Costs will be based on actual invoiced costs for HRIA activities with allowable mark-ups in accordance with the General Conditions.

E4. TRAFFIC CONTROL

- E4.1 Further to clause 3.7 of CW 1130:

- E4.1.1 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.

- (a) 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.

- E4.1.2 The Contractor shall make arrangements with Winnipeg Transit for Work that impacts Transit routes or stops.

- E4.1.3 The City of Winnipeg Manual of Temporary Traffic Control on City Streets is available online at:

- (a) <http://winnipeg.ca/publicworks/trafficControl/manualTempTrafficControl.stm>

- E4.2 Additional traffic management requirements are outlined in E5.

E5. TRAFFIC MANAGEMENT AND PEDESTRIAN SAFETY

- E5.1 Description

- (a) This specification covers activities related to managing traffic throughout the worksite. Items listed here are to be followed in addition all standard requirements.

- E5.2 Materials and Equipment

- E5.2.1 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 five (5) working days prior to commencement of any lane closures related to the Work.

- E5.3 General Requirements

- E5.3.1 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.

- E5.3.2 The Contractor shall minimize the duration of road closures as much as possible such that only areas with active construction are closed off.

- E5.3.3 Emergency vehicle access must be maintained at all times.

- E5.3.4 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 hours notification to the affected residence or business and the Contractor Administrator, prior to disruption of access.

- E5.3.5 Winnipeg Transit service shall be maintained at all times.

- (a) Should the Contractor be unable to maintain bus stops or routes it shall be reviewed with the Contract Administrator at least 48 hours in advance to see if modifications can be made.

E5.3.6 The Contractor shall provide at least five (5) days notification to the Contract Administrator prior to beginning a new phase of traffic control.

E5.4 Local/Non-Regional Street Requirements

E5.4.1 Local Streets impacted by the Work will include:

- (a) Kildonan Drive
- (b) Irving Place
- (c) Irving Place Back Lane
- (d) Essar Avenue
- (e) Essar Avenue Back Lane

E5.4.2 Kildonan Drive

- (a) Maintain minimum one lane for vehicular access for use in either direction for the duration of the project.
- (b) Maintain pedestrian access along existing roadway for the duration of the project.

E5.4.3 Irving Place

- (a) Maintain minimum one lane for vehicular access for use in either direction for the duration of the project.
- (b) Maintain pedestrian access along existing roadway for the duration of the project.

E5.4.4 Irving Place Back Lane

- (a) Laneway may be closed for construction works. Provide minimum 48 hours notice to affected residents.

E5.4.5 Essar Avenue

- (a) Roadway may be closed in both directions during installation of box culvert crossing. Provide alternative access for residents via the Essar Avenue back lane.
 - (i) Roadway may not be closed at the same time as the Essar Avenue back lane.

E5.4.6 Essar Avenue Back Lane

- (a) Laneway may be closed during installation of manhole 15. Provide alternative access for residents via Essar Avenue.
 - (i) Laneway may not be closed at the same time as Essar Avenue.

E5.4.7 For all local or non-regional streets, and where not shown otherwise in the Drawings, the Contractor shall:

- (a) Maintain a minimum of one lane of traffic that can be used in either direction.
- (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.

E5.5 Parks Requirements

E5.5.1 Parks impacted by the works include:

- (a) Bergen Cutoff Park
- (b) Essar Playground

E5.5.2 Bergen Cutoff Park

- (a) At a minimum, the Contractor shall maintain safe public access to the play structures within Bergen Cutoff Park throughout construction.
- (b) Install construction fencing during construction activities in accordance with E9 and as shown on the Drawings.

E5.5.3 Essar Playground

- (a) At a minimum, the Contractor shall maintain safe public access to the play structures within Essar Playground through construction. The swing sets within the playground may be closed to the public.
- (b) Install construction fencing during construction activities in accordance with E9 and as shown on the Drawings.

E5.6 Measurement and Payment

E5.6.1 All Work associated with adhering to the Traffic Management and Pedestrian Safety requirements identified are incidental to Site Development and Restoration E9.

E6. SHOP DRAWINGS

E6.1 Description

E6.1.1 This Specification shall revise, amend and supplement the requirements of CW 1110.

- (a) The term 'Shop Drawings' means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data, 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.

E6.1.2 Shop Drawings

- (a) Original drawings are to be prepared by the Contractor, Subcontractor, Supplier, Distributor, or Manufacturer, which illustrate an appropriate portion of Work; showing fabrication, layout, setting or erection details as specified in appropriate sections.
- (b) Additional submittal requirements for each component of Work may be listed within the relevant specification section.

E6.1.3 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 the following metrics against what's indicated in the Shop Drawings:
 - (i) Field Measurements
 - (ii) Field Construction Criteria
 - (iii) Catalogue numbers of material delivered to the Site 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) Notify Contract Administrator, in writing at the time of submission, of deviations from the requirements of Contract Documents.
- (e) Responsibility for deviations from requirements of Contract Documents in the submission is not relieved by the Contract Administrator's review of the submission unless Contract Administrator gives written acceptance of specified deviations.
- (f) Responsibility for errors and omissions in submission is not relieved by the Contract Administrator's review of submittals.

- (g) The Contractor shall make any corrections required by the Contract Administrator and shall resubmit the required number of corrected copies of Shop Drawings. The Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections requested by the Contract Administrator on the previous submission.
- (h) After the Contract Administrator's review and return of copies, distribute copies to subtrades as appropriate.
- (i) 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.

E6.1.4 Submission Requirements

- (a) Schedule submissions at least ten (10) Calendar Days before the dates on which reviewed submissions will be needed, and allow for a 10 Calendar Day period for review by the Contract Administrator of each submission and re-submission unless noted otherwise in the Contract Documents.
- (b) Submit one (1) digital copy (PDF) of the shop drawings.
- (c) Accompany submissions with a 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) Verification that field dimensions are 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
 - (ix) Contractor's stamp, initialed or signed, certifying review of the submission, verification of field measurements and compliance with Contract Documents

E6.1.5 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 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.

E6.2 Measurements and Payment

- E6.2.1 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.

E7. ENVIRONMENTAL PROTECTION PLAN

- E7.1 The Contractor shall plan and implement the Work of this Contract strictly in accordance with the requirements of the environmental protection measures as herein specified.

- E7.2 The Contractor is advised that at least the following Acts, Regulations, and By-laws apply to the Work:

E7.2.1 Federal

- (a) Canadian Environmental Protection Act (CEPA) c.16
- (b) Canadian Environmental Assessment Act (CEAA) c.37
- (c) Transportation of Dangerous Goods Act and Regulations c.34

E7.2.2 Provincial

- (a) The Dangerous Goods Handling and Transportation Act D12
- (b) The Endangered Species Act E111
- (c) The Environment Act c.E125
- (d) The Fire Prevention Act F80
- (e) The Manitoba Heritage Resources Act H39.1
- (f) The Manitoba Noxious Weeds Act N110
- (g) The Manitoba Nuisance Act N120
- (h) The Public Health Act c.P210
- (i) The Workplace Safety and Health Act W120
- (j) Other current applicable associated regulations.

E7.2.3 Municipal

- (a) The City of Winnipeg By-law no. 1/2008
- (b) Other applicable Acts, Regulations and By-laws.

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

E7.3.1 Materials Handling and Storage

- (a) Construction materials and debris shall be prevented from entering drainage pipes or channels.
- (b) Construction materials and debris shall also be prevented from accumulating on local roadways and sidewalks when tracked out of the Site by trucks hauling excavated materials.

E7.3.2 Fuel Handling and Storage

- (a) 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.

- (b) All fuel handling and storage facilities shall comply with The Dangerous Goods and Transportation Act Storage and Handling of Petroleum Products Regulation and any local land use permits.
- (c) Fuels, lubricants, and other potentially hazardous materials as defined in The Dangerous Goods and Transportation Act shall be stored and handled within the approved storage areas.
- (d) The Contractor shall ensure that all fuel storage containers are inspected daily for leaks and spillage.
- (e) Products transferred from the fuel storage area(s) to specific Work Sites shall not exceed the daily usage requirement.
- (f) When servicing requires the drainage or pumping of fuels, lubricating oils or other fluids from equipment, a groundsheet of suitable material (such as HDPE) and size shall be spread on the ground to catch the fluid in the event of a leak or spill.
- (g) Refuelling of mobile equipment and vehicles shall take place at least 100 metres from a watercourse or LDS inlet.
- (h) The area around storage Sites and fuel lines shall be distinctly marked and kept clear of snow and debris to allow for routine inspection and leak detection.
- (i) A sufficient supply of materials, such as absorbent material and plastic oil booms to clean up minor spills shall be stores nearby on-site. The Contractor shall ensure that additional material can be made available on short notice.

E7.3.3 Waste Handling and Disposal

- (a) The construction area shall be kept clean and orderly at all times during and at completion of construction.
- (b) At no time during construction shall personal or construction waste be permitted to accumulate for more than one day at any location on the construction Site, other than at a dedicated storage area as may be approved by the Contract Administrator.
- (c) All resulting debris shall be deposited at a Waste Disposal 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).
- (d) Indiscriminate dumping, littering, or abandonment shall not take place.
- (e) No on-site burning of waste is permitted.
- (f) Waste storage areas shall not be located so as to block natural drainage.
- (g) Run-off from a waste storage area shall not be allowed to cause siltation of a watercourse (via entry into the LDS sewers).
- (h) Waste storage areas shall be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.
- (i) Equipment shall not be cleaned near watercourses or LDS inlets; contaminated water from onshore cleaning operations shall not be permitted to enter watercourses.

E7.3.4 Dangerous Goods/Hazardous Waste Handling and Disposal

- (a) Dangerous goods/hazardous wastes are identified by, and shall be handled according to, The Dangerous Goods Handling and Transportation Act and Regulations.
- (b) The Contractor shall be familiar with The Dangerous Goods Handling and Transportation Act and Regulations.
- (c) The Contractor shall have on-site staff that is trained and certified in the handling of the dangerous/hazardous goods, when said dangerous/hazardous goods are being utilized on-site for the performance of the Work.
- (d) Different waste streams shall not be mixed.
- (e) Disposal of dangerous goods/hazardous wastes shall be at approved hazardous waste facilities.

- (f) Liquid hydrocarbons shall not be stored or disposed of in earthen pits on-site.
- (g) Used oils shall be stored in appropriate drums, or tankage, until shipment to waste oil recycling centres, incinerators, or secure disposal facilities approved for such wastes.
- (h) Used oil filters shall be drained, placed in suitable storage containers, and buried or incinerated at approved hazardous waste treatment and disposal facilities.
- (i) Dangerous goods/hazardous waste storage areas shall be located at least 100 metres away from the high water line and be dyked.
- (j) Dangerous goods/hazardous waste storage areas shall not be located so as to block natural drainage.
- (k) Run-off from a dangerous goods/hazardous waste storage area shall not be allowed to cause siltation of a watercourse.
- (l) Dangerous goods/hazardous waste storage areas shall be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.

E7.3.5 Emergency Response

- (a) The Contractor shall ensure that due care and caution is taken to prevent spills.
- (b) The Contractor shall report all major spills of petroleum products or other hazardous substances with 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.
- (c) 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.
- (d) The following actions shall be taken by the person in charge of the spilled material or the first person(s) arriving at the scene of a hazardous material accident or the on-site emergency response co-ordinator:
- (e) Notify emergency-response co-ordinator of the accident:
 - (i) identify exact location and time of accident
 - (ii) indicate injuries, if any
 - (iii) 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)
- (f) Attend to public safety:
 - (i) stop traffic, roadblock/cordon off the immediate danger area
 - (ii) eliminate ignition sources
 - (iii) initiate evacuation procedures if necessary
- (g) Assess situation and gather information on the status of the situation, noting:
 - (i) personnel on-site
 - (ii) cause and effect of spill
 - (iii) estimated extent of damage
 - (iv) amount and type of material involved
 - (v) proximity to waterways, sewers, and manholes
- (h) If safe to do so, try to stop the dispersion or flow of spill material:
 - (i) approach from upwind
 - (ii) stop or reduce leak if safe to do so
 - (iii) dike spill material with dry, inert sorbet material or dry clay soil or sand
 - (iv) prevent spill material from entering waterways and utilities by diking

- (v) 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.
- (i) 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.
- (j) 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.
- (k) 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.
- (l) City emergency response, 9-1-1, shall be used if other means are not available.

E7.3.6 Vegetation

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

E7.4 Method of Measurement and Payment

- E7.4.1 Adherence to the laws that govern the requirements for Environmental Protection are incidental to the Contract.

E8. PROVISIONAL ITEMS

- E8.1 The Provisional Items listed on Form B: Prices are part of the Contract.
- E8.2 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.
- E8.3 Notwithstanding C:7.5, 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.

E9. SITE DEVELOPMENT AND RESTORATION

E9.1 Description

- E9.1.1 This Specification shall cover all aspects of the Site Development and Restoration Work including, but not limited to, mobilization and demobilization, Site access, Site security (fencing and gates), utility clearances, traffic control and signage, pipe loading assessments, snow clearing, Dewatering and Drainage Plans, traffic management, maintaining sewer and water flows in existing utilities, protection of trees, cleanup, and Site restoration.
- E9.1.2 The Tender quantities listed on Form B: Prices include an estimated quantity of Topsoil and Seeding and Topsoil and Sodding based on the proposed works. All Topsoil and Seeding and Topsoil and Sodding beyond the quantities listed on Form B: Prices will be considered incidental to Site Development and Restoration, and no additional payment will be made for the additional quantities.

- E9.1.3 The Tender quantities listed on Form B: Prices include an estimated quantity of Concrete Roadworks based on the proposed works. All roadway quantities beyond the quantities listed on Form B: Prices will be considered incidental to Site Development and Restoration, and no additional payment will be made for the additional quantities.
- E9.2 Submittals
- E9.2.1 Access and Layout Plans (including traffic plan) for review and approval by the Contract Administrator, in accordance with CW 1110, for the following items:
(iii) Work on Kildonan Drive, Essar Avenue and Irving Place.
- E9.3 Equipment
- E9.3.1 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.
- E9.4 Construction Methods
- E9.4.1 Site and Construction Access
- (a) The Contractor shall be responsible to develop suitable site access. This includes but is not limited to temporary removal and re-installation 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.
- (i) The Contractor shall access the south side of the Bergen Cutoff crossing from Kildonan Drive and through Bergen Cutoff Park.
- (b) The Contractor is responsible for obtaining and paying for all required permits and permissions that are necessary for Site access.
- E9.4.2 Dewatering and Drainage Plan – The Contractor shall develop and maintain whatever means and methods are required to address the various potential flows defined in D18, including:
- (a) Snowmelt, rainfall, water from water main breaks or any other flow traveling through the Site, into excavations, or through pipes being worked on.
- (b) The Contractor shall acquire any permits required from the City for redirecting of flows to City sewers.
- (c) 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.
- (d) The Contractor shall ensure that any component of their Drainage and Dewatering Plans will be adequately protected from damage and protected from freezing.
- E9.4.3 Maintaining Flows in Existing Sewers and Providing Temporary Pressurized Water Supply
- (a) 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.
- (b) Maintaining Flows in Existing Sewer shall be in accordance with City Specification CW 2130.
- (c) Provide Temporary Pressurized Water Supply in accordance with City Specification CW 2110.
- (d) 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.

(i) Provide Temporary Pressurized Water Supply as required in accordance with City Specification CW 2110.

(e) 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.

E9.4.4 Vegetation Removal, Replacement and Protection

- (a) Any sod or other vegetation removed during construction shall be restored following construction.
- (b) No tree may be removed from Site without Prior approval by the Contract Administrator and an assessment by the City Arborist.
- (c) 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.
- (d) Trees shall be protected from damage as per section E12.
- (e) Trees shall be planted as per section E24.

E9.4.5 General Site Cleanup and Restoration

- (a) 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 surface restorations are considered incidental to the respective Work items being constructed (E23) unless otherwise noted.**

E9.4.6 Traffic Control and Signage

- (a) Coordinate, install and maintain traffic control and signage in accordance with E4 and E5.

E9.4.7 Snow Clearing

- (a) 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.
- (b) Snow build-up on sidewalks and roadways shall be maintained to the condition of the surrounding sidewalks and roadways.

E9.4.8 Construction Fencing

- (a) The erection of temporary construction fencing is required around the laydown areas.
- (b) The erection of temporary construction fencing is required around all construction activity and Work activities to ensure provision of a safe Work Site.
- (c) 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.
- (d) The Contractor shall erect and maintain for the duration of the project a safety fence, acceptable to the Contract Administrator, to restrict access to Bergen Cutoff Park and Essar Playground, as stated in E5. The fencing shall enclose each site with appropriate gates or openings. Appropriate signs shall be erected to warn all recreational users of the nearby construction works. The installed fencing shall consist of Dupont Number L70 orange plastic safety fence or approved equal in accordance with B7, with a mesh spacing of 45 mm, constructed as shown in the contract

drawings. Upon completion of the Work, the fence shall be removed and disposed of off Site.

E9.5 Method of Measurement and Payment

E9.5.1 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.

- (a) 20% of the Site Development and Restoration unit price will be paid on the first progress payment following commencement of the Work.
- (b) 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.
- (c) 40% of the Site Development and Restoration unit price will be paid on the progress payment following Total Performance.

E10. EXPLORATION OF EXISTING UTILITIES AND SERVICES

E10.1 General

E10.1.1 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, water mains, water services, hydrant leads, gas, power and telecommunications ducts and conduits, traffic signal conduits, street lighting and other communication cables.

E10.2 Execution

E10.2.1 The on-site 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.

E10.2.2 All proposed dig locations must be clearly identified and submitted to the Contract Administrator prior to utility exploration Work beginning.

- (a) The Contract Administrator may add additional locations.

E10.2.3 The Contractor shall arrange for all required utility locations, safety watches and other required notifications.

E10.2.4 The Contractor shall provide a minimum of two (2) Business Days' notice to the Contract Administrator prior to conducting utility exposures.

E10.2.5 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.

E10.2.6 The Contractor shall use soft digging equipment (i.e. hydro-excavator) to expose the utility under investigation.

E10.2.7 The Contractor shall record the depth of the utility and provide this information to the Contract Administrator.

E10.2.8 The Contractor is responsible for backfill and restoration of all soft dig locations. Contractor to assume soft dig locations to be in paved roadway.

E10.3 Measurement and Payment

E10.3.1 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 LDS sewer installation under Land Drainage Sewers.

E11. TREE REMOVAL

E11.1 Description

E11.1.1 This specification shall cover the removal of existing trees.

E11.1.2 The Work to be done by the Contractor under this specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified.

E11.2 Materials

E11.2.1 Existing Trees to be Removed

(a) The existing trees to be removed include, but not limited to ash, elm, cottonwood, basswood, oak, pine, maple, spruce, etc., all of which may be cut with standard chain saw equipment. The existing trees range from 50 mm to 500 mm diameter.

E11.3 Construction Methods

E11.3.1 Prior to commencement of the Work the Contract Administrator shall identify all trees for removal. The Contractor shall cut down only trees designated to be removed, and grub out all stumps and roots greater than 100 mm diameter. In general, the Contractor shall start at the top of the tree and remove branches or trunks not longer than 2 m. Trees are to be felled so as to land within the limits of the Works. The Contractor shall load and haul all trees, stumps, roots, logs, brush, rubbish and all other surface litter from the Site and dispose of these materials at an approved disposal Site, acceptable to the Contract Administrator.

E11.3.2 The Contractor shall take all precautions to prevent damage to structures, adjacent property and to trees and shrubs. In the event of damage, the Contractor will be held liable, and shall be required to provide appropriate restoration at his cost, to the satisfaction of the Contract Administrator.

E11.3.3 Any trees damaged during construction activities shall be examined by a bonded tree care professional and pruned as required. Damaged trees which are not viable shall be replaced by the Contractor at his own cost.

E11.4 Measurement and Payment

E11.4.1 The removal of existing trees shall be measured on a per tree basis and paid for at the Contract Unit Price per unit for the "Items of Work" listed below. The amount to be paid shall be the total number of trees removed in accordance with this specification, accepted and measured by the Contract Administrator.

Items of Work: Tree Removal

(a) 50 mm to 249 mm Diameter

(b) 250 mm to 500 mm Diameter

E11.4.2 The removal of trees and brush less than 50 mm diameter is considered incidental to the Work and no separate measurement or payment will be made.

E12. PROTECTION OF EXISTING TREES

E12.1 Removal of some trees will be required. The Contract Administrator will identify which trees will be removed. The Contractor shall take the following precautionary steps to avoid damage from construction activities to any existing trees not marked for removal within the limits of the construction area.

- E12.1.1 Do not stockpile materials and soil or park vehicles and equipment within 2 metres of trees.
- E12.1.2 Strap mature tree trunks with 25 x 150 x 2400 wood planks. Smaller trees shall be similarly protected using appropriately sized wood planks.
- E12.1.3 Excavations shall be carried out in a manner to minimize damage to existing root systems. Where roots must be cut to facilitate an excavation they shall be neatly pruned at the face of the excavation and coated with an appropriate wound dressing to prevent infection.
- E12.1.4 Work on Site shall be carried out in a manner to minimize damage to existing tree branches. Where damage to tree branches does occur, the Contractor shall neatly prune the damaged branch.
- E12.1.5 American elm trees shall not be pruned between April 1st and August 1st and Siberian elm trees between April 1st and July 1st of any year under provisions of The Dutch Elm Disease Act.
- E12.2 All damage to existing trees due to construction activities shall be repaired to the requirements and satisfaction of the City of Winnipeg, Public Works Department, Forestry Branch at the Contractor's expense.
- E12.3 Costs for protection of trees shall be considered incidental to Site Development and Restoration. No separate measurement or payment will be made.

E13. SUPPLY AND INSTALLATION OF TEMPORARY SHORING

E13.1 Description

- E13.1.1 This Specification supplements CW 2030 and covers shoring requirements for the Works.

E13.2 Construction Methods

E13.2.1 Excavation

- (a) 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.

E13.2.2 Excavation Security Fence

- (a) Further to Clause 3.1 of CW 1130, completely cover the excavation and provide a security fence to completely surround the excavation when unattended generally in accordance with the following:
- (i) Security fence shall be chain link fence as per CW 3550 or approved equal in accordance with B7, 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.
 - (ii) Attach fencing securely to posts.
 - (iii) Secure the gate or end of the fencing to a post with chain and a padlock.

E13.2.3 Shoring

- (a) 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.
- (b) Shoring and bracing shall be so spaced and dimensioned as to prevent caving, loss of ground, surface settlement, or squeezing of the soil beyond the neat lines of excavation. It shall be free from defects that might impair its strength or suitability for the Work. Sheeting/shoring and bracing shall conform to the latest revisions of the "Construction Safety Act" of the Department of Labour of the Government of Manitoba and in accordance with Province of Manitoba "W210 The Workplace Safety and Health Act" and "Guidelines for Excavation Work".

- (c) Submit supporting design calculations as required to facilitate review of the submission for conformance with the Contract Documents.
- (d) Submit AutoCAD Shop Drawings and design calculations for the shoring/excavation system designed and sealed by a Professional Engineer registered or licensed to practice in the Province of Manitoba and experienced in the structural design of shoring systems. The designer of the shoring system shall inspect the system during construction and certify, in writing to the Contract Administrator, that construction is in conformance with the approved design.
- (e) Shoring and bracing shall be installed such that the structure size and wall thickness shown on the shop drawings can be effectively installed and or constructed subsequent to installation of the shoring system.
- (f) Shoring and bracing shall be designed and installed to prevent settlement and damage to existing structures. In the event of damage, the Contractor will be held liable, and shall be required to provide appropriate restoration at his cost, to the satisfaction of the Contract Administrator.
- (g) Shoring and bracing shall remain in place until it is no longer required to complete the Work.

E13.3 Measurement and Payment

- E13.3.1 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.

E14. EXCAVATION, BEDDING AND BACKFILL

E14.1 General

- E14.1.1 This Specification supplements requirements for excavation, bedding and backfill identified in CW 2030.

E14.2 Related Specifications

- E14.2.1 Environmental Protection Plan - Section E7
- E14.2.2 Exploration of Existing Utilities and Services - Section E10
- E14.2.3 Land Drainage Sewers – Section E15
- E14.2.4 Pipe Ramming – Section E17

E14.3 Submittals

- E14.3.1 Submit shoring designs to Contract Administrator, in accordance with E13.

E14.4 Existing Utilities

- E14.4.1 Arrange and pay for any required safety watches around existing utilities as per CW 1120.
- E14.4.2 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.

E14.5 Disposal of Unsuitable or Surplus Excavated Material

- E14.5.1 The Contractor is responsible for arranging for a disposal site for all excavated material, and associated Works including transportation and payment of tipping fees.

- E14.5.2 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.
- E14.6 Foundation and Bedding and Initial Backfill
- E14.6.1 Foundation and Bedding to be Class B, Type 2 Bedding for shafts with PVC pipe and Type 3 Bedding for shafts with concrete pipe, in accordance with City of Winnipeg standard detail SD-001.
- E14.7 Backfill
- E14.7.1 Excavations under or within one (1) metre of paved areas on 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.
- E14.7.2 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.
- E14.7.3 The Contractor shall have personnel available for immediate repairs of settlement at shaft locations from the start of construction until final restoration is complete.
- E14.8 Measurement and Payment
- E14.8.1 All costs associated with Excavation, Bedding and Backfill as described herein are incidental to the installation of the LDS sewer piping covered in CW 2130.

E15. LAND DRAINAGE SEWERS

- E15.1 Description
- E15.1.1 This Specification supplements and amends City of Winnipeg Standard Construction Specification CW 2130 Gravity Sewers with respect to land drainage sewer piping.
- E15.2 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.
- E15.3 Construction Methods
- E15.3.1 Land drainage sewers shall be installed via trenchless methods except where identified on the Drawings or otherwise approved by the Contract Administrator.
- E15.4 Measurement and Payment
- (a) Measurement and payment for land drainage 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 E14, are incidental to Land Drainage Sewers.
 - (ii) Surface Restorations, as described in E23, are incidental to Land Drainage Sewers.
 - (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 Land Drainage Sewers as specified in E29.
 - (iv) Cost of shaft construction and associated shoring required for the installation of the works described herein, is incidental to Land Drainage Sewers.

E16. CONCRETE BOX CULVERT

E16.1 Description

- (a) This Specification will cover supply, installation and associated construction Works of concrete box culverts.

E16.2 Quality Assurance

- (a) Qualifications of Precast Manufacturers:
- (i) Manufacturer: Certified to Canadian Precast / Prestressed Concrete Institute (CPCI) Certification Program.
 - (ii) Precast Concrete and Precast Prestressed Concrete: Product of manufacturer with 3 years' experience producing precast concrete products of quality specified.
 - (iii) Precast Plant: PCI certified plant with current certification.
 - (iv) Precast manufacturers with apparent capability to meet these Specifications:
 - (i) Lafarge
 - (ii) Inland Pipe
 - (v) Calculations stamped and signed by an engineer registered in the same province as the Project.

E16.3 Materials

- (a) General
- (i) Conform to ASTM C478, CSA A257.4 and ASTM C1433.
- (b) Concrete Box Culvert Construction

Class of Exposure	S-2
Maximum Size of Aggregate	19 mm
Cement Type	Type HS (type 50)
Minimum Compressive Strength at 7 Days	20 MPa
Minimum Compressive Strength at 28 Days	30 MPa
Minimum Compressive Strength at 56 Days	32 MPa
Slump/Flow	80 mm +/- 20 mm
Air Content	6.5% +/- 1.5
W/C	0.5

- (c) Precast Concrete
- (i) Precast concrete elements shall be as listed on the Drawings.

E16.4 Construction Methods

- (a) The Contractor shall install the chambers, benching and box culverts as shown on the Drawings.

E16.5 Measurement and Payment

- (a) Construction of the Concrete Box Culverters will be paid for at the Contract Price for "Concrete Box Culvert" listed below and on Form B: Prices. Said price shall be payment in full for supplying all materials and performing all operations herein described and as shown on the Drawings and Details and other items incidental to the Work included in this Specification.

(a) **Concrete Box Culvert**

- (i) Shall be measured on a linear metre basis for each size of "Concrete Box Culvert" listed on Form B: Prices by span and rise.
- (ii) Connections to Manholes is incidental to the cost of the Manholes.

- (b) The cost of shaft construction associated shoring and control of groundwater required to facilitate the installation of the Works described herein shall be incidental to the Manhole Construction.
- (c) Excavation, bedding and backfill described in E14 is incidental to the Concrete Box Culverts.
- (d) Surface restoration will be paid as described in E23.

E17. PIPE RAMMING

E17.1 Description

E17.1.1 This Specification describes the Contractor requirements for the pipe ramming method required for the pipe installation works beneath the Bergen Cutoff and amends City of Winnipeg Standard Construction Specification CW 2130 Gravity Sewers.

E17.2 Materials

E17.2.1 Pipe shall be steel.

E17.2.2 Pipe to be placed by ramming shall be as follows:

- (a) Steel shall be new, smooth wall carbon steel pipe which conforms to ASTM Specifications A139, Grade B. No hydrostatic testing will be performed.
- (b) Steel pipe shall have a minimum yield strength of 35,000 psi.
- (c) Pipe casing diameter shall be 1350 mm I.D. minimum. Pipe wall thickness shall be determined by Contractor based on static and dynamic loads from loading and anticipated ramming forces for selected pipe and driven pipe lengths. Pipe segment lengths shall be determined by Contractor.
- (d) Steel pipe joints shall be welded.
- (e) All steel casing pipe shall be square cut with beveled ends for welding.
- (f) Steel casing pipe shall have a roundness such that the difference between the major and minor outside diameters shall not exceed 1% of the specified nominal outside diameter or 6.35 mm, whichever is less.
- (g) Steel casing shall have an outside circumference which is within 1% of the nominal circumference which in within 12.7 mm, whichever is less.
- (h) Steel casing pipe shall have a minimum allowable straightness deviation in any 3.05 m length of 3.18 mm.

E17.2.3 Anodes

- (a) Install one 10.9 kg Sacrificial Zinc Anode to be connected to each end of the steel pipe as per City of Winnipeg CW 2110.

E17.2.4 Coating

- (a) All steel piping shall be liquid epoxy coated on the exterior and interior and conform to AWWA C210.
- (b) All exterior coatings shall be applied in a minimum of (10) or more layers (5 mils dry film thickness minimum for each coat) for a minimum final coating dry film thickness of greater than 50 mils or the thickness recommended by the manufacturer for pipe ramming installation methods.
- (c) All interior coatings shall be applied in a minimum of (2) or more layers (5 mils dry film thickness minimum for each coat) for a minimum final coating dry film thickness of greater than 16 mils or the thickness recommended by the manufacturer.
- (d) Submit product data for interior and exterior lining coating products in accordance with E6.

E17.3 Construction Methods

- E17.3.1 Installation of 1350 mm piping beneath the Bergen Cutoff shall be by pipe ramming.
- E17.3.2 Selection of excavation equipment for installation of sewers by pipe ramming shall be the responsibility of the Contractor and shall be made based on expected soil conditions inferred from the geotechnical investigation report (see Appendix A).
- E17.3.3 Removal of materials from within the pipe shall not be undertaken until the lead end of the pipe has passed fully through and beyond the zone of influence of any overlying infrastructure.
- E17.3.4 Following the installation of the liner pipe, all material shall be removed from the pipe to the satisfaction of the Contract Administrator.
- E17.4 Submittals
- E17.4.1 **Qualifications** – The Contractor shall submit the qualifications for the equipment operator as required in B13.
- E17.4.2 **Execution Plan** – The Contractor shall prepare and submit a site-specific Pipe Ramming Execution Plan for the Bergen Cutoff crossing minimum 5 working days prior to commencement of the work. The Pipe Ramming Execution Plan shall include:
- (a) Submit for approval complete details of the proposed method of construction and the sequence of operations to be performed during construction. Show the method of pipe ramming, including the ramming system to be used, the location of working pits, the method of excavation, shoring and bracing appurtenance installation, tracking procedures and dewatering techniques that are proposed to be used.
 - (b) Description of all equipment to be employed on both the entry and exit sites to complete the work including, but not limited to, the pilot tube, air hammer, tracking tools, auger and shoring.
 - (c) Description and drawings of the Site, accesses, and layout, as well as confirmation of the worksite suitability for the Contractor's proposed equipment.
 - (d) Description of ramming pipe maintenance procedures during construction, including inspection as required, and how the Contractor will minimize stress in the ramming pipe during the ramming operations.
 - (e) Description of methods to clean out steel pipe following installation.
 - (f) Emergency procedures for inadvertent utility strikes, including power, natural gas, water, sewer, or telecommunication lines. Procedures must comply with regulations.
 - (g) Schedule of work including working hours/days per week and installation sequence for the project including:
 - (i) Mobilization.
 - (ii) Work pad, layout, and access preparation.
 - (iii) Topographic survey (if required).
 - (iv) Shoring installation.
 - (v) Product pipe welding and installation.
 - (vi) Area cleanup and restoration.
 - (vii) Demobilization.
 - (h) Approval of the Pipe Ramming Execution Plan by the Contract Administrator or the City does not relieve the Contractor of any responsibility or liability for safety, damages, compliance with permits and Engineering Inspection Certifications of ramming pipe and tracking tools to be used on the project.
 - (i) Any operational deviation from the submitted Pipe Ramming Execution Plan shall be presented to the Contract Administrator in written form, this may include a change in any process, borehole condition, equipment, or pipe installation technique. The Contract Administrator shall review and approve any deviations of the Pipe Ramming Execution Plan prior to implementation by the Contractor.

E17.4.3 Shaft Construction - No shaft construction may proceed without approved shop drawings in accordance with E6.

- (a) Shaft Shop Drawings shall demonstrate at minimum:
 - (i) Shoring design meets all Province of Manitoba regulations.
 - (ii) Shoring is satisfactory to support soil, active and construction loading.
 - (iii) Excavation space permits the effective installation of the planned trenchless works and other design elements shown on the Drawings.

E17.4.4 Ramming Pipe – Pipe is being installed by Pipe Ramming, 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 in accordance with E17.3.

- (a) The submission shall include calculations demonstrating that the pipe selected has been designed to support the maximum anticipated earth loads and superimposed live loads, both static and dynamic, which may be imposed on the pipe. Determine the additional stresses imposed on the pipe during ramming operations and upgrade the quality and strength of the pipe and pipe joints to the extent necessary to withstand the additional stresses imposed by the ramming operation. The details shall be submitted for approval.

E17.4.5 Grade Control - The Contractor shall provide a submission demonstrating the method of grade control used on their ramming equipment and rail system. Contractor shall demonstrate that their grade control can be used effectively for their proposed drive lengths.

E17.4.6 Operations Log - Submit a log of the ramming operations. As a minimum, the log shall consist of the following:

- (a) The position of the pipe in relation to the design line and grade.
- (b) The date, the starting time, and the finish time.
- (c) Inclination.
- (d) Advance rates.
- (e) Hammer strokes per minute.

E17.5 Measurement and Payment

E17.5.1 Measurement and payment for Pipe Ramming 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:

- (a) Excavation, Bedding and Backfill, as required for Pipe Ramming, are incidental to Pipe Ramming.
- (b) Surface Restorations, as required for Pipe Ramming, are incidental to Pipe Ramming
- (c) Cost of shaft construction and associated shoring required for the installation of the works described herein, is incidental to Pipe Ramming.
- (d) Supply and installation of sacrificial zinc anodes are incidental to Pipe Ramming.
- (e) Methods for dealing with and paying for trenchless obstructions including rocks/boulders smaller than the dimensions noted in the Geotechnical Investigation Report are incidental to Pipe Ramming. Trenchless obstructions more significant than the potential sizes noted in the Geotechnical Investigation Report will be paid under the allowance for Changes in Site Conditions.
- (f) Payment for any and all groundwater dewatering works associated with pipe installation beneath the Bergen Cutoff shall be incidental to E9.

E18. LARGE DIAMETER MANHOLES

E18.1 Description

E18.1.1 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.

E18.1.2 For the purposes of this specification, large diameter manholes are those whose inside diameter is 2,100 mm or larger as shown on the Drawings.

E18.2 Materials

E18.2.1 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.

E18.3 Submittals

E18.3.1 Submit shop drawings for each manhole size listed on the Drawings in accordance with E6.

E18.4 Construction Methods

E18.4.1 Manhole installation as per CW 2130 and as shown on the Drawings.

E18.4.2 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:

- (a) Depth of bench to invert: minimum one-half of largest pipe diameter.
- (b) Slope of invert bench: 4% minimum; 12% maximum.

E18.5 Method of Measurement and Basis of Payment

E18.5.1 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.

E19. CATCH BASINS AND LEAD PIPING

E19.1 Description

E19.1.1 This Specification supplements and amends City of Winnipeg Standard Construction Specification CW 2130 Gravity Sewers, and shall cover the connection of catch basins, catch pits and catch basin/pit leads to the new land drainage sewers.

E19.1.2 It is the intent of this project to replace all existing catch pits or catch basins with new pre-cast concrete catch basins in accordance with CW 2130.

E19.2 Materials

E19.2.1 Materials shall be as per the City of Winnipeg Approved Products List, or an approved equivalent as per E6.

- (a) Saddles to connect PVC to PVC LDS piping may be used in accordance with CW 2130.
- (b) Insert a Tee to connect PVC sewer services to concrete LDS piping may be used in accordance with CW 2130.

E19.3 Construction Method

E19.3.1 Construction of new Catch Basins as described in Section 3.8 of CW 2130.

E19.3.2 Connection of new Catch Basin leads to the new Land Drainage Sewer as described in Sections 3.10 and 3.16 of CW 2130.

E19.4 Measurement and Payment

- E19.4.1 The connection of new Catch Basin Leads to the new LDS pipe shall be paid under the Contract unit price for "Connect Catch Basin Lead to LDS Pipe" and will be measured on a per unit basis for each connection made. The price shall be payment in full for performing all operations herein described and all other items or accessories incidental to the Work included in this Specification and shown on the Drawings.
- (a) The connection of new Catch Basin Leads to new LDS pipe will be incidental to the pipe installation.
- E19.4.2 Supply and installation of Catch Basins will be measured and paid for in accordance with Section 4.4 of CW 2130.
- (a) Grouted riprap around beehive inlet grates is incidental to Catch Basins.
- E19.4.3 Supply and installation of CB lead pipe, including CB lead risers will be measured and paid for in accordance with Section 4.5 of CW 2130 under the contract price for "Catch Basin Leads".
- E19.4.4 The cost of any shaft and associated shoring required to undertake the Work described herein is considered incidental to the "Connection of Catch Basin Lead to LDS Pipe".

E20. REPAIRS TO EXISTING SEWER AND WATER SERVICES

E20.1 Description

- E20.1.1 Regrading of existing sewer or water services that conflict with the proposed sewer installation may be necessary. To minimize the potential for damaging existing services, sewer and water services shall be located in accordance with E10 prior to trenchless sewer installation and associated construction (shafts or otherwise).

E20.2 Construction

- E20.2.1 The Contractor will immediately inform the Contract Administrator of any damage to services and cease all Work in the vicinity. The Contract Administrator will inform the Contractor of the resultant investigation and instruct the Contractor to perform sewer repair Works in accordance with CW 2130 and Water service repairs in accordance with CW 2110.

E20.2.2 Sewer Service Repair and Replacement

- (a) The regrading or repair of existing sewer services shall be done in accordance with CW 2130.
- (b) The Contractor shall install insulation in accordance with CW 2110 where the sewer service is installed with cover less than 2.5 m, or as directed by the Contract Administrator.

E20.2.3 Water Service Repair and Replacement

- (a) The Contractor shall attempt to adjust the water service pipe without cutting into the pipe to reroute it around the new sewer.
- (b) The repair of damaged water service pipes shall be undertaken in accordance with CW 2110. The repair shall comply with the standard City of Winnipeg practice of allowing only one union per service, and fully renewing the remainder of the service to the main or to the curb stop (whichever is shorter). Existing corporation stops, curb stops, and boxes may be reused if in good condition and if compatible with the service pipe.
- (c) The Contract Administrator must be notified if any of the water service piping encountered is not copper. If water services requiring regrading are found to be made of lead, then the service shall be fully renewed with minimum 19 mm copper water services, including new saddle and corporation stop at the main, new curb stop and box. Connect new copper water service to existing lead service with a suitable flange copper to lead adapter.

- (d) The Contractor shall install insulation in accordance with CW 2110 where the water service is installed with cover less than 2.5 m, or as directed by the Contract Administrator.

E20.3 Measurement and Payment

- E20.3.1 Repair or regrading of existing sewer service will be measured and paid for on a linear meter basis for regrading sections of sewer service at the Provisional Contract unit prices for "Regrading of Existing Sewer Service".
- E20.3.2 The replacement of water services including connections shall be measured and paid for on a linear meter basis for each size classification at the Provisional Contract unit prices for "Water Service Replacement".
- E20.3.3 Connecting to existing water services will be included in the installation of water service piping.
- E20.3.4 No payment will be made for repairs required for damages caused due to Contractor carelessness or as a result of insufficient utility exploration.

E21. EXISTING SEWER AND CATCH BASIN CLEANING AND INSPECTION

- E21.1 Existing Sewers, Manholes, Catch Basins and Curb and Gutter Inlets as identified herein shall be cleaned prior to inspection in accordance with CW 2140.
- E21.2 Contractor shall perform pre-construction and post-construction video inspections of all combined sewers adjacent to proposed tunneling shafts in accordance with CW 2145. The limits of video inspection shall extend ten (10) meters beyond the length of the adjacent shaft wall. Coding of video inspection is not required. This Work shall be paid following the completion of the Pre-construction and Post-Construction sewer inspections for each location for "Pre-Construction Sewer Inspection" and "Post-Construction Sewer Inspection".

E22. ABANDONMENT OF EXISTING LDS AND MANHOLES

- E22.1 Abandon existing LDS piping by filling with cement-stabilized flowable fill in accordance with CW 2130.
 - E22.1.1 Gaining access to the manholes on private property, removing and replacing existing trees and all other restoration works shall be considered incidental to "Site Development and Restoration".
- E22.2 Sections of the existing LDS are known to be collapsed and may not be able to be completely filled with flowable fill. The intention is for the Contractor to insert as much flowable fill in the existing piping as possible, quantities of cement-stabilized flowable fill provided in Form B are approximate.
 - E22.2.1 Video inspection of existing LDS piping shown on Plan LD-12132 is not required prior to abandonment.
- E22.3 Removal and disposal of existing steel structure located on the Bergen Cutoff Arch Culvert as shown on Plan LD-12132 shall be incidental to Abandon Existing Sewer with Cement Stabilized Flowable Fill.
- E22.4 Upon completion of land drainage sewer pipe installation and placing the drainage system into operation, coordinate decommissioning and abandonment of existing temporary pump station on the Irving Place back lane with City personnel.
 - (a) Salvage all internal components of the pump station and return to City personnel.
 - (b) Abandon temporary pump station beneath newly installed concrete pad by filling with cement stabilized flowable fill in accordance with CW 2130.

E23. PERMANENT SURFACE RESTORATIONS

E23.1 Description

E23.1.1 This specification identifies the requirements for permanent surface restorations.

E23.1.2 This specification amends Surface Restorations defined in CW 2130 and places the cost of permanent surface restorations upon the Work item being undertaken.

- (a) Concrete road restoration of Essar Avenue specifically for the box culvert crossing will be paid separately, under Concrete Roadworks as listed in Form B: Prices.

E23.2 General Requirements

E23.2.1 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.

E23.3 Pavement Restoration Requirements

E23.3.1 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.

E23.3.2 The Street Classification and Surface Type within the project Work area are classified as follows:

Street Name	Segment	Pavement Type	Condition
Kildonan Drive	Hawthorne Avenue to Bergen Cutoff Park	Asphalt over Concrete	Good
Irving Place	Kildonan Drive to Grandview Street	Asphalt over Concrete	Good
Essar Avenue	Kildonan Drive to Appleton Street	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.			

E23.3.3 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.

- (a) Review and record the condition of each street segment with the Contract Administrator and a City Representative from Public Works prior to the initiation of Work.
- (b) 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.

E23.3.4 Pavement Restoration Guidelines from the City of Winnipeg Street Cuts Manual are summarized below:

- (a) 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

(b) 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

E23.4 Methods

E23.4.1 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:

- (a) 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.
- (b) 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.
- (c) Miscellaneous concrete slabs, including sidewalk - in accordance with CW 3235

- (d) Interlocking stones – in accordance with CW 3330.
- (e) Concrete curb and gutter – in accordance with CW 3240.
- (f) Trees - requiring replacement due to construction activities (as directed by the Contract Administrator) shall be installed in accordance with CW 3510 and as per E23.5.1(b).
- (g) 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.

E23.4.2 Pavement surface restorations shall be in accordance with E23.3.4 and based on the condition of the existing pavement listed in E23.3.2:

E23.5 Measurement and Payment

E23.5.1 This specification amends CW 2130 such that:

- (a) Concrete road restoration of Essar Avenue specifically for the box culvert crossing will be paid under Essar Avenue Slab Replacement as listed in Form B: Prices. **All 150 mm Type 2 Reinforced Concrete Pavement restoration beyond the quantities listed on Form B: Prices will be considered incidental to Concrete Box Culvert and Manhole installation and no additional payment will be made for the additional quantities.**
- (b) All other costs associated with Permanent Surface Restorations as described herein are incidental to the Work items for the Work activity being carried out, including but not limited to Land Drainage Sewers, Concrete Box Culverts, Pipe Ramming, installation of Manholes, installation of Catch Basin Leads, Connecting of Catch Basin Lead, Catch Basin, Sewer or Water Service, and other works shown on the Drawings. No payment will be made for restoring the roadways from these Works.

E24. TREE PLANTING

E24.1 Description

E24.1.1 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 E9 Site Development and Restoration.

E24.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead labour, materials, and all other things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified.

E24.1.3 The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification.

E24.2 Materials

E24.2.1 Trees

- (a) 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.

E24.3 Construction Methods

E24.3.1 Trees

- (a) 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.

E24.3.2 Quality Control

(a) Inspection

- (i) 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.

E24.3.3 Access

- (a) 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.

E24.4 Measurement and Payment

- E24.4.1 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.

E25. REMOVAL OF DEADFALL AND DEBRIS

E25.1 Description

- E25.1.1 This Specification shall cover the removal of deadfall and debris located on the south side of the Bergen Cutoff as shown on Drawing LD-12135.

E25.2 Construction Methods

- E25.2.1 All existing deadfall and debris located on the south side of the Bergen Cutoff as indicated on the Drawings shall be removed and appropriately disposed off site.

E25.3 Measurement and Payment

- E25.3.1 The removal of deadfall and debris shall be measured by tonnes and paid for at the Contract Unit Price for "Removal of Deadfall and Debris". The weight to be paid for shall be the total tonnes of debris removed from Site and taken to a waste facility, in accordance with this Specification, and accepted and measured by the Contract Administrator.
- E25.3.2 The Contractor shall supply and deliver receipts of weigh bills to the Contract Administrator before payment will be made.
- E25.3.3 All costs associated with removal of deadfall and debris, which includes collection of debris, transport, and tipping fees, will be considered incidental to the Work.

E26. NATIVE GRASSES

E26.1 Description

- E26.1.1 This Specification shall cover the installation of native grasses within the treed areas south of the Bergen Cutoff.
- E26.1.2 The work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead labour, materials, and all other things necessary for and incidental to the satisfactory performance and completion of all work as hereinafter specified.
- E26.1.3 The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification.

E26.2 Materials

E26.2.1 Forested Areas Revegetation

- (a) Seed Mixture

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

- 20% Slender Wheatgrass
- 20% Switchgrass
- 20% Big Bluestem
- 20% Canada Wildrye
- 10% Fringed Brome
- 10% Canada Milkvetch

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

- Prairie Cordgrass
- Streambank Wheatgrass
- Western Wheatgrass
- Northern Wheatgrass

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

E26.3 Construction Methods

E26.3.1 Seeding

- (a) Grass seed shall be sown at a rate of 0.5 kg per 100 square metres.
- (b) Oats shall be sown at a rate of 0.38 kg per 100 square metres.
- (c) Oats and grass seed may be mixed and sown together or they may be sown separately.

E26.3.2 Maintenance of Seeded Area

- (a) Areas seeded with native grasses shall be mowed during the first growing season to control pioneering weeds and other competition. For the purposes of this project a weed is defined as any plant not included in the seed mix. Mowing should be done before the general height is 150 to 250 mm, or when the weedy foliar cover reaches 50 percent of the seeded area, or when the weed species begin to flower. The first mowing shall be set at a height of 75 mm with the following mowings to be set at a height of 100 to 200 mm. Rotary, flail, or sickle bar type mowing equipment is acceptable.
- (b) All other maintenance of seeded area shall be in accordance with CW3520.

E26.3.3 Quality Control

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

E26.4 Method of Measurement

E26.4.1 Topsoil and Seeding

- (a) The supply and placement of the native grass seeding within the forested Bergen Cutoff areas will be measured on an area basis. **The maximum area to be paid for shall be the area indicated on Form B: Prices, which is based on the area to be seeded as a direct result of specified works. Topsoil and Seeding area above**

this quantity shall be considered incidental to E9: Site Development and Restoration.

E26.5 Basis of Payment

E26.5.1 Topsoil and Seeding

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

E27. TOPSOIL AND SODDING

E27.1 Description

E27.1.1 This specification shall cover the supply and installation of topsoil and sodding within the limits shown on Drawing LD-12135.

E27.1.2 Required topsoil and sodding shall be the responsibility of the Contractor and shall be done in accordance with CW 3510.

E27.2 Materials

E27.2.1 Topsoil

- (a) Shall be supplied in accordance with Clause 5.2 of CW 3540.

E27.2.2 Sod

- (a) Shall be supplied in accordance with Clause 2.3 of CW 3510.

E27.3 Construction Methods

E27.3.1 Construction methods shall be in accordance with CW 3510.

E27.4 Measurement and Payment

E27.4.1 The supply and placement of topsoil and sod will be paid for at the Contract Unit Price per square metre for the "Topsoil and Sodding" measured as specified, herein, which price shall be payment in full supplying all materials and performing all operations herein described, and all other items incidental to the work included in this Specification. **The maximum areas to be paid for shall be the area indicated on Form B: Prices, which is based on the area to be topsoil and sodded as a direct result of specified works. Topsoil and Sodding area above this quantity shall be considered incidental to E9.**

E28. MAINTAINING FLOW IN EXISTING SEWERS

E28.1 Description

E28.1.1 The specification covers the requirement of the Contractor to maintain sewer flow in the existing 200 mm gravity sewer that is impacted by the installation of the box culvert between MH 13 and MH 14.

E28.1.2 Maintaining Flow in the existing sewer shall be in accordance with City Specification CW 2130 and as listed here.

E28.1.3 The Contractor may identify their method for controlling the flows, this includes construction of a flume within the excavation or a by-pass pumping arrangement.

E28.1.4 Where by-pass pumping is selected to control dry weather flow, the Contractor must provide redundant pumps and a back-up power supply to ensure that the sewer flows are controlled to the existing peak dry weather flow of the pipe network; and so the combined sewer system is not at risk to elevated levels causing basement flooding.

E28.2 Submittals

E28.2.1 Submittals shall be made in accordance with the requirements identified in E6 and as listed below.

E28.2.2 Submit a description of the proposed bypass method which shall include the following, as applicable:

(a) Diversion

- (i) Size and location of pipe, bends and connections.
- (ii) Pipe materials.
- (iii) Procedures to monitor upstream mains for backup impacts.
- (iv) Procedures for setup and breakdown of diversion.
- (v) Emergency plan detailing procedures to be followed in event of sewer overflows, service backups, and sewage spillage.

(b) Pumping

- (i) Size and location of manhole or access points for suction and discharge hose or piping.
- (ii) Sections showing suction and discharge pipe depth, embedment, select fill and special backfill, if buried.
- (iii) Temporary pipe supports and anchoring required.
- (iv) Thrust and restraint block sizes and locations.
- (v) Sewer plugging method and type of plugs.
- (vi) By-pass pump sizes, capacity, number of each size to be on site and power requirements.
- (vii) Backup pump, power and piping equipment.
- (viii) Calculations for upstream backwater effect to ensure properties upstream are not adversely affected by pumping.
- (ix) Calculations of static lift, friction losses, and flow velocity. Pump curves showing pump operating range.
- (x) Design plans and computation for access to bypass pumping locations indicated on drawings.
- (xi) Calculations for selection of bypass pumping pipe size.
- (xii) Method of noise control for each pump and/or generator.
- (xiii) Method of protecting discharge manholes or structures from erosion and damage.
- (xiv) Schedule for installation and maintenance of bypass pumping lines.
- (xv) Procedures to monitor upstream mains for backup impacts.
- (xvi) Procedures for setup and breakdown of pumping operations.
- (xvii) Emergency plan detailing procedures to be followed in event of pump failures, sewer overflows, service backups, and sewage spillage.

E28.3 Methods

E28.3.1 Schedule and perform work in manner that does not cause or contribute to incidence of basement flooding, overflows, releases or spills of sewage from sanitary sewer system or bypass operation.

E28.3.2 The Contractor shall acquire any permits required from the City for redirecting of flows.

E28.3.3 During by-pass pumping or diversion operation, protect sewer lines from damage inflicted by equipment.

E28.3.4 Upon completion of by-pass pumping or diversion operations, and after the receipt of written permission from the Contract Administrator, the Contractor shall remove or abandon temporary piping installed as part of this specification.

E28.4 Measurement and Payment

- E28.4.1 The costs for Maintaining Flow in Existing Sewers is incidental to **Site Development and Restoration** and shall include all work described herein and that is required to complete the Work.

E29. SUPPORT OR TEMPORARY RELOCATION OF EXISTING PIPES AND UTILITIES

- E29.1 The size and locations of shafts to facilitate the Work are at the discretion of the Contractor. Infrastructure in conflict with the Contractors proposed construction shafts shall be addressed through this specification.
- E29.2 The Contractor shall provide support or temporary relocation 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.
- E29.2.1 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
- E29.2.2 Watermains shall not be temporarily cut and capped unless permission is given by the Contract Administrator and the City.
- E29.3 Measurement and Payment
- E29.3.1 Relocation or support of existing pipes and utilities to facilitate the LDS sewer installation and associated excavations not identified on the Form B will be incidental to the cost of the LDS sewer installation under Trenchless Sewer Construction.

E30. CSP CULVERTS

- E30.1 This Specification supplements and amends City of Winnipeg Standard Construction Specification CW 3610 Installation of Culverts.
- E30.2 Connection to manholes and supply and installation of culvert end treatment as shown on the Drawings shall be incidental to 600 mm CSP as listed in Form B: Prices.
- E30.3 Replacement of existing culvert end sections damaged as a result of the Works shall be incidental to the Work items for the Work activity being carried out.

E31. IRVING PLACE BACK LANE RE-GRADING

- E31.1 Description
- E31.1.1 This specification shall cover the supply and placement of base course for re-grading of the Irving Place back lane as shown on the Drawings.
- E31.2 Materials
- E31.2.1 Granular B Base Course Material
- (a) Shall be supplied in accordance with CW 3110.
- E31.3 Construction Methods
- E31.3.1 Re-grade the existing gravel surfaced Irving Place back lane to provide 2% reverse crown and positive drainage to CB-14 as shown on the Drawings.
- E31.3.2 Supply and place Granular B Base Course material as required to achieve 2% reverse crown.

E31.3.3 Complete re-grading works in accordance with CW 3150.

E31.4 Measurement and Payment

E31.4.1 The supply and placement of Granular B Base Course used for re-grading the Irving Place back lane will be measured on a volume basis and paid at the Contract Unit Price per cubic metre in accordance with Clause 6.7 of CW 3110 for “Supplying and Placing Base Course Material – Granular B”.

E31.4.2 Payment for all re-grading of the Irving Place back lane shall be paid at the Contract Lump Sum Price for “Gravel Roadway Re-Grading” which price shall be payment in full for all re-grading, leveling, compacting, shaping and all other items incidental to the work included in this Specification.