



THE CITY OF WINNIPEG

TENDER

TENDER NO. 3-2026

**2026 DOWNTOWN PAVEMENT RENEWALS – ST. MARY AVE, EDMONTON ST,
AND KENNEDY ST**

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 2026 Downtown Pavement Renewals – St. Mary Ave, Edmonton St, and Kennedy St

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, March 3, 2026.

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

B3. SITE INVESTIGATION

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

B3.2 The Bidder is responsible for inspecting the Site, the nature of the Work to be done and all conditions that might affect their Bid or their performance of the Work, and shall assume all risk for conditions existing or arising in the course of the Work which have been or could have been determined through such inspection.

B4. ENQUIRIES

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

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

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

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

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

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

B5. CONFIDENTIALITY

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

- (a) was known to the Bidder before receipt hereof; or
- (b) becomes publicly known other than through the Bidder; or
- (c) is disclosed pursuant to the requirements of a governmental authority or judicial order.

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

B6. ADDENDA

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

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

B6.3 Addenda will be available on the MERX website at www.merx.com.

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 D4.

B7. SUBSTITUTES

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

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

B7.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least ten (10) 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;
 - (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 C24. Any such costs shall be determined in accordance with C24.
- 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) N/A

B12. CONFLICT OF INTEREST AND GOOD FAITH

- B12.1 Further to C3.3, Bidders, by responding to this Tender, declare that no Conflict of Interest currently exists, or is reasonably expected to exist in the future.
- B12.2 Conflict of Interest means any situation or circumstance where a Bidder or employee of the Bidder proposed for the Work has:
- (a) other commitments;
 - (b) relationships;
 - (c) financial interests; or
 - (d) involvement in ongoing litigation;
- that could or would be seen to:
- (i) exercise an improper influence over the objective, unbiased and impartial exercise of the independent judgment of the City with respect to the evaluation of Bids or award of the Contract; or
 - (ii) compromise, impair or be incompatible with the effective performance of a Bidder's obligations under the Contract;
- (e) has contractual or other obligations to the City that could or would be seen to have been compromised or impaired as a result of their participation in the Tender process or the Work; or
- (f) has knowledge of confidential information (other than confidential information disclosed by the City in the normal course of the Tender process) of strategic and/or material relevance to the Tender process or to the Work that is not available to other bidders and that could or would be seen to give that Bidder an unfair competitive advantage.
- B12.3 In connection with their Bid, each entity identified in B12.2 shall:
- (a) avoid any perceived, potential or actual Conflict of Interest in relation to the procurement process and the Work;
 - (b) upon discovering any perceived, potential or actual Conflict of Interest at any time during the Tender process, promptly disclose a detailed description of the Conflict of Interest to the City in a written statement to the Contract Administrator; and
 - (c) provide the City with the proposed means to avoid or mitigate, to the greatest extent practicable, any perceived, potential or actual Conflict of Interest and shall submit any additional information to the City that the City considers necessary to properly assess the perceived, potential or actual Conflict of Interest.
- B12.4 Without limiting B12.3, the City may, in their sole discretion, waive any and all perceived, potential or actual Conflicts of Interest. The City's waiver may be based upon such terms and conditions as the City, in their sole discretion, requires to satisfy itself that the Conflict of Interest has been appropriately avoided or mitigated, including requiring the Bidder to put into place such policies, procedures, measures and other safeguards as may be required by and be acceptable to the City, in their sole discretion, to avoid or mitigate the impact of such Conflict of Interest.
- B12.5 Without limiting B12.3, and in addition to all contractual or other rights or rights at law or in equity or legislation that may be available to the City, the City may, in their sole discretion:
- (a) disqualify a Bidder that fails to disclose a perceived, potential or actual Conflict of Interest of the Bidder or any of their employees proposed for the Work;
 - (b) require the removal or replacement of any employees proposed for the Work that has a perceived, actual or potential Conflict of Interest that the City, in their sole discretion, determines cannot be avoided or mitigated;

- (c) disqualify a Bidder or employees proposed for the Work that fails to comply with any requirements prescribed by the City pursuant to B12.4 to avoid or mitigate a Conflict of Interest; and
- (d) disqualify a Bidder if the Bidder, or one of their employees proposed for the Work, has a perceived, potential or actual Conflict of Interest that, in the City's sole discretion, cannot be avoided or mitigated, or otherwise resolved.

B12.6 The final determination of whether a perceived, potential or actual Conflict of Interest exists shall be made by the City, in their sole discretion.

B13. QUALIFICATION

B13.1 The Bidder shall:

- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba; and
- (b) be financially capable of carrying out the terms of the Contract; and
- (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.

B13.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Purchasing Division website at <https://www.winnipeg.ca/matmgt/Templates/files/debar.pdf>

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

- (a) have successfully carried out work similar in nature, scope and value to the Work; and
- (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
- (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);
- (d) have completed the Accessible Customer Service online training required by the Accessibility for Manitobans Act (AMA) (see B13.5 and C6.19)

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

- (a) Written confirmation of a safety and health certification meeting SAFE Work Manitoba's SAFE Work Certified Standard (e.g., COR™ and SECOR™) in the form of:
 - (i) a copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
 - (ii) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or

- (b) a report or letter to that effect from an independent reviewer acceptable to the City. A list of acceptable reviewers and the review template are available at https://www.winnipeg.ca/matmgt/Safety/safety_consultant.stm.

- B13.5 Further to B13.3(d), the Bidder acknowledges that they and all Subcontractors have obtained training required by the Accessibility for Manitobans Act (AMA) available at <https://accessibilitymb.ca/resources-events-and-training/online-training.html> for anyone that may have any interaction with the public on behalf of the City of Winnipeg.
- 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.

B14. BID SECURITY

- B14.1 The Bidder shall include in their Bid Submission bid security in the form of a digital bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in Form G1: Bid Bond and Agreement to Bond, available at: <https://www.winnipeg.ca/media/4929/>.
- 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 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 therefrom (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 Further to B18.1(a), in the event that a unit price is not provided on Form B: Prices, the City may determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.
- B18.4.2 Where MRST is shown on Form B as a separate line item, if that Line item is not completed, the MRST shall be considered to be included in the Total Bid Price.

B18.4.3 Bidders are advised that the calculation indicated in B18.4 will prevail over the Total Bid Price entered in MERX.

B19. AWARD OF CONTRACT

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

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

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

- (a) the prices exceed the available City funds for the Work;
- (b) the prices are materially in excess of the prices received for similar work in the past;
- (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with 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 C24 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 2025-11-01) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Purchasing Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm
- C0.2 A reference in the Tender to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Construction*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

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

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of:

- (a) Concrete Reconstruction
 - (i) St. Mary Avenue from Edmonton Street to Memorial Boulevard
 - (ii) Edmonton Street from Broadway to Graham Avenue
- (b) Pavement Rehabilitation
 - (i) Edmonton Street from Graham Avenue to Portage Avenue
 - (ii) Kennedy Street from Ellice Avenue to Cumberland Avenue
- (c) Streetscaping and Electrical Works
 - (i) St. Mary Avenue from Edmonton Street to Memorial Boulevard
 - (ii) Edmonton Street from Broadway to Graham Avenue
 - (iii) Kennedy Street from Ellice Avenue to Cumberland Avenue
- (d) Water Main Renewal
 - (i) St. Mary Avenue from Edmonton Street to Vaughan Street
- (e) Street Lighting Renewals
 - (i) St. Mary Avenue from Edmonton Street to Memorial Boulevard
 - (ii) Edmonton Street from Broadway to Portage Avenue

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

- (a) Concrete Reconstruction
 - (i) Removal of existing pavement;
 - (ii) Sidewalk removal;
 - (iii) Construction of temporary asphalt;
 - (iv) Excavation;
 - (v) Insulation of water services;
 - (vi) Installation of sub-drains;
 - (vii) Installation of traffic signal underground conduit, bases and pits;
 - (viii) Installation of catch basins and sewer service pipe;
 - (ix) Placement of separation geotextile fabric and geo-grid;
 - (x) Placement of sub-base and base course materials;
 - (xi) Adjustment of utility manholes frames catch basins, manholes, valves and appurtenances;
 - (xii) Construction of 250mm plain dowel jointed pavement;
 - (xiii) Construction of 200mm reinforced concrete pavement;
 - (xiv) Construction of 180mm integral barrier curb;
 - (xv) Construction of 180 mm integral modified barrier curb at radii;
 - (xvi) Construction of ramp curbs;
 - (xvii) Construction of bike separation median;
 - (xviii) Installation of green durable pavement markings;

- (xix) Construction of sidewalks with blockouts;
 - (xx) Construction of 150mm reinforced concrete sidewalks at intersections;
 - (xxi) Construction of coloured concrete raised bike path;
 - (xxii) Restoration of boulevard; and,
 - (xxiii) Installation of detectable warning tiles.
- (b) Pavement Rehabilitation
- (i) Planing of existing asphalt;
 - (ii) Installation of catch basin/catch pits and connection pipe;
 - (iii) Abandon existing drainage inlets;
 - (iv) Full-depth concrete repairs of existing joints and slabs;
 - (v) Removal / Renewal of existing curbs;
 - (vi) Construction of barrier curb (slip-form paving);
 - (vii) Construction of bike separation median;
 - (viii) Construction of 200mm reinforced concrete transit shelter pads;
 - (ix) Installation of green durable pavement markings;
 - (x) Renewal of existing sidewalk with blockouts;
 - (xi) Construction of monolithic curb and concrete sidewalk with block outs;
 - (xii) Adjustment of existing catch basins, manholes and appurtenances;
 - (xiii) Placement of pavement repair fabric as required;
 - (xiv) Placement of asphalt overlay (Type MS1, 90mm average thickness);
 - (xv) Installation of Traffic Signals Bases, Service Pits and Conduits;
 - (xvi) Boulevard restoration.
- (c) Streetscaping and Electrical Works
- (i) Construction of structural soil system;
 - (ii) Installation of various paving stones in concrete blockouts;
 - (iii) Removal of trees;
 - (iv) Installation of electrical conduit and wiring for pedestrian lights
 - (v) Installation of pedestrian lighting
 - (vi) Installation of wayfinding posts
- (d) Water Main Renewal
- (i) Installation of 250 mm PVC Pipe;
 - (ii) Installation of Hydrant Assemblies, Gate Valves, and Other Appurtenances;
 - (iii) Reconnection of Water Services;
 - (iv) Tie into existing Water Mains;
 - (v) Removal of existing Hydrants;
 - (vi) Abandonment of existing Gate Valves; and
 - (vii) Flushing Hydrostatic Leakage Testing, and Disinfection of new Water Main.
- (e) Street Lighting Renewals
- (i) Installation of temporary lighting poles and overhead connections
 - (ii) Removal of existing street light poles and bases; and
 - (iii) Installation of new conduit, bases and poles.

D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is WSP Canada, represented by:

Scott Suderman, P.Eng

Telephone No. 204 782 7189

Email Address Scott.Suderman@wsp.com

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

D5. CONTRACTOR'S SUPERVISOR

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

D5.2 At least two (2) Business Days prior to the commencement of any Work on the site, the Contractor shall provide the Contract Administrator with a phone number where the supervisor identified in D5.1 or an alternate can be contacted twenty-four (24) hours a day to respond to an emergency.

D6. FURNISHING OF DOCUMENTS

D6.1 Upon award of the Contract, the Contractor will be provided with 'issued for construction' Contract Documents electronically, including Drawings in PDF format only.

SUBMISSIONS

D7. AUTHORITY TO CARRY ON BUSINESS

D7.1 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.

D8. SAFE WORK PLAN

D8.1 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.

D8.2 The Safe Work Plan shall be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Purchasing Division website at <http://www.winnipeg.ca/matmgt/safety/default.stm>

D8.3 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.

D9. INSURANCE

D9.1 The Contractor shall provide and maintain the insurance coverage:

- (a) commercial general liability insurance, in the amount of at least five million dollars (\$5,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, contractual liability, unlicensed motor vehicle liability (contractor's equipment), non-owned automobile liability, sudden and accidental pollution liability, and products and completed operations endorsement, 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 \$5,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence;
- (c) 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.
- (d) Property insurance of all mobile offices, portable toilets, machinery and equipment.

D9.2 Deductibles shall be borne by the Contractor.

D9.3 All policies shall be taken out with insurers licensed to carry on business in the Province of Manitoba.

D9.4 All subcontractors performing work on the Project shall provide the Contractor with evidence of insurance as outlined in D9.1 (a) and (b) and be registered with Workers Compensation Board of Manitoba and maintain insurance and workers compensation coverage throughout the performance of the Work. The contractor shall provide the Contract Administrator with evidence of the same prior to the commencement of any Work by the Subcontractors.

D9.5 The Contractor shall provide:

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

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

- (b) The Contract Administrator with a copy of the certificate of insurance.

At least two (2) Business Days of notification of the award of the Contract prior to the commencement of any Work on the Site.

D9.6 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 Supervisor of Insurance.

D10. CONTRACT SECURITY

D10.1 The Contractor shall provide and maintain the performance bond and the labour and material payment bond until the expiration of the warranty period in the form of:

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

D10.1.1 Bonds are available at:

- (a) Performance Bond <https://www.winnipeg.ca/media/4928/>
 - (i) Performance Bond – Schedule A - Form of Notice
<https://www.winnipeg.ca/media/4831/>
 - (ii) Performance Bond – Schedule B – Surety’s Acknowledgement
<https://www.winnipeg.ca/media/4832/>
 - (iii) Performance Bond – Schedule C – Surety’s Position
<https://www.winnipeg.ca/media/4833/>
- (b) Labour & Material Payment Bond <https://www.winnipeg.ca/media/4930/>
 - (i) L&M Bond – Schedule A – Notice of Claim
<https://www.winnipeg.ca/media/4834/>
 - (ii) L&M Bond – Schedule B – Acknowledgement of a Notice
<https://www.winnipeg.ca/media/4835/>
 - (iii) L&M Bond – Schedule C – Surety’s Position
<https://www.winnipeg.ca/media/4836/>

D10.1.2 Where the contract security is a performance bond, it may be submitted in hard copy or digital format. If submitted in digital format the contract security must meet the following criteria:

- (a) the version submitted by the Contractor must have valid digital signatures and seals;
- (b) the version submitted by the Contractor must be verifiable by the City with respect to the totality and wholeness of the bond form, including: the content; all digital signatures and digital seals; with the surety company, or an approved verification service provider of the surety company.
- (c) the version submitted must be viewable, printable and storable in standard electronic file formats compatible with the City, and in a single file. Allowable formats include pdf.
- (d) the verification may be conducted by the City immediately or at any time during the life of the bond and at the discretion of the City with no requirement for passwords or fees.
- (e) the results of the verification must provide a clear, immediate and printable indication of pass or fail regarding D10.1(b).

D10.1.3 Digital bonds failing the verification process will not be considered to be valid and may be determined to be an event of default in accordance with C18.1. If a digital bond fails the verification process, the Contractor may provide a replacement bond (in hard copy or digital format) within seven (7) Calendar Days of the City’s request or within such greater period of time as the City in their discretion, exercised reasonably, allows.

D10.1.4 Digital bonds passing the verification process will be treated as original and authentic.

D10.2 The Contractor shall provide:

- (a) the required Contract Security to:

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

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

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

D10.3 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 D10.1(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.

D11. SUBCONTRACTOR LIST

- D11.1 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 or prior to a pre-construction meeting, or at least ten (10) Business Days prior to the commencement of any Work on the Site.

D12. EQUIPMENT LIST

- D12.1 The Contractor shall provide the Contract Administrator with a complete list of the equipment which the Contractor proposes to utilize (Form K: Equipment List) at or prior to a pre-construction meeting, or at least ten (10) Business Days prior to the commencement of any Work on the Site.

D13. DETAILED WORK SCHEDULE

- D13.1 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.
- D13.2 The detailed work schedule shall consist of the following:
- (a) a Gantt chart for the Work acceptable to the Contract Administrator.
- D13.3 Further to D13.2(a), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.

D14. REQUIREMENTS FOR SITE ACCESSIBILITY PLAN

- D14.1 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.
- D14.2 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. A temporary transit stop will be required on Kennedy Street north of St. Mary Avenue. Transit will be detoured from Kennedy north of Ellice Avenue.
 - (c) How the Contractor will maintain cycling facilities. Bicyclist will be detoured but can still chose to share the lane on St. Mary Avenue through the construction site. The Vaughn Street bike lane will need to be maintained with adequate signage.
 - (d) How the Contractor will maintain access to residents and businesses unless otherwise noted in the Contract. This includes and is not limited to:
 - (i) Pedestrian access to and from 211 Edmonton Street and a temporary full time loading zone on the north side of St. Mary Avenue, east of Edmonton Street.

- (ii) Pedestrian access to and from 101-379 Broadway Avenue and a temporary full time loading zone on the north side of Broadway Avenue, east of Edmonton Street.
 - (iii) Pedestrian access to and from the Winnipeg Clinic and a temporary Transit stop on Kennedy Street north of St. Mary Avenue.
 - (iv) Pedestrian access to and from a temporary pedestrian path of travel on a closed vehicle lane to a residence or business doorway.
 - (e) Any required detour signage at adjacent crossings to facilitate sidewalk or active transportation pathway closures.
- D14.3 The Accessibility Plan may also include figures, sketches, or drawings to demonstrate the proposed plan.
- D14.4 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
- D14.5 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.
- D14.6 Any changes to the Accessibility Plan must be approved by the Contract Administrator.
- D14.7 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the site has been maintained.
- D14.8 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.
 - (c) Third and subsequent Offences – A pay reduction will be issued in the amount of \$250.00 per instance and per day.

SCHEDULE OF WORK

D15. COMMENCEMENT

- D15.1 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.
- D15.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D7;
 - (ii) evidence of the workers compensation coverage specified in C6.17;
 - (iii) the twenty-four (24) hour emergency response phone number specified in D5.2.
 - (iv) the Safe Work Plan specified in D8;

- (v) evidence of the insurance specified in D9;
 - (vi) evidence of the contract security specified in D10;
 - (vii) the subcontractor list specified in D11;
 - (viii) the equipment list specified in D12;
 - (ix) the detailed work schedule specified in D13;
 - (x) the Requirements for Site Accessibility Plan specified in D14; and
 - (xi) the direct deposit application form specified in C12.20.
- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.

D15.3 The Contractor shall not commence the Work on the Site before April 13, 2026, and shall commence the Work on Site no later than April 27, 2026, as directed by the Contract Administrator and weather permitting.

D15.4 The City intends to award this Contract by April 3, 2026

D15.4.1 If the actual date of award is later than the intended date, the dates specified for Substantial Performance and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D16. RESTRICTED WORK HOURS

D16.1 Further to 3.10 of CW 1130, the Contractor shall require written permission forty-eight (48) hours in advance from the Contract Administrator for any work to be performed between 2000 hours and 0700 hours, or on Saturdays, Sundays, Statutory Holidays and or Civic Holidays.

D17. WORK BY OTHERS

D17.1 Further to C6.26, the Contractor's attention is directed to the fact that other Contractors, the personnel of Utilities and the staff of the City may be working within the project limit, approach roadway, adjacent roadways or right-of-way. The activities of these agencies may coincide with the Contractor's execution of work and it will be the Contractor's responsibility to cooperate to the fullest extent with other personnel working in the area, and such cooperation is an obligation of the Contractor under the terms of Contract.

D17.2 Work by others on or near the Site will include but not necessarily be limited to:

- (a) Manitoba Hydro Distribution – Casting adjustments of existing manholes frames, roof rebuilds and full vault rebuild, replacement of manhole frames and covers. Safety watch for working near sensitive duct lines.
- (b) Manitoba Hydro Street Lighting – Manitoba Hydro will activate and energize the new streetlighting plant. Manitoba Hydro will provide inspection of new street lighting hardware to be installed by the Contractor;
- (c) Manitoba Hydro, Gas Division – Safety watch and lowering/rock wrapping of services as required. Adjustment of impacted gas valves. The Contractor is to coordinate directly with Manitoba Hydro Gas;
- (d) City of Winnipeg Geomatics Branch – various works on survey monuments. Geomatics will provide a pre-construction inspection of their monuments. The Contractor is responsible to notify the Contract Administrator prior to any required disturbance of any survey bar or monuments to allow for adequate documentation;
- (e) City of Winnipeg Water Services – Inspection of water valves;
- (f) City of Winnipeg Traffic Signals – Installation of Traffic Signal poles, davits, controllers and heads, and cutovers. Traffic Signals will supply all the required materials for pedestrian street lighting installations.
- (g) City of Winnipeg Traffic Services – Provision of sign clamps, installation of bicycle stencils and line painting, reinstallation of traffic signage;

- (h) City of Winnipeg Parking Authority – when segments are totally complete, on street parking may be reinstated.
- (i) Transit Plus – Pick up and drop off of customers;
- (j) Winnipeg Transit – Removal and installation of Transit infrastructure, provision of temporary Transit stop signage;
- (k) BellMTS – Casting adjustments and vault roof rebuilds as required;
- (l) Telus, Rogers, and Zayo – Casting adjustments as required;
- (m) Sargent Avenue Reconstruction through Kennedy Street. Work to be coordinated with AECOM and will be completed in July and August 2026;
- (n) Royal Winnipeg Ballet / Bockstael – Exterior renovations scheduled for this summer at Edmonton Street and Graham Avenue requiring scaffolding.
- (o) City of Winnipeg Forestry – Forestry will complete all new tree plantings.
- (p) Folklorama – Several buses will need to be staged around the Convention Centre during Folklorama on either Carlton Street, St. Mary Avenue or Broadway. The Contractor shall keep required off site areas clear for these buses, if any of these locations are temporarily used for lay-down or stockpiling outside the construction area.
- (q) Convention Centre – Events are on-going at the Convention Centre and they require continued access for patrons, regular deliveries, and special event deliveries.
- (r) Downtown Farmers Market – on Edmonton Street between Graham Avenue and Portage Avenue.

D17.3 Further to D17.1 the Contractor shall cooperate and coordinate all activities with all parties performing required Work by Others. The Contractor must include and accommodate Work by Others identified in D17.2 or additional parties, in their construction schedule as per D13 and accommodate the necessary area on Site required for the Work by Others to complete the Work.

D18. SEQUENCE OF WORK

D18.1 Further to C6.1, the sequence of work shall be as follows:

- D18.1.1 The Work shall be divided into Phases. Each Phase shall be subdivided into stages. Stages are further subdivided into major items of work.
- D18.1.2 The sequence of work will follow the staging drawings. The sequence of work can be modified by the Contractor and demonstrated within their schedule.
- D18.1.3 The sequence of work must accommodate the construction windows required for the Convention Centre access and the reconstruction of Sargent Avenue and Kennedy Street intersection by others.
- D18.1.4 **Edmonton Street**
 - (a) **Underground Works** – Underground works from Broadway to Portage Avenue
 - (b) **Phase 1** – West lanes from approximately STA 2+00 to Graham Avenue
 - (c) **Phase 2** – East lanes from approximately STA 2+00 to Graham Avenue
 - (d) **Phase 3** – All lanes from Broadway to approximately STA 2+00
 - (e) **Phase 3** – Bike medians and All lanes from Graham Avenue to Portage Avenue
 - (i) **Stage 1** – West Lanes from Graham Avenue to Portage Avenue
 - (ii) **Stage 2** – East Lanes from Graham Avenue to Portage Avenue
 - (iii) **Stage 3** – Bike medians from Broadway to Portage Avenue

- D18.1.5 **St. Mary Avenue**
- (a) **Temporary and Underground Works** – Temporary works and underground works from Edmonton Street to Memorial Boulevard
 - (b) **Water Main Renewal** - Water Main renewal from Edmonton Street to Vaughan Street
 - (c) **Phase 1** – South side lanes
 - (d) **Phase 2** – North side lanes
 - (e) **Phase 3** – Bike medians
- D18.1.6 **Kennedy Street**
- (a) **Phase 1** – East lanes from Ellice Avenue to Cumberland Avenue
 - (b) **Phase 2** – West lanes from Ellice Avenue to Cumberland Avenue
- D18.1.7 Initial construction sequencing is required to be the following:
- (a) St. Mary Avenue Temporary and Underground Works
 - (b) Edmonton Street Underground Works
 - (c) St. Mary Avenue Water Main Renewal and Edmonton Street Phase 1
- D18.1.8 The Contractor will be required to sequence work concurrently on St. Mary Avenue and Edmonton Street during respective phases while still holding to the requirements detailed in E7.
- D18.1.9 The Contractor may elect to sequence Edmonton Street Phase 3 before, during, partially during or after Edmonton Street Phase 1 and/or Phase 2.
- D18.1.10 Manitoba Hydro is expected to complete the roof rebuilds for MH-21401 and MH116-4-3 before May 2026. This is to accommodate the water main renewal on St. Mary Avenue and traffic staging at the Edmonton Street traffic staging.
- D18.1.11 Manitoba Hydro is expected to complete the full vault rebuild for MH122-4-1 before July 2026. If the Contractor advances the north lanes on St. Mary Avenue prior to the completion of this work, this area will need to be boxed out and completed once Manitoba Hydro has completed their work.
- D18.1.12 Manitoba Hydro is expected to complete the roof rebuild for MH-21300 before August 2026.
- D18.1.13 The Contractor is required to utilize dual lane slip-form concrete paving equipment where space permits.

D19. SUBSTANTIAL PERFORMANCE

- D19.1 The Contractor shall achieve Substantial Performance by October 16, 2026.
- D19.2 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 re-inspected.
- D19.3 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.

D20. TOTAL PERFORMANCE

- D20.1 The Contractor shall achieve Total Performance by October 30, 2026.

D20.2 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 re-inspected.

D20.3 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.

D21. LIQUIDATED DAMAGES

D21.1 If the Contractor fails to achieve Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Calendar Day for each and every Calendar Day following the days fixed herein for same during which such failure continues:

- (a) Substantial Performance – Seven Thousand Five Hundred dollars (\$7,500);
- (b) Total Performance – Three Thousand Three Hundred dollars (\$3,300).

D21.2 The amounts specified for liquidated damages in D21.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve critical stages, Substantial Performance or Total Performance by the days fixed herein for same.

D21.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D22. SCHEDULED MAINTENANCE

D22.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

- (a) Reflective Crack Maintenance as specified in CW 3250;
- (b) Sod Maintenance as specified in CW 3510;
- (c) Landscape Maintenance as specified in E23.

D22.2 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

D23. JOB MEETINGS

D23.1 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.

D23.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever they deem it necessary.

D24. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

D24.1 Further to C6.27, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

D25. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

D25.1 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.

PAYMENT

D26. FUEL PRICE ADJUSTMENT

D26.1 The Contract is subject to a fuel price adjustment which will be calculated monthly based on eligible Work completed utilizing the following mathematical formulas;

- (a) where the price of fuel has increased - $((CFI/BFI)-1.15) \times Q \times FF$; and
- (b) where the price of fuel has decreased - $((CFI/BFI)-0.85) \times Q \times FF$; where
 - (i) BFI = base fuel index
 - (ii) CFI = current fuel index
 - (iii) FF = fuel factor
 - (iv) Q = monetary value of Work applied in the calculation.

D26.1.1 Eligible Work will be determined in accordance with D26.5.

D26.1.2 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.

D26.1.3 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.

D26.1.4 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.

D26.2 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.

D26.3 The fuel escalation or de-escalation adjustment will not be applied if the CFI is within $\pm 15\%$ of the BFI.

D26.4 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.

D26.5 The Fuel Factor (FF) rates will be set as follows:

- (a) The Fuel Factor rate shall be set at 2.7% of the monetary value of all Work based on unit prices.

WARRANTY

D27. WARRANTY

- D27.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) years thereafter for pavement rehabilitation works , and two (2) years thereafter for pavement reconstruction works, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.
- D27.2 Notwithstanding C13.2 or D27.1, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if:
- (a) a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.
- D27.2.1 In such case the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

INDEMNITY

D28. INDEMNITY

- D28.1 Indemnity shall be as stated in C17.

FORM J: SUBCONTRACTOR LIST
(See D11)

2026 DOWNTOWN PAVEMENT RENEWALS – ST. MARY AVE, EDMONTON ST, AND KENNEDY ST

<u>Portion of the Work</u>	<u>Name</u>	<u>Address</u>
<i><u>Supply of Materials:</u></i>		
Concrete		
Asphalt		
Pavement Repair Fabric		
Paving Stone		
Site Furnishings		
Base Course & Sub-Base		
Geotextile		
Geogrid		
Sod / Planting Medium		
Silva Cells		
Catch Basins and Catch Pits		
Frames and Covers		
Sewer Service Pipe		
<i><u>Installation/Placement:</u></i>		
Excavation		
Sub-base and Base Course		
Concrete Pavement		
Concrete Sidewalks		
Asphalt		
Underground Sewer Works		
Sewer Televising		
Paving Stone		
Silva Cells / Landscaping		
Traffic Signals		
Streetlighting		
Pedestrian Lighting		
Durable Pavement Markings		

FORM K: EQUIPMENT
(See D12)

2026 DOWNTOWN PAVEMENT RENEWALS – ST. MARY AVE, EDMONTON ST, AND KENNEDY ST

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

FORM K: EQUIPMENT
(See D12)

2026 DOWNTOWN PAVEMENT RENEWALS – ST. MARY AVE, EDMONTON ST, AND KENNEDY ST

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

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 *The City of Winnipeg Standard Construction Specifications* in their entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Purchasing Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4(d), Specifications included in the Tender shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 Bidders are reminded that requests for approval of substitutes as an approved equal or an approved alternative shall be made in accordance with B7. In every instance where a brand name or design specification is used, the City will also consider approved equals and/or approved alternatives in accordance with B7.
- E1.4 The following are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
	Cover Sheet	
P-3596-01	ST. MARY AVENUE HORIZONTAL GEOMETRY	A1
P-3596-02	EDMONTON STREET HORIZONTAL GEOMETRY	A1
P-3596-03	EDMONTON STREET HORIZONTAL GEOMETRY	A1
P-3596-04	KENNEDY STREET HORIZONTAL GEOMETRY	A1
P-3596-05	KENNEDY STREET HORIZONTAL GEOMETRY	A1
P-3596-06	ST. MARY AVENUE CONCRETE RECONSTRUCTION	A1
P-3596-07	ST. MARY AVENUE CONCRETE RECONSTRUCTION	A1
P-3596-08	EDMONTON STREET CONCRETE RECONSTRUCTION	A1
P-3596-09	EDMONTON STREET CONCRETE RECONSTRUCTION	A1
P-3596-10	EDMONTON STREET CONCRETE RECONSTRUCTION	A1
P-3596-11	EDMONTON STREET CONCRETE RECONSTRUCTION	A1
P-3596-12	EDMONTON STREET MINOR REHABILITATION	A1
P-3596-13	KENNEDY STREET MAJOR REHABILITATION	A1
P-3596-14	KENNEDY STREET MAJOR REHABILITATION	A1
P-3596-15	KENNEDY STREET MAJOR REHABILITATION	A1
P-3596-16	ST. MARY AVENUE, EDMONTON STREET AND KENNEDY STREET SECTIONS	A1
P-3596-17	ST. MARY AVENUE, EDMONTON STREET AND KENNEDY STREET DETAILS	A1
D-1000-18	ST. MARY AVENUE WATERMAIN INDEX	A1
D-1000-19	ST. MARY AVENUE WATERMAIN RENEWAL	A1
D-1000-20	ST. MARY AVENUE WATERMAIN RENEWAL	A1
P-3596-21	ST. MARY MATERIALS & PLANTING PLAN	A1
P-3596-22	EDMONTON 1 MATERIALS & PLANTING PLAN	A1
P-3596-23	EDMONTON 2 MATERIALS & PLANTING PLAN	A1
P-3596-24	KENNEDY 1 MATERIALS & PLANTING PLAN	A1
P-3596-25	KENNEDY 2 MATERIALS & PLANTING PLAN	A1
P-3596-26	ST. MARY SECTIONS	A1

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
P-3596-27	EDMONTON SECTIONS	A1
P-3596-28	KENNEDY SECTIONS	A1
P-3596-29	SOIL CELL DETAILS	A1
P-3596-30	DETAILS	A1
P-3596-31	EDMONTON STREET TEMPORARY TRAFFIC SIGNAGE – PHASE 1	A1
P-3596-32	EDMONTON STREET TEMPORARY TRAFFIC SIGNAGE – PHASE 2	A1
P-3596-33	EDMONTON STREET TEMPORARY TRAFFIC SIGNAGE – PHASE 3	A1
P-3596-34	ST. MARY AVENUE TEMPORARY TRAFFIC SIGNAGE – PHASE 1	A1
P-3596-35	ST. MARY AVENUE TEMPORARY TRAFFIC SIGNAGE – PHASE 2	A1
P-3596-36	KENNEDY STREET TEMPORARY TRAFFIC SIGNAGE	A1

E2. MOBILIZATION AND DEMOBILIZATION PAYMENT

DESCRIPTION

- E2.1 This Specification shall cover all operations relating to the mobilization and demobilization of the Contractor to the project location(s).
- E2.2 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 Works as hereinafter specified.
- E2.3 The inclusion of a payment item for the Work under this Specification shall not release or reduce the responsibilities of the Contractor under any other specification in this Contract.

SCOPE OF WORK

- E2.4 Further to C12 of the General Conditions, where Mobilization and Demobilization is included as a bid item, it shall consist of the following, as applicable:
- (a) Mobilization shall include, but not be limited to:
- (i) All activities and associated costs for transportation of the Contractor's personnel, equipment, and operating supplies to the site, and/or sites, and/or between sites;
 - (ii) Establishment of offices, buildings, other necessary general facilities and equipment parking/staging areas for the Contractor's operations at the site or sites;
 - (iii) Premiums paid for performance and payment bonds including coinsurance and reinsurance agreements as applicable;
 - (iv) General cleanup and housekeeping needed maintain a neat and orderly project site(s);
 - (v) Other job related items.
- (b) Demobilization shall include, but not be limited to:
- (i) All activities and costs for transportation of personnel, equipment, and supplies not used in the project from the site, and/or sites, and/or between sites;
 - (ii) Disassembly, removal, and site cleanup and restoration of offices, buildings, and other facilities assembled on the site and/or sites;
 - (iii) Repair of access roads, temporary haul roads, and equipment parking areas leaving the project site in the same or better condition than at the start of the project;
 - (iv) General cleanup and housekeeping needed to restore a neat and orderly project site.

E2.5 Access to the site, equipment parking, and staging areas are limited to that shown on the drawings or as approved by the Contract Administrator.

MEASUREMENT AND PAYMENT

E2.6 The lump-sum price for the Mobilization and Demobilization bid item shall not exceed five percent (5.00%) of the total bid price for the Contract.

E2.6.1 Further to B10, B18, C12 and E2.6, should the lump sum price exceed 5% of the Total Bid Price the lump sum price will be reduced to 5% of the Total Bid Price, the Total Bid Price will be determined using the reduced lump sum price and payment will be based on the reduced lump sum price.

E2.7 Payment for Mobilization:

(a) 60% of the lump-sum price will be paid to the contractor for Mobilization on the first Progress Estimate for the Contract.

E2.8 Payment for Demobilization:

(a) The remaining 40% of the lump-sum price will be paid upon:

- (i) Restoration of the site and/or sites to the satisfaction of the Contract Administrator;
- (ii) Distribution of the Declaration of Total Performance.

E2.9 Pay Reduction for Accessibility Plan

(a) The Demobilization payment will be reduced by the number of pay adjustments incurred in accordance with D14 and as determined by the Contract Administrator.

E2.10 Mobilization and Demobilization will be paid only once (to a maximum of 100%), regardless of the number of times the Contractor mobilizes to the site and/or sites.

E3. GEOTECHNICAL REPORT

E3.1 Further to C3.1, the geotechnical report is provided to aid the Contractor's evaluation of the pavement structure and/or existing soil conditions. The geotechnical report is contained in Appendix 'A'.

E4. OFFICE FACILITIES

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

- (a) The field office shall be for the exclusive use of the Contract Administrator.
- (b) The building shall be conveniently located near the site of the Work.
- (c) The building shall have a minimum floor area of 25 square metres, a height of 2.4m with two windows for cross ventilation and a door entrance with a suitable lock.
- (d) The building shall be suitable for all weather use. It shall be equipped with an electric heater and air conditioner so that the room temperature can be maintained between either 16-18°C or 24-25°C.
- (e) The building shall be adequately lighted with fluorescent fixtures and have a minimum of three wall outlets.
- (f) The building shall include a microwave and a small fridge.
- (g) The building shall be furnished with one desk, one drafting table, table 3m x 1.2m, one four drawer legal size filing cabinet, and a minimum of 10 chairs. The chair shall not contain fabric.
- (h) A portable toilet shall be located near the field office building. The toilet shall have a locking door and be for the exclusive use of the Contract Administrator and other personnel from the City.

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

E4.2 The Contractor shall be responsible for all installation and removal costs, all operating costs, and the general maintenance of the office facilities.

E4.3 The office facilities will be provided from the date of the commencement of the Work to the date of Total Performance.

E4.4 On a one time basis, where directed by the Contract Administrator, the Contractor shall relocate the office facilities to a location more convenient for the remaining Work.

E5. PROTECTION OF EXISTING TREES

E5.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities to existing boulevard trees within the limits of the construction area:

- (a) The Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.
- (b) Trees identified to be at risk by the Contract Administrator are to be strapped with 25 x 100 x 2400mm wood planks, or suitably protected as approved by the Contract Administrator.
- (c) Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the excavation shall be a minimum of 1.5 times the diameter (measured in inches), with the outcome read in feet, from the closest edge of the trunk. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation.
- (d) Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of trees. The dripline of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.
- (e) Work on-site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to branches does occur, they shall be neatly pruned.

E5.2 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or their designate.

E5.3 Except as required in E5.1(c) and E5.1(e), Elm trees shall not be pruned at any time between April 1 and July 31.

E6. TRAFFIC CONTROL

E6.1 Further to 3.6, 3.7 and 3.8 of CW 1130:

- (a) Where directed by the Contract Administrator, the Contractor shall construct and maintain temporary asphalt ramps to alleviate vertical pavement obstructions such as manholes and planing drop-offs to the satisfaction of the Contract Administrator. Payment shall be in accordance with CW3410.
- (b) In accordance with the Manual of Temporary Traffic Control on City Streets (MTTC), the Contractor ("Construction Agency" in the Manual) shall be responsible for placing, maintaining and removing the appropriate temporary traffic control devices as specified by the MTTC, the Contract Drawings, Staging Plans and Traffic Management Plans or by the Traffic Management Branch of the City of Winnipeg Public Works Department. The Contractor shall bear all costs associated with the placement of temporary traffic control devices by their own forces or Subcontractor.

- (c) In addition, the Contractor shall be responsible for **supplying**, removing, placing and maintaining all regulatory signing including but not limited to:
 - (i) Parking restrictions;
 - (ii) Stopping restrictions;
 - (iii) Turn restrictions;
 - (iv) Diamond lane removal;
 - (v) Full or directional closures on a Regional Street;
 - (vi) Traffic routed across a median;
 - (vii) Full or directional closure of a non-regional street where there is a requirement for regulatory signs (turn restrictions, bus stop relocations, etc.) to implement the closure.
- (d) The Contractor shall remove and stockpile any regulatory signage not required during construction such as, but not limited to, parking restrictions, turn restrictions and loading restrictions.

- E6.2 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the site has been maintained.
- E6.3 Further to E6.1(c) and E6.1(d) the Contractor shall make arrangements with the Traffic Services Branch of the City of Winnipeg to reinstall the permanent regulatory signs after the Contract Work is complete. The Contractor shall make arrangements to drop off the stockpiled materials to Traffic Services at 495 Archibald Street.
- E6.4 Any changes to the approved Traffic Management Plan must be submitted to the Contract Administrator a minimum of five (5) Working Days prior to the required change for approval.
- E6.5 If the Contract Administrator determines that the Contractor is not performing Traffic Control in accordance with this specification, Traffic Services may be engaged to perform the Traffic Control. In this event the Contractor shall bear costs charged to the project by the Traffic Services Branch of the City of Winnipeg in connection with the required Works.
- E6.6 The Contractor shall utilize temporary traffic control signage poles anchored to existing pavement, within clamps epoxied into existing concrete, or direct buried into the ground or granular base. This is to reduce the likelihood of signage going missing or altered after typical work hours. No additional pavement will be provided for this task.

E7. TRAFFIC MANAGEMENT

- E7.1 Traffic Management drawings noting signage and access requirements are included in E1.4. Any modifications to the approved staging and signage plans requires the written approval of the Contract Administrator.
- E7.2 Further to 3.7 of CW 1130:
 - E7.2.1 Single lane closures on intersecting and/or adjoining Regional Streets shall only be permitted when required for construction activities when approved by the Traffic Management Branch. Storage/parking of materials, equipment or vehicles is not permitted on Regional Streets at any time unless approved by the Contract Administrator, in consultation with the Traffic Management Branch.
- E7.3 The granular structure must be overbuilt at least 1.2m from the edge of the recently poured pavement. This is to provide edge support for the new pavement structure when traffic is moved onto the new lanes.
- E7.4 St. Mary Avenue**
 - E7.4.1 Maintain one lane of westbound traffic at all times.

- E7.4.2 Maintain dedicated parking/loading space in front of the Winnipeg Clinic at 425 St. Mary Avenue at all times. During work on the north lanes a temporary gravel ramp that is capped with asphalt will be required to maintain accessible routing to the Winnipeg Clinic entrance from the dedicated parking area.
- E7.4.3 Access to the public lane between Kennedy Street and Vaughan Street must remain open at all times with exception of weekend closures with the appropriate notice detailed in E7.8.
- E7.4.4 Maintain access to Vaughan Street and Kennedy Street as noted in the staging drawings.
- E7.4.5 Closure of a single lane on Osborne Street North will only be permitted when deemed necessary by the Contract Administrator.
- E7.4.6 Pedestrian access must be maintained on both sides at all times, unless approved by the Contract Administrator. One pedestrian crossing in the north-south direction must be maintained at each of the Edmonton Street and Kennedy Street intersections at all times. The North-South pedestrian crossing at Memorial Boulevard shall also be maintained at all times with the Contractor establishing a pedestrian corridor onto the gutter lane of Memorial Blvd as necessary.

E7.5 Edmonton Street

- E7.5.1 Maintain one lane of northbound traffic at all times.
- E7.5.2 Stage construction to maintain one westbound lane on St. Mary Avenue at all times.
- E7.5.3 Stage construction to maintain two eastbound lanes on York Avenue during peak hours at all times. Requirements by the Contractor to only allow one eastbound lane on York Avenue during peak hours are to be shown in the Contractor's schedule and approved by the Contract Administrator.
- E7.5.4 Pedestrian access must be maintained on both sides at all times, unless approved by the Contract Administrator. One pedestrian crossing in the east-west direction must be maintained at each of the Graham Avenue, St. Mary Avenue, York Avenue and Broadway intersections at all times. The east-west pedestrian crossing at Portage Avenue shall also be maintained at all times with the Contractor establishing a pedestrian corridor on the gutter lane of Portage Ave as necessary.

E7.6 Kennedy Street

- E7.6.1 Kennedy Street from Sargent Avenue to Ellice Avenue shall only have work occur in July and August of 2026 as the Sister MacNamara School is adjacent to the work site. During this time Sargent Avenue will be closed to through traffic as Sargent Avenue will be reconstructed under a different contract. During this time the Contractor shall maintain one lane of local traffic only.
- E7.6.2 If Kennedy Street from Cumberland Avenue to Sargent Avenue has work that occurs outside of July and August of 2026, the Contractor shall maintain one lane of southbound traffic.
- E7.6.3 When no work is being performed on site, non-essential lane closures will not be permitted.
- E7.6.4 Pedestrian access must be maintained on both sides at all times, unless approved by the Contract Administrator.
- E7.7 Flag persons may be necessary to maintain the flow of traffic during certain work operations.
- E7.8 Should the Contractor be unable to maintain pedestrian or vehicular access to a residence or business, they 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 72 hours notification to the affected residence or business and the Contract Administrator, prior to disruption of access.
- E7.9 There are multiple critical accesses to private parking lots and parkades within the project limits. These locations require scheduled closures with advance notice to the owners, with work to be

completed during Friday-Sunday windows. In some cases, some parkades may be closed during weekday windows if the owner is able to notify its patrons about short term daily closures and are in agreement.

- E7.10 Temporary accessible ramps will be required and may only be constructed out of asphalt or timber ramps. When pedestrian access to private doorways cannot be maintained due to wet concrete, timber bridges are to be constructed. The work site is to be clean at all times. In some cases, pedestrian corridors will need to be established on the newly constructed road to allow for work on the sidewalks.
- E7.11 Temporary Loading access points on St. Mary Avenue and Broadway established by this project must remain unobstructed from the loading points to the business/residence that are being accommodated.
- E7.12 Access to Convention Center approaches is to be maintained at all times with fixed scheduled closure dates noted in the staging drawings. Dates noted in the drawings have been agreed to by the Convention Center and cannot be changed. Additional restoration work required to ensure sufficient access is available at the end of each date range provided including temporary asphalt will be incidental to the work.
- E7.13 The Sequence of Work shall not allow for removal of existing sidewalk outside the roadway excavation limit, until the concrete pavement is poured or as approved by the Contract Administrator. The concrete sidewalk shall be cut prior to removal. The pedestrian path of travels must be cleaned of concrete cutting slurry at all times.
- E7.14 Open sidewalks directly adjacent to roadway excavation and base work shall have a snow fence installed and maintained at all times. Plastic protective caps shall be placed on top of narrow metal fence post.
- E7.15 Ambulance/emergency vehicle access must be maintained at all times.

E8. REFUSE AND RECYCLING COLLECTION

- E8.1 Contractor shall maintain back lane and private lot access and coordinate with private refuse and/or recycling collection vehicles. If access to refuse and/or recycling collection vehicles is restricted, on collection day(s) the Contractor shall move all of the affected property owners refuse and/or recycling materials to a nearby common area, prior to an established time, in accordance with E8.1 to permit the normal collection vehicles to collect the materials. Immediately following recycling collection, the Contractor shall return recycling receptacles to the addresses marked on the receptacles.
- E8.2 No measurement or payment will be made for the work associated with this specification.

E9. PEDESTRIAN SAFETY

- E9.1 During the project, a temporary snow fence shall be installed along all open excavations adjacent to pedestrian facilities. The Contractor shall be responsible for maintaining the snow fence in a proper working condition. No measurement for payment shall be made for this work.

E10. WATER OBTAINED FROM THE CITY

- E10.1 Further to 3.7 of CW 1120, the Contractor shall pay for all costs, including sewer charges, associated with obtaining water from the City in accordance with the Waterworks and Sewer By-laws.

E11. SURFACE RESTORATIONS

- E11.1 Further to 3.3 of CW 1130, when Total Performance is not achieved in the year the Contract is commenced, the Contractor shall temporarily repair any Work commenced and not completed

to the satisfaction of the Contract Administrator. The Contractor shall maintain the temporary repairs in a safe condition as determined by the Contract Administrator until permanent repairs are completed. The Contractor shall bear all costs associated with temporary repairs and their maintenance.

E11.1.1 Further the E11.1 If the Contractor cannot complete sidewalk installations in 2026 they shall place temporary asphalt overtop all unfinished sidewalk works. The Contractor will be responsible for removals and resurfacing of base material in 2027 to the satisfaction of the Contract Administrator.

E11.2 If the Contractor cannot meet any opening dates for new private approaches that are cast in concrete, they shall pave the surface temporarily in asphalt to ensure the approach is open to accommodate the business.

E12. INFRASTRUCTURE SIGNS

E12.1 The Contractor shall obtain infrastructure signs from the Traffic Services Sign Shop at 495 Archibald Street. The Contractor shall mount each sign securely to a rigid backing material approved by the Contract Administrator. The Contractor shall fasten each sign to a suitable support and erect and maintain one sign at each street as directed by the Contract Administrator. When the Contract Administrator considers the Work on the street complete, the Contractor shall remove and dispose of the signs and supports. No measurement for payment will be made for performing all operations herein described and all other items incidental to the work described

E13. PORTLAND CEMENT CONCRETE SIDEWALK WITH BLOCK OUTS FOR INDICATOR SURFACES

DESCRIPTION

E13.1 This specification shall supplement CW 3325-R5 "Portland Cement Concrete Sidewalks".

CONSTRUCTION METHODS

E13.2 Add the following to section 9 :

E13.2.1 As shown on the drawings and as directed by the Contract Administrator, construct sidewalk with block outs and/or monolithic curb and sidewalk with block outs, to allow for the installation of indicator surfaces.

E13.2.2 Verify dimensions of paving stones (indicator surface) prior to construction of the block-outs. Gaps between paving stones and concrete pavement shall not exceed five (5) millimetres.

E13.2.3 Concrete curbs for monolithic curb and sidewalk with block outs shall be constructed in accordance with CW 3240.

MEASUREMENT AND PAYMENT

E13.3 Add the following to section 12 :

E13.3.1 Construction of concrete sidewalks with block outs for indicator surfaces will be measured on surface area basis. The surface area to be paid for shall be the number of square metres constructed in accordance with this specification and accepted by the Contract Administrator, as computed by measurements made by the Contract Administrator.

BASIS OF PAYMENT

E13.4 Add the following to section 13 :

E13.4.1 Construction of concrete sidewalks with block outs for indicator surfaces will be paid for at the Contract Unit Price per square meter for the "Items of Work" listed here below,

measured as specified herein, 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.

E13.4.2 Items of Work:

- (a) 100 mm Sidewalk with Block Outs
- (b) 150 mm Reinforced Sidewalk with Block Outs Reinforced

E13.4.3 Concrete thickness greater than the specified sidewalk thickness as a result of shaping the base material to accommodate the block outs is incidental to the listed Items of Work.

E14. PAVING STONES FOR INDICATOR SURFACES

DESCRIPTION

E14.1 This specification shall supplement CW 3330-R5 "Installation of Interlocking Paving Stones"

MATERIALS

E14.2 Add the following to section 5 :

E14.2.1 Except where otherwise noted in the drawings Paving Stones for indicator surfaces shall be :

Barkman Concrete paving stones -
Charcoal Holland Paver (60mm X 210 mm X 210 mm)
<https://www.barkmanconcrete.com/>

CONSTRUCTION METHODS

E14.3 Add the following to section 9.2 "Preparation of Sub-grade, Sub-base and Sand-base" :

E14.3.1 Preparation of Sand-Base for Paving Stones in Sidewalk Block Outs.

E14.3.2 Place a 15mm layer of bedding sand in the blocked out sidewalk areas.

E14.3.3 The bedding sand shall be spread and levelled so that the paving stones when installed are 5 mm higher than the finished grade.

E14.3.4 No more sand shall be spread than can be covered in with paving stone on the same day.

E14.3.5 The bedding sand shall not be compacted or disturbed prior to laying the paving stones.

E14.4 Add the following to section 9.3 "Installation of Paving Stones" :

E14.4.1 For indicator surface paving stones, commence installation of paving stones against the long edge of the block out to obtain the straightest possible course of installation.

MEASUREMENT AND PAYMENT

E14.5 Add the following to section 12 :

E14.6 Supply and Installation of Paving Stones for Indicator Surfaces

E14.6.1 Paving stones for indicator surfaces will be measured on surface area basis. The surface area to be paid for shall be the number of square metres constructed in accordance with this specification and accepted by the Contract Administrator, as computed by measurements made by the contract Administrator.

BASIS OF PAYMENT

E14.7 Add the following to section 13 :

- E14.7.1 The supply and installation of paving stones for indicator surfaces will be paid for at the Contract Unit Price per square meter for "Paving Stone Indicator Surface", measured as specified herein, 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.
- E14.7.2 Concrete thickness greater than the specified sidewalk thickness as a result of shaping the base material to accommodate the block outs is incidental to the listed Items of Work.

E15. SUPPLY AND INSTALL WATER MAIN AND WATER SERVICE INSULATION

DESCRIPTION

- E15.1 Notwithstanding 3.12 of CW 2110, this specification covers the supply and installation of insulation in roadway excavations over water mains and water services.
- E15.2 Referenced Standard Construction Specifications
- (a) CW 2030 – Excavation Bedding and Backfill
 - (b) CW 3110 – Sub –grade, Sub-base and Base Course Construction
- E15.3 Referenced Standard Details
- (a) SD-018 – Water main and Water Service Insulation

MATERIALS

- E15.4 Acceptable insulation is:
- (a) Extruded Polystyrene rigid foam insulation – Type 4, 4" in thickness.
DOW - Roofmate or Highload 40
Owen's Corning - Foamular 350 or Foamular 400.
2" X 48" X 96", 2" X 24" X 96", 4" X 24" X 96"
- E15.5 Sand Bedding:
- (a) In accordance with CW 2030

CONSTRUCTION METHODS

- E15.6 Prior to the installation of any sub-base material or geotextile material, locate all existing water services. Further to SD-018, where directed by the Contract Administrator, excavate the sub-grade to allow the top of the insulation to be installed flush with the surrounding sub-grade. Install the insulation on a level surface centered over the located water main or water service for the full width of the roadway excavation. Install sand bedding if required to level the surface. Stockpile and dispose of excavated material in accordance with CW 3110.
- E15.7 Thickness of insulation is 100 mm (4"). If using 50 mm (2") panels 2 layers are required. Total width of insulation to be as directed by the Contract Administrator. Place sufficient full width panels to meet or exceed the specified width.
- E15.8 Place insulation panels adjacent to each other over the specified area with no gaps between panels and less than 15mm of elevation difference along the adjoined edges. Where 2" thick panels are being used, offset the top layer to prevent the panel joints from aligning with the joints in the lower layer.
- E15.9 Use full panels of insulation where possible. Where necessary cut insulation panels to obtain coverage to specified lengths. Insulation pieces shall be a minimum of dimension of 300 mm in width or length.
- E15.10 Take appropriate measures to ensure panels are not displaced when installing geotextiles and during backfilling operations.

MEASUREMENT AND PAYMENT

E15.11 Water main and Water Service Insulation shall be measured on an area basis and paid for at the Contract Unit Price per square metre of "Water main and Water Service Insulation". The area to be paid for shall be the total square meters of water main and water service insulation supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

- (a) Excavation of the roadway subgrade in accordance with E15.6 will not be measured for payment and will be included in the payment for "Water main and Water Service Insulation".

E16. MIX DESIGN PROPORTION

E16.1 General

E16.1.1 Further to CW 3310-R18, this Specification covers the mix proportion for all concrete types related to, the construction of Portland Cement Concrete pavements, curbs, gutters, private approaches, bull-noses, median slabs, medians, safety medians and boulevard splash strips, sidewalks and other related concrete works.

E16.2 Referenced Standard Construction Specifications

- (a) CW 3310 – Portland Cement Concrete Pavement Works

E16.3 Mix Design

E16.3.1 Further to CW 3310-R18 Table CW 3310.5, the minimum cementitious contents shall be as follows:

- Type 1 - 380 kg/m³
- Type 2 - 360 kg/m³
- Type 3 - 380 kg/m³
- Type 4 - 380 kg/m³
- Type 5 - 340 kg/m³
- Type 6 - 360 kg/m³

E16.4 Requirements

E16.4.1 The Mix Design Statements for all the concrete shall be submitted to the City of Winnipeg, Research and Standards Engineer for approval.

E16.5 Quality Assurance

E16.5.1 The Contract Administrator shall ensure the frequency and number of quality assurance tests in accordance with CW 3310.

E17. VIDEO INSPECTION OF SEWERS

DESCRIPTION

E17.1 This Specification amends CW 2130 and CW 2145. It covers the incidental video inspection of existing sewers following tying in new catch basin leads or the abandonment of existing catch basin leads.

CONSTRUCTION METHODS

E17.2 Video inspection of existing sewers shall be done in accordance with CW 2130 and CW 2145.

MEASUREMENT AND PAYMENT

E17.3 Video inspection of existing sewers following tying in new catch basin leads or the abandonment of existing catch basin leads shall not be measured and shall be considered incidental to the Work.

E18. CATCH BASIN OUTFLOW RESTRICTORS

E18.1 DESCRIPTION

E18.1.1 Further to CW 2130, this specification covers the supply and installation of sewer service outlet restrictors.

E18.2 MATERIALS AND CONSTRUCTION METHODS

E18.2.1 Restrictors are to be installed as per the Contract Drawings and SD-025B.

E18.3 MEASUREMENT AND PAYMENT

E18.3.1 Supply and Installation of sewer service restrictors will be measure for each location and paid for at the Contract Unit Price for "Supply and Install Sewer Service Outlet Restrictor" as per the corresponding reduced diameter. The units will be paid for each unit supplied and placed in accordance with this Specification and as measured and accepted by the Contract Administrator.

E19. COLOURED BIKE LANE TREATMENT

E19.1 Description

E19.1.1 The work of this section comprises the furnishing of all labour, equipment and materials required to complete the surface painting as shown on the drawings and as hereinafter specified.

E19.2 General

E19.2.1 Drawings and Manuals

- (a) Appendix 'B' – Application Instruction – MMAX Area Markings
- (b) Appendix 'C' – Cyclegrip MMAX Specification
- (c) Appendix 'D' – HITEX CM Primer and PumaTrack Rollable Road Surface System

E19.3 Material

E19.3.1 Paint colour, "Green" shall conform to City of Winnipeg specification for reflectorized traffic paint or suitable equivalent for application to asphalt / concrete surface.

- (a) CycleGrip® MMAX kit – includes CycleGrip® MMAX Resin (**green**), CycleGrip® MMAX Aggregate and Catalyst;
- (b) HITEX International Group –PumaTrack MMA Cold Applied Surface Treatment;
- (c) Or approved equal.

E19.4 Source

E19.4.1 Promark Line Painting Inc.
Attention: Gary McCaskill
Ph: 204-999-2008
Email: gary@promarklinepainting.com
Web: <http://promarklinepainting.com/>

E19.4.2 Ennis-Flint
Attention: Deryk Upton
Ph: 604-315-8765
Email: dupton@ennisflint.com
Web: www.ennisflint.com

E19.5 Construction Methods

E19.5.1 The Bike Lane Surfacing Painting shall be installed in accordance with the manufacturer's installation manual.

E19.5.2 CycleGrip MMAX

(a) Preparation and Installation

(i) Surface is to be prepared in accordance with Appendix 'B' and Appendix 'B'

(ii) Treatment is to be installed in accordance with Appendix 'B' and Appendix 'B'

E19.5.3 HITEX International Group

(a) Preparation and Installation

(i) Surface to be prepared in accordance with Appendix 'D'

(ii) Treatment is to be installed in accordance with Appendix 'D'

E19.6 Measurement and Payment

E19.6.1 Supply and installation of MMA bike lane treatment will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Coloured Bike Lane Treatment". The area to be paid for will be the total number of square metres of MMA bike lane treatment supplied and installed in accordance with this specification, as accepted and measured by the Contract Administrator.

E19.6.2 Surface preparation shall be considered incidental to "Coloured Bike Lane Treatment". No measurement and payment will be made within this section.

E20. HYDRO-EXCAVATION

Description

E20.1 This specification shall cover the removal of earthen material immediately adjacent to underground utilities infrastructure by means of high pressure water spray, and the recovery of excavated material by vacuum type means or equivalent method as approved by the Contract Administrator.

Equipment

E20.2 Hydro-Excavation equipment shall be capable of maintaining a minimum working pressure of 10,000 psi, at a rate of flow of 10 to 12 gallons per minute. The unit should be adjustable, so as to provide adequate pressure to remove earthen material identified by the Contract Administrator.

E20.3 Spray head shall be equipped with a rotating type nozzle in order to provide a wider path of cut.

Construction Methods

E20.4 Hydro-Removal of Earthen Material

E20.4.1 Earthen material adjacent to utility entity shall be sprayed with high pressure water so as to remove all such material identified by the Contract Administrator.

E20.5 Recovery of Excavated Material

E20.5.1 The recovery of excavated material shall be done using a vacuum type method, or other type method as approved by the Contract Administrator.

E20.5.2 The recovery of material shall follow immediately behind the excavation, to avoid excavated areas from filling with excavated material.

E20.5.3 The use of mechanical sweepers will not be allowed.

E20.5.4 Dispose of material in accordance with Section 3.4 of CW 1130-R2.

Measurement and Payment

E20.6 Hydro-Excavation

- E20.6.1 Hydro-Excavation of earthen material and its recovery and disposal will be measured on an hourly basis and paid for at the Contract Unit Price per hour for "Hydro Excavation". The hours to be paid for will be the total number of hours of Hydro Excavation in accordance with this specification, accept and measured by the Contract Administrator. Travel to and from the Site will be considered incidental to "Hydro Excavation".

E21. GEOGRID

E21.1 Materials

- E21.1.1 Further to CW 3135 – R2 all geo-grid on this project shall be Tensar InterAx NX650 and installed as per the manufacturer's instructions.

E22. SAWCUTTING

E22.1 DESCRIPTION

- E22.1.1 Further to CW 3240, the Contractor will be required to sawcut the existing concrete sidewalk full depth as follows:
- (a) At the back of sidewalk along the face of the existing buildings so as not to damage the face of the buildings during removal.
 - (b) The Contractor shall exercise extreme caution when sawcutting sidewalks to avoid damage to any underlying areaways.
 - (c) In the event of damage to any buildings by the Contractor, the Contractor shall immediately notify the Contract Administrator and make all repairs or replacements necessary, at his own expense, to the satisfaction of the Contract Administrator and the Owner of the building.

E22.2 MEASUREMENT AND PAYMENT

- E22.2.1 All costs in connection with the above sawcutting are incidental and shall be included in the Contract Unit Price for related to sidewalk removal.

E23. SIDEWALK REMOVAL AT AREAWAYS

- E23.1 Further to CW 3235 the Contractor is advised that at various locations throughout the project there are sections of building basements called "Areaways" that extend into the City right of way or may be present behind back of sidewalk. WSP has located areaways using historical as-built drawings to confirm locations as much as possible.
- E23.2 There is only one known areaway within the project limit on the west side of Edmonton Street, south of Portage Avenue, however there may be additional areaways below the sidewalks for which no record information exists. As a result, the Contractor shall exercise extreme caution when removing all sidewalks and will use methods for removal to prevent damage to any underlying areaways. All costs associated with additional effort required to remove sidewalk shall be incidental and no additional payment shall be made.
- E23.3 Should the Contractor damage an areaway roof during sidewalk removal, the repair and restoration of the areaway roof shall be completed at the Contractor's expense.

E24. BUSINESS INFORMATION SIGNS

- E24.1 The Contractor is required to supply and install business information signs on Edmonton Street reconstruction, prior to starting any work at the upstream end of each block under construction, that identify the names of each of the business within that block. The Contractor must erect the

business signs prior to starting construction. Signs shall be supplied and installed for each side of the street under construction with the names of business on that side of the street.

E24.2 The signs shall be a minimum if 1.22m x 2.44 m (4 feet x 4 feet) mounted with the longest dimension vertical with sufficient support and ballast so as not be blown over. The signs shall have a white background, with each business name stenciled in black lettering of sufficient size to be read at a distance of 10m.

E24.3 The supply, erection, removal and disposal of the signs shall be incidental to the supply and installation of temporary construction signage and no further measurement or payment shall be made.

E25. INSTALLATION OF TRAFFIC SERVICES SIGN CLAMPS

E25.1 GENERAL

E25.1.1 This Specification covers all operations relating to the Installation of Traffic Services Sign Clamps including clamps for Transit stops.

E25.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labor, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as hereinafter specified.

E25.2 MATERIALS

E25.2.1 The Contract Administrator will arrange for Traffic Service to have the sign clamps delivered to site. The Contractor is to store the Sign Clamps in a secure location until the material is ready for installation.

E25.3 CONSTRUCTION METHODS

E25.3.1 Installation of Traffic Services Sign Clamps is to be done in conjunction with the Installation of the Concrete Sidewalk and placed into the fresh concrete at locations determined by Traffic Services.

E25.4 MEASUREMENT AND PAYMENT

E25.4.1 No measurement and payment will be made for the installation of sign clamps.

E26. CONCRETE SIDEWALK AND PAVEMENT REINFORCING STEEL

E26.1 DESCRIPTION

E26.1.1 This specification covers the internal mid slab steel for 150mm Reinforced Concrete Sidewalk and 250mm Concrete for Isolations.

E26.1.2 The specification is further to CW 3310

E26.2 MATERIALS

E26.2.1 Bar Mats for Pavement Isolation Slabs

- (a) Steel diameter to be 15M for both longitudinal and transverse bars. Spacing is 400mm each way on centre.
- (b) Allowable clear coverage from the end of any reinforcement to the edge of concrete is 100mm

E26.2.2 Bar Mats for 150mm Reinforced Concrete Sidewalks

- (a) Steel diameter to be 10M for both longitudinal and transverse bars. Spacing is 400mm each way on centre.

- (b) Allowable clear coverage from the end of any reinforcement to the edge of concrete is 100mm

E26.3 CONSTRUCTION METHODS

- E26.3.1 All steel is to be tied together and rest on plastic chairs.
- E26.3.2 Reinforced sidewalk is used for transit shelter pads and at intersection corners.
- E26.3.3 Reinforcement is added to all the concrete isolation slabs.

E26.4 MEASUREMENT AND PAYMENT

- E26.4.1 Mid slab steel reinforcement as described above will be considered incidental to 250mm Reinforced concrete pavements and no additional measurement and payment will be made for concrete reinforcement.
- E26.4.2 Mid Slab steel reinforcement as described above will be incidental to 150mm Reinforced Concrete Sidewalk with Block outs and no additional measurement and payment will be made for concrete reinforcement.

E27. COLOURED CONCRETE

E27.1 DESCRIPTION

- E27.1.1 This specification covers the construction of charcoal tinted concrete pavement, intended to delineate the raised bike lane on St. Mary Avenue. Care must be taken with consistency in water/cement ratio and finishing as the color can be affected load to load.
- E27.1.2 Referenced Standard Construction Specifications
 - (a) CW 3310 – Portland Cement Concrete Pavement Works

E27.2 MATERIALS AND EQUIPMENT

Concrete Materials

- E27.2.1 The Contractor shall base the tinted concrete mix on a mix design that has been approved for the 2026 construction season by the City of Winnipeg Research and Standards Department.
- E27.2.2 The base mix design shall conform to Section 6 of CW 3310 with the following alterations:
 - (a) Type 1 mix as per Section 6.2 of CW 3310
 - (b) Slump for hand placement shall be 80 mm +/- 20 mm prior to adding superplasticizers (if needed) to facilitate finishing without adding water to the surface.
- E27.2.3 Alterations to the base mix design will be considered by the Contract Administrator if necessary to account for the concrete tint material and finishing operations.

Concrete Tint

- E27.2.4 Charcoal coloured metal oxide pigment used to permanently color ready-mix concrete.
- E27.2.5 Contractor to cast one coloured concrete sample minimum 200 mm X 200 mm in area using base concrete mix for approval by Contract Administrator.
- E27.2.6 Tinted concrete shall not be placed until sample color has been accepted by the Contract Administrator. The Contractor shall demonstrate that the sample will achieve the approximate color advertised by the pigment supplier using local concrete mix materials.

Superplasticizers

- E27.2.7 Superplasticizers shall conform to the requirements of CSA CAN3-A266.5 and CAN3-A266.6, but must be compatible with the air-entraining agent. The agent shall be free of

chlorides and shall not affect the air-entraining agent's ability to produce a satisfactory air void system.

Liquid Membrane-Forming Curing Compound

E27.2.8 Curing Compound shall be clear (no pigment), and water based conforming to the requirements of ASTM C309.

Other Materials

E27.2.9 All other materials as per CW 3310.

Floating and Finishing Equipment

E27.2.10 Use only wood or magnesium floats. Bull floats used for initial finishing shall be constructed of wood only.

Other Equipment

E27.2.11 All other equipment as per CW 3310.

E27.3 CONSTRUCTION METHODS

General

E27.3.1 Concrete formwork, steel reinforcement, placement, curing, and joint sealing as per CW 3310 except as modified in the contract documents.

E27.3.2 Clean finishing tools and equipment and let dry prior to finishing. Wet tools will fade the colouring. Wetting of tools during finishing operation is not permitted.

E27.3.3 Place concrete at a consistent slump. No water shall be added on Site. Superplasticizer may be added at a rate suggested by the concrete supplier if additional workability is needed.

E27.3.4 No localized water spray or fogging is permitted to assist in finishing as this will locally fade the colour.

E27.3.5 Clear curing compound only shall be used. The use of water curing or plastic film is not allowed. Plastic film for insulation in cold weather must be approved by the Contract Administrator.

E27.4 MEASUREMENT AND PAYMENT

E27.4.1 Construction of Coloured Concrete Sidewalk will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Coloured Concrete 100mm Sidewalk". The area to be paid for will be the total number of square meters of tinted concrete supplied and placed at grade in accordance with this specification and accepted by the Contract Administrator.

E28. SIDEWALK EXPANSION JOINTS

E28.1 DESCRIPTION

(a) Further to CW 3325, this specification covers the supply and installation of expansion joints to be constructed within concrete sidewalk.

E28.2 MATERIALS

E28.2.1 Fiber Joint Filler

(a) Fibre joint filler shall be rot-proof and of the preformed, non-extruding, resilient type made with a bituminous fibre such as Flexcell and shall conform to the requirements of ASTM D1751 or equal as accepted by the Contract Administrator, in accordance with B6, "Substitutes".

E28.2.2 Reinforcing Steel

- (a) 300mm long 10M smooth, epoxy coated steel dowels, 300 MPa yield strength.

E28.3 CONSTRUCTION METHODS

E28.3.1 Expansion joints shall be constructed and installed as indicated in the Contract Documents or directed by the Contract Administrator.

E28.3.2 The fiber joint filler shall extend the full width and depth of the sidewalk. Any excess material shall be trimmed to match the surface of the concrete.

E28.3.3 Two dowels shall be installed at each expansion joint.

E28.3.4 The dowels shall be drilled through the fiber joint filler and are to be coated with asphaltic cut-back.

E28.4 MEASUREMENT AND PAYMENT

E28.4.1 No measurement or payment will be made for performing the supply of materials and the operations herein described and shall be considered incidental to installation of concrete sidewalk.

E29. LANDSCAPE CURB

E29.1 DESCRIPTION

E29.1.1 This specification shall cover the supply and installation of concrete landscaping curb, as noted on the Drawings or as directed by the Contract Administrator.

E29.2 MATERIAL & CONSTRUCTION METHOD

E29.2.1 Supply and install curb in accordance with CW 3310 – Portland Cement Concrete Pavement Works.

E29.2.2 Construct 150 mm reveal concrete landscaping curb integral with the monolithic curb and sidewalk.

E29.3 MEASUREMENT AND PAYMENT

E29.3.1 Supply and installation of concrete landscaping curb will be measured on a length basis and

E29.4 paid for at the Contract Unit Price for "Landscaping Curb (150 mm reveal ht)", supplied and installed in accordance with the Specification and accepted and measured by the Contract Administrator.

E30. WORKING IN CLOSE PROXIMITY TO GAS INFRASTRUCTURE

E30.1 DESCRIPTION

E30.1.1 While working in close proximity to gas infrastructure, all procedures and precautions outlined in the Appendix 'E'- Safe Excavation & Safety Watch Guideline manual, as well as any supplemental direction from Manitoba Hydro, must be adhered to. Ensure that all locates and clearances are current and have been received and understood prior to construction.

E30.2 MEASUREMENT AND PAYMENT

E30.2.1 Hydro excavation to locate and verify gas infrastructure as typically required by Manitoba Hydro will be considered incidental to the Work.

E30.2.2 Full hydro excavation of any gas main for full exposure longitudinally or transversely in a long and continuous fashion will not be considered incidental to the Work.

E30.2.3 Any costs associated performing Safety Watches will be considered incidental to the Work.

E31. WORKING OVER SENSITIVE UNDERGROUND INFRASTRUCTURE

E31.1 DESCRIPTION

E31.1.1 This specification should be considered supplemental to the latest revisions of the City of Winnipeg Standard Construction Specifications CW3170 and CW3110.

E31.1.2 This specification covers the detailed excavation and sub-base compaction required in the following areas over and 2.0m on either side of the utility centre line adjacent to:

- (a) The existing Manitoba Hydro and Bell MTS utility duct lines on St. Mary Avenue and Edmonton Street.
- (b) The 69 kV oil filled "X" transmission/distribution duct line on Edmonton Street. Work over and near this duct line will require a safety watch.
- (c) The AC water main segment on Edmonton Street.

E31.1.3 In the event that this specification conflicts with any requirements and/or working restrictions set forth by Manitoba Hydro or BellMTS, Manitoba Hydro and/or BellMTS requirements and working restrictions shall take precedence.

E31.2 CONSTRUCTION METHODS

E31.3 Only utilize construction practices and procedures that do not impart excessive vibratory loads on the sensitive underground infrastructure or that would cause settlement of the subgrade below the utility.

E31.3.1 Excavation

- (a) The Contractor shall excavate the roadway as per the drawings, following all Manitoba Hydro and BellMTS requirements and working restrictions.
- (b) During design WSP daylighted several locations for the duct lines and gas lines. Most top of utility depths were at least 0.9m from the surface.

E31.3.2 Pavement removal

- (a) Use of pneumatic concrete breakers within 2 m of the 69 kV oil filled duct line and the AC water main is prohibited. Pavement shall be full depth sawcut and carefully removed. Use of hand held jackhammers for pavement removal will be allowed.
- (b) Pneumatic concrete breakers are permitted over other Bell MTS and Hydro ductlines unless stated otherwise by the Utility.

E31.3.3 Placement of 100mm sub-base

- (a) Subbase materials shall not be dumped directly on sensitive underground infrastructure but shall be stockpiled outside limits noted in these recommendations and shall be carefully bladed in place.
- (b) Compaction of 100mm subbase material over the sensitive underground infrastructure shall be limited to non-vibratory methods, static rolling only shall be allowed in the vicinity of these utilities.
- (c) Granular material shall be placed and compacted in accordance with the latest revision of CW 3110.

E31.4 MEASUREMENT AND PAYMENT

E31.4.1 No additional measurement and payment shall be made for pavement removal, roadway excavation, of 100mm sub-base construction outlined in this specification or for any special requirements that may be required.

E31.4.2 If overtime is permitted for the 69 kV safety watch, those overtime costs can be paid for under a change order if required.

E32. PROTECTION OF EXISTING TREES AND PRUNING

- E32.1 Construction work will occur in close proximity to existing trees that are to remain. The Contractor shall take the following precautionary steps to prevent damage from construction activities to existing trees within and immediately adjacent to the limits of the construction.
- E32.1.1 The Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.
- E32.1.2 Trees within the limits of construction and within 5 metres beyond the limits of construction are to be:
- (a) Strapped with 25 x 100 x 2400mm wood planks as approved by the Contract Administrator.
 - (b) Be surrounded by a snow fence barrier placed around the perimeter of the tree along the edge of the tree canopy drip line as approved by the Contract Administrator.
- E32.1.3 Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the excavation shall be a minimum of 1.5 times the diameter (measured in inches), with the outcome read in feet, from the closest edge of the trunk. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation.
- E32.1.4 Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of trees. The dripline of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.
- E32.1.5 Work on-site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to branches does occur, they shall be neatly pruned by a certified arborist.
- E32.2 American elm trees are not to be pruned between April 1st and August 1st and Siberian elm trees between April 1st and July 1st of any year under provisions of The Dutch Elm Disease Act.
- E32.3 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or their designate.
- E32.4 Root Protection, Cutting and Care
- E32.4.1 Avoid cutting roots. If root cutting becomes necessary due to construction activities, obtain approval from the Contract Administrator before proceeding. If required and approved, root pruning must be performed under the direction of the Forestry Branch.
- E32.4.2 Cut roots cleanly with sharp, sterilized hand tools to promote quick wound closure and regeneration.
- E32.4.3 Minimize damage by avoiding excavation during hot, dry weather.
- E32.4.4 Keep protected plants well watered before and after digging. Cover exposed roots with approved temporary root cover material such as soil, mulch, or damp burlap immediately after exposure. Temporary root covers shall be kept damp as long as they are in place.
- E32.5 Materials
- E32.5.1 Strapping: 0.25 x .10 x 2.4m wood planks.
- E32.5.2 Snow Fence Barrier: plastic UV stabilized, high density polyethylene web snow fence, international orange colour, 1.2 meter height, including rolled steel T-bar fence posts, or approved equal.

E32.6 Measurement and Payment

- E32.6.1 The protection of existing trees shall be measured on a unit each basis for "Protection of Existing Trees", and be paid for at the Contract Unit Price per unit in accordance with this specification, accepted and measured by the Contract Administrator.

E33. STRUCTURAL SOIL CELLS

E33.1 Description

- E33.1.1 Provide all labour, materials, methods, equipment and accessories for the supply and installation of structural soil cell system and all related work.

E33.2 Submittals

- E33.2.1 Product Data: For each type of product, submit manufacture's product literature with technical data sufficient to demonstrate that the product meets these specifications.

- E33.2.2 Shop Drawings: Submit manufacturer supplied shop drawings for structural soil cell system.

- E33.2.3 Submit product samples of root barrier, geogrid, cable tie, anchor spikes, non-woven geotextile and sump pit rock.

E33.3 Delivery, Storage and Handling

- E33.3.1 Deliver materials in manufacturer's original, unopened, undamaged palletized units with identification numbers intact.

E33.3.2 Bulk Materials:

- (a) Do not deliver or place backfill, soils and soil amendments in frozen, wet, or muddy conditions.
- (b) Do not dump or store bulk materials near structures, utilities, sidewalks, pavements, and other facilities, or on existing turf areas or plants.
- (c) Provide protection including tarps, plastic and or matting between bulk materials and finished surfaces sufficient to protect the finish material.

- E33.3.3 Provide erosion-control measures to prevent erosion or displacement of bulk materials and discharge of soil-bearing water runoff or airborne dust to adjacent properties, water conveyance systems, and walkways. Provide additional sediment control to retain excavated material, backfill, soil amendments and planting mix within the project limits as needed.

- E33.3.4 Protect structural cells from damage during delivery, storage and handling.

- E33.3.5 Store under tarp to protect from sunlight when time from delivery to installation exceeds one week. Storage should occur on smooth surfaces, free from dirt, mud and debris.

- E33.3.6 Handling is to be performed with equipment appropriate to the size (height) of cells and site conditions, and may include, hand, handcart, forklifts, extension lifts, small cranes, etc., with care given to minimize damage to structural cell components.

- E33.3.7 Contractor shall be responsible for the supply, safe storage and handling of all materials.

E33.4 Materials

E33.4.1 Structural Cell System

- (a) 3X silva cell system, one base, six 3X posts and one deck.
- (b) DeepRoot barrier, UB-12-2.
- (c) DeepRoot impervious liner.
- (d) Geogrid per structural cell manufacturers requirements.

- (e) Cable tie for attaching geogrid to silva cell per manufacturers requirements.
 - (f) Geotextile per structural cell system manufacturers requirements.
 - (g) Galvanized anchoring spikes 250mm long x 10mm Dia.
 - (h) Manufactured by DeepRoot Green Infrastructure, LLC ph. 1.800.458.7668.
- E33.4.2 Drainage Pipe & Drainage Material
- (a) Drainage Pipe: 150mm dia. Perforated PVC pipe.
 - (b) Drainage Material: Granular drainage material in accordance with specification CW3120 - Installation of Sub Drains.
- E33.4.3 Non-woven geotextile fabric to CW3130.
- E33.4.4 Base Course and Backfill Material: to CW3110 granular A base granite material only – do not use limestone.
- E33.4.5 Compacted planting medium mound and planting medium in accordance with Planting Medium & Finished Grading Specification.
- E33.4.6 Sump Pit Rock: hard, unbroken round washed granite field stone or approved equal. Min. 85%, by weight, shall be between 150mm minimum and 250mm maximum in diameter.
- E33.4.7 Granite mulch in accordance with Trees Specification.
- E33.5 Construction Method
- E33.5.1 Silva cell modules must be transported and stored on manufacturers pallets with pallet wrap intact until ready for installation. Pallets should be positioned on firm level base, so as not to impede traffic or workflow.
- E33.5.2 Prior to the start of work layout and stake the limits of excavation and horizontal and vertical control points sufficient to install the structural cells and required drainage features in the correct locations.
- E33.5.3 The Contractor must ensure that all buried utilities and services are located and if necessary, protected and exposed prior to any excavation in accordance with specification CW1120.
- E33.5.4 Excavate and confirm to the dimensions and depth shown on the Drawings, including provision for drainage and base course layer, allowing 200mm (8") additional clearance in length and width. Side walls of excavated pit to be clean, straight, and within 15° of vertical. Soft dig / day lighting process to be used in area of existing underground utilities. Ensure subgrade slopes to sub drain trench toward perforated drainage pipe system (min 2.0% slope).
- E33.5.5 Clear excavation of all construction debris, trash, rubble and any foreign material. Excavate and remove oil spills and other soil contamination sufficiently to remove the harmful material. Fill over excavations with approved fill and compact to the required subgrade compaction.
- E33.5.6 All excavated material shall be disposed of off-site in accordance with specification CW1130.
- E33.5.7 Compact sub-grade in accordance with specification CW3110.
- E33.5.8 Install non-woven geotextile fabric for aggregate sub base, sump pit and tree planting bed sides in accordance with CW3130.
- E33.5.9 Install sump pit rocks, drainage pipe, drainage material and aggregate sub-base below structural cell system to the depths indicated in the Drawings and compact to a minimum of 95% of maximum dry density at optimum moisture content, in accordance with ASTM D 698 Standard Proctor Method.

- E33.5.10 Assemble and install structural cell system in accordance with manufacturer's specifications.
- E33.5.11 Install silva cells, anchoring spikes, geogrid, cable ties, planting medium, root barrier, impervious liner and backfill. These materials must be installed and compacted together in alternating operations in 200mm lifts to top of silva cells to achieve correct compaction relationships within the structural cell system. Compact per manufacturers recommendations.
- E33.5.12 Place geotextile over top of silva cell system, 450mm overlap past excavation.
- E33.5.13 Install root barrier directly adjacent to concrete edge restraint.
- E33.6 Protection**
- E33.6.1 Maintain a minimum of 100mm of aggregate sub-base over the geotextile material during construction. Use only low-pressure tire or low impact track vehicles with a maximum surface pressure under vehicle of 4 pounds per square inch, on top of structural cells prior to the installation of final paving.
- E33.6.2 When vehicle must cross structural cells that does not have final paving surfaces installed, use plates or mats to distribute vehicle loads to levels that would be expected at deck surface once final paving has been installed. Use low-pressure tire or low impact track vehicles.
- E33.6.3 Ensure that all construction traffic is kept away from limits of structural cells until final surface materials are in place. No vehicles shall drive directly on the structural cell deck.
- E33.7 Measurement and Payment**
- E33.7.1 The construction of structural cell system shall be measured on a lump sum basis as accepted by the Contract Administrator for "Structural Soil Cell System" inclusive of excavation, sub grade compaction, drainage material, granular a base granite material, silva cell system, root barrier, impervious liner, geogrid, cable ties, geotextile, anchor spikes, and non-woven geotextile. Price shall be payment in full for supplying materials and for performing the Work in accordance with this Specification and accepted and measured by the Contract Administrator.
- E33.7.2 The supply and install of drainage pipe shall be paid for on a lineal metre basis and paid at the Contract Unit Price per lineal metre as "Drainage Pipe". The length to be paid for shall be the total length installed in accordance with this Specification and accepted and measured by the Contract Administrator.
- E33.7.3 The supply and install of sump pit shall be paid for on a cubic metre basis as accepted by the Contract Administrator for "Soil Cell Sump Pit". The cubic metre to be paid shall be the total cubic metre installed in accordance with this Specification and accepted and measured by the Contract Administrator.

E34. TREE VAULTS

E34.1 Description

- E34.1.1 Provide all labour, materials, methods, equipment and accessories for the supply and installation of tree vaults with precast concrete sidewalk panels from stockpile and related excavation, granular drainage material, drainage pipe, non-woven geotextile, planting medium, pavers and granite mulch.
- E34.1.2 Tree vaults are to be constructed over existing tree vaults. Full excavation is not required,

E34.2 Quality Control

- E34.2.1 Existing precast concrete sidewalk panels are to be stockpiled and protected throughout the duration of construction. If the panels are damaged the contractor shall be responsible for replacement at no cost to City. Replacement panels shall be designed to accommodate

AASHTO HS-20 loading and the manufacturer shall supply shop drawings stamped by a Structural Engineer. Panels are available from Barkman Concrete Ltd. Ph 204.667-3310, or approved equal.

E34.2.2 Existing thinset pavers are to be stockpiled throughout the duration of construction. If pavers become damaged the contractor shall be responsible for replacement at no cost to the City. Refer to Unit Pavers Specification for thinset paver details.

E34.2.3 Tree vaults are to be constructed over existing tree vaults at four (4) locations (Southeast corner of Graham and Edmonton). Excavate only to the depths necessary to accommodate new construction. Protect existing trees and tree roots to Protection of Existing Tree and Pruning Specification. If trees should become damaged and compromised due to construction activities the contractor shall be responsible for tree compensation and replacement at no cost to the City.

E34.3 Materials

E34.3.1 Drainage Pipe & Drainage Material

- (a) Drainage Pipe: 150mm dia. Perforated PVC pipe.
- (b) Drainage Material: Granular drainage material in accordance with specification CW3120 - Installation of Sub Drains.

E34.3.2 Non-woven geotextile fabric to CW3130.

E34.3.3 Concrete Materials and Accessories: Concrete materials and accessories in accordance with Specification CW 3310 – Portland Cement Concrete Pavement Works.

E34.3.4 Precast Concrete Sidewalk Panel:

- (a) Reinforced precast concrete panel to accommodate AASHTO HS-20 loading from stockpile.

E34.3.5 Thinset pavers in mortar in accordance with Unit Pavers Specification.

E34.3.6 Planting medium in accordance with Planting Medium & Finished Grading Specification.

E34.3.7 Granite mulch in accordance with Trees Specification.

E34.4 Construction Method

E34.4.1 The Contractor must ensure that all buried utilities and services are located and if necessary, protected and exposed prior to any excavation in accordance with specification CW1120.

E34.4.2 Protect existing trees and tree roots to Protection of Existing Tree and Pruning Specification.

E34.4.3 Carefully remove and stockpile existing precast concrete sidewalk panels and thinset pavers for re-use.

E34.4.4 Carefully remove and stockpile existing precast concrete sidewalk panels and thinset pavers for re-use.

E34.4.5 Carefully remove precast concrete sidewalk panels at existing trees and dispose.

E34.4.6 Excavate and expose existing drainage pipe at existing catch basin.

E34.4.7 Excavate tree vaults to the dimensions and depth shown on the Drawings careful not to damage existing trees. Soft dig / day lighting process to be used in area of existing underground utilities

E34.4.8 Clear excavation of all construction debris, trash, rubble and any foreign material. Excavate and remove oil spills and other soil contamination sufficiently to remove the harmful material. Fill over excavations with approved fill and compact to the required subgrade compaction

- E34.4.9 All excavated material shall be disposed of off site in accordance with specification CW1130.
- E34.4.10 Install 150mm depth granular drainage course with drainage pipe in accordance with specification CW3120, and as shown on the Drawings. Ensure pipe has minimum 25mm cover of drainage course above and below. Tie into catch basin.
- E34.4.11 Cover drainage course with geotextile in accordance with specification CW3120 and as shown on the Drawings.
- E34.4.12 Form and pour tree vault thickened edge. Measure existing precast concrete sidewalk panels when forming tree vault thickened edge.
- E34.4.13 Fill tree vault with planting medium as indicated.
- E34.4.14 Install precast concrete sidewalk panels on lip of tree vault flush and true. Remove debris from tree lip or grind down concrete as required to ensure sidewalk panel / tree covers do not wobble.
- E34.4.15 Mortar thinset pavers from stockpile to precast concrete sidewalk panels.
- E34.4.16 Place granite mulch at existing tree.
- E34.5 Measurement and Payment
- E34.5.1 The construction of tree vaults shall be measured on a lump sum basis as accepted by the Contract Administrator for "Tree Vaults" inclusive of aggregate sub-base, granular drainage material, geotextile and backfill. Price shall be payment in full for supplying materials and for performing the Work in accordance with this Specification and accepted and measured by the Contract Administrator.
- E34.5.2 The supply and install of precast concrete vault covers from stockpile shall be paid for on a unit each basis and paid for at the Contract Unit Price per unit as "Precast Concrete Sidewalk Panel". The number of units to be paid for shall be the total number installed in accordance with this specification, accepted and measured by the Contract Administrator.
- E34.5.3 The supply and install of drainage pipe shall be paid for on a lineal metre basis and paid at the Contract Unit Price per lineal metre as "Drainage Pipe". The length to be paid for shall be the total length installed in accordance with this Specification and accepted and measured by the Contract Administrator.

E35. UNIT PAVING

- E35.1 Description
- E35.1.1 Provide all labour, materials, methods, equipment and accessories for the supply and installation of unit paving as indicated on the Drawings.
- E35.2 References
- E35.2.1 CW 3335 – Installation of Interlocking Paving Stones on Lean Concrete Base
- E35.3 Submittals
- E35.3.1 Submit product data for mortar.
- E35.4 Materials
- E35.4.1 Precast Unit Pavers
- (a) Holland paver, 210 x 210 x 60mm, colour charcoal.
 - (b) Available from Barkman Concrete Ltd. Ph. 204-667-3310, or approved equal.
- E35.4.2 Clay Pavers
- (a) Endicott Clay paver dark ironspot 194 x 93 x 57mm.

- (b) Endicott thin set clay pavers from stockpile.
- (c) Available from Alsip's Building Products and Services, or approved equal.

E35.4.3 Bedding Sand: shall be fine aggregate to the requirements of specification CW3330.

E35.4.4 Joint Sand: to the requirements of specification CW3330.

E35.4.5 Mortar: As recommended by paver manufacturer for outdoor applications and suitable for Manitoba climate.

E35.5 Quality Assurance

E35.5.1 All workmanship and all materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Contract Administrator including all operations, from the selection and production of materials, through to final acceptance of the Work. The Contractor shall be wholly responsible for the control of all The Contract Administrator reserves the right to reject any materials or works that are not in accordance with the requirements of this Specification.

E35.6 Construction Method

E35.6.1 Contractor to review paving layout and patterns with Contract Administrator.

E35.6.2 Contractor to verify the exact dimensions of unit pavers, brick pavers and stockpiled unit pavers, prior to the construction of blockouts in concrete sidewalk. Use physical samples of specified pavers when construction form work for blockouts.

E35.6.3 Install concrete sidewalk with blockouts, and approaches with blockouts as specified on Drawings.

E35.6.4 Preparation of Sand Base

- (a) Remove all accumulated debris from blockouts.
- (b) Install bedding sand to the depths indicated on the Drawings and to CW3330.
- (c) Do not compact sand base prior to installing pavers.

E35.6.5 Installation of Unit Pavers

- (a) Unit pavers shall be installed in formed concrete blockouts and compacted subgrade in accordance with the specification CW3335, set in locations and patterns as shown on the Drawings. Spaces between joints shall be 5mm maximum and shall be uniform and consistent while maintaining true patterns as indicated on the Drawings.
- (b) Commence installation of pavers against edge to obtain straightest possible course for installation.
- (c) Pavers shall be cut with saw only to obtain true even undamaged edges. Chipped pavers are unacceptable.
- (d) Crews shall work on installed pavers, not on sand layer.
- (e) Place pavers and spread and fine grade joint sand over lean concrete and sweep into joints.
- (f) Sweep remaining sand over all paving areas and remove from site.
- (g) Replace at no extra cost all whole or cut stones marked as unacceptable.
- (h) Remove cracked, chipped, broken or otherwise damaged paving materials from Site immediately.
- (i) Upon completion, clean in accordance with manufacturer's recommendations.

E35.7 Measurement and Payment

E35.7.1 Unit pavers shall be measured on an area basis and paid for at the Contract Unit Price per square metre for the following items of Work, which price shall be payment in full for performing all operations herein described and all other items incidental to the Work

included in this specification inclusive of bedding sand, and joint sand. The area to be paid for shall be the total installed area of each type of unit paving accepted and measured by the Contract Administrator.

(a) Items of Work:

- (i) Clay Paver Dark Ironspot 194 x 93 x 57mm
- (ii) Thin Set Clay Pavers from Stockpile
- (iii) Holland Paver 60mm, Charcoal

E36. PAVEMENT STAINING

E36.1 Description

E36.1.1 Provide all labour, materials, methods, equipment and accessories for the chemical staining of pavement.

E36.2 Submittals

E36.2.1 Submit product data and MSDC for Lithicrome chemistain classic.

E36.2.2 Submit sample of Lithicrome chemistain classic, colour CS-1 black, applied to broom finished concrete to CW3310.

E36.3 Materials

E36.3.1 Lithicrome chemistain classic, colour: CS-1 black, available form Brock White ph., 204-694-3600.

E36.4 Construction Methods

E36.4.1 Install per manufacturers written specifications.

E36.5 Measurement and Payment

E36.5.1 Supply and placement of pavement staining shall be measured on a square metre basis and paid for at the Contract Unit Price per square metre as "Lithicrome Chemistain". The area to be paid for shall be the total square metre area installed in accordance with this specification, accepted and measured by the Contract Administrator.

E37. WAYFINDING SIGNAGE

E37.1 Description

E37.1.1 Provide all labour, materials, methods, equipment and accessories for the supply and installation of wayfinding signs and wayfinding wraps.

E37.2 References

E37.2.1 American Society for testing and Materials International (ASTM)

- (a) ASTM A53/A53M-02, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
- (b) ASTM A269-02, Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
- (c) ASTM B221-14 Specification for Aluminum and Aluminum-Alloy. Extruded Bars, Rods, Wire, Profiles, and Tubes.
- (d) ASTM A307-02, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- (e) ASTM F593-17 Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.

E37.2.2 Canadian Standards Association (CSA)

- (a) CAN/CSA -G40.20/G40.21-98, General Requirements for Rolled or Welded Structural Quality Steel.
- (b) CAN/CSA -G164-M93(R1998), Hot Dip Galvanized or Irregularly Shaped Articles, or latest.
- (c) CAN/CSA -S16.1-01, Limit States Design of Steel Structures.
- (d) CSA W48-01, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
- (e) CSA W59-1989, R2001, Welded Steel Construction, Metal Arc Welding, Imperial Version.

E37.3 Submittals

E37.3.1 Wayfinding Sign

- (a) Shop drawings sealed by an Electrical and Structural Engineer registered in Manitoba shall be provided for review prior to installation. Show drawings to indicate materials and fastening methods.
- (b) Light fixtures to be CSA certified.
- (c) Submit sample of lexan panel.

E37.3.2 Wayfinding Sign Wraps

- (a) Digital proofs: Submit 1/4 scale full colour digital proofs or approved alternate of all interpretive and trailhead signs for sign off by Contract Administrator.
- (b) Artwork
 - (i) Artwork to be provided in digital (EPS) format by the Contract Administrator.
 - (ii) The artwork shall not be reproduced in any other form or in excess of the amount contracted for, except by written approval of the Contract Administrator.

E37.3.3 Screw Piles

- (a) Shop drawings sealed by an Engineer registered in Manitoba shall be provided for review prior to installation. Pile supplier shall confirm soil requirements full extent of structures prior to shop drawings review.

E37.3.4 Leveling Grout: submit product data to Contract Administrator for approval prior to construction.

E37.4 Quality Assurance

E37.4.1 Wayfinding signs are to be fabricated by trained and qualified workers with a minimum of 5 years experience, under controlled conditions.

E37.4.2 Wayfinding signs available from Prairie Pole Inc., ph. 204.326.9988, or approved equal.

E37.4.3 Coordinate work with road construction, concrete installation wayfinding sign wrap and electrical servicing for wayfinding sign, lighting for wayfinding sign with Contract Administrator and Electrical Engineer.

E37.4.4 Protect wayfinding signs from damage during transport to site and while on site until installed and accepted by the Contract Administrator. Damaged wayfinding signs will be rejected on site and replaced by Contractor at no cost to City.

E37.5 Materials

E37.5.1 Steel sections, square poles and plates: to CAN/CSA-G40.20/G40.21, Grade 300W.

E37.5.2 Welding materials: to CSA W59.

E37.5.3 Welding electrodes: to CSA W48 Series.

E37.5.4 Hardware and anchor bolts: to ASTM F593-17:

- (a) Anchor Bolts: stainless steel conc. wedge anchors.
- (b) Carriage Bolts: stainless steel.
- (c) Stainless steel threaded rod.
- (d) Stainless steel nut.

E37.5.5 Leveling Grout: contractor to provide a product for review by Contract Administrator.

E37.5.6 Wayfinding Sign

- (a) Supply and install all necessary products to produce wayfinding sign as indicated on the drawings and in this specification. Steel: perforated post, base plate post cap and hand access panel.
- (b) Lighting: programmable LED colour changing, CSA approved product.
- (c) Lexan: 1/8" thick, ghost centered, matte finish.
- (d) Finishes: powdercoated black.
- (e) Wayfinding sign available from Prairie Pole Inc., ph. 204.326.9988, or approved equal.

E37.5.7 Wayfinding Sign Wrap

- (a) Digitally printed vinyl with over laminate. Vinyl Colours: City of Winnipeg Tertiary Brand Colours including Pantone Red 032 C (red), Pantone 101 C (yellow), Pantone 333 C (teal), Pantone 311 C (blue), Pantone 2725 C (violet).
- (b) Available from Signex Manufacturing ph. 204.326.4282, or approved equal.
- (c) Contractor to coordinate installation of wayfinding sign wrap on wayfinding poles.

E37.5.8 Helical Screw Piles

- (a) Piles shall be no more than 2% out of plumb and no more than 2" out of alignment in any direction.
- (b) Pipe shaft shall meet minimum requirements of API 5CT Grade 3 ASTM (minimum yield strength of 45,000 psi and a minimum tensile strength of 66,000 psi) and meet and or exceed ASTM A53, type E (welded) or S (seamless) grade B.
- (c) Structural quality steel shall conform to latest CSA Standard G40.21, ASTM A36 for helix blade.
- (d) Pile shafts and helix blades shall be hot dip galvanized.
- (e) Welding shall be performed by shop qualified to CSA standard W47.1.
- (f) All welding shall conform to latest CSA Standard W59.
- (g) Only new material shall be used in the construction of helical piles.
- (h) Shop drawings sealed by an Engineer registered in Manitoba shall be provided for review prior to installation. Pile supplier shall confirm soil requirements full extent of structures prior to shop drawings review.
- (i) Pile supplier shall measure installation torque during pile placement and provide necessary changes and capacities on the layout of shop drawings. Installation torque measurement logs shall be submitted to the Contract Administrator immediately upon installation.
- (j) At minimum one test per every 10 piles installed, installer shall advance a pile to minimum 3 helix diameters greater depth than deepest pile in represented group and maintain torque measurement log of test pile installation. Torque log of test pile shall be submitted to Contract Administrator and to geotechnical engineer (if any) to permit confirmation of soil characteristics below the typical bearing stratum.
- (k) Helix of pile shall not be installed in back-filled material. If back-fill material extends down more than 4 feet below finished grade, both screw pile installed/manufacture and Contract Administrator shall immediately be informed of back-fill depth, material and compaction method.

- (l) Pile bearing helix shall be at minimum 8 feet depth below finished grade, at all areas subject to frost and at minimum 6 feet depth below finished grade at all areas.
- (m) Helical screw pile supplier and installer shall be CCMC certified.

E37.6 Construction Methods

E37.6.1 Wayfinding Sign

- (a) Shop drawings sealed by an Engineer registered in Manitoba shall be provided for review prior to installation.
- (b) Install helical screw pile as indicated on the shop drawings.
- (c) Install wayfinding signs as indicated on the shop drawings.
- (d) Refer to this specification for wayfinding sign wrap.

E37.6.2 Wayfinding Sign Wrap

- (a) Wayfinding sign wraps are to be installed on overhead light standards and pedestrian street lights.
- (b) Clean surfaces with materials recommended by supplier and ensure proper adhesion to lights.

E37.7 Testing and Touch-Ups

E37.7.1 Clean and repair minor damage to surfaces as recommended by product manufacturer and to the satisfaction of the Contract Administrator leaving finished product clean and unblemished.

E37.7.2 Test wayfinding sign lighting at night and take record photographs for review by the Contract Administrator if they are not present during testing. Obtain feedback and make any necessary adjustments.

E37.8 Measurement and Payment

E37.8.1 The supply and installation of wayfinding signage shall be paid for on a unit each basis and paid for at the Contract Unit Price per unit for the Items of Work listed below. Price shall be payment in full for supplying materials and for performing the Work in accordance with this specification, accepted and measured by the Contract Administrator.

Items of Work:

- (a) Wayfinding Sign
- (b) Wayfinding Sign Wrap

E38. SITE FURNISHINGS

E38.1 Description

E38.1.1 Provide all labour, materials, methods, equipment and accessories for the supply and install of benches and bike racks.

E38.2 Submittals

E38.2.1 Submit product data for benches. Indicate sizes, assembly, and installation details.

E38.3 Materials

E38.3.1 Benches

- (a) Type 1: Iconic Backed Bench MBE-2300-00056 177.8cm x 84.5 cm x 64.8 cm. Bench with backrest, arms and central arm. Bench slats in thermally modified ash; Aluminium legs, arms and supports in powder coated matte black. Surface-mounted.

- (b) Type 2: Iconic Backed Bench MBE-2300-00056 177.8cm x 84.5 cm x 64.8 cm. Bench with backrest, arms and central arm. Bench slats in thermally modified ash; Aluminium legs, arms and supports in powder coated Matte Silver 14. Surface-mounted.
- (c) Benches available from Maglin Site Furniture Ph. 1.800.716.5506.

E38.3.2 Bike Racks

- (a) Type 1: Hoop style surface mounted bike racks, powdercoated black, to match hoop style bike racks in the Exchange District. Bick racks available from Rackworks ph. 204-955-5221, or approved equal.
- (b) Type 2: Lotlimit bike rack, part no. SL505, manufactured by mmcite, colour: silver. Standard subsurface mounts, distributed by Park Works Inc. ph.: 800-667-4264, or approved equal.

E38.3.3 Anchor Bolts

- (a) Anchor bolts for benches and bike racks on concrete sidewalk to be 6mm dia. x 100mm, stainless steel.
- (b) Anchor bolts for benches and bike racks on unit pavers in concrete blockout to be 6mm dia. x 100mm stainless steel anchor bolts.

E38.4 Construction Methods

- E38.4.1 All work is to be located and installed in accordance with the Drawings and manufacturers specifications.
- E38.4.2 Benches to be surface mounted to concrete per manufacturers recommendations.
- E38.4.3 Furnishings to be installed plumb and true to correct elevations and location, as directed by the Contract Administrator. The Contractor shall confirm proposed locations of all site furnishings with Contract Administrator prior to installation.
- E38.4.4 All furnishings to be carefully handled so that no parts will be bent, broken, or otherwise damaged. Contractor is responsible for replacing any damaged furnishings, prior to installation, at no cost to the City.

E38.5 Measurement and Payment

- E38.5.1 The supply and installation of site furniture shall be paid for on a unit each basis and paid for at the Contract Unit Price per unit for the Items of Work listed below. Price shall be payment in full for supplying materials and for performing the Work in accordance with this specification, accepted and measured by the Contract Administrator.

Items of Work:

- (a) Bench Type 1
- (b) Bench Type 2
- (c) Bike Rack Type 1
- (d) Bike Rack Type 2

E39. REINSTATEMENT OF SITE FURNISHINGS

E39.1 DESCRIPTION

- E39.1.1 Further to CW 3325 – R5 Portland Cement Concrete Sidewalk, any site furnishings such as waste receptacles, benches, bike racks, etc. shall be temporarily removed during sidewalk renewal or new sidewalk construction. Following the placement and curing of the new concrete sidewalk the site furnishings are to be reinstalled as directed by the Contract Administrator.

E39.2 MEASUREMENT AND PAYMENT

E39.2.1 No additional measurement or payment will be made for removal and reinstallation of site furnishings within the limits of sidewalk works.

E40. PLANTING MEDIUM AND FINISHED GRADING

E40.1 Description

E40.1.1 Provide all labour, materials, methods, equipment and accessories for the supply and installation of clay rich planting medium.

E40.2 References

E40.2.1 Agriculture and Agri-Food Canada

.1 The Canadian System of Soil Classification, Third Edition, 1998.

E40.2.2 Canadian Council of Ministers of the Environment (CCME) Guidelines.

E40.2.3 The City of Winnipeg Standard Construction Specifications

.1 CW 1130 – Site Requirements

.2 CW 3540 – Topsoil and Finish Grading for Establishment of Turf Areas

E40.3 Submittals

E40.3.1 Submit 0.5kg sample of planting medium to National Testing Laboratory, or approved alternate, and indicate present use and intended use. Prepare and ship sample in accordance with Provincial regulations and testing laboratory requirements. Submit samples for:

(a) Clay-Rich Planting Medium for Structural Soil Cells and tree planting bed.

E40.3.2 Submit two (2) copies of soil analysis and recommendations for corrections to Contract Administrator.

E40.3.3 Submit two (2) litre sample of compost to Contract Administrator with manufacturers literature and material certification that the product meets the CCME guidelines.

E40.4 Quality Assurance

E40.4.1 Inform Contract Administrator of proposed source of materials to be supplied and provide a sample for review by Contract Administrator prior to installation.

E40.4.2 Testing of planting medium to be carried out and paid for by Contractor. Prepare and ship planting medium samples to approved laboratory in accordance with Provincial regulations and laboratory requirements, indicating intended use on each sample.

E40.4.3 Test planting medium for nutrients N, P, K, micronutrients, soluble salt content, pH value and OM (organic matter).

E40.4.4 Acceptance of planting medium is subject to an inspection of material and confirmation of test results. Do not commence soft landscaping work until Contract Administrator has accepted planting medium.

E40.5 Delivery, Storage and Handling

E40.5.1 Store materials in a dry area, protected from freezing, sedimentation and contamination.

E40.5.2 Deliver and store fertilizer in waterproof bags labeled with weight, analysis and name of manufacturer.

E40.6 Materials

E40.6.1 Black Topsoil: In accordance with CW 3540 for topsoil except organic matter to be in the range of 5-10%.

E40.6.2 Peatmoss: deliver from partially decomposed fibrous or cellular stems and leaves of species of sphagnum mosses. Elastic and homogeneous, brown in colour. Free of wood and deleterious material that could prohibit growth. Shredded particle minimum size: 5 mm.

E40.6.3 Compost:

- (a) mixture of soil, decomposing organic matter used as fertilizer, mulch or soil conditioner.
- (b) Dark brown in colour, no objectionable odour.
- (c) Processed organic matter containing 40% or more organic matter as determined by Walkley-Black or Lost On Ignition (LOI) test.
- (d) Must be sufficiently decomposed (i.e. stable) so that any further decomposition does not adversely affect plant growth (C:N ratio below 25:1) and contain no toxic or growth inhibiting contaminants.
- (e) Composed bio-solids to: CCME Guidelines for Compost Quality, Category A.

E40.6.4 Sand: hard fine silica sand, well washed and free of impurities, chemical or organic matter. Coarse texture, and to the following gradation:

<u>Particle Size (mm)</u>	<u>% Passing through Screen</u>
2.0	100%
1.0	95 to 100%
0.5	80 to 100%
0.25	0 to 30%
0.15	0 to 8%
0.075	0 to 1%

E40.6.5 Fertilizer: Synthetic start-up slow release fertilizer with a N-P-K analysis of 12-36-15 ratio at a rate of 4 kg per 100 m² which is 8 pounds per 100 sq ft.

E40.6.6 Clay-Rich Planting Medium for Structural Soil Cells and Tree Planting Beds: planting medium for structural soil cells and tree wells shall be a blend of black topsoil, compost, and coarse sand mixed to the following proportion:

<u>Material</u>	<u>% by volume</u>
Black Topsoil	70%
Compost	15%
Coarse Sand	15%

E40.7 Construction Method

E40.7.1 Excavation

- (a) Excavate tree planting beds by hand or using approved soft digging technology unless otherwise directed by Contract Administrator. Dispose of all rock, clay soils and other deleterious materials off Site.
- (b) Protect bottom of excavations against freezing.
- (c) Remove water that has entered the excavation prior to planting. Notify Contract Administrator if water source is groundwater.
- (d) Verify and obtain approval by Contract Administrator of tree planting beds prior to compacted soil mound and planting medium placement.

E40.7.2 Planting Medium Placement

- (a) Place planting medium in uniform layers over approved, unfrozen sub-grade, to the depth indicated on the Drawings.
- (b) Eliminate rough spots and low areas, Prepare a loose, friable bed, boot firm and level.

- E40.7.3 Soil Amendments
- (a) Apply lime, sulphur, or other soil amendment at a rate determined and recommended from planting medium sample test.
 - (b) Mix soil amendment well into full depth topsoil prior to application of fertilizer.
- E40.7.4 Finished Grading and Rolling
- (a) Per CW3540.
 - (b) Fine grade entire soil area to elevations as indicated on the Drawings. Eliminate rough spots and low areas. Leave surfaces smooth, uniform and firm against foot printing with a fine loose texture.
- E40.8 Surplus Material
- E40.8.1 Dispose of unused planting medium off site in accordance with CW1130.
- E40.9 Cleaning
- E40.9.1 Perform cleaning to remove accumulated environmental dirt from all paved surfaces of building faces. Remove surplus materials, rubbish, tools and equipment barriers.
- E40.10 Measurement and Payment
- E40.10.1 Supply and placement of planting medium mix for soil cells and tree planting beds shall be measured on a volume basis and paid for at the Contract Unit Price per cubic metre as "Clay-Rich Planting Medium". The volume to be paid for shall be the total cubic metre volume installed in accordance with this specification, accepted and measured by the Contract Administrator.

E41. TREE PLANTING

- E41.1 Description
- E41.1.1 Provide all labour, materials, methods, equipment and accessories for the supply and installation of trees and black granite mulch.
- E41.2 References
- E41.2.1 Agriculture and and Agri-Food Canada (AAFC)
- (a) Plant Hardiness Zones in Canada-2000.
- E41.2.2 Canadian Nursery Landscape Association (CNLA)
- (a) Plant Canadian Standards for Nursery Stock-2001.
- E41.2.3 Department of Justice Canada (JUS)
- (a) Plant Canadian Environmental Protection Act (CEPA), 1999, c. 33.
 - (b) Transport of Dangerous Goods Act (TDGA), 1992, c.34.
- E41.2.4 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
- (a) Materials Safety Data Sheets (MSDS).
- E41.3 Submittals
- E41.3.1 Submit product data for:
- (a) Fertilizer.
- E41.4 Source Quality Control
- E41.4.1 Obtain approval from Contract Administrator of plant material at source.

- E41.4.2 Notify Contract Administrator of source of material at least seven (7) days in advance of shipment. No work under this Section is to proceed without approval.
- E41.4.3 Acceptance of plant material at source does not prevent rejection on Site prior to or after planting operations.
- E41.4.4 Plant material imported from other nations will not be accepted.
- E41.4.5 Bare root plant material will not be accepted.
- E41.5 Storage and Protection
- E41.5.1 Coordinate the shipping of plants and excavation of tree vaults to ensure minimum time laps between digging and planting.
- E41.5.2 Protect plant material from frost, excessive heat, wind and sun during delivery.
- E41.5.3 Protect plant material from damage during transportation:
- (a) When delivery distance is less than 30 km and vehicle travels at speeds under 80 km/h, tie tarpaulins around plants or over vehicle box.
 - (b) When delivery distance exceeds 30 km or vehicle travels at speeds over 80 km/h, use enclosed vehicle where practical.
 - (c) Protect foliage and rootballs using anti-desiccants and tarpaulins, where use of enclosed vehicle is impractical due to size and weight of plant material.
- E41.5.4 Protect stored plant material from frost, wind and sun as follows:
- (a) For balled and burlapped and wire basket rootballs, place to protect branches from damage. Maintain moisture level in root zones.
- E41.5.5 Remove broken and damaged roots with sharp pruning shears. Make clean cut and cover cuts over 20mm (3/4") diameter with wound dressing.
- E41.5.6 Keep roots moist and protect from sun and wind. Heel-in trees that cannot be planted immediately in shaded areas and water well.
- E41.6 Scheduling
- E41.6.1 Order plant material as soon as possible after award of contract to ensure plant availability. Request substitutes as required.
- E41.6.2 Provide Contract Administrator a written schedule fourteen (14) days in advance of shipment of plant material. Schedule to include: quantity and type of plant material, shipping dates, arrival dates on Site, and planting dates.
- E41.7 Warranty of Nursery Stock
- E41.7.1 For all plant material a two (2) year warranty period is required.
- E41.7.2 During the warranty period, upon written notification from the Contract Administrator, the Contractor warrants to replace and replant any nursery stock found dead and/or in poor condition as soon as possible thereafter, without cost to The City. "Poor Condition" shall be interpreted as meaning nursery stock on which branches are dead or dying, or have not shown satisfactory growth in leaves. Exempted is nursery stock damaged by accidental causes or vandalism, which stock shall be replaced at the cost of The City.
- E41.7.3 At the end of the two (2) year warranty period an inspection will be conducted by Contract Administrator.
- E41.7.4 Contact Administrator reserves the right to extend Contractor's warranty responsibilities for an additional one (1) year if, at end of initial warranty period, leaf development and growth is not sufficient to ensure future survival.
- E41.8 Replacements

- E41.8.1 During warranty period, remove and replace any plant material that has died or failed to grow satisfactorily, at no cost to the City, as directed by the Contract Administrator.
- E41.8.2 A two (2) year warranty period shall be required on all replacement plant material.
- E41.8.3 All replacement plant material shall be the same size and species as specified, and shall be supplied and planted in accordance with the original Drawings and Specifications.
- E41.8.4 Should the replaced plant material not survive, the Contractor will be responsible for a third replacement and a two (2) year warranty period shall be required.
- E41.9 Plant Material
- E41.9.1 Type of root preparation, sizing, grading and quality shall comply to the Canadian Standards for Nursery Stock.
- E41.9.2 Source of plant material: grown in Zone 3 only in accordance with Plant Hardiness Zones in Canada. Plant material must be planted in zone indicated as appropriate for its species.
- E41.9.3 Plant material free of disease, insects, defects or injuries and structurally sound with strong fibrous root system.
- E41.9.4 Substitutions to plant material as indicated on planting plan are not permitted unless written approval has been obtained as to type, variety and size. Plant substitutions must be of similar species and of equal size as those originally specified.
- E41.9.5 Refer to Plant Specification List on the Drawings and the Drawings for species, quantities, size and quality of plant materials.
- E41.10 Water
- E41.10.1 Water free of impurities that would hinder plant growth. The Contractor shall provide water, so that all costs to provide water for the watering operation and all associated costs shall be borne by the Contractor. These costs may include hydrant permit and meter rental fees.
- E41.10.2 Further to clause 3.7 of CW 1120, the Contractor shall pay for all costs associated with obtaining water in accordance with the Waterworks By-law. Sewer charges will not be assessed for water obtained from a hydrant.
- E41.11 Planting Medium: backfill with planting medium as specified in Planting Medium Specification.
- E41.12 Fertilizer: synthetic start-up slow release fertilizer with a N-P-K analysis of 12-36-15 ratio at a rate of 4 kg per 100 m² which is 8 pounds per 100 sq ft.
- E41.13 Granite Mulch: granite mulch, black in colour.
- E41.14 Pre-Planting Preparation
- E41.14.1 Obtain approval from Contract Administrator of finish grading, and planting medium installation prior to commencing Work in this section.
- E41.14.2 Ensure plant material is acceptable to the Contract Administrator.
- E41.14.3 Remove damaged roots and branches from plant material with sharp clean equipment treating wounds as necessary to maintain plant health.
- E41.14.4 Apply anti-desiccant to deciduous trees in leaf in accordance with manufacturer's instructions.
- E41.15 Plant Material Layout
- E41.15.1 Prepare planting areas. Refer to Planting Medium Specification.
- E41.15.2 For individual trees:
- (a) Excavate tree pits to depths and widths indicated on the Drawings.
 - (b) Remove rocks, roots, debris and toxic material from the tree pit.

E41.15.3 Remove water that has entered the excavated tree pit prior to planting. Notify Contract Administrator if water source is groundwater.

E41.16 Planting

E41.16.1 For jute burlap rootballs, cut away top one third of wrapping and wire basket without damaging rootball. Do not pull burlap or rope from under rootball.

E41.16.2 For container stock or rootballs in non-degradable wrapping, remove entire container or wrapping without damaging rootball. Loosen rootball to encourage bonding with planting medium and subgrade.

E41.16.3 Plant vertically in locations as indicated. Orient plant material to give best appearance in relation to structure, roads and walks.

E41.16.4 Set plants and trees at elevations indicated on the drawings with no more than 50mm of soil above the root flair. Review with City Forestry representative and Contract Administrator when trees are on site, prior to installation.

E41.16.5 For Trees:

- (a) Prepare compacted soil mound below tree root ball. Ensure top of mound is set to suit the depth of rootball.
- (b) Backfill soil in 150 mm (6") lifts. Tamp each lift to eliminate air pockets. When two thirds of depth of planting pit has been backfilled, fill remaining space with water. After water has penetrated into soil, backfill to finish grade.

E41.16.6 Water plant material thoroughly. Report extreme ponding in planters indicative of malfunctioning drains to the Contract Administrator immediately.

E41.16.7 After soil settlement has occurred, fill with soil to finish grade.

E41.16.8 Dispose of burlap, wire and container material off Site.

E41.17 Pruning

E41.17.1 Undertake corrective pruning after planting to eliminate torn and broken branches. Do not damage lead branches or remove smaller twigs along main branches. Do not prune to compensate for root loss.

E41.18 Maintenance

E41.19 Maintain plant material from date of planting to the end of the two (2) year warranty period. Refer to Landscape Maintenance Specification.

E41.20 Measurement and Payment

E41.20.1 Supply and installation of trees shall be measured on a unit basis, and be paid for at the Contract Unit Price per unit for installed trees, as accepted and measured in the field by the Contract Administrator, for the following Items of Work, which price shall be payment in full for performing all operations herein described and all other items incidental to the Work included in this Specification.

E41.20.2 Items of Work:

- (a) Trees
 - (i) Discovery Elm
 - (ii) Knight Rider Elm

E41.20.3 Black granite mulch will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Granite Mulch". The area to be paid shall be the total square metre area in accordance with this specification, accepted and measured by the Contract Administrator.

E42. TREE REMOVAL

E42.1 Further to CW 3010 - Clearing and Grubbing, tree removal including the roots shall be measured on a unit basis for the number of trees removed in accordance with CW 3010. Payment shall be at the Contract Unit Price bid for "Tree Removal" measured as specified herein for the total number of trees removed in accordance with this Specification, accepted and measured by the Contract Administrator.

E43. LANDSCAPE MAINTENANCE

E43.1 Description

E43.1.1 Provide all labour, materials, methods, equipment and accessories for the maintenance of new and existing trees following acceptance of the plant material to start warranty.

E43.1.2 In general, the Work shall include:

- (a) Fertilizing
- (b) Watering
- (c) Weed Control
- (d) Pest and disease Control
- (e) Winter Preparation

E43.1.3 Maintenance shall be performed on a bi-weekly basis at a minimum.

E43.2 Maintenance and Warranty Period

E43.2.1 Thirty (30) days after the planting installation has been completed, the Contract Administrator shall perform an inspection of the plant material to determine if the plant material is acceptable to start warranty.

E43.2.2 The maintenance and warranty period shall begin following acceptance of plant material by Contract Administrator and shall be for a period of two (2) years.

E43.3 Submittals

E43.3.1 Submit maintenance log to Contract Administrator indicating date, times, employee, start time, stop time and maintenance activities.

E43.3.2 Payment will not be processed without receipt of maintenance logs.

E43.4 Materials and Equipment

E43.4.1 Materials shall conform to the requirements of related Specification sections.

E43.4.2 Provide all equipment to properly execute Work. Maintain such equipment in a workable, safe condition while in use during this project.

E43.4.3 Contract Administrator shall review equipment to be used to execute Work prior to execution.

E43.5 Method

E43.5.1 General

- (a) Provide watering service within 24 hours, weeding services within 48 hours of the request by the Contract Administrator. Monitor the Site and advise the Contract Administrator of conditions that might void the Contractor's warranty responsibilities.
- (b) Provide maintenance schedule to Contract Administrator prior for the two (2) year maintenance period.
- (c) Contractor shall notify Contract Administrator of the exact time Contractor proposes to commence each application.

- (d) Schedule operations in accordance with growth, health, weather conditions, and use of Site.
- (e) Perform each operation continuously and completely within a reasonable time period.
- (f) Store equipment and materials off Site.
- (g) Collect and dispose of debris or excess material on the day the maintenance is undertaken.

E43.5.2 Maintenance of Trees

- (a) Fertilizing: Apply fertilizer only at frequency, ratio and rates as recommended by manufacturer. Water immediately after fertilizing. Apply fertilizer no later than May 30th of each maintenance year.
- (b) Watering: Apply water as required to supplement rainfall and to maintain optimum growing conditions. In general, water once a week to achieve rates as indicated. Allow soil to adequately dry between watering to prevent over saturation without creating water stress. Subject to the above-noted requirements, the Contractor must water at least once a week between May 1st and October 15th inclusive. A complete record is to be kept of each series of waterings for all planted trees noting location and date of watering. This record is to be given to the Contract Administrator when requested. Apply 40 litres of water per 25 mm calliper per application using a deep root feeder or low pressure open flow nozzle and hose. The water stream must not gouge the soil.
- (c) Weed Control: Inspect and undertake weed control weekly during the first year of maintenance and monthly during the second year. By hand, remove all weeds with their roots from tree pits and tree beds and dispose of off Site. When weeding operation is complete, replace and rake displaced soil to its original condition.
- (d) Pests and Diseases: Obtain written approval of Contract Administrator prior to using any pesticide. Control pests and disease through pruning or application of pesticides. Use species specific pesticides where possible. Use only pesticides of low mammalian toxicity. Strictly follow manufacturer's written instructions.
- (e) Pruning: The Contractor shall provide a person with a Manitoba Arborists Certificate for each work crew or Work Site. Prune as required to remove dead, broken or damaged limbs. Prune back to healthy growth while maintaining balanced crown shape. Employ clean sharp tools. Make cuts smooth and flush with outer edge of branch collar near the main stem or branch. Cuts must be smooth and sloping to prevent accumulation of water on cut. Do not leave little stumps ("horns") on trunks or main branches. Prune according to accepted horticultural practices as outline in "The Pruning Manual", Publication No. 1505-1977 by Agriculture Canada.
- (f) Winter Preparation: Ensure adequate moisture in tree root zones prior to freeze-up.

E43.6 Measurement and Payment

E43.6.1 Landscape maintenance shall be paid for on a lump sum basis for the items of work listed below and shall be payment in full for supplying all material and performing all operations herein described and all other items incidental to the Work included in this specification and accepted by the Contract Administrator.

Items of Work:

- (i) Year One Landscape Maintenance
- (ii) Year Two Landscape Maintenance

E44. TRAFFIC SIGNAL INSTALL MATERIALS

E44.1 In addition to CW 3620 3.11.12, Joining of conduit will not be allowed except:

- (a) Where joining of conduit is required for Convenience of Road Construction Sequencing with a maximum of one (1) joint per conduit.

E44.2 In place of CW 3620 3.11.13, Joining of conduit shall use an approved oversize coupler to connect nominal size 1.5" or 2" LDPE pipe, IPEX Series 75, installation to follow manufacture's recommendations.

(a) Approved Products:

- (i) Plasson Universal Slip Repair Coupler 60-64, Product Code: 176100060064 for use with nominal 2" LDPE.
- (ii) Plasson Universal Slip Repair Coupler 48-51, Product Code: 176100048051 for use with nominal 1.5" LDPE.

(b) Substitutes will not be allowed except:

- (i) Where application has been made to and approval has been provided by Traffic Signals. The Contractor shall provide sufficient information and details to enable the Traffic Signals to determine acceptability.

E44.3 As per CW 3620 4.11.5, No measurement or payment shall be made for Joining of Conduit.

E44.4 Removal of CW 3620 2.10.1 (b) Conduit coupling pipe and gear clamps.

E45. TRAFFIC SIGNALS SERVICE BOX PRE-CAST

E45.1 Description

- (a) This specification covers the use and installation of a service box pre-cast 17" x 30" x 18" and 13" x 24" x 18".

E45.2 Materials

- (a) Materials shall be as per section 2 of CW 3620.

E45.3 Construction Method

- (a) Install Pre-Cast Service Box in grass boulevards/medians, and hard surfaced medians or as shown on the Drawings or as directed by the Contract Administrator.
- (b) Fill bottom of excavation with compacted limestone base course material to set precast service box to grade.
- (c) Install Pre-Cast Service Box on top of the compacted granular fill material to pavement, sidewalk or boulevard finish grade.
- (d) All conduits must be bundled into a group in the centre of the Pre-Cast Service Box. Install plastic plugs prior to back fill.
- (e) Backfill around Pre-Cast Service Box exterior. Back fill shall conform to requirements of SD-342.
- (f) Pre-Cast Service box shall meet the grade of the sidewalk or boulevard given provided by Contract Administrator.

E46. INSTALLATION OF EARLY OPEN TRAFFIC SIGNALS CONCRETE BASES

E46.1 Description

- (a) This specification shall cover the installation of Early Open Concrete Bases.

E46.2 Materials

- (a) Supply concrete for bases in accordance with CW 2160, Table CW 2160.1 Design Requirements for Concrete Used for Underground Structures, for Type A Structures (monolithic sewers and reinforced structures).
- (b) Further to E46.2(a), the supplied concrete shall achieve a minimum compressive strength of 22 MPa at 48 hours.

E46.3 Construction Methods

- (a) Construction Methods for the installation of Early Open Concrete Bases shall be as per Section 3.7 of CW 3620.

E47. INSTALLATION OF PRE-CAST TYPE PM TRAFFIC SIGNALS BASES

- E47.1 Pre-cast Type PM concrete bases shall be supplied by The Contractor including anchor bolts.
E47.2 Fabrication and installation shall be in accordance with SD-315.A.

E48. ANCHOR BOLT PROJECTIONS FOR TRAFFIC SIGNALS CONCRETE BASES

- E48.1 Further to Section 3.7 of CW 3620 Concrete Bases Type A, Type G, Type OD and Type J Bases shall have an anchor bolt projection as specified below:
(a) The following bolt projections shall override what has been specified on SD-310, SD-313 and SD-314.

Concrete Base Type	Anchor Bolt Projection (mm)	Tolerance (mm)
Type A	76.0	(71.0 – 76.0)
Type G	89.0	(84.0 – 89.0)
Type OD	50.8	(45.8 – 50.8)
Type J	150.0	(145.0 – 150.0)

E49. WATER MAIN TESTING

- E49.1 Further to CW 2125 Clause 3.4.3, samples must be submitted to the laboratory no later than 20 hours following sampling.

E50. WATER SERVICES INTERRUPTIONS TO BUSINESSES, SCHOOLS AND APARTMENT BUILDINGS

- E50.1 Further to CW 1120 clause 3.6, the Contractor shall be required to work evenings, nights and weekends where required to minimize water service interruptions on this project.
E50.2 The Contractor shall work closely with the Contract Administrator and the City to coordinate service connections and tie-ins to minimize the disruption of water service to all properties in the area.
E50.3 The Contractor shall be required to submit a work plan to the Contract Administrator seven (7) calendar days prior to any construction activities to illustrate how the work will be performed to minimize or eliminate water shutdowns for this project. The plan will be reviewed by the Contract Administrator and revised by the Contractor as required.
E50.4 No additional payment shall be made for measures taken to minimize water service disruptions.

E51. PROVISIONAL ITEMS

- E51.1 The Provisional Items listed in the Schedule of Prices are a part of the Contract.
E51.2 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.

E51.3 Notwithstanding C:7, the City reserves the right to diminish all or any portion of the items of Work listed in the Provisional Items and no claim shall be made for damages on grounds of loss of anticipated profit or for any other reason.

E52. ABANDONMENT OF VALVE CHAMBER

E52.1 Description

(a) This Specification shall cover the abandonment of an existing case-in-place, reinforced concrete valve chamber.

E52.2 Construction Methods

(a) Remove existing manhole frames and covers, valve box casings and risers to determine if they are salvageable.

(b) Remove concrete to a minimum of 1200 millimetres below grade.

(c) Fill manhole with Class 3 Backfill in accordance with CW 2030.

(d) Load and deliver all valves and other material determined to be salvageable by the Contract Administrator, to the Water Services Division Yard located at 552 Plinguet Street and unload the valves and other material at the yard as directed by City personnel.

E52.3 Measurement and Payment

(a) Abandonment of existing valve chambers shall be measured on a unit basis and paid for at the Contract Unit Price for "Abandonment of Existing Valve Chambers". The number units to be paid for will be the total number of valve chambers abandoned and backfilled in accordance with this specification, accepted and measured by the Contract Administrator.

E53. INSTALLATION OF STREET LIGHTING AND ASSOCIATED WORKS

E53.1 DEFINITIONS

(a) LIMITS OF APPROACH means the shortest distance that is permissible between live high voltage (>750 volts) conductors or apparatus and any part of a worker's body, material or tools being handled, or equipment operated.

(b) MANITOBA HYDRO CENTRAL STORES means Manitoba Hydro's Waverley Service and Reclaim Centre - 1840 Chevrier Blvd - Winnipeg, Manitoba

(c) OVERHEAD FEED means an electrical supply via an overhead conductor connected between streetlight standards. Typically strung between standards on a temporary basis.

(d) OVERHEAD SOURCE means an electrical supply from Manitoba Hydro's system. (Typically, an overhead conductor from a wooden distribution pole or a DIP/RISER located on a wooden distribution pole.)

(e) RECLAIM material means existing material that has been removed from Manitoba Hydro's system and to be returned to Manitoba Hydro.

(f) SCRAP material means existing material that has been removed from Manitoba Hydro's system and to be recycled/disposed of by the Contractor.

(g) SURPLUS material means new material that has been requisitioned by the Contractor and not incorporated into the work at the end of the Contract.

(h) WORK CLEARANCE means an ELECTRICAL AND/OR NATURAL GAS FACILITIES LOCATE form (see SAMPLE ONLY included as Appendix F) issued by each of Manitoba Hydro's Customer Service Centre (CSC) affected to permit work to commence (Permit to work).

DESCRIPTION

E53.2 The work shall consist of the supply of all supervision, labour, materials (except as indicated under MATERIAL SUPPLIED BY MANITOBA HYDRO below) insurance, tools, backfill and

equipment (and their maintenance), transportation, fuel, oil, meals and lodging, mobilization and de-mobilization, and warranty of workmanship as required to install and remove temporary Overhead Feeds, remove existing street light poles as required, install new street light poles and associated underground cables/conduits, all in accordance with the requirements specified in the tender documents.

COORDINATION OF WORK

- E53.3 The Contractor shall provide a minimum of ten (10) working days notice to Manitoba Hydro prior to the start of construction. The work shall be conducted and coordinated with Manitoba Hydro in a manner to ensure street lighting is maintained at all times for the duration of the work. The construction drawings provide the Proposed Sequence of Construction.
- E53.4 The Contractor shall obtain Work Clearance from Manitoba Hydro's Customer Service Centre(s) (CSC) affected prior to the work commencing. No additional compensation shall be paid to the Contractor for delays obtaining Work Clearance for any reason.
- E53.5 Manitoba Hydro's CSC will provide the Limits of Approach applicable to the Contractor on the Work Clearance form.

ORIENTATION

- E53.6 Prior to the commencement of the proposed work, the Contractor's crew foremen, electricians, and other key personnel shall attend one (1) day of orientation provided by Manitoba Hydro for various operations such as cable handling, cable splicing/termination, installation of street light poles, concrete bases, luminaires and various other construction standards and procedures. The Contractor will be responsible for all costs associated with personnel salaries, travel, sustenance and overheads, etc., during training.

PRE-CONSTRUCTION MEETING

- E53.7 Prior to the commencement of the work, the Contractor shall attend a pre-construction meeting with Manitoba Hydro. The agenda for this meeting shall include but not be limited to the following:
- (a) Reference the Contractor's Safe work Procedures;
 - (b) Prime Contractor;
 - (c) materials;
 - (d) sequence of construction;
 - (e) communication plan;
 - (f) any training requirements & qualifications;
 - (g) Drawing and Project review;
 - (h) a review of the Contractor's proposed work schedule; and
 - (i) any and all other topics of clarification that the Contractor and the Contract Administrator may wish to discuss.
- E53.8 The Contractor's cost to attend this pre-construction meeting shall be incorporated into the unit prices for the work.

QUALIFICATIONS AND CERTIFICATION

- E53.9 The Contractor's Crew Foreman, installers and other key Contractor's Personnel shall possess the necessary certification, licensing, training, experience and familiarity with safety rules, procedures and hazards relating to the work. Journeyman Power Line Technician (PLT), Journeyman Lineman, Journeyman Cableman or Journeyman Electricians shall be required to perform portions of this work.

- E53.10 Journeyman Power Line Technician (PLT), Journeyman Cableman and Journeyman Lineman are also required to possess a “Limited Specialized Trade Licence – ‘M-P’ Licence – Power Line” issued by the Province of Manitoba.
- E53.11 Office of the Fire Commissioner Bulletin OFC 18 – 002 dated May 23, 2018 regarding Electrician Licenses discusses the requirements for a “Limited Specialized Trade Licence – ‘M-P’ Licence – Power Line”.
For more information contact:
Office of the Fire Commissioner
500-401 York Avenue
Winnipeg, Manitoba R3C 0P8
Tel. 204-945-3373
Fax 204-948-2089
Toll Free: 1-800-282-8069
firecomm@gov.mb.ca
- E53.12 Licensed Journeyman Electricians or Journeyman PLT or Journeyman Cableman or Journeyman Lineman ARE REQUIRED for all cable handling operations included but not limited to: disconnecting cables in the handhole, installation and removal of temporary overhead feeds, installation and connection of ground rods, streetlight cable splices, termination of streetlight cables in handholds and at luminaires. The Contractor shall employ sufficient qualified personnel on its crews to conform to the Electrician’s Licensing Act. The Contractor shall be prepared to provide proof of licences to Manitoba Hydro upon request.
- E53.13 The Contractor shall assess the hazards associated with the work and have documented Safe work Procedures to perform the work. It is the Contractor’s responsibility to train employees on these procedures. The Contractor shall be prepared to provide proof of training to Manitoba Hydro upon request.

REFERENCED STANDARD CONSTRUCTION SPECIFICATIONS

- E53.14 In addition to these Specifications, the work to be performed by the Contractor relative to the installation and/or replacement of street lighting poles, concrete bases and associated cabling shall be in accordance with the following:
- (a) Manitoba Hydro 66kV and Below Standards;
 - (b) CSA C22.3 No. 7 (latest edition);
 - (c) Canadian Electrical Code (CEC) Part 1 (latest edition); and
 - (d) Any other applicable codes
 - (e) (collectively, the “Standards”)
- E53.15 Revisions and updates to the Manitoba Hydro 66kV and Below Standards are issued periodically and the latest issued version of the Standard will apply. For the convenience of the Contractor for bidding purposes, excerpts of the Manitoba Hydro 66kV and Below Standards have been included as Appendix G.
- E53.16 In some cases, Municipal, Provincial or Federal laws or this Technical Specification may be more stringent than the CSA Standards. Whenever conflict exists, the Contractor shall comply with the most stringent requirements applicable at the place of the work.

TOOLS, EQUIPMENT AND MATERIALS

- E53.17 The Contractor shall be required to provide all tools and equipment required for performing the specified tasks. Equipment shall be in good operating condition, shall be properly maintained using original equipment manufacturer replacement parts and shall be provided with letters of testing/inspection from the manufacturer when requested. Where the equipment is provided as a kit with multiple parts and tools, the kit shall be complete with all parts required to perform the designed task. Contractor fabricated tools or equipment will not be accepted for use.

E53.18 The Contractor shall obtain the following specific Electrical Equipment including but not limited to:

- (a) Compression tool or tools and associated dies to perform compressions to a maximum size of 1/0 Al (MD-6 compression tools shall not be used).
- (b) Approved compression tools are:

Manufacture	Type	Model No.	Range
Burndy	In-line, battery	PATMD68-14V	350 Kcmil AL
Cembre	In-line, battery	B54Y (06V081E)	4/0 AWG AL
Burndy	Pistol, battery	BUR PAT60018V	350 Kcmil AL

E53.19 Dies shall be of the type shown in Standard CD210-21 and CD 210-24 only, must have identical markings, and compression tool die must match die number stamped on connector.

- (a) Modiewark Model #4444 or Fluke 1AC-II Volt Alert potential Indicator
- (b) Voltage meter – Fluke model #T3C
- (c) Insulated wire cutters – used for cutting cable ends square.

E53.20 Alternative equipment manufacturers may be considered upon request by the Contractor and shall be approved for use by Manitoba Hydro prior to use.

E53.21 Manitoba Hydro may reject any tools or equipment that do not appear to be in good condition or fail to successfully provide the required function.

MATERIAL SUPPLIED BY MANITOBA HYDRO

E53.22 Manitoba Hydro shall supply all street light poles, concrete bases, breakaway bases, luminaires, street light arms, ground rods, compression sleeves, grommets, nuts, electrical cables, conduits, relays, cable guards, Gel-caps and all other materials noted in the Standards. The Contractor shall sign receipts indicating the location on which the materials are to be used. The material shall be picked up by the contractor from the following locations:

E53.23 Manitoba Hydro Central Stores (contact personnel will be provided to the successful contractor).

E53.24 Materials requested will be supplied to the Contractor by Manitoba Hydro upon presentation of Manitoba Hydro's Stores Material Order Form. The Contractor shall assume all responsibilities for the loading, unloading, transportation, proper handling, secure storage and working of the materials and shall make replacements at its own expense in case any material is damaged, stolen or lost due to improper handling, storage or poor workmanship.

E53.25 The Contractor shall, at the time of materials release, check and confirm the quantity of materials. Shortages, discrepancies, or damages to materials shall be immediately reported in writing to Manitoba Hydro.

E53.26 After commencing performance of the work, the Contractor shall continually monitor all material required for the timely completion of the work and shall report additional material requirements to Manitoba Hydro a minimum of 72 hours prior to materials being required to perform the work. No additional compensation shall be paid as a result of delays due to material shortages where additional material requirements were not reported a minimum of 72 hours prior to being required for the work on an active project.

MATERIAL SUPPLIED BY CONTRACTOR

E53.27 The Contractor shall be responsible to furnish gravel, sand, ¾" down limestone, ¼" down limestone, protective hose (i.e. typically 2" fire hose), duct seal and pit-run material for backfilling around street light poles and around cables as per the Standards. The cost of furnishing the above listed materials shall be incorporated into the unit prices for the work.

SURPLUS, RECLAIM AND SCRAP MATERIAL

- E53.28 Upon completion of the work, the Contractor shall, at its own expense, deliver to Manitoba Hydro Central Stores, all Surplus materials furnished by Manitoba Hydro and not used in the work, regardless of the location of said material at that time.
- E53.29 In addition, the Contractor shall, at its own expense, deliver to Manitoba Hydro Central Stores all Reclaim materials from the work specifically HPS luminaires. Manitoba Hydro shall be responsible for the proper disposal of Reclaim HPS luminaires. The HPS bulb shall remain installed and unbroken in the Reclaim luminaire. The Contractor shall handle the Reclaim luminaires with care and shall avoid breaking the bulb or refractor.
- E53.30 Manitoba Hydro's preference is to recycle as much Scrap Material as practicable. The Contractor is responsible to remove the Scrap Material, transport to the recycler or Manitoba Hydro approved disposal site, pay for any disposal fees and may retain any recycling value.

DE-ENERGIZATION AND LOCKOUT

- E53.31 **Manitoba Hydro** - Where a standard is supplied from an Overhead Source, Manitoba Hydro's staff shall be responsible to disconnect and isolate the street light standard or standards between the standard and Overhead Source. Some street light standards may be temporarily fed from an Overhead Source. This Overhead Source shall be disconnected and removed by Manitoba Hydro staff prior to commencing with the work. The streetlight circuits will not be Locked Out by Manitoba Hydro.
- E53.32 **The Contractor** - The Contractor shall assess the hazards associated with the work and employ its own Safe Work Procedure for the work to be performed. The Contractor's Safe Work Procedure shall include provisions that the street light circuits will not be Locked Out by Manitoba Hydro. The Contractor's Safe Work Procedure shall achieve Lock Out or techniques equivalent to Lock Out.
- E53.33 The Contractor shall complete a job planning form (an example is included as Appendix H) on a daily basis before any work commences and provide Manitoba Hydro with copies of the job plans if requested.

TEMPORARY OVERHEAD FEEDS

- E53.34 Manitoba Hydro in consultation with the Contractor will determine if temporary lighting will be provided by the existing street lights or from the new street lights.
- E53.35 When using the existing poles for temporary lighting, Manitoba Hydro shall remove an Overhead Source in accordance with DE-ENERGIZATION AND LOCKOUT section above, prior to the Contractor installing a #4 duplex overhead conductor between the existing poles. The #4 duplex overhead conductor will normally be attached to the tenon of the davit arm near the luminaire with a pre-form grip. Older poles may require a spool insulator be attached to the pole using a pre-form grip to support the #4 duplex overhead conductor. A short length of 2C/#12 copper conductor is connected to the terminals of the luminaire brought out and connected to the #4 duplex overhead conductor. The final span to the Overhead Source shall be installed by Manitoba Hydro.
- E53.36 When using the new poles for temporary lighting, the Contractor shall install the new bases, poles and #4 duplex overhead conductor. The #4 duplex overhead conductor will be attached to the tenon of the davit arm near the luminaire with a pre-form grip. A short length of 2C/#12 copper conductor is connected to the terminals of the luminaire brought out and connected to the #4 duplex overhead conductor. The final span to the Overhead Source shall be installed by Manitoba Hydro.
- E53.37 All material used to provide the temporary overhead feed shall be returned to Manitoba Hydro. Care shall be taken to coil and tag Reclaim conductor for reuse. If used, insulators shall be handled carefully to prevent breakage.

SAFE EXCAVATION

- E53.38 The work shall be performed in accordance with the requirements of Manitoba Hydro's Safe Excavation and Safety Watch Guidelines (latest revision) included as Appendix E and Manitoba Workplace Safety and Health Regulation 217 latest revision.

SAFE HANDLING

- E53.39 The Contractor shall apply handling techniques in accordance with Manitoba Workplace Health and Safety Regulation 217 (latest revision).

ELECTRIC CABLES AND CONDUITS

- E53.40 The Contractor shall use diligent care and proper equipment in handling of all cables, so as not to injure the jacket and avoid gouging, kinking, scratching or abrading the cables. If any material is damaged to any extent, the Contractor shall repair the damages at its own expense, in a manner approved by Manitoba Hydro or will be charged the full cost of the damaged items.
- E53.41 Cable reels shall not be dropped and must be handled and placed/stored in an upright position at all times and shall not be laid flat for any purpose or reason. Cable reels shall be adequately supported on hard surface to prevent the reel from sinking into the ground that can cause undue stress on the cables. Cable reels should be inspected for damages prior to use. If a cable reel is found to be defective, such defect shall be reported immediately to Manitoba Hydro.
- E53.42 The Contractor shall place all material and string the cables in such a manner as to cause the least interference with normal use of the land, street or roadway. All material shall be unloaded in a manner to preserve its condition, prevent loss and/or theft and permit easy access for Manitoba Hydro's inspection.
- E53.43 The Contractor shall provide Manitoba Hydro's inspector sufficient opportunity, in the sole discretion of Manitoba Hydro, to inspect the work.

PRECAST CONCRETE BASES

- E53.44 The Contractor shall handle, store, transport and unload the precast concrete bases in a manner to prevent damage to the threaded bolts and conduit casing.
- E53.45 Precast Concrete Bases are extremely heavy. Approximate weight of pre-cast concrete bases are found in the Standards. The Contractor shall only use equipment rated for such weight.

STREET LIGHT POLES AND ARMS

- E53.46 The Contractor shall handle, store, transport, and provide proper load securement for the poles and arms in a manner to prevent damage.

LUMINAIRES

- E53.47 The Contractor shall handle, store, transport and unload the luminaires in their original packaging and in a manner to prevent damage.

SMALL MATERIAL

- E53.48 Photo electric cells, shorting caps, shims, nut covers and associated supplies shall be kept in a suitable warehouse provided by the Contractor at its own expense. Photo electric cells shall be transported and stored in such a manner as to prevent breakage.

CARE OF MATERIALS

- E53.49 The Contractor shall assume all responsibilities of all the materials and shall replace, at its own expense, any materials damaged, stolen or lost due to improper handling or poor workmanship.

WIRE AND CABLE REEL STORAGE

- E53.50 Cable reels shall be stored with the flanges upright and resting on a hard surface. At temporary storage sites where the soil may be soft, preservative-treated plywood sheets may be used to keep the flanges from sinking into the ground.
- E53.51 If cable reels must be pancaked or stored on their side in vertical racks, do not lift the reel by the top flange. Spacers (two 2 X 4s placed wide side up) should be placed under the bottom flange and between the reels in order to create a space to insert the forks and lift the reels without damaging the cable.

REEL HANDLING

- E53.52 When off-loading reels from a truck, reels shall be lowered using a hydraulic gate, hoist or forklift truck. When a reel is rolled from one point to another, care must be taken to see that the reel does not straddle objects such as rocks, pipes, curbs or wooden blocks which could damage the cable or protective covering. A reel should always be rolled on hard surfaces to avoid sinkage and in the opposite direction to the cable wraps to ensure that the reel is rolled in such a direction as to tighten the cable on the reel.
- E53.53 When using a hoist, install a mandrel through the reel arbour hole and attach a sling. Use a spreader bar approximately 6 inches longer than the overall reel width placed between the sling ends just above the reel flanges. This will prevent bending of the reel flanges and damage to the cable.
- E53.54 If a forklift is used to move a reel, the reel is to be approached from the flange side. Position the forks such that the reel is lifted by both reel flanges. The lift forks shall not contact the cable.
- E53.55 Returnable reels shall be returned promptly to Manitoba Hydro Central Stores and in no case later than three (3) days after the completion of the work unless otherwise mutually agreed between the Contractor and Manitoba Hydro.

PRESSURIZED WATER/VACUUM EXCAVATION

- E53.56 Pressurized water/vacuum excavation (PW/VE) shall be used to daylight all buried utilities and structures where excavation by other mechanical means would be expected to provide a physical risk to that utility or structure.
- E53.57 The work shall be performed in accordance with the requirements of Manitoba Hydro's Safe Excavation and Safety Watch Guidelines (latest revision) included as Appendix E.

REMOVAL STREET LIGHT POLE FROM EXISTING BASE

- E53.58 This shall include all work required to remove a street light pole from an existing base as set forth in this Technical Specification. The pole may be on an existing precast concrete base, steel power installed screw base or poured in place concrete base.
- E53.59 The Contractor shall furnish all labour, supplies and materials (except as indicated in the Section "MATERIAL SUPPLIED BY MANITOBA HYDRO") necessary for the removal of the street light pole from the existing base. Care shall be taken to preserve the luminaire. The luminaire shall be reinstalled on the new street light pole or returned to Manitoba Hydro's stores as instructed by the Manitoba Hydro.
- E53.60 The Contractor shall be responsible to transport all Surplus and Reclaim materials to Manitoba Hydro Central Stores and transport and dispose of all Scrap material as set forth in this Specification.

REMOVAL OF BASE AND DIRECT BURIED STREET LIGHT POLE

- E53.61 This shall include all excavation, whether by auger, pressurized water/vacuum excavation, by hand, or by other methods which may be necessary to remove a base or direct buried street light pole. The base may be poured in place concrete, steel power installed or precast concrete.

- E53.62 The Contractor shall be responsible to transport all Surplus and Reclaim materials to Manitoba Hydro Central Stores and transport and dispose of all Scrap material as set forth in this Specification.
- E53.63 The Contractor is responsible to supply all backfill material as specified in the Standards and carry out all backfill, compacting and leveling of all excavations and voids for removed bases and direct buried street light poles so as to be ready for top soil and seed or sod or as directed by Manitoba Hydro.

INSTALLATION OF FOUNDATION - CONCRETE BASE

- E53.64 This shall include all excavation, whether by auger, pressurized water/vacuum excavation, by hand, or by other methods which may be necessary to replace or install a concrete base as set forth in this Specification.
- E53.65 The Contractor shall furnish all labour, supplies and material (except as indicated in the Section "MATERIAL SUPPLIED BY MANITOBA HYDRO") necessary to install a new or replace a concrete base. Excavation for the precast concrete base shall be to a diameter and depth specified in Standard CD 300-6. All excess material is to be removed by the Contractor.
- E53.66 The concrete base shall be set on a bed of $\frac{3}{4}$ " down limestone. The concrete base backfill material shall be compacted in lifts no more than 150 mm. Backfill material shall be $\frac{3}{4}$ " down limestone. Compacting of backfill material shall be done using a hydraulic tamper. Alternative tamping methods shall be approved by Manitoba Hydro. Underground cables entering the concrete base shall be protected by a length of protective hose supplied by the Contractor and a layer of sand surrounding the cables to protect it from the limestone. The concrete base shall be installed level in all 4 directions. Final grade must be established prior to installing the concrete bases.
- E53.67 The completed backfill shall be at least equal in compaction to undisturbed soil, as required by the Municipal authorities or elsewhere in this Specification. The Contractor shall level all excavations.
- E53.68 Should settlement occur in the excavation and cause a depression in the surface, the Contractor shall repair the surface. Placing of additional backfill material due to settlement shall be at the Contractor's expense.
- E53.69 The concrete base shall be oriented in the proper direction to allow the easy entrance of the underground cables into the plastic pipe preinstalled in the concrete base. Care shall be taken to prevent damage to the insulation or jacket of the conductors. The cable shall be left long enough to extend one (1) metre beyond the top of the hand hole.

BASE MOUNTED STREET LIGHT POLES

- E53.70 This shall include all work required to install the street light pole on the concrete base as set forth in this Specification.
- E53.71 The Contractor shall furnish all labour, supplies and material (except as indicated in the Section "MATERIAL SUPPLIED BY MANITOBA HYDRO") necessary for the installation of the pole (straight shaft or davit) on the concrete base.
- E53.72 Unless otherwise specified on the construction drawings, the Contractor shall orient the poles so that the hand hole is on the left side of the pole when viewed from the road. A worker should be able to see oncoming traffic when working in the hand hole.
- E53.73 The Contractor shall level the street light pole in all 4 directions. Leveling shims may be used.
- E53.74 Tightening of bolts shall be performed in a manner that brings the surfaces up evenly. All nuts shall be tightened and torqued in accordance with Standard CD 300-9. The Contractor shall install the nut covers included with the pole.

- E53.75 Unless otherwise specified, excess underground cable and 2C-12 wire shall be left inside the hand hole with the hand hole cover loosely installed.
- E53.76 Existing street light poles may have street signs attached. The Contractor shall remove the signs from the existing pole and temporarily reattach the signs to the new pole. The Contractor shall notify Manitoba Hydro of the location where the signs have been removed.

LUMINAIRES AND ASSOCIATED WIRING

- E53.77 The Contractor shall furnish labour, supplies and material (except as indicated in the Section "MATERIAL SUPPLIED BY MANITOBA HYDRO") necessary to install the luminaire and associated wiring. Unless otherwise specified, the luminaire shall be installed with a tilt of zero (0) degrees. The Contractor shall install a length of 2 conductor No. 12 gauge (2C-12) wire from the terminals of the luminaire, through the arm (if applicable), down the pole to the hand hole. One (1) metre of 2C-12 wire shall be left at the hand hole. Impact equipment (air or electric) shall not be used to tighten luminaire mounting bolts. The Contractor shall be liable for damage due to over tightening.
- E53.78 The Contractor shall verify the luminaire voltage matches the source voltage as shown on the construction drawings. If luminaire voltage does not match the source voltage, the Contractor shall re-wire the luminaire in accordance with the wiring diagram provided. NOTE: Not applicable for LED luminaires.
- E53.79 As specified on the construction drawings, the luminaire will require either a photo electric cell (PEC) or shorting cap installed. When installing the PEC the eye shall be oriented north. The Contractor shall also install the appropriate wattage bulb in the luminaire. NOTE: Bulb installation not applicable for LED luminaires.

BREAK AWAY BASES

- E53.80 Break away bases shall be installed in accordance with Standard CD 300-10. The height of the concrete base above grade shall not exceed 50mm. The surface of the concrete base shall be flat and level. A reaction plate shall be installed between the concrete base and the break-away base.
- E53.81 The Contractor shall torque the couplers in accordance with Standard CD 300-10. Impact tools shall not be used to tighten or torque couplers or nuts associated with a break away base.

SPLICING/CONNECTING CABLES

- E53.82 The electric cable shall be spliced/terminated as per Standards CD 215-12, CD 215-13, CD 310-1, CD 310-4, CD 310-9 and CD 310-10 with the exception that the Contractor will use a GELCAP-SL-2/0 splice kit (See Appendix I). Termination in the hand hole may include the installation of an inline fuse holder.
- E53.83 The Contractor shall furnish all labour, supplies and material (except as indicated in the Section "MATERIAL SUPPLIED BY MANITOBA HYDRO") necessary to splice/terminate the street light conductor(s).

EXCAVATION

- E53.84 The Contractor shall furnish all labour, supplies and material (except as indicated in the Section "MATERIAL SUPPLIED BY MANITOBA HYDRO") necessary for the completion and maintenance of grade and line of the street light cables and conduit including water control if found to be necessary. The trench shall be graded to conform to the street light cables and conduit so that the street light cables and conduit rest firmly on a smooth surface throughout its length. All stones or other objects which, in the opinion of Manitoba Hydro might damage the street light cable jacket and conduit shall be removed. Where the presence of rock or other condition prevent a satisfactory bed for the cables, 150 mm of well-tamped, clean soil or ¼" down crushed limestone shall be placed in the bottom of the trench. In this case, the spoil bank from trenching operations shall not be allowed to fall into the trench or mix with the soil to be

used in backfilling the trench. Loose debris or foreign matter and the spoil bank shall be placed so as not to hinder drainage, damage property, or obstruct traffic.

- E53.85 Trenches shall be dug to such a depth that will provide a minimum cover of 600 mm from final grade in sodded areas and 1000 mm in roadways in accordance with Standard CD 305-1.

LAYING CABLES

- E53.86 Cables are to be lowered in the trench in an orderly fashion so as to maintain a consistent path and straight alignment. All cables shall be lowered in a continuous run (NO SPLICING) and in accordance with the construction drawings; and shall maintain the necessary separation, where required. All cables shall be of continuous runs and capped and sealed if they are not being installed in the pole at that time. Cables shall not be dragged over paved surfaces.
- E53.87 Once a cable is cut its ends must be sealed immediately with an approved and appropriately sized, heat shrink or cold shrink sealing cap to prevent moisture ingress unless the cable is being installed in the pole at that time.
- E53.88 During the removal of the cable, the reels shall be placed on jacks, stands or trailers with a bar through the arbour holes which will allow the reel to be turned easily, and the cable to be paid out. Cables can be paid out from the bottom or the top of the reel. Cable in coils shall be handled in a similar manner. This can be achieved by supporting the coil in a vertical plane and rotating it by hand as the cable is carefully uncoiled. The cable shall never be pulled over the flange of a reel, or pulled off the side of a coil, since this will introduce a twist in the cable.
- E53.89 During installation, under no circumstance is the cable to be subjected to a bending radius tighter than that detailed in the Standards.
- E53.90 Where specified in the Standards or on the construction drawings, the Contractor shall install the street light cable in a conduit.

INSTALLING CONDUIT AND CABLE BY BORING (HORIZONTAL DIRECTIONAL DRILLING)

- E53.91 The Contractor shall dig the approaches and openings necessary to install boring equipment, and the boring equipment used shall be of such a nature as to minimize the opening size required. The boring equipment shall produce a straight hole without unnecessary dips or bends. The bore hole shall be only slightly larger than the outside diameter of the conduits or cables to minimize possible settlement. Cables and conduits shall be pulled in with pulling eyes or using a kellum grip in a manner so as to guard against damage.
- E53.92 During construction as the drill bit crosses each existing facility a lookout shall be assigned by the Contractor to visually confirm the drill bit is maintaining a minimum 300 mm clearance from the existing facility all in accordance with Manitoba Hydro Safe Excavation and Safety Watch Guidelines (latest revision) included as Appendix E. Maximum pulling tensions on any streetlight cable shall be limited to 2.9 kN/0.65 kips.
- E53.93 Drilling fluids and associated waste materials shall be disposed of in a manner that minimizes environmental effects.
- E53.94 The Contractor shall properly compact the backfill material and will be responsible for placing additional material should settlement occur for the duration of the warranty period.

BURIED UTILITY CROSSINGS

- E53.95 All buried obstructions are not necessarily shown on the reference drawings and the locations of those indicated are approximate only.
- E53.96 The Contractor shall determine the location of all buried obstructions and shall notify the appropriate authorities and obtain all necessary permits prior to excavation, trenching and directional drilling near or across such obstructions. All buried obstructions where the new buried cable route crosses other utilities including but not limited to gas, water, sewer,

telephone and electric lines shall be exposed as per each utilities guidelines by the Contractor, including the use of Pressurized Water/Vacuum Equipment (PW/VE) where necessary. Should any damage occur to such lines during the course of the work, the Contractor shall be responsible for the damage and the costs of repairs to buried obstructions caused by its operations and shall fully indemnify the City of Winnipeg and Manitoba Hydro from and against all claims arising out of such damage. Manitoba Hydro Safe Excavation and Safety Watch Guidelines (latest revision) included as Appendix E shall be followed when crossing natural gas pipelines and electrical cables by the directional boring method.

- E53.97 The PW/VE technique, used to expose underground plant in certain conditions, must be performed in accordance with each utility's requirements, including but not limited to Manitoba Hydro, Manitoba Telecom Services, Shaw Cable, etc. PW/VE costs that the Contractor will incur during the work must be factored into the Contractor's bid prices. The Contractor shall not be entitled to extra compensation for the use of PW/VE on the work.
- E53.98 The Contractor shall be responsible to supply all backfill material and carry out all backfill, compacting and leveling of all excavations so as to be ready for topsoil and seed or sod or as directed by Manitoba Hydro.

BENDING CABLES/CONDUITS AND INSTALLATION INTO STANDARDS

- E53.99 It is desired to reduce to a minimum the required number of bends and to lay the cables/conduits to conform to the contour of the ground and maintain a normal covering. This shall be accomplished by cutting the trench slightly deeper in approaches to road crossings and drainage ditches. It is intended that the Contractor shall eliminate unnecessary bending by operating the trenching machine at various depths rather than by finishing grading the trench by hand whenever practical.
- E53.100 Sharp bends of the cables/conduits shall be avoided at all times. All bends shall meet the requirements set out in this Specification. If excessive bending was exerted on any cable, the cable shall be replaced at the Contractor's cost. During installation, under no circumstance is the cable to be subjected to a bending radius tighter than that detailed in the Standards. At street light poles the Contractor shall install the ends of the cables into the plastic pipe preinstalled in the concrete base. Care shall be taken to prevent damage to the insulation or jacket of the conductors. Underground cables entering the concrete base shall be protected by a length of protective hose supplied by the Contractor and by a layer of sand surrounding the cables to protect it from the limestone. The cable shall be left long enough to extend one (1) metre beyond the hand hole. The street light cable in the trench shall be installed in conduit for mechanical protection and the ends sealed with duct seal supplied by the Contractor. Care shall be taken to prevent damaging the cable where it exits the conduit. The conduit shall only be installed into the concrete base if conduit sizes make it practicable.
- E53.101 Unless otherwise directed, excess underground cable and 2C-12 wire shall be left inside the hand hole with the hand hole cover loosely installed.

BACKFILL

- E53.102 All backfilling material within 300 mm of the cables/conduits shall be clean, free of sod, vegetation, organic material, stones or other debris, and of a consistency as to not create significant voids or air spaces around the cables/conduits. Other backfilling material shall be free of stones greater than 150 mm on their maximum dimension. Where cinders or very acid soil are encountered or where gravel or incompressible fill is required by Municipal authorities, ¼" down crushed limestone shall be placed all around the cables for a depth of at least 300 mm. The completed backfill shall be at least equal in compaction to undisturbed soil or as directed by Manitoba Hydro. Backfill material is to be placed and compacted in lifts not exceeding 300 mm. All excess material is to be removed by the Contractor.
- E53.103 Tamping or flushing methods must be used where necessary to give the required compaction. Where tamping is used, hand tampers shall be used to at least 300 mm above the cable before machine tamping may be used. The Contractor shall level all excavations so as to be ready for

topsoil and seed or sod or as directed by the Manitoba Hydro. Should settlement occur in the excavation and cause a depression in the surface, the Contractor shall repair the surface to the satisfaction of the Manitoba Hydro at the Contractor's cost.

- E53.104 Excavations remaining where poles have been removed shall be backfilled with spoil, pit run gravel or $\frac{3}{4}$ " down limestone and compacted in lifts of 150mm as directed by Manitoba Hydro. The top 300 mm of the excavation shall be backfilled with topsoil.
- E53.105 Excavations remaining where utility crossings have been exposed shall be backfilled with sand or clean spoil and compacted in lifts of 150mm. The top 300 mm of the excavation shall be backfilled with topsoil.
- E53.106 Backfill of all excavations shall be in accordance with City of Winnipeg Standard Construction Specification CW 2030 (latest revision), to the satisfaction of the authority having jurisdiction and Manitoba Hydro.

DEFECTIVE WORK & WARRANTY

- E53.107 If any portion of the work fails to comply with the requirements of this Specification, fails within the Warranty period, or if the final tests prove or indicate the existence of any fault or defect in the work, or any part thereof, Manitoba Hydro may forthwith re-execute or make good the faulty or defective work or alter the same to make it comply with requirements of the Specification at the Contractor's expense. Manitoba Hydro shall give the Contractor notice together with particulars of such failure, fault or defect, Manitoba Hydro's cost to re-execute or make good the faulty or defective work and the Cost shall be deducted from the Contract.
- E53.108 At the completion of the work for each location, Manitoba Hydro shall prepare and issue a Network Commissioning Report, a sample of which is included as Appendix J, to the Contractor. The Network Commissioning Report shall be dated indicating the commencement of the Warranty period for the work performed at the location.

AS-BUILT DRAWING

- E53.109 The Contractor shall provide an as-built drawing or mark-up drawing to Manitoba Hydro which accurately displays the "as-built" location of the buried street light cables, conduits and street light davits. Any changes of these items shall be clearly dimensioned to property line, and/or the original proposed location.
- E53.110 Additional information to be included on the drawing, at each davit location: luminaire manufacturer, manufacturing date, wattage and serial number, along with the corresponding serial number of the davit upon which it is installed. As-built drawing submissions shall include the date the drawing was completed, name of the drafter and drawing reviewer.
- E53.111 As-Built drawing submission package shall be received by Manitoba Hydro for review and acceptance prior to final energization of any newly installed infrastructure.

MEASUREMENT AND PAYMENT

- E53.112 Removal of 25' to 35' street light pole and precast, poured in place concrete, steel power installed base or direct buried including davit arm, luminaire and appurtenances
- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Removal of 25' to 35' street light pole and precast, poured in place concrete, steel power installed base or direct buried including davit arm, luminaire and appurtenances". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including removal of the pole, base, luminaire, appurtenances, use of pressurized water/vacuum excavation, transportation of Reclaim, Surplus and Scrap material, payment of associated disposal fees and all other items incidental to the work included in the Specification.

- E53.113 Removal of 45' street light pole and precast, poured in place concrete, steel power installed base or direct buried including davit arm, luminaire and appurtenances
- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Removal of 45' street light pole and precast, poured in place concrete, steel power installed base or direct buried including davit arm, luminaire and appurtenances". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including removal of the pole, base, luminaire, appurtenances, use of pressurized water/vacuum excavation, transportation of Reclaim, Surplus and Scrap material, payment of associated disposal fees and all other items incidental to the work included in the Specification.
- E53.114 Installation of Conduit and #4 AL C/N or 1/0 AL Triplex Streetlight Cable in Conduit by Open Trench Method
- (a) This pay item will be measured on a linear metre basis and paid for at the Contract Unit Price per linear metre for "Installation of Conduit and #4 AL C/N or 1/0 AL Triplex streetlight cable in Conduit by open trench method." The number of meters to be paid for at the Contract Unit Price shall be measured and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including installation of the conduit, pulling cable into the conduit, backfilling the trench, buried utility crossings, use of pressurized water/vacuum excavation and all other items incidental to the work included in the Specification.
- E53.115 Installation of 50 mm Conduit by Boring Method complete with Cable Insertion (#4 AL C/N or 1/0 AL Triplex)
- (a) This pay item will be measured on a linear metre basis and paid for at the Contract Unit Price per linear metre for "Installation of 50 mm conduit or conduits by boring method complete with cable insertion (#4 AL C/N or 1/0 AL Triplex)." The number of meters to be paid for at the Contract Unit Price shall be measured and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including installation of 50mm conduit or conduits by boring method, inserting the #4 AL C/N or 1/0 AL Triplex streetlight cable into the conduit(s), buried utility crossings, use of pressurized water/vacuum excavation and all other items incidental to the work included in the Specification.
- E53.116 Installation of cable (#4 AL C/N or 1/0 AL Triplex) by boring method.
- (a) This pay item will be measured on a linear metre basis and paid for at the Contract Unit Price per linear metre for "Installation of cable(s) (#4 AL C/N or 1/0 AL Triplex) by boring method." The number of meters to be paid for at the Contract Unit Price shall be measured and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including installation of the cable or cables by boring method, buried utility crossings, use of pressurized water/vacuum excavation and all other items incidental to the work included in the Specification.
- E53.117 Installation of 25'/35' Pole, Davit Arm and Precast Concrete Base Including Luminaire and Appurtenances
- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Installation of 25'/35' pole, davit arm and precast concrete base including luminaire and appurtenances." The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including installation of the pole, davit arm, base, luminaire, appurtenances, placing the cable(s) into the base, use of pressurized water/vacuum excavation and all other items incidental to the work included in the Specification.
- E53.118 Installation of 45' Pole, Davit Arm and Precast Concrete Base Including Luminaire and Appurtenances

- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Installation of 45' pole, davit arm and precast concrete base including luminaire and appurtenances." The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including installation of the pole, davit arm, base, luminaire, appurtenances, placing the cable(s) into the base, use of pressurized water/vacuum excavation and all other items incidental to the work included in the Specification.

E53.119 Installation of One (1) 10' Ground Rod at Every Third Street Light, at the End of a Street Light Circuit or Anywhere Else as Shown on the Design Drawings. Trench #4 Ground Wire up to 1 m From Rod Location to New Street Light and Connect (Hammerlock) to Top of Ground Rod

- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Installation of one (1) 10' ground rod at every third street light, at the end of a street light circuit or anywhere else as shown on the design drawings. Trench #4 ground wire up to 1 m from rod location to new street light and connect (hammerlock) to top of the ground rod." The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including install one (1) 10' ground rod, trench the #4 ground wire to the new streetlight pole, connect (hammerlock) ground wire to rod and all other items incidental to the work included in the Specification.

E53.120 Installation of Lower 3 m of Cable Guard, Ground Lug, Cable Up Pole, and First 3 M Section of Ground Rod Per Standard CD 315-5

- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Install/lower 3 m of Cable Guard, ground lug, cable up pole, and first 3 m section of ground rod per Standard CD 315-5". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including installing the lower section of cable guard, ground lug, ground rod, coiling cable(s) up the pole and all other items incidental to the work included in the Specification.

E53.121 Installation and Connection of Externally-Mounted Relay and PEC Per Standards CD 315-12 and CD 315-13

- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Installation and connection of externally-mounted relay and PEC per Standards CD 315-12 and CD 315-13". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including mounting the relay, PEC, wiring as per the schematic and all other items incidental to the work included in the Specification.

E53.122 Termination of 2/C #12 Copper Conductor to Street Light Cables Per Standard CD310-4, CD310-9 or CD310-10

- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Terminate 2/C #12 copper conductor to street light cables per Standard CD310-4, CD310-9 or CD310-10". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including connection of the 2/C # 12 copper conductor to the #4 C/N or 1/0 Al Triplex cable(s) using a GELCAP-SL-2/0 splice kit and all other items incidental to the work included in the Specification.

E53.123 Splicing #4 AL C/N or 2 Single Conductor Street Light Cables

- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Splicing #4 Al C/N or 2 single conductor street light cables". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including splicing the #4 AL C/N or 2 single conductor cables in accordance with Standard CD 215-12 and CD 215-13 and all other items incidental to the work included in the Specification.

E53.124 Splicing 1/0 AL Triplex Cable or 3 Single Conductor Street Light Cables

- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Splicing 1/0 AL triplex cable or 3 single conductor street light cables". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including splicing the 1/0 Al triplex cable or set of 3 single conductor cables in accordance with Standard CD 215-12 and CD 215-13 and all other items incidental to the work included in the Specification.

E53.125 Installation of Break-Away Base and Reaction Plate on Base-Mounted Poles up to 35'

- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Installation of break-away base and reaction plate on base mounted poles up to 35'". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including installation of the reaction plate, break-away base and all other items incidental to the work included in the Specification.

E53.126 Installation of Overhead Span of #4 Duplex Between New or Existing Streetlight Poles and Connect Luminaire to Provide Temporary Overhead Feed

- (a) This pay item will be measured on per span basis and paid for at the Contract Unit Price per span for "Installation of Overhead Span of #4 duplex Between New or Existing Streetlight Poles and Connect Luminaire to Provide Temporary Overhead Feed". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including attachment of the #4 duplex overhead conductor using a perform grip (c/w spool insulator(s) to davit arm if necessary), sagging conductor, connection of luminaire using 2C#12 copper conductor and all other items incidental to the work included in the Specification.

E53.127 Removal of Overhead Span of #4 Duplex Between New or Existing Streetlight Poles to Remove Temporary Overhead Feed

- (a) This pay item will be measured on a per span basis and paid for at the Contract Unit Price per span for "Removal of Overhead Span of #4 duplex Between New or Existing Streetlight Poles to Remove Temporary Overhead Feed". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by the Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including removal of the #4 duplex overhead conductor, spool insulator(s) and all other items incidental to the work included in the Specification.

E53.128 Expose Underground Cable Entrance of Existing Streetlight Pole and Install New Streetlight Cable(s).

- E53.129** This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Expose Underground Cable Entrance of Existing Streetlight Pole and Install New Streetlight Cable(s)". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including excavation and exposure of the underground cable entrance by any means necessary including use of pressurized water/vacuum excavation, installation of the new streetlight cables(s), backfill, compaction and all other items incidental to the work included in the Specification.

E54. ASPHALT PAVEMENT WORKS – SPECIAL PROVISION

- E54.1** Appendix "K" – Special Provision for Asphalt Pavement Works shall replace the City of Winnipeg Standard Construction Specification CW 3410 – Asphaltic Concrete Pavement Works for the Tender.

