



**THE CITY OF WINNIPEG**

# **TENDER**

**TENDER NO. 726-2019**

**2019-2023 STAFFORD/TAYLOR/CORYDON PAVEMENT RENEWALS – TENDER 1  
2020-2021**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 2019-2023 Stafford/Taylor/Corydon Pavement Renewals – Tender 1 2020-2021

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, March 19, 2020.

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

### **B3. ENQUIRIES**

B3.1 All enquiries shall be directed to the Contract Administrator identified in D2.1.

B3.2 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.

B3.3 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.

B3.4 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.

B3.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B3 unless that response or interpretation is provided by the Contract Administrator in writing.

B3.6 Any enquiries concerning submitting through MERX should be addressed to:  
MERX Customer Support  
Phone: 1-800-964-6379  
Email: [merx@merx.com](mailto:merx@merx.com)

### **B4. CONFIDENTIALITY**

B4.1 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.

B4.2 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.

### **B5. ADDENDA**

B5.1 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.

- B5.2 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.
- B5.3 Addenda will be available on the MERX website at [www.merx.com](http://www.merx.com).
- B5.4 The Bidder is responsible for ensuring that he/she has received all addenda and is advised to check the MERX website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.
- B5.5 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.
- B5.6 Notwithstanding B3, enquiries related to an Addendum may be directed to the Contract Administrator indicated in D2.

## **B6. SUBSTITUTES**

- B6.1 The Work is based on the Plant, Materials and methods specified in the Tender.
- B6.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B6.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.
- B6.4 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.
- B6.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his/her sole discretion grant approval for the use of a substitute as an "approved equal" or as an "approved alternative", or may refuse to grant approval of the substitute.
- B6.6 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.
- B6.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.

- B6.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B6.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B17.
- B6.9 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.

## **B7. BID COMPONENTS**

- B7.1 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.
- B7.2 Further to B7.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B6.
- B7.3 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.
- B7.4 The Bid shall be submitted electronically through MERX at [www.merx.com](http://www.merx.com).
- B7.4.1 Bids will **only** be accepted electronically through MERX.
- B7.5 Bidders are advised that inclusion of terms and conditions inconsistent with the Tender document, including the General Conditions, will be evaluated in accordance with B17.1(a).

## **B8. BID**

- B8.1 The Bidder shall complete Form A: Bid/Proposal, making all required entries.
- B8.2 Paragraph 2 of Form A: Bid/Proposal shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, his/her name shall be inserted;
  - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
  - (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
  - (d) if the Bidder is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.
- B8.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B8.2.
- B8.3 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.
- B8.4 Paragraph 13 of Form A: Bid/Proposal shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, it shall be signed by the Bidder;

- (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
- (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers;
- (d) if the Bidder is carrying on business under a name other than his/her own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.

B8.4.1 The name and official capacity of all individuals signing Form A: Bid/Proposal should be entered below such signatures.

B8.5 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.

## **B9. PRICES**

B9.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.

B9.2 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.

B9.3 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.

B9.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B9.5 The Bidder shall enter the Total Bid Price from Form B: Prices into the Total Bid Price field in MERX.

B9.5.1 Bidders are advised that the calculation indicated in B17.4 will prevail over the Total Bid Price entered in MERX.

## **B10. DISCLOSURE**

B10.1 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.

B10.2 The Persons are:

- (a) Bayview Construction Ltd - Discussed contractor input for risks associated with constructability related to soil conditions and shallow utilities. Discussed feasibility to complete works within allowable windows.
- (b) Maple Leaf Construction - Discussed contractor input for risks associated with constructability related to soil conditions and shallow utilities. Discussed feasibility to complete works within allowable windows.

## **B11. CONFLICT OF INTEREST AND GOOD FAITH**

B11.1 Bidders, by responding to this Tender, declare that no Conflict of Interest currently exists, or is reasonably expected to exist in the future.

B11.2 Conflict of Interest means any situation or circumstance where a Bidder or employee of the Bidder proposed for the Work has:

- (a) other commitments;



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

that could or would be seen to:

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

B11.3 In connection with its Bid, each entity identified in B11.2 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.

B11.4 Without limiting B11.3, the City may, in its sole discretion, waive any and all perceived, potential or actual Conflicts of Interest. The City's waiver may be based upon such terms and conditions as the City, in its sole discretion, requires to satisfy itself that the Conflict of Interest has been appropriately avoided or mitigated, including requiring the Bidder to put into place such policies, procedures, measures and other safeguards as may be required by and be acceptable to the City, in its sole discretion, to avoid or mitigate the impact of such Conflict of Interest.

B11.5 Without limiting B11.3, and in addition to all contractual or other rights or rights at law or in equity or legislation that may be available to the City, the City may, in its sole discretion:

- (a) disqualify a Bidder that fails to disclose a perceived, potential or actual Conflict of Interest of the Bidder or any of its employees proposed for the Work;
- (b) require the removal or replacement of any employees proposed for the Work that has a perceived, actual or potential Conflict of Interest that the City, in its sole discretion, determines cannot be avoided or mitigated;
- (c) disqualify a Bidder or employees proposed for the Work that fails to comply with any requirements prescribed by the City pursuant to B11.4 to avoid or mitigate a Conflict of Interest; and
- (d) disqualify a Bidder if the Bidder, or one of its employees proposed for the Work, has a perceived, potential or actual Conflict of Interest that, in the City's sole discretion, cannot be avoided or mitigated, or otherwise resolved.

B11.6 The final determination of whether a perceived, potential or actual Conflict of Interest exists shall be made by the City, in its sole discretion.

## **B12. QUALIFICATION**

B12.1 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.

B12.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

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

B12.3 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);

B12.4 Further to B12.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

- (a) Written confirmation of a safety and health certification meeting SAFE Work Manitoba's SAFE Work Certified Standard (e.g., COR™ and SECOR™) in the form of:
  - (i) a copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
  - (ii) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
- (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>).

B12.5 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.

B12.6 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

### **B13. BID SECURITY**

- B13.1 A sample Bid Bond and Agreement to Bond are available on The City of Winnipeg, Corporate Finance, Materials Management Division website at <https://www.winnipeg.ca/MatMgt/templates/files/eBidsecurity.pdf>.
- B13.2 The Bidder shall provide digital bid security in the form of a 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 the form included in the Bid Submission (Form G1: Bid Bond and Agreement to Bond).
- B13.3 Bid security shall be submitted in an electronic or digital format meeting the following criteria:
- (a) 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; all digital seals; with the surety company, or an approved verification service provider of the surety company.
  - (b) 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.
  - (c) 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.
  - (d) The results of the verification must provide a clear, immediate and printable indication of pass or fail regarding B13.3(a).
- B13.4 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 B17.1(a).
- B13.5 Bonds passing the verification process will be treated as original and authentic.
- B13.5.1 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.
- B13.6 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.
- B13.7 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.

### **B14. OPENING OF BIDS AND RELEASE OF INFORMATION**

- B14.1 Bids will not be opened publicly.
- B14.2 Following the submission deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the MERX website at [www.merx.com](http://www.merx.com).
- B14.3 After award of Contract, the name(s) of the successful Bidder(s) and their Contract amount(s) will be available on the MERX website at [www.merx.com](http://www.merx.com).
- B14.4 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).
- B14.4.1 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.

**B15. IRREVOCABLE BID**

- B15.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid/Proposal.
- B15.2 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.

**B16. WITHDRAWAL OF BIDS**

- B16.1 A Bidder may withdraw his/her Bid without penalty prior to the Submission Deadline.

**B17. EVALUATION OF BIDS**

- B17.1 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 B12 (pass/fail);
  - (c) Total Bid Price;
  - (d) economic analysis of any approved alternative pursuant to B6.
- B17.2 Further to B17.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is qualified.
- B17.3 Further to B17.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is qualified.
- B17.4 Further to B17.1(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.
- B17.4.1 Bidders are advised that the calculation indicated in B17.4 will prevail over the Total Bid Price entered in MERX.

**B18. AWARD OF CONTRACT**

- B18.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B18.2 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.
- B18.2.1 Without limiting the generality of B18.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Work;
  - (b) the prices are materially in excess of the prices received for similar work in the past;
  - (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
  - (d) only one Bid is received; or

(e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.

B18.3 The Work of this Contract is contingent upon Council approval of sufficient funding in the 2020 Capital Budget. If the Capital Budget approved by Council does not include sufficient funding for the Work, the City will have no obligation to award a Contract.

B18.4 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 B17.

B18.4.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.

## PART C - GENERAL CONDITIONS

### C0. GENERAL CONDITIONS

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

## **PART D - SUPPLEMENTAL CONDITIONS**

### **GENERAL**

#### **D1. GENERAL CONDITIONS**

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

#### **D2. SCOPE OF WORK**

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

##### **Phase 1**

D2.1.1 Corydon Avenue (2020)

- (a) Pavement Reconstruction
  - (i) Corydon Avenue from Stafford Street to 100m west of Rockwood Street
  - (ii) Corydon Avenue from Waterloo Street to the public lane east of Waverley Street (eastbound lanes only)

##### **Phase 2**

D2.1.2 Corydon Avenue (2021)

- (a) Pavement Reconstruction
  - (i) Public lane west of Waverley Street to 100m west of Rockwood Street

D2.1.3 Taylor Avenue (2021)

- (a) Pavement Reconstruction
  - (i) Wilton Street to Harrow Street
  - (ii) Geometric improvements of Harrow Street and Harrow Street East
  - (iii) New asphalt pathway on Harrow Street from Taylor Avenue to Pembina Highway

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

- (a) Pavement Reconstruction
  - (i) Removal of existing pavement
  - (ii) Removal of existing streetcar tracks and bedding
  - (iii) Construction of temporary asphalt widening and crossovers
  - (iv) Excavation
  - (v) Installation of subdrains
  - (vi) Installation of streetlights and associated infrastructure
  - (vii) Installation of Traffic Signal underground conduit, bases and pits
  - (viii) Compaction of existing sub-grade
  - (ix) Installation of catch basins and sewer service pipe
  - (x) Installation of watermain and water service insulation
  - (xi) Relocation of fire hydrants
  - (xii) Repairs to existing sewers and manholes
  - (xiii) Completion of mainline sewer repairs
  - (xiv) Placement of separation fabric
  - (xv) Placement of geogrid
  - (xvi) Placement of sub-base and base course materials

- (xvii) Adjustment of existing pavement appurtenances
- (xviii) Construction of 240mm reinforced, dowel jointed concrete pavements (Corydon)
- (xix) Construction of 240mm plain dowelled concrete pavements (Corydon)
- (xx) Construction of 250mm plain dowelled concrete pavements (Taylor)
- (xxi) Construction of 180mm integral barrier curb
- (xxii) Construction of concrete median
- (xxiii) Construction of splash strip
- (xxiv) Construction of sidewalks with block-outs
- (xxv) Installation of paving stones
- (xxvi) Construction of asphalt pathways
- (xxvii) Renewal of existing sidewalk
- (xxviii) Regrading of private walkways (paving stones, concrete, exposed aggregate concrete)
- (xxix) Installation of Transit stop flags with piles
- (xxx) Completion of boulevard grading
- (xxxi) Installation of topsoil and sod
- (xxxii) Construction of red tinted concrete pavement
- (xxxiii) Installation of green MMA surface treatment
- (xxxiv) Removal of existing trees

### **D3. CONTRACT ADMINISTRATOR**

D3.1 The Contract Administrator is Stantec Consulting Ltd., represented by:

Rebecca Hewett, P.Eng.  
Transportation Engineer

Telephone No. 204 489-5900

Email Address Rebecca.Hewett@stantec.com

D3.2 At the pre-construction meeting, Rebecca Hewett will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

### **D4. CONTRACTOR'S SUPERVISOR**

D4.1 At the pre-construction meeting, the Contractor shall identify his/her designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D4.2 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 D4.1 or an alternate can be contacted twenty-four (24) hours a day to respond to an emergency.

### **D5. NOTICES**

D5.1 Except as provided for in C22.4, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid/Proposal.

D5.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D5.3 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator identified in D2.



- D5.3 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following facsimile number:

The City of Winnipeg  
Legal Services Department  
Attn: Director of Legal Services

## **D6. FURNISHING OF DOCUMENTS**

- D6.1 Upon award of the Contract, the Contractor will be provided with five (5) complete sets of the Tender. If the Contractor requires additional sets of the Tender, they will be supplied to him/her at cost.

## **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 but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.
- 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, Materials Management Division website at <http://www.winnipeg.ca/matmgt/safety/default.stm>

### **D9. INSURANCE**

- D9.1 The City shall provide the following owner-controlled project insurance coverage to remain in place at all times during the performance of the Work and throughout the warranty period unless otherwise stated below:
- (a) Wrap-up liability insurance in an amount of no less than five million dollars (\$5,000,000) inclusive per occurrence and five million dollars (\$5,000,000) general aggregate, covering bodily injury, property damage, , personal injury, unlicensed motor vehicle liability, sudden and accidental pollution with 120 hour reporting, hook liability, if required, and products and completed operations consistent with industry standard insurance policy wordings. Wrap up liability insurance to also include evidence of contractual liability and cross liability clauses.
  - (i) The Contractor shall be responsible for deductibles up to \$50,000 maximum of any loss.
  - (ii) The City will carry such insurance to cover the City, Contractor, Subcontractors, consultants and sub-consultants as insureds. Provision of this insurance by the City is not intended in any way to relieve the Contractor from his obligations under the terms of the Contract. Specifically, losses relating to deductibles for insurance, as well as losses in excess of limits of coverage and any risk of loss that is not covered under the terms of the insurance provided by the City remains with the Contractor.

- (iii) Manitoba and its Ministers, officers, employees and agents, BellMTS, Manitoba Hydro, Shaw, TeraSpan and Telus shall be shown as additional insured, as required by contract(s).
- (iv) Wrap-up liability insurance shall be maintained from the date of the commencement of the Work until the date of Total Performance of the work and shall include an additional 24 months completed operations coverage which will take affect after Total Performance.

D9.2 The Contractor shall provide the following insurance coverage to remain in place at all times during the performance of the Work and throughout the warranty:

- (a) commercial general liability insurance, in the amount of at least five million dollars (\$5,000,000.00) inclusive, with the City added as an additional insured, with a cross-liability clause, contractual liability, unlicensed motor vehicle liability, sudden and accidental pollution liability with 120 hours reporting for the accidental escape of pollutants, non-owned automobile liability, broad form property damage cover and products and completed operations;
- (b) an all risks installation floater carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.
- (c) 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.
- (d) Property insurance for all equipment, tools, field office and portable toilets used by the Contractor directly or indirectly in the performance of the Work on the project that may be owned, rented, leased or borrowed.

D9.3 Deductibles shall be borne by the Contractor.

D9.4 The Contractor will be required to cooperate with the City and to provide their project experience and project claims history in the last five (5) years and any other information necessary to obtain the owner controlled project insurance as outlined in D10.1 within three (3) business days after notice of award.

D9.5 All Subcontractors performing Work on the Project shall be registered with Workers Compensation Board of Manitoba, shall provide and maintain workers compensation coverage throughout the term of the Contract, and the Contractor shall provide the Contract Administrator with evidence thereof upon request.

D9.6 All policies shall be taken out with insurers duly licensed to carry on business in the Province of Manitoba.

D9.7 The Contractor shall provide the City Solicitor with a certificate(s) of insurance for the City and Manitoba, in a form satisfactory to the City Solicitor and Manitoba, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in C4.1 for the return of the executed Contract.

D9.8 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

## **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 form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; and

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

- D10.2 The Contractor shall provide the City Solicitor with the required performance and labour and material payment bonds within seven (7) Calendar Days of notification of the award of the Contract by way of an award letter and prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.
- 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 but in no event later than the date specified in the C4.1 for the return of the executed Contract Documents, if applicable.

#### **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 but in no event later than the date specified in the C4.1 for the return of the executed Contract Documents, if applicable.

#### **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 but in no event later than the date specified in the General Conditions for the return of the executed Contract.
- D13.1.1 Further to D14.1 the schedules shall be submitted for 2020 and 2021. The 2021 schedule shall be revised and resubmitted ten (10) Business Days prior to the commencement of any Work in 2021, notwithstanding any required revisions requested by the Contract Administrator during the Project.
- D13.2 The detailed work schedule shall consist of the following:
- (a) a separate schedule for each year of work.
  - (b) a Gantt chart for the Work; and
  - (c) a daily manpower schedule for the Work
- all 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.
- D13.4 Further to D13.2(c), the daily manpower schedule shall list the daily number of individuals on each Site for each trade.

## **SCHEDULE OF WORK**

### **D14. COMMENCEMENT**

- D14.1 The Contractor shall not commence any Work until he/she is in receipt of an award letter from the Award Authority authorizing the commencement of the Work.
- D14.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:
    - (i) evidence of authority to carry on business specified in D8;
    - (ii) evidence of the workers compensation coverage specified in C6.15;
    - (iii) the twenty-four (24) hour emergency response phone number specified in D4.2.
    - (iv) the Safe Work Plan specified in D9;
    - (v) evidence of the insurance specified in D9;
    - (vi) the contract security specified in D10;
    - (vii) the subcontractor list specified in D11;
    - (viii) the equipment list specified in D12; and
    - (ix) the detailed work schedule specified in D13.
  - (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.
- D14.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the award letter.
- D14.3 The Contractor shall not commence the Work on the Phase 1 – Corydon Avenue Eastbound between Waterloo Street and the public lane east of Waverley Street before May 4, 2020, as directed by the Contract Administrator and weather permitting.
- D14.4 The Contractor shall not commence the Work on the Phase 2 before May 4, 2021, as directed by the Contract Administrator and weather permitting.
- D14.5 The City intends to award this Contract by April 17, 2020.
- D14.5.1 If the actual date of award is later than the intended date, the dates specified for Critical Stages, Substantial Performance, and Total Performance will be adjusted by the Contract Administrator.

### **D15. RESTRICTED WORK HOURS**

- D15.1 Further to clause 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.

### **D16. WORK BY OTHERS**

- D16.1 Work by others on or near the Site will include but not necessarily be limited to:
- (a) City of Winnipeg Traffic Services – Install traffic control for median crossovers, provide sign clamps, replace any permanent signage, and paint lines and bike stencils;
  - (b) City of Winnipeg Traffic Signals - Traffic signal loops may require decommissioning and reinstallation, bagging/unbagging of existing signal heads. Installation of Traffic Signals poles, davits, controllers and heads.
  - (c) City of Winnipeg Transit – Transit will remove existing bus stop flags for reuse and provide signage for temporary Transit stops. The Contractor is expected to coordinate with Transit for the location of temporary stop locations and provide a safe and delineated area.

- (d) Manitoba Hydro – Manitoba Hydro will be reconstructing a vault in the southwest corner of Corydon Avenue and Cambridge street in the pavement in 2020.
- (e) Manitoba Hydro Gas – Manitoba Hydro will evaluate the feasibility of lowering existing small diameter gas mains and gas services during roadway excavation. Manitoba Hydro will be required to rock wrap existing gas mains and/or services during roadway excavation.
- (f) Manitoba Hydro Streetlights – Manitoba Hydro will activate and energizing the new streetlight plant. Manitoba Hydro will provide inspection of new street lighting hardware (to be installed by the Contractor).
- (g) Shaw – On Corydon Avenue and Taylor Avenue, Shaw has a future fibre optic line that is shown for information. No work is anticipated by Shaw during this contract.
- (h) Water and Waste Department – The existing watermain is being renewed on Taylor Avenue, east of Harrow Street in 2020.
- (i) Outfront Media – Outfront Media will be removing and reinstalling the eastbound transit shelter on Corydon Avenue just east of Cambridge Street.

**D16.2 Taylor Avenue Combined Sewer Underground works:**

**D16.2.1** Underground works are being completed on Taylor Avenue, between Wilton Street and Pembina Highway in advance of this Contract which will include infrastructure that is depicted in the Contract Drawings and have been incorporated into this Contract's design. The work that is been completed under those works:

- (a) New catch basin installations
- (b) New Catch basin leads will be installed and connected to the new Land Drainage Sewer Tunnel
- (c) Providing temporary connections between existing catch basins to new catch basins to maintain drainage at existing low points until the road works commence.
- (d) Abandoning existing sewer connections between existing catch basins and the combined sewer.

**D16.2.2** For clarification, Work required as part of Tender 726-2019 will include;

- (a) Abandoning old catch basins and temporary connections to new catch basins installed under the Taylor Avenue Combined Sewer Underground works.
- (b) Vertical adjustment to the new catch basins with concrete risers.
- (c) Connecting new catch basin lead pipe in short sections to new catch basin lead pipe installed under the Taylor Combined Sewer Underground works.

**D16.3** Further to D17.1 and D17.2 the Contractor is expected to cooperate and coordinate all activities with parties performing required works to facilitate their Works. The Contractor must include and accommodate work by others identified in D17.1 and D17.2 in their construction schedule to complete the construction tender.

**D16.3.1** In areas where these works have required open excavations, the CSO project has backfilled with stabilized fill up to one metre below existing pavement grade.

**D16.3.2** The Taylor Avenue Combined Sewer Underground works are expected to be completed in the fall of 2020.

**D17. SEQUENCE OF WORK**

**D17.1** Further to C6.1, the sequence of work shall be as follows:

**D17.1.1** The Work shall be divided into two phases. Each Phase shall be subdivided into stages. Stages are further subdivided into major items of work.

D17.1.2 **Phase 1 (2020)** – Phase 1 shall consist of the Works completed in the year 2020 which includes Corydon Avenue between Stafford Street and 100m west of Rockwood Street and Corydon Avenue (eastbound only) between Waterloo Street and the public lane east of Waverley Street.

**Corydon Avenue – Stafford Street to 100m West of Rockwood Street**

- (a) **Stage 1** – North Side Temporary Widening
  - (i) North curb removal
  - (ii) Construct north side temporary asphalt widening
  - (iii) North side streetlight installations
  - (iv) Traffic Signal relocations
- (b) **Stage 2** – Underground Works
  - (i) Complete north and south side underground works and sewer repairs
  - (ii) North side streetlight installations
- (c) **Stage 3** – Median Lanes
  - (i) Pavement removals
  - (ii) Excavate/Remove Streetcar rail/bedding,
  - (iii) Excavation
  - (iv) Base construction
  - (v) Temporary asphalt paving of westbound median lane and temporary left turns
- (d) **Stage 4** – Eastbound Gutter Lane
  - (i) Pavement removal
  - (ii) South Side streetlight installations
  - (iii) Excavation
  - (iv) Base construction
  - (v) Subdrain installation
  - (vi) Mainline paving of south gutter lane
  - (vii) Tie in paving
- (e) **Stage 5** – Eastbound Median Lane
  - (i) Pave eastbound median Lane
- (f) **Stage 6** – Westbound Lanes
  - (i) Pavement/sidewalk removals (westbound gutter lane)
  - (ii) Excavation (westbound gutter lane)
  - (iii) Subdrain installation
  - (iv) Base construction (westbound gutter lane)
  - (v) Mainline paving
  - (vi) Tie in paving
  - (vii) Construct north sidewalk
- (g) **Stage 7** – South Sidewalk
  - (i) Remove and construct south sidewalk

**Corydon Avenue Eastbound – Waterloo Street to Public Lane East of Waverley Street** (concurrent with Corydon Avenue – Stafford Street to 100m West of Rockwood Street)

- (i) Construct crossovers
- (ii) Underground works
- (iii) Existing pavement renewals following underground connections on westbound lanes
- (iv) Excavation

- (v) Subdrain installation
- (vi) Base construction
- (vii) Mainline paving
- (viii) Tie in paving
- (ix) Sidewalk construction/renewals

D17.1.3

**Phase 2 (2021)** – Phase 2 shall consist of the Works completed in 2021 which includes Corydon Avenue between the alley east of Waverley Street and 100m west of Rockwood Street and Taylor Avenue between Wilton Street and Harrow Street.

**Corydon Avenue – Public Lane West of Waverley Street to 100m West of Rockwood Street**

- (a) **Stage 1** – North side Temporary and Permanent Widening
  - (i) Construct north side permanent and temporary widening works
  - (ii) Complete underground works as required within this stage
- (b) **Stage 2** –Eastbound Lanes
  - (i) Complete underground works as required within this stage
  - (ii) Pavement removals
  - (iii) Excavation
  - (iv) South side streetlight installations
  - (v) Subdrain installation
  - (vi) Base construction
  - (vii) Mainline paving
  - (viii) Tie in paving
- (c) **Stage 3** – Construction of Westbound Lanes and North Sidewalk
  - (i) Complete underground works as required within this stage
  - (ii) Pavement/sidewalk removals
  - (iii) Excavation
  - (iv) North side streetlight installations
  - (v) Subdrain installation
  - (vi) Base construction
  - (vii) Mainline paving
  - (viii) Tie in paving
  - (ix) Construct/renew north sidewalk
- (d) **Stage 4** –South Sidewalk
  - (i) Construct/renew south sidewalk

**Taylor Ave. – Wilton Street to Harrow Street** (Concurrent with Corydon Avenue – Public Lane West of Waverley Street to 100m West of Rockwood Street)

- (a) **Stage 1 –Westbound Lanes**
  - (i) Construct crossovers
  - (ii) Complete north side underground
  - (iii) Pavement/sidewalk removals
  - (iv) Excavation
  - (v) North side streetlight installations
  - (vi) Subdrain installation
  - (vii) Base construction
  - (viii) Mainline paving
  - (ix) Tie in paving
  - (x) Construct north sidewalk
  - (xi) Construct north side Bike Facility on Harrow
- (b) **Stage 2 –Eastbound Lanes**
  - (i) Complete south side underground
  - (ii) Pavement/sidewalk removals
  - (iii) Excavation
  - (iv) South side streetlight installations
  - (v) Subdrain installation
  - (vi) Base Construction
  - (vii) Mainline Paving
  - (viii) Tie in paving
  - (ix) Construct south sidewalk/asphalt path
  - (x) Construct south side bike facility on Harrow Street

D17.2 Multiple locations included within an individual phase are expected to be constructed concurrently as required and according to the critical stages outlined below in D.19.

## **D18. CRITICAL STAGES**

D18.1 The Contractor shall achieve Critical Stages of the Work in accordance with the following requirements:

- (a) Critical Stage 1 September 4, 2020 – Phase 1 - Completion of Corydon Avenue Eastbound between Waterloo Street and the public lane east of Waverley Street.
- (b) Critical Stage 2 October 15, 2020 – Phase 1 - Completion of Corydon Avenue between Stafford Street and 100m west of Rockford Street.
  - (i) Evaluation for Liquidated Damages for Critical Stage 2 will exclude the completion of the north and south sidewalks (exclusive of all curbing) within these limits.
  - (ii) In the event that the north and south sidewalks have not been completed, the Contractor will, at their own cost, ensure a hard surfaced 1.5m walking path is provided. In addition, a compacted base course surface shall be installed between the face of sidewalk and the back of curb to allow for pedestrian and snow clearing activities over winter, as well as eliminate any tripping hazards resulting from grade differences.
  - (iii) In the event that the Contractor completes the north and south sidewalks prior to the critical stage date, they will be eligible for a completion bonus as noted in D.24.
  - (iv) Winterization requirements for side streets or approaches that are not completed to achieve Critical Stage 2 shall be asphalted and maintained at the Contractors own cost, to the satisfaction of the Contract Administrator.
- (c) Critical Stage 3 June 21, 2021 – Completion of Sidewalks on Corydon Avenue between Thurso Street and Stafford Street



- D18.1.1 Further to D19.1, the Contractor shall be responsible for winterization costs and will be in addition to the Liquidated Damages outlined in D22.
- D18.1.2 Further to D19.1(a)(ii) In the event these sidewalks are not completed in Phase 1, they shall be completed within the allowable work window of Phase 2 and no adjustments to the Substantial Performance date will be made. Sidewalks must be completed as per the Critical Stage in D19.1(c)
- D18.2 When the Contractor considers the Work associated with these critical stages to be completed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Completion. 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.
- D18.3 The date on which these critical stages of the Work has been accepted by the Contract Administrator as being completed to the requirements of the Contract is the date on which completion of these critical stages has been achieved.

#### **D19. SUBSTANTIAL PERFORMANCE**

- D19.1 The Contractor shall achieve Substantial Performance by September 10, 2021.
- 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 September 17, 2021.
- 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 Critical Stages, Substantial 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) Critical Stage 1 listed in D19.1(a) – Two Thousand dollars (\$2,000);
  - (b) Critical Stage 2 listed in D19.1(b) – Six Thousand dollars (\$6,000);
  - (c) Critical Stage 3 listed in D19.1(c) – Two Thousand dollars (\$2,000);
  - (d) Substantial Performance – Six Thousand dollars (\$6,000);
  - (e) Total Performance – Two Thousand dollars (\$2,000).

- D21.1.1 Further to D22.1(a) and D22.1(b), November 12<sup>th</sup>, 2020 shall be considered the end of season for 2020 and following this date Work cannot be expected to be performed by the Contractor and will be the last day possible to be assessed for Liquidated Damages for any Critical Stage.
- 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. COMPLETION BONUS**

- D22.1 This Supplemental Condition shall cover the completion bonus of up to Thirty Thousand dollars (\$30,000) for this contract achievable under Phase 1 of the Contract.
- D22.2 Completion of Work
- D22.2.1 At no risk to the City, the Contractor at its own initiative, means and expense, may undertake to complete all sidewalk Works included under Phase 1 on Corydon Avenue between Stafford Street and 100m west of Rockford Street in advance of Calendar Date for Critical Stage 2.
- D22.2.2 If any other portions of the work required under Critical Stage 2 are incomplete, the completion bonus will be forfeited, excluding soft landscaping.
- D22.2.3 In recognition of the fact that completion of these Works prior to Critical Stage 2 is of benefit to the City, the City will compensate the Contractor for said completion on a lump sum price basis for each the north and south sidewalks.
- D22.2.4 It is noted that certain delays of the Work are normal, due to Site conditions, necessary layout and dimensional changes. The Contract Administrator will attempt to resolve each situation as soon as possible. The Contractor is advised that no extension to the date listed in D.20 will be given for events of this sort which cause construction delay and are resolved within 48 hours of the requirement of change becoming known to both the Contractor and the Contract Administrator.

### **MEASUREMENT AND PAYEMENT**

- D22.2.5 The completion bonus will be measured on a lump sum basis for each the north and south sidewalks pending all of the Work described above has been completed to the satisfaction of the Contract Administrator prior to the Critical Stage 2 calendar date.
- D22.3 Basis of Payment
- D22.3.1 The Completion Bonus will be paid for as a lump sum specified hereinafter for "Completion Bonus – North Sidewalk" and "Completion Bonus – South Sidewalk", which price shall be payment in full for performing the Work as described above and all other items incidental to the Work included in this specification. The Contractor will be eligible for a Lump Sum price of Fifteen Thousand dollars (\$15,000) per side.
- D22.3.2 Payment of this item is not identified on Form B:Prices, and shall not be included thereon. If completion of the sidewalk works does occur as specified herein, then payment will be made for this item as an addition to the Contract.

## **D23. SCHEDULED MAINTENANCE**

- D23.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:
- (a) Sodding as specified in the latest version of the City of Winnipeg Standard Construction Specification in CW 3510;

- D23.2 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**

### **D24. JOB MEETINGS**

- D24.1 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.
- D24.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

### **D25. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)**

- D25.1 Further to C6.24, 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).

### **D26. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS**

- D26.1 Further to B12.4, 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 its sole discretion and acting reasonably, require updated proof of compliance, as set out in B12.4.

## **MEASUREMENT AND PAYMENT**

### **D27. PAYMENT**

- D27.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.
- D27.2 Further to C12.10, if a Contractor enters into a subcontract for Phase 1 – 2020 Construction Work and a separate subcontract for Phase 2 - 2021 Construction Work, this may permit release, by the City, of the value of the holdback with respect to the subcontract for Phase 1 works in accordance with The Builders' Liens Act, such as Section 25.

## **WARRANTY**

### **D28. WARRANTY**

- D28.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire 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.

- D28.2 Notwithstanding C13.2 or D28.1, 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.
  - (b) Work under a specific Critical Stage has been completed.
- D28.2.1 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.
- D28.3 At least two (2) weeks prior to the expiration of the Warranty Period, or upon correction of all outstanding defects and deficiencies, whichever is later, the Contractor shall arrange, attend, and assist in the acceptance inspection of the Work. The Contract Administrator shall, on being satisfied that all outstanding defects and deficiencies in the Work have been corrected, issue a Certificate of Acceptance for the Work to be dated not earlier than two (2) years after the date of either the Certificate of Total Performance or two (2) years after the date of a Critical Stage, or the date that the Contractor corrects the final defects and deficiencies, whichever is the later, thereby terminating the Warranty Period. The Certificate of Acceptance will indicate acceptance of the due performance of the Contract.

### THIRD PARTY AGREEMENTS

#### D29. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS

- D29.1 Funding for the Work of the Contract is being provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada and accordingly, as required by the applicable funding agreements, the following terms and conditions shall apply.
- D29.2 For the purposes of D29:
- (a) **“Government of Canada”** includes the authorized officials, auditors, and representatives of the Government of Canada; and
  - (b) **“Government of Manitoba”** includes the authorized officials, auditors, and representatives of the Government of Manitoba.
- D29.3 Indemnification By Contractor
- D29.3.1 In addition to the indemnity obligations outlined in C17 of the General Conditions for Construction, the Contractor agrees to indemnify and save harmless the Government of Canada and the Government of Manitoba and each of their respective Ministers, officers, servants, employees, and agents from and against all claims and demands, losses, costs, damages, actions, suit or other proceedings brought or pursued in any manner in respect of any matter caused by the Contractor or arising from this Contract or the Work, or from the goods or services provided or required to be provided by the Contractor, except those resulting from the negligence of any of the Government of Canada’s or the Government of Manitoba’s Ministers, officers, servants, employees, or agents, as the case may be.
- D29.4 Records Retention and Audits
- D29.4.1 The Contractor shall maintain and preserve accurate and complete records in respect of this Contract and the Work, including all accounting records, financial documents, copies of contracts with other parties and other records relating to this Contract and the Work during the term of the Contract and for at least six (6) years after Total Performance. Those records bearing original signatures or professional seals or stamps must be preserved in paper form; other records may be retained in electronic form.
- D29.4.2 In addition to the record keeping and inspection obligations outlined in C6 of the General Conditions for Construction, the Contractor shall keep available for inspection and audit at all reasonable times while this Contract is in effect and until at least six (6) years after Total

Performance, all records, documents, and contracts referred to in D29.4.1 for inspection, copying and audit by the City of Winnipeg, the Government of Manitoba and/or the Government of Canada and their respective representatives and auditors, and to produce them on demand; to provide reasonable facilities for such inspections, copying and audits, to provide copies of and extracts from such records, documents, or contracts upon request by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada and their respective representatives and auditors, and to promptly provide such other information and explanations as may be reasonably requested by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada from time-to-time.

D29.5 Other Obligations

D29.5.1 The Contractor consents to the City providing a copy of the Contract Documents to the Government of Manitoba and/or the Government of Canada upon request from either entity.

D29.5.2 If the Lobbyists Registration Act (Manitoba) applies to the Contractor, the Contractor represents and warrants that it has filed a return and is registered and in full compliance with the obligations of that Act, and covenants that it will continue to comply for the duration of this Contract.

D29.5.3 The Contractor shall comply with all applicable legislation and standards, whether federal, provincial, or municipal, including (without limitation) labour, environmental, and human rights laws, in the course of providing the Work.

D29.5.4 The Contractor shall properly account for the Work provided under this Contract and payment received in this respect, prepared in accordance with generally accepted accounting principles in effect in Canada, including those principles and standards approved or recommended from time-to-time by the Chartered Professional Accountants of Canada or the Public Sector Accounting Board, as applicable, applied on a consistent basis.

**FORM H1: PERFORMANCE BOND**  
(See D10)

KNOW ALL MEN BY THESE PRESENTS THAT

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

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

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

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

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

TENDER NO. 726-2019

2019-2023 Stafford/Taylor/Corydon Pavement Renewals – Tender 1 2020-2021  
which is by reference made part hereof and is hereinafter referred to as the "Contract".

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

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

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

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

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

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

**SIGNED AND SEALED**  
in the presence of:

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

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

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

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

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

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

**FORM H2: LABOUR AND MATERIAL PAYMENT BOND**  
(See D10)

KNOW ALL MEN BY THESE PRESENTS THAT

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

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

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

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

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

TENDER NO. 726-2019

2019-2023 Stafford/Taylor/Corydon Pavement Renewals – Tender 1 2020-2021

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

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

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



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

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

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

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

SIGNED AND SEALED  
in the presence of:

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

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

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

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

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

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

**FORM J: SUBCONTRACTOR LIST**  
(See D11)

2019-2023 Stafford/Taylor/Corydon Pavement Renewals – Tender 1 2020-2021

<u>Portion of the Work</u>	<u>Name</u>	<u>Address</u>
<b>SURFACE WORKS</b>		
<i>Supply of Materials</i>		
Base Course and Sub-Base Course		
Paving Stones		
Concrete		
Asphalt		
Topsoil/Sod		
<i>Installation/Construction</i>		
Excavation		
Base Works		
Concrete		
Asphalt		
Landscaping		
Streetlight Works		
Signals Works - Conduits, anchor bolts, concrete for bases		
<b>UNDERGROUND WORKS</b>		
<i>Supply of Materials</i>		
Precast Concrete Catchbasins, Catch Pits and Manhole Risers		
Sewer Pipe and Hydrants		
Frames/Covers		
<i>Installation/Construction</i>		
Catchbasins and Connections		
Sewer Televising		
Subdrains		
Sewer Repairs		
<b>MISCELLANEOUS</b>		
Tree Removal		
OTHERS:		

**FORM K: EQUIPMENT**  
(See D12)

2019-2023 Stafford/Taylor/Corydon Pavement Renewals – Tender 1 2020-2021

<p><b>1. Category/type: Concrete Slip-Form Paver</b></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><b>2. Category/type: Concrete Slip-Form Paver</b></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><b>3. Category/type: Road Excavator</b></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)

2019-2023 Stafford/Taylor/Corydon Pavement Renewals – Tender 1 2020-2021

<p><b>4. Category/type: Road Excavator</b></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><b>5. Category/type: Motor Grader</b></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><b>6. Category/type: Crawler Tractor</b></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)

2019-2023 Stafford/Taylor/Corydon Pavement Renewals – Tender 1 2020-2021

<p><b>7. Category/type: Padfoot Roller</b></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><b>8. Category/type: Steel Drum Roller</b></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 its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4(d), Specifications included in the Tender shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 Bidders are reminded that requests for approval of substitutes as an approved equal or an approved alternative shall be made in accordance with B6. 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 B6.
- E1.4 The following are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
	<b>CORYDON AVENUE</b>	
P-3524-1	Cover Page and Site Location Map	A1
P-3524-2	Drawing List	A1
P-3524-3	Corydon Avenue – Horizontal Geometry – Sta. 1+000 To Sta 1+620	A1
P-3524-4	Corydon Avenue – Horizontal Geometry – Sta. 1+620 To Sta 2+350	A1
P-3524-5	Corydon Avenue – Horizontal Geometry – Sta. 2+350 To Sta. 3+015	A1
P-3524-6	Corydon Avenue – Roadworks – Waterloo St. To Sta. 1+095	A1
P-3524-7	Corydon Avenue – Roadworks – Sta 1+095 To Sta 1+225	A1
P-3524-8	Corydon Avenue – Roadworks – Sta 1+225 To Sta 1+350	A1
P-3524-9	Corydon Avenue – Roadworks – Sta 1+350 To Sta 1+480	A1
P-3524-10	Corydon Avenue – Roadworks – Sta 1+480 To Sta 1+600	A1
P-3524-11	Corydon Avenue – Roadworks – Sta 1+600 To Sta 1+730	A1
P-3524-12	Corydon Avenue – Roadworks – Sta 1+730 To Sta 1+840	A1
P-3524-13	Corydon Avenue – Roadworks – Sta 1+840 To Sta 1+960	A1
P-3524-14	Corydon Avenue – Roadworks – Sta 1+960 To Sta 2+095	A1
P-3524-15	Corydon Avenue – Roadworks – Sta 2+095 To Sta 2+230	A1
P-3524-16	Corydon Avenue – Roadworks – Sta 2+230 To Sta 2+365	A1
P-3524-17	Corydon Avenue – Roadworks – Sta 2+365 To Sta 2+490	A1
P-3524-18	Corydon Avenue – Roadworks – Sta 2+490 To Sta 2+625	A1
P-3524-19	Corydon Avenue – Roadworks – Sta 2+625 To Sta 2+760	A1
P-3524-20	Corydon Avenue – Roadworks – Sta 2+760 To Sta 2+905	A1
P-3524-21	Corydon Avenue – Concrete Pavement Jointing	A1
P-3524-22	Corydon Avenue – Concrete Pavement Jointing	A1
P-3524-23	Corydon Avenue – Concrete Pavement Jointing	A1
P-3524-24	Corydon Avenue – Municipal Utilities – Waterloo St. To Sta 1+340	A1
P-3524-25	Corydon Avenue – Municipal Utilities – Sta 1+340 To Sta 1+675	A1
P-3524-26	Corydon Avenue – Municipal Utilities – Sta 1+675 To Sta 1+850	A1
P-3524-27	Corydon Avenue – Municipal Utilities – Sta 1+850 To Sta 2+180	A1
P-3524-28	Corydon Avenue – Municipal Utilities – Sta 2+180 To Sta 2+525	A1
P-3524-29	Corydon Avenue – Municipal Utilities – Sta 2+525 To Stafford St.	A1
	Corydon Avenue – Intersection Details – Corydon Ave & Cambridge	

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
P-3524-30	St./Wilton St. Corydon Avenue – Construction Staging – Eastbound Staging	A1
P-3524-31	Corydon Avenue – Construction Staging – Cross Sections	A1
P-3524-32	Corydon Avenue – Construction Staging – Stage 1	A1
P-3524-33	Corydon Avenue – Construction Staging – Stage 2	A1
P-3524-34	Corydon Avenue – Construction Staging – Stage 3	A1
P-3524-35	Corydon Avenue – Construction Staging – Stage 4 & 5	A1
P-3524-36	Corydon Avenue – Construction Staging – Stage 6	A1
P-3524-37	Corydon Avenue – Construction Staging – Stage 7	A1
P-3524-38	Corydon Avenue – Construction Staging – Year 2 – Stage 1	A1
P-3524-39	Corydon Avenue – Construction Staging – Year 2 – Stage 2	A1
P-3524-40	Corydon Avenue – Construction Staging – Year 2 – Stage 3	A1
P-3524-41	Corydon Avenue – Construction Staging – Year 2 – Stage 4	A1
P-3524-42		A1
	<b>TAYLOR AVENUE</b>	
	Taylor Avenue – Horizontal Geometry – Wilton St. To Pembina Hwy.	
P-3525-1	Taylor Avenue – Roadworks – Wilton To Sta 5+125	A1
P-3525-2	Taylor Avenue – Roadworks – Sta 5+125 To Sta 5+250	A1
P-3525-3	Taylor Avenue – Roadworks – Sta 5+250 To Harrow St.	A1
P-3525-4	Taylor Avenue – Concrete Pavement Jointing	A1
P-3525-5	Taylor Avenue – Municipal Utilities – Wilton St. To Sta 5+275	A1
P-3525-6	Taylor Avenue – Municipal Utilities – Sta 5+275 To Harrow St.	A1
P-3525-7	Taylor Avenue – Intersection Details – Taylor Ave. & Harrow St.	A1
P-3525-8	Taylor Avenue – Construction Staging – Stage 1	A1
P-3525-9	Harrow Street – Geometric Improvements & Multi-Use Pathway –	A1
P-3525-10	Stafford St. To Pembina Hwy.	A1
	Miscellaneous Sections & Details	
P-3524-43	Miscellaneous Sections & Details	A1
P-3525-44	Miscellaneous Sections & Details	A1
P-3524-45		A1
	<b>STREETLIGHTS AND TRAFFIC SIGNALS</b>	
	System Improvement Project - Change Out of SL Standards and	
1-04707-DD-50000-0493	Bases Installation of New U/G S/L Cable and Dips and All Associated Salvage on Corydon Avenue	A1
	Installation of 7 Streetlights Complete with Concrete Bases &	
1-04707-DC-50000-0494	Breakaways All Associated Salvage on Taylor Ave Between Harrow St & Wilton Street	A1
	Traffic Signals –Corydon Ave. & Rockwood St.	
S-1611	Traffic Signals –Cambridge St. & Corydon Ave.	A1
S-1244	Traffic Signals – Harrow St. & Taylor Ave.	A1
S-1661	Pedestrian Corridor – Corydon Ave. & Elm St.	A1
S-1982	Traffic Signals – Corydon Ave. & Harrow St.	A1
S-1439	Traffic Signals – Corydon Ave. & Wilton St.	A1
S-1641		A1

## **E2. GEOTECHNICAL REPORT**

- E2.1 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'.

## **E3. OFFICE FACILITIES**

- E3.1 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 be furnished with one desk, one drafting table, table 3 x 1.2m, one stool and a minimum of 12 chairs.
  - (g) The Contractor shall supply one refrigerator and one microwave.
  - (h) The Contractor shall supply a water cooler and stocked water supply.
  - (i) 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.
  - (j) 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 he/she deems it necessary.
- E3.2 The Contractor shall be responsible for all installation and removal costs, all operating costs, and the general maintenance of the office facilities.
- E3.3 The office facilities will be provided from the date of the commencement of the Work to the date of Total Performance.
- E3.3.1 Further to E3.3 the office facilities shall be removed from site within two weeks of the 2020 seasonal end date.
- E3.3.2 The office facilities shall be returned to site no more than 2 weeks prior the beginning of construction in 2021 in a location acceptable to the Contract Administrator.
- E3.4 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.

#### **E4. PROTECTION OF EXISTING TREES**

- E4.1 Construction activities near trees may result in injury to the trunk, limbs or roots of trees causing damage or death of the tree. In order to prevent such damage:
- (a) Trees within or adjacent to a construction area must be protected during construction by means of a barrier surrounding a "Tree Protection Zone" (TPZ) as outlined in Sections E4.1 and E4.2 of this policy.
  - (b) Activities which are likely to injure or destroy the tree are not permitted within the TPZ.
  - (c) Tree pruning or root pruning of City of Winnipeg owned trees may only be done by a Contractor approved by the project's Qualified Tree Consultant (Refer to E4.6) or Urban Forestry Branch.
  - (d) No objects may be attached to trees protected by City of Winnipeg by-laws without written authorization by the City of Winnipeg.
  - (e) No City of Winnipeg tree or tree protected by a City of Winnipeg by-law may be removed without the written permission of the City of Winnipeg.
- E4.2 Tree Protection Zone
- E4.2.1 Tree Protection Zones will be established on site during a walk-through at commencement and will be established by the City Forester, the Contract Administrator and the Contractor



to determine functional limits. The minimum shall be a 2.0m protection distance, unless not technically feasible.

E4.2.2 A continuous TPZ will be established from Cambridge Street to Thurso Street between the front of the trees to behind the trees to protect the root system longitudinally between the trees with the intention of preventing stockpiling of materials in this area and continuous movement of equipment over this area during road and underground construction works.

#### E4.3 Tree Protection Barriers

E4.3.1 Trees within tree protection zones shall be protected by means of a "tree protection barrier" meeting the following specifications:

- (a) The required barrier is a 1.2 metre (4 ft) high orange plastic web snow fencing on 2" x 4" frame or as directed by the City of Winnipeg Urban Forestry Branch in accordance with City of Winnipeg Protection of Existing Tree Specifications. The barrier can be lowered around branches lower than 1.2 metres (4 ft). The barrier location can be adjusted to align with curbs, edges of excavation and edges at clear path of travel zones.
- (b) Tree strapping material will be installed on individual trees, in accordance with CW1140, where Work will be completed within the TPZ.
- (c) Tree protection barriers are to be erected prior to the commencement of any construction or grading activities on the site and are to remain in place throughout the entire duration of the project. The applicant shall notify the City of Winnipeg prior to commencing any construction activities to confirm that the tree protection barriers are in place.
- (d) All supports and bracing used to safely secure the barrier should be located outside the TPZ. All supports and bracing should minimize damage to roots.
- (e) No grade change, storage of materials or equipment is permitted within this area. The tree protection barrier must not be removed without the written authorization of the City of Winnipeg.

E4.4 Further to E4.2.2 and E4.3.1, Continuous protective fencing shall be installed at the face of trees on Corydon Avenue on both north and south boulevards between Cambridge Street and Thurso Street during all underground, road and curbing works. No materials shall be stockpiled at any time on these boulevards.

#### E4.5 Capital Construction Projects

E4.5.1 It is recognized that there are cases where trees are growing overtop existing utilities or beside capital infrastructure. While the guidelines in this section still apply, in these cases some modification to the established TPZ's in addition to root pruning may be permitted provided non- open trench methods of construction are employed (as defined in CW2110 and CW2130).

E4.5.2 Root Pruning will be required to be done under the direction of - and along with - written sign-off by the Project's Qualified Tree Consultant. The objective is to avoid severance of anchor roots, which provide upright support for trees and minimize damage to the tree.

E4.5.3 Above ground clearance for overhanging branches in the work zone must be anticipated. The utility or its consultant is required to have a Forestry approved tree service raise the crown of all branches to provide adequate clearance for construction equipment.

#### E4.6 Qualified Tree Consultants

- (a) An arborist certified by the International Society of Arboriculture (ISA) who has a diploma (minimum) in arboriculture or urban forestry; and
- (b) A landscape architect who is a member in good standing of the Manitoba Association of Landscape Architects

- (c) The Contractor shall provide a Qualified Tree Consultant to perform the necessary tasks and the cost will be considered incidental to the Work.

E4.7 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 the tree protection zone.
- (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. No excavation shall occur within the tree protection zone. Where roots must be cut to facilitate excavation, they shall be pruned neatly and cleanly 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.

E4.8 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or his/her designate.

E4.9 No separate measurement or payment will be made for the protection of trees or associated services.

E4.10 Except as required in clause E4.7(c) and E4.7(e), Elm trees shall not be pruned at any time between April 1 and July 31.

## **E5. TRAFFIC CONTROL**

E5.1 Further to clauses 3.6, 3.7 and 3.8 of CW 1130:

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

E5.2 Notwithstanding E5.1, in accordance with the MTTC, the Contract Administrator shall make arrangements with the **Traffic Services Branch of the City of Winnipeg** to place, maintain, and remove all **regulatory signs** and traffic control devices authorized and/or required by the Traffic Management Branch in the following situations:

- (a) Parking restrictions,
- (b) Stopping restrictions,
- (c) Turn restrictions,
- (d) Diamond lane removal,

- (e) Full or directional closures on a Regional Street,
- (f) Traffic routed across a median,
- (g) Full or directional closure of a non-regional street where there is a requirement for regulatory signs (turn restrictions, bus stop relocations, etc.) to implement the closure.
- (h) Approved Designated Construction Zones with a temporary posted speed limit reduction. Traffic Services will be responsible for placing all of the advance signs and 'Construction Ends' (TC-4) signs. The Contractor is still responsible for all other temporary traffic control including but not limited to barricades, barrels and tall cones.

E5.2.1 An exception to E5.2 is the 'KEEP RIGHT/KEEP LEFT' sign (RB-25 / RB-25L) which shall be supplied, installed, and maintained by the Contractor at their own expense.

E5.2.2 Further to E5.2, where the Contract Administrator has determined that the services of the Traffic Services Branch are required, the City shall bear the costs associated with the placement of temporary traffic control devices by the Traffic Services Branch of the City of Winnipeg in connection with the works undertaken by the Contractor.

## **E6. TRAFFIC MANAGEMENT**

E6.1 Further to clause 3.7 of CW 1130:

- (a) Single lane closures on intersecting and/or adjoining Regional Streets shall only be permitted during non-peak periods 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.

E6.2 When no work is being performed on site, non-essential lane closures will not be permitted.

E6.3 Pedestrian access to residences and businesses must be maintained at all times.

E6.3.1 Should the Contractor be unable to maintain pedestrian or vehicular access to a residence or business, he/she shall review the planned disruption with the business or residence and the Contract Administrator, and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of 24 hours notification to the affected residence or business and the Contract Administrator, prior to disruption of access.

E6.4 Flag persons may be necessary to maintain the flow of traffic during certain work operations

E6.5 Ambulance/emergency vehicle access must be maintained at all times.

E6.6 Any proposed modifications to the construction staging and/or traffic management plans outlined in the contract documents must be approved by the Contract Administrator.

E6.7 Corydon Avenue (2020)

E6.7.1 Maintain a minimum of one lane of traffic eastbound and one lane of traffic westbound for the duration of the project with the following exception:

- (a) Closure to eastbound traffic to accommodate paving operations in the eastbound median lane during Stage 5.
- (b) Closure to westbound traffic to accommodate paving operations in the westbound median lane during Stage 6.

E6.7.2 The Traffic Services Branch will be responsible for routing traffic across the median between Brock Street and Oxford Street. Costs associated with any additional requests by the Contractor to modify traffic control during non-peak periods will be the Contractor's responsibility.

E6.7.3 Left turns must be maintained at Stafford Street except when to complete staged paving near Stafford Street.

- E6.7.4 An eastbound off-peak left turn is to be accommodated from eastbound Corydon Ave to access 1001 Corydon Ave.
- E6.7.5 One southbound lane must be maintained at all times on Harrow Street. Two-way traffic shall be maintained on granular until paving operations commence.
- E6.7.6 Left Turns are to be maintained at Wilton Street until the two adjacent intersections (Guelph Street and Rockwood Street have been completed and opened to traffic at which time Wilton Street can be closed to traffic).
- E6.7.7 The pedestrian corridor at Rockwood Street and Elm Street are to be maintained at all times.
- E6.7.8 When access to side streets and public lanes, south of Corydon between Waterloo Street and Cambridge Street are restricted, the Contractor shall supply and erect "Road Closed, No Exit" signage at the south access points to these streets and alleys.
- E6.8 Corydon Avenue (2021)
- E6.8.1 Access to the bus loop at Cambridge Street is to be maintained from both directions. A one (1) week closure of the bus loop will be permitted during Stage 2.
- E6.8.2 Northbound through traffic and left turning movements must be maintained at the Cambridge Street intersection at all times.
- E6.9 Taylor Avenue (2021)
- E6.9.1 Maintain a minimum of one lane of traffic eastbound and one lane of traffic westbound for the duration of the project. When no work is being performed on site, non-essential lane closures will not be permitted.
- E6.9.2 The Traffic Services Branch will be responsible for routing traffic across the median between Wilton and Harrow. Costs associated with any additional requests by the Contractor to modify traffic control during non-peak periods will be the Contractor's responsibility.
- E6.9.3 Two-way access is to be maintained for the approach south of the Guelph Street intersection of Taylor Avenue.
- E6.9.4 Southbound traffic is to be maintained on Harrow Street at all times.
- E6.10 The Contractor is to provide safe areas for temporary Transit stops as required. Some stops will be shifted to temporary locations or temporarily put out of service to accommodate construction. The Contractor shall provide five business days notice of any conflicts with temporary stops to construction operations to allow for sufficient planning time.
- E6.11 The Contractor must provide ten business days notice for any required Transit rerouting requirements to accommodated concrete paving operations to allow for sufficient planning time.

## **E7. REFUSE AND RECYCLING COLLECTION**

- E7.1 While 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 from the west boulevard to the east boulevard of the same street, prior to an established time, in accordance with E7.2 to permit the normal collection vehicles to collect the materials. Residents will be responsible for marking their address on their receptacles and for placing the receptacles on the boulevard directly in front of their residence prior to the established time. Immediately following recycling collection the Contractor shall return recycling receptacles to the addresses marked on the receptacles.
- E7.2 Collection Schedule:

Waterloo (East side residences only), Ash, Oak, Elm, Montrose, Waverley and Oxford (West side residences only)

<i>Collection Day(s):</i>	<b>Monday</b>
<i>Collection Time:</i>	<b>0700</b>
<i>Common Collection Area:</i>	<b>East Boulevard in front of residence</b>

E7.3 No measurement or payment will be made for the work associated with this specification.

## **E8. PEDESTRIAN SAFETY**

E8.1 During the project, a temporary snow fence shall be installed adjacent to all open excavations and construction activities. 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.

- E8.1.1 Further to E8.1, specific to Corydon Ave between Thurso St and Stafford St, a temporary snow fence will be required at least at the following locations;
- (a) Between the sidewalk and open excavation on both the north and south sides; and,
  - (b) During underground works where the Contractor must encroach onto the sidewalk temporarily.

## **E9. WATER OBTAINED FROM THE CITY**

E9.1 Further to clause 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.

## **E10. SURFACE RESTORATIONS**

E10.1 Further to clause 3.3 of CW 1130, when the Critical Stage and/or Substantial 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 complete all surface restorations required to restore the facility to its intended design and shall restore full capacity of the facility 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. The cost may include but not limited to temporary paving works, temporary roads, sidewalk, cycling facilities, and all traffic signing costs including those of Traffic Services.

## **E11. INFRASTRUCTURE SIGNS**

E11.1 The Contractor shall obtain infrastructure signs from the Traffic Services Sign Shop at 421 Osborne 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

## **E12. SALT TOLERANT GRASS SEEDING**

### **DESCRIPTION**

E12.1 Further to CW 3520 and CW3540, this specification shall cover sub-grade preparation and the supply and placement of Salt Tolerant Grass Seed.

### **MATERIALS**

## E12.2 Salt Tolerant Grass Seed

E12.2.1 Salt Tolerant Grass Seed for regional and collector boulevards, medians and interchange areas shall be a mixture composed of:

- (a) Seventy percent (70%) Fults or Nuttals Alkaligrass (*Puccinellia* spp.), twenty percent (20%) Audubon or Aberdeen Creeping Red Fescue and ten percent (10%) Perennial Ryegrass.

### EQUIPMENT

E12.3 Scarification equipment shall be suitable for the area being scarified, shall be capable of scarifying the sub-grade to the specified depth and shall be accepted by the Contract Administrator. For confined areas a toothed bucket may be acceptable. For larger areas tilling equipment may be required.

### CONSTRUCTION METHODS

#### E12.4 Preparation of Existing Grade

E12.4.1 Prior to placing topsoil, in areas to be seeded greater in width than 600mm, prepare the existing sub-grade by scarifying to a minimum depth of 75mm and to a maximum depth of 100mm to the satisfaction of the Contract Administrator.

E12.4.2 Scarification shall consist of breaking up and loosening the sub-grade. No scarification shall occur within the edge of a tree canopy (or drip line).

#### E12.5 Salt Tolerant Grass Seeding

E12.5.1 Salt Tolerant Grass Seed shall be sown at a rate of 2.2 kilograms per 100 square meters.

### MEASUREMENT AND PAYMENT

E12.6 Supply, placement and maintenance of Salt Tolerant Grass Seed will be paid for at the Contract Unit Price per square metre for "Salt Tolerant Grass Seeding", measured as specified herein, which price shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the work included in this Specification. Payment for Salt Tolerant Grass Seeding shall be in accordance with the following:

- (a) Sixty five (65%) percent of quantity following supply and placement.
- (b) Remaining thirty five (35%) percent of quantity following termination of the Maintenance Period.

## E13. CONCRETE PAVEMENT REINFORCING STEEL

### DESCRIPTION

E13.1 This specification covers the internal mid slab steel for 240mm thick reinforced concrete installed as per the Drawings.

E13.2 The length and placement of tie bars and placement of Dowels have been modified to be different than City Specifications.

E13.3 The placement and fabrication dimensions of bar mats have been modified to be different than City Specifications.

E13.4 This section shall all be considered further to CW 3310.

E13.5 This section does not apply to 200mm reinforced concrete. All 200mm reinforced concrete specifications shall apply to current City of Winnipeg Standard Construction Specifications.

## MATERIALS

- E13.6 Further to CW 3310 – R17 Section 5.44
- E13.7 Tie Bars
- (a) 760mm long tie bars will be installed spaced at 500mm on-centre along longitudinal joints.
  - (b) The distance from transverse joints to the first tie bar has increased to a minimum of 450mm.
- E13.8 Dowels
- (a) The distance from longitudinal joints to the first dowel has increased to a minimum of 250mm.
- E13.9 Bar Mats
- (a) Steel diameter has increased to 15M for both longitudinal and transverse bars.
  - (b) On-center spacing of bars has decreased longitudinally to 400mm on-centre and transversely to 430mm on-centre.
  - (c) Longitudinal bars are to be smooth.
  - (d) Transverse bars are to be deformed.
  - (e) Allowable clear coverage from the end of any reinforcement to the edge of concrete has been increased to a minimum of 100mm on transverse joints and longitudinal joints.

## CONSTRUCTION METHODS

- E13.10 Reinforcing steel is to be installed as per CW 3310 – R17.
- E13.11 The drawings represent minimum and maximum allowable tolerances for rebar and do not represent splicing of two bar mats which may be required for shipping and/or placement methods (ie Bar Mat A and Bar Mat B as per City Specifications).
- E13.12 The contractor may supply and install reinforcement using two bar mat method with a splice similar to that of the City Standard with approval of the Contract Administrator. If chosen, the Contractor should note this splicing mechanism may require additional transverse bars which will not be considered for additional payment.

## MEASUREMENT AND PAYMENT

- E13.13 Mid slab steel reinforcement as described above will be considered incidental to concrete pavements and no additional measurement and payment will be made for concrete reinforcement. Tie-bars and dowel will be measured and paid as per City Specifications.

## **E14. RED TINTED CONCRETE FOR TRANSIT ONLY AREAS**

### DESCRIPTION

- E14.1 General
- E14.1.1 This specification covers the construction of “red” tinted concrete pavement, intended to delineate Transit only lanes at various locations in this project. The tinted concrete is finished at grade and is the width of the travel lane. Care must be taken with consistency in water/cement ratio and finishing as the color can be affected load to load.
- E14.1.2 Red tinted concrete is to be used for the transit only median opening accessing the bus loop on Corydon at Cambridge as directed by the Contract Administrator.
- E14.1.3 Referenced Standard Construction Specifications
- (a) CW 3310 – Portland Cement Concrete Pavement Works

## MATERIALS AND EQUIPMENT

### E14.2 Concrete Materials

- E14.2.1 The Contractor shall base the tinted concrete mix on a mix design that has been approved for the 2009 construction season by the City of Winnipeg Research and Standards Department.
- E14.2.2 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.
- E14.2.3 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.

### E14.3 Concrete Tint

- E14.3.1 "Red" coloured metal oxide pigment used to permanently color ready-mix concrete.
- E14.3.2 Approved Product List
- (a) Lafarge Red (Premium) supplied through L.M. Scofield Company
- E14.3.3 Contractor to cast one coloured concrete sample minimum 200 mm X 200 mm in area using base concrete mix for approval by Contract Administrator.
- E14.3.4 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.

### E14.4 Superplasticizers

- E14.4.1 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.

### E14.5 Liquid Membrane-Forming Curing Compound

- E14.5.1 Curing Compound shall be clear (no pigment), and water based conforming to the requirements of ASTM C309.

### E14.6 Other Materials

- E14.6.1 All other materials as per CW 3310

### E14.7 Floating and Finishing Equipment

- E14.7.1 Use only wood or magnesium floats. Bull floats used for initial finishing shall be constructed of wood only.

### E14.8 Other Equipment

- E14.8.1 All other equipment as per CW 3310

## CONSTRUCTION METHODS

### E14.9 General

- E14.9.1 Concrete formwork, steel reinforcement, placement, curing, and joint sealing as per CW 3310 except as modified in the contract documents.
- E14.9.2 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.



- E14.9.3 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.
- E14.9.4 No localized water spray or fogging is permitted to assist in finishing as this will locally fade the colour.
- E14.9.5 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.

#### MEASUREMENT AND PAYMENT

- E14.10 Construction of Tinted Concrete
- (a) Construction of Tinted Concrete will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Construction of 240 mm Concrete Pavement (Reinforced, Dowel Jointed, Red Tinted)". 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.

#### **E15. OPERATING CONSTRAINTS FOR WORK IN CLOSE PROXIMITY TO CRITICAL WATER INFRASTRUCTURE**

##### DESCRIPTION

- E15.1 General
- E15.1.1 This Section details operating constraints for all work to be carried out in close proximity to the City feeder mains and other critical water infrastructure. Close proximity shall be deemed to be any construction activity within a 5 m horizontal offset from the centreline of the feeder main/water main, within 5 m of valve chambers and other appurtenances, and any other infrastructure identified below.
- E15.2 The following shall be considered critical pipelines and water infrastructure for this project:
- E15.2.1 Waverley Street Feeder Main:
- (a) 900 mm Concrete Feedermain.
- (b) The feeder main runs north-south within the Waverley Street right of way as shown on the Drawings.
- (c) The following Waverley Feeder Main valve chambers are in the vicinity of the proposed work:
- (i) Air Valve Chamber approximately 15m south of Corydon.
- E15.2.2 Corydon Avenue 150 Cast Iron Watermain:
- (a) All valves and other water infrastructure associated with the 150 CI WM shall be considered critical water infrastructure.
- (b) Located in the eastbound gutter lane between Harrow Street and Stafford Street
- E15.3 General Considerations for Work in Close Proximity to Critical Water Infrastructure:
- E15.3.1 Feeder mains and large diameter water mains are a critical component of the City of Winnipeg Regional Water Supply System and work in close proximity to feeder mains shall be undertaken with an abundance of caution. Large diameter feeder main and water mains cannot typically be taken out of service for extended periods to facilitate construction and inadvertent damage caused to the pipe would likely have catastrophic consequences.
- E15.3.2 Work around critical water infrastructure shall be planned and implemented to minimize the time period that work is carried out in close proximity to the pipe and to ensure that the pipeline is not subjected to excessive construction related loads, including excessive vibrations and/or concentrated or asymmetrical lateral loads during backfill placement.

- E15.3.3 Large diameter pressure pipe generally has limited ability to withstand increased earth and live loading. Therefore, every precaution must be undertaken to ensure that applied loading during all phases of construction is within accepted loading parameters. PCCP typically fails in a non-ductile mode with the potential to cause extensive consequential damage to infrastructure if failure should occur. All large diameter feeder mains/water mains have the potential to cause extensive flooding.
- E15.3.4 Construction in close proximity to critical infrastructure shall not commence until both the equipment and construction method statements have been submitted, reviewed, and accepted by the Contract Administrator.
- E15.4 Submittals
- E15.4.1 Submit proposed construction equipment specifications to the Contract Administrator for review a minimum of ten (10) Business Days prior to construction. The equipment submission shall include:
- (a) equipment operating and payload weights;
  - (b) equipment dimensions, including: wheel or track base, track length or axle spacing, track widths or wheel configurations; and,
  - (c) load distributions in the intended operating configuration.
- E15.4.2 Submit a construction method statement to the Contract Administrator a minimum of five (5) business days prior to construction. The construction method statement shall contain the following minimum information:
- (a) proposed construction plan including excavation locations, haul routes, excavation equipment locations, and loading positions;
  - (b) excavation plans, including shoring designs, for excavations occurring in close proximity to feeder mains (within 5 m horizontal of the pipe's centerline) where the excavation to be extended below the top of the feeder mains embedment zone (150 mm above the pipe);
  - (c) trenchless construction methodology for feeder main crossings, including: installation methods, means of grade control, means of confirming clear separation between the new LDS and existing feeder main; and
  - (d) any other pertinent information required to accurately describe the construction activities in close proximity to the feeder main and permit the Contract Administrator to review the proposed construction plans.
- E15.4.3 Incomplete or partial submissions will not be reviewed and will be returned to the Contractor for re-submission.
- E15.4.4 Allow five (5) Business Days for review by the Contract Administrator.
- E15.5 Feeder Main Operational Limitations
- E15.5.1 Feeder main shutdowns are scheduled based on a number of factors including water demand, weather, reservoir operation, routine maintenance and repair work within the regional distribution system, and other factors. If feeder main shutdowns are required, the City shall endeavour to make requested time periods available to the Contractor to schedule his/her work requiring removal of the feeder main from service, without limiting the City's control over the operation of the feeder main to complete other work, maintain adequate water supply and storage of water and maintain the integrity of the infrastructure. The City shall reserve the right to cancel and/or delay these schedule dates at any time, due to any circumstances that could adversely affect the feeder main or water supply including, but not limited to, high water demand, abnormal weather, failures of related water system components and/or security concerns.
- E15.5.2 Scheduling Restrictions:

- (a) Temporary feeder main shutdowns are typically limited to off-peak demand seasons (September 15<sup>th</sup> to May 15<sup>th</sup>) and low demand hours including evenings or other low demand periods.

E15.5.3 The Contractor shall provide Notice to the Contract Administrator in writing, a minimum of fifteen (15) Business Days prior to requiring the shutdown. The City will endeavour to schedule the shutdown as requested.

## CONSTRUCTION METHODS

### E15.6 Pre-Work, Planning and General Execution

- E15.6.1 No work shall commence in close proximity to feeder mains, chambers, and critical infrastructure until the equipment specifications and construction method statement have been submitted and accepted, and feeder main locations have been clearly delineated in the field. Work over feeder mains shall only be carried out with equipment that has been reviewed and quantified in terms of its loading implications on the pipe.
- E15.6.2 Contact the City of Winnipeg Water and Waste Department, Construction Services Coordinator prior to construction.
- E15.6.3 Locate feeder mains and water mains and confirm their position horizontally and vertically prior to undertaking work in close proximity to the identified feedermain. Note, exact locations to be identified in the field. Deviations from the elevations noted shall be reported to Contract Administrator for review prior to proceeding with work.
- E15.6.4 Visually delineate all critical infrastructure identified herein on Site by use of paint, staking/flagging, construction fencing, snow fencing, or other suitable methods
- E15.6.5 Only utilize construction practices and procedures that do not impart excessive vibratory loads on feeder mains and chambers or that would cause settlement of the subgrade below feeder mains and critical pipelines.
- E15.6.6 Where the existing road structure must be removed, crossing of critical infrastructure shall be prohibited from the time the existing roadway structure is removed until the completion of granular base construction. At all times prior to completion of final paving; reduce equipment speeds to levels that minimize the effects of impact loading to the critical infrastructure.
- E15.6.7 Only equipment and construction practices stipulated in the accepted construction method statement and the supplemental requirements noted herein may be utilized in close proximity to feeder mains, chambers, and other critical infrastructure identified herein.
- E15.6.8 Construction operations should be staged in such a manner as to limit multiple construction loads at one time, (e.g., offset crossings sufficiently from each other, rollers should remain a sufficient distance behind spreaders to limit loads. A reasonable offset distance is 3 m between loads).
- E15.6.9 Granular material, construction material, soil, and/or other material shall not be stockpiled on the pipelines or within 5 m of any feeder main, valve chamber, or other critical infrastructure identified herein.
- E15.6.10 The Contractor shall ensure that all crew members understand and observe the requirements of working near feeder mains, valve chambers, and critical infrastructure. Prior to commencement of on-Site work, the Contractor shall jointly conduct an orientation meeting with the Contract Administrator, all superintendents, foreman, and heavy equipment operators to make all workers on the Site fully cognizant of the limitations of altered loading on, the ramifications of inadvertent damage to, and the constraints associated with work in close proximity to feeder mains and critical pipelines. New personnel introduced after commencement of the Project need to be formally orientated as outlined herein. It is recommended that restrictions associated with the crossing, consistent with the Contractor's submitted method statement be posted on Site and near the crossing.

### E15.7 Demolition, Excavation, and Shoring

- E15.7.1 Use of pneumatic concrete breakers within 3 m of a feeder main, valve chamber, or critical pipeline is prohibited. Pavement shall be full depth sawcut and carefully removed. Use of hand held jackhammers for pavement removal will be allowed.
- E15.7.2 Offset excavation equipment a minimum of 3 m from the centerline of critical pipelines when undertaking excavations where there is less than 2.4 m of earth cover over the pipeline.
- E15.7.3 Excavation:
- (a) Utilize only smooth edged excavation buckets, soft excavation, or hand excavation techniques where there is less than 1.5 m of earth cover over the pipeline.
  - (b) Where there is less than 1.0 m of soil cover above the pipeline, provide full time supervision and complete the excavation utilizing hand excavation, soft excavation methods, or machine excavation. Where machine excavation is to be used the crown of the pipeline must be exposed (or suitable located) using hand or soft excavation methods a minimum of every 1.8 m.
  - (c) Where there is less than 0.5 m of soil cover above the pipeline, provide full time supervision and complete the excavation utilizing hand excavation or soft excavation methods only.
- E15.7.4 Equipment should not be allowed to operate while positioned directly over a feeder main or critical pipeline except were permitted herein, outlined in the reviewed and accepted construction method statement.
- E15.7.5 Excavations within 3 m of the outside edge of a feeder main (hydrovac holes for confirming trenchless installations excluded) and which extend below obvert of the feeder main shall utilize shoring methods that precludes the movement of native in-situ soils (i.e. a tight shoring system).
- E15.8 Underground Construction and Trenchless Pipe Installation
- E15.8.1 Install pipes to the grades shown on the Drawings. A minimum clear separation distance (outside to outside of pipe wall) of 1.0m shall be maintained between crossing pipes and the feeder main and cast iron watermain.
- E15.8.2 The Contractor shall locate feeder mains and confirm their position horizontally and vertically prior to commencing with any trenchless pipe installations to ensure proper clearances are maintained. Under NO circumstances should blind coring proceed across feeder mains.
- E15.8.3 The Contractor shall visually confirm the location and alignment of the drill rods or jacking pipe (horizontally and vertically) prior to proceeding with the trenchless installation beneath the feeder main. It is recommended that the new pipe alignment be confirmed within 2 m of the outside of the feeder main pipe but no closer than 0.5 m from the outside edge of the pipe.
- E15.8.4 No trenchless methods involving soil displacement (plugs) shall be permitted in the vicinity of the Feedermain.
- E15.8.5 Pressure grouting or approved alternative methods shall be used to fill voids caused by the installation or if the bored hole diameter is greater than the outside diameter of the pipe by more than 25 mm.
- E15.8.6 Where excavation is required within the feeder main's embedment zone, the Contractor shall take steps to ensure the granular embedment material surrounding the feeder main remains stable during the work and the feeder main outside of the excavation is not undermined.
- E15.9 Subgrade Construction

- E15.9.1 Subgrade and backfill compaction within 3 metres (horizontal) of a critical pipeline or valve chamber shall be limited to non-vibratory methods only. Small walk behind vibratory packers will be permitted.
- E15.9.2 Subgrade, sub-base and base course construction shall be kept in a rut free condition at all times. Construction equipment is prohibited from crossing pipelines if the grade is insufficient to support the equipment without rutting.
- E15.9.3 Subgrade conditions should be inspected by personnel with competent geotechnical experience (e.g. ability to adequately visually classify soils and competency of subgrade, subbase, and base course materials). In the event of encountering unsuitable subgrade materials above the feedermain, proposed design revisions shall be submitted to this office for review to obtain approval from the Water and Waste Department relative to any change in conditions.
- E15.9.4 Fill material shall not be dumped directly on pipelines but shall be stockpiled outside the limits noted in these recommendations and shall be carefully bladed in-place
- E15.9.5 Only use compaction equipment approved by the contract administrator to compact fill materials above critical pipelines. Compaction of fill materials shall be completed using static methods only, no vibratory compaction will be allowed within the limits noted in these recommendations.
- E15.9.6 Construction operations shall be staged to minimize the time period between excavation to subgrade and placement of granular subbase materials. Should bare subgrade be left overnight, measures shall be implemented to protect the subgrade against inadvertent travel over it and to minimize the impact of wet weather.
- E15.10 Subbase and Base Course Construction
- E15.10.1 Subbase or base course materials shall not be dumped directly on pipelines but shall be stockpiled outside limits noted in these recommendations and shall be carefully bladed in-place.
- E15.10.2 Subbase compaction within 3 m horizontal of the centreline of a critical pipeline shall be either carried out by static methods (without vibration) or with smaller approved equipment such as hand held plate packers or smaller roller equipment.
- E15.11 Paving
- E15.11.1 When constructing asphalt pavements only non-vibratory compaction should be used within 3 m (horizontal) of the center of critical pipelines.

## **E16. SIDEWALK EXPANSION JOINTS**

### DESCRIPTION

- E16.1 Further to CW 3325 - R5, this specification covers the supply and installation of expansion joints to be constructed within concrete sidewalk.

### MATERIALS

- E16.2 Fiber Joint Filler
- E16.2.1 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".
- E16.3 Reinforcing Steel
- E16.3.1 300mm long 10M smooth, epoxy coated steel dowels, 300 MPa yield strength.

## CONSTRUCTION METHODS

- E16.4 Expansion joints shall be constructed and installed as indicated in the Contract Documents or directed by the Contract Administrator.
- E16.5 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.
- E16.6 Two dowels shall be installed at each expansion joint.
- E16.7 The dowels shall be drilled through the fiber joint filler and are to be coated with asphaltic cut-back.

## MEASUREMENT AND PAYMENT

- E16.8 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.

## **E17. OUTFRONT MEDIA TRANSIT SHELTER**

### DESCRIPTION

- E17.1 This specification shall cover the removal, preparation for and reinstallation of the Outfront Media Transit Shelter located on eastbound Corydon Avenue just east of Cambridge Street. This shelter is owned by Outfront Media and requires an electrical supply for lighting.

### MATERIALS

- E17.2 Materials shall conform to the Outfront Media Shelter detail provided in the drawings and to CW 3325.
- E17.3 Electrical supply to support:
  - (a) 120 Volt
  - (b) 2.8 Amp
  - (c) 60 Cycle
  - (d) 15 Amp Breaker
- E17.4 Feeder Cable to be:
  - (a) Minimum #10 AWG rated to 240 Volt
  - (b) Buried a minimum of 18" below grade with 6" of sand above cable.

### CONSTRUCTION METHODS

- E17.5 The Contract Administrator shall coordinate the removal of the existing shelter with Outfront Media.
- E17.6 The base slab shall be constructed as per the Outfront Media Shelter detail provided in the drawings and CW 3325.
- E17.7 No joints shall be sawcut into the shelter base slab.
- E17.8 The Contractor shall not proceed with pouring the shelter base without the approval of the Contract Administrator. The Contract Administrator will coordinate an inspection of the formed and prepared shelter base by Outfront Media prior to pouring.
- E17.9 The Contract Administrator shall coordinate the reinstallation of the shelter with Outfront Media.

- E17.10 An electrical supply will be required to service the shelter. The electrical service connection location has is identified on the Manitoba Hydro drawings and will be a connection to the first new street light east of the Transit Stop or as approved by Manitoba Hydro.
- E17.10.1 The Contract Administrator will coordinate with Manitoba Hydro regarding an acceptable electrical connection type. The cable is to be fused and labelled at the street light.
- E17.10.2 The Contractor will be required to coordinate and complete all electrical work including connections to the reinstalled shelter, conduit installations and any other items not outlined in this specification.

#### MEASUREMENT AND PAYMENT

- E17.11 Construction of the Outfront Shelter base pad and related electrical work, shall be paid for at a Lump Sum price for "Outfront Media Shelter" and shall include all work related the Outfront Media Shelter as outlined above.

### **E18. BONDING AGENT**

#### DESCRIPTION

- E18.1 Further to CW 3230 – R8, this specification covers the installation of bonding agent to be used for bonding tie bars and dowels into hardened concrete.

#### MATERIALS

- E18.2 Sika AnchorFix – 3001 – High-strength, high-load and low-voc, pure epoxy anchoring adhesive with extended working time, or equivalent product approved by the Contract Administrator.

#### CONSTRUCTION METHODS

- E18.3 Follow manufacturers instructions for the installation of bonding agent.

#### MEASUREMENT AND PAYMENT

- E18.4 No measurement for payment will be made for performing all supply and operations herein described and shall be considered incidental to drilled tie-bar and/or dowel installation.

### **E19. INSULATION OF EXISTING WATERMAINS AND WATER SERVICES**

#### DESCRIPTION

- E19.1 Notwithstanding 3.12 of CW 2110, this specification covers the supply and installation of insulation in roadway excavations over watermains and water services.

- E19.2 Referenced Standard Construction Specifications
- (a) CW 2030 – Excavation Bedding and Backfill
  - (b) CS3110 – Sub-grade, Sub-base and Base Course Construction

- E19.3 Referenced Standard Details
- (a) SD-018 – Watermain and Water Service Insulation

#### MATERIALS

- E19.4 Approved Products
- (a) Extruded Polystyrene rigid foam insulation – Type 4, 4" in thickness.
    - Dow – Roofmate or Highload 40
    - Owens Corning – Foamular 350 or Foamular 400

2" X 48" X 96", 2" X 24" X 96", 4" X 24" X 96"

**E19.5 Sand Bedding:**

- (a) In accordance with CW 2030

**CONSTRUCTION METHODS**

- E19.6** 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 watermain 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.
- E19.7** Thickness of insulation is 100mm (4"). If using 50mm (2") panels, two (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.
- E19.8** 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.
- E19.9** Use full panels of insulation where possible. Where necessary cut insulation panels to obtain coverage to the specified lengths. Insulation pieces shall be a minimum of 300mm in width or length.
- E19.10** Take appropriate measures to ensure panels are not displaced when installing geotextiles and during backfill operations.

**MEASUREMENT AND PAYMENT**

- E19.11** Watermain and Water Service insulation shall be measured on an area basis and paid for at the Contract Unit Price bid per square metre of "Watermain and Water Service Insulation". The area to be paid for shall be the total square meters of watermain and water service insulation supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.
- E19.12** Excavation of the roadway subgrade in accordance with E19.6 will not be measured for payment and will be included in the payment for "Watermain and Water Service Insulation".

**E20. CATCH BASIN WATERMAIN INSULATION**

**DESCRIPTION**

- E20.1.1** This specification shall cover the supply and installation of rigid insulation within the excavation for catch basins adjacent to watermains, water services and other water infrastructure as indicated in the drawings.

**MATERIALS**

- E20.2** Approved Products
- (a) High Strength Rigid insulation for installation below grade to be CAN/ULC S701, Type 4, Styrofoam HI 40 by Dow Chemical, Foamular 400 by Owens Corning, or approved equal.

**CONSTRUCTION METHODS**

- E20.3** Insulation shall be installed in accordance with CW2110, SD-018 and as directed by the Contract Administrator.



- E20.3.1 Rigid insulation shall be installed against the walls and bottom of excavation for the catch basin facing the affected water infrastructure.
- E20.3.2 The walls of the excavation shall be kept square and plumb to allow for installation of square pieces of insulation.
- E20.3.3 Sand shall be used to level the bottom of excavations prior to installation of the rigid insulation
- E20.4 Bedding shall be in accordance with CW 2030 and 2130.

#### MEASUREMENT AND PAYMENT

- E20.5 Insulation of new catch basins adjacent to water infrastructure will be measured on an area basis and paid for at the Contract Unit Price each for "Watermain and Water Service Insulation". The area to be paid for will be the total number square meters of catch basin insulation supplied and installed in accordance with this specification, as measured and accepted by the contract administrator.

### **E21. WORKING IN CLOSE PROXIMITY TO GAS INFRASTRUCTURE**

#### DESCRIPTION

- E21.1 While working in close proximity to gas infrastructure, all procedures and precautions outlined in the Appendix 'F'- *Safe Excavation & Safety Watch Guideline* manual, as well as any supplemental direction from Manitoba Hydro contained in Appendix 'D', must be adhered to. Ensure that all locates and clearances are current and have been received and understood prior to construction.

#### MEASUREMENT AND PAYMENT

- E21.2 Hydro excavation to locate and verify gas infrastructure as typically required by Manitoba Hydro will be considered incidental to the Work.
- E21.3 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.
- E21.4 Any costs associated performing Safety Watches will be considered incidental to the Work.

### **E22. EXISTING STREETCAR TRACK AND BEDDING REMOVAL**

#### DESCRIPTION

- E22.1 This specification covers the removal of existing street car track bedding excluding rails on Corydon Avenue between Stafford Street and Wilton street.
- E22.2 Site investigation during design provided no evidence of steel rails still present in the road. However steel rails still may be present.
- E22.3 Refer to Appendix 'A' Geotechnical Report and Appendix 'K' Site Investigation Photos to see material profile of street car track bedding.
- E22.4 The term Street Car Track Bedding shall include concrete bedding, wooden ties, and any other track bedding materials, for the street car tracks previously located down Corydon Avenue. The concrete bedding is estimated to be approximately 2.7 metres wide by 0.45 metres thick.

#### CONSTRUCTION METHODS

- E22.5 Remove the existing concrete bedding, wooden ties and any other materials, by demolishing, loading, hauling, and disposing of the removed track bedding material.

E22.6 Ensure that Manitoba Hydro requirements for working in close proximity to Gas infrastructure including transverse service connections are adhered to.

E22.6.1 When individual transverse gas services are within the 0.200m from the bottom of the streetcar tracks and bedding, additional efforts to remove the streetcar tracks and bedding will not be considered incidental.

E22.7 Dispose of the removed material as per CW 1130.

#### MEASUREMENT AND PAYMENT

E22.8 Removal of existing Street Car Track Bedding shall be measured on cubic meter basis and paid for at the Contract Unit Price for "Removal of Existing Street Car Track Bedding". The volume paid shall be the total number of cubic meters of existing street car track bedding removed as measured and accepted by the Contract Administrator.

E22.8.1 Removal of material below the concrete bedding required to achieve subgrade elevation will not be considered street car track bedding and shall be paid for as Excavation.

E22.8.2 Removal of the existing pavement on top of wooden ties and bedding will not be considered street car track bedding and shall be paid for as Pavement Removal.

E22.9 Removal of existing Street Car Track Rails shall be measured on lineal meter basis and paid for at the Contract Unit Price for "Removal of Existing Street Car Track Rails". The length paid shall be the total number of lineal meters of existing street car track rail removed as measured and accepted by the Contract Administrator.

### **E23. GREEN BIKE LANE TREATMENT**

#### DESCRIPTION

E23.1 General

E23.1.1 This specification covers the supply and installation of Green Methyl Methacrylate Area (MMA) Bike Lane Treatment.

E23.1.2 Drawings and Manuals

- (a) Contract Drawings;
- (b) Appendix B – CycleGrip MMAX Specification – Methyl Methacrylate Bike Lane Treatment;
- (c) Appendix C - Application Instructions – MMAX Area Markings

#### MATERIAL

E23.2 CycleGrip® MMAX kit – includes CycleGrip® MMAX Resin (**green**), CycleGrip® MMAX Aggregate and Catalyst

E23.3 Source

E23.3.1 ENNIS-FLINT

Available from:

**ENNIS-FLINT**

Attention: Deryk Upton  
Ph: 604-315-8765  
Email: [dupton@ennisflint.com](mailto:dupton@ennisflint.com)  
Web: [www.ennisflint.com](http://www.ennisflint.com)

**CONSTRUCTION METHODS**

**E23.4 Preparation and Installation**

E23.4.1 Surface is to be prepared in accordance with the Manufacturer's instructions.

E23.4.2 Treatment is to be installed in accordance with the Manufacturer's instructions.

**MEASUREMENT AND PAYMENT**

E23.5 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 "Supply and Install Green Paint". 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.

E23.6 Surface preparation for MMA markings shall be included in the cost for "Supply and Installation Green Paint" and no separate measurement and payment will be made.

**E24. VALVE CLEANING**

**DESCRIPTION**

**E24.1 General**

E24.1.1 This specification covers the cleaning of existing valves on site before the start of construction.

**CONSTRUCTION METHODS**

**E24.2 Valve Cleaning**

E24.2.1 Open valves to visually inspect the current condition.

E24.2.2 Use necessary equipment to clean dirt and debris from any valves that cannot be operated or where a valve box extension cannot be installed.

E24.2.3 Prepare a list of deficient items found and provide to the Contract Administrator.

**MEASUREMENT AND PAYMENT**

E24.3 Valve cleaning will be measured on a unit basis and paid for at the Contract Unit Price per item for "Valve Cleaning". The number to be paid for shall be the total number of valves cleaned in accordance with this Specification and accepted by the Contract Administrator.

**E25. TREE REMOVAL**

**DESCRIPTION**

**E25.1 General**

E25.1.1 Further to CW 3010 and the City of Winnipeg "Tree Removal Guidelines", this specification shall cover the removal of trees as specified on the Drawings and as directed by the Contract Administrator.

## CONSTRUCTION METHODS

- E25.2 Remove trees in accordance with CW 3010.

## MEASUREMENT AND PAYMENT

- E25.3 Tree removal will be measured on a unit basis and will be paid for at the Contract Unit Price per unit for "Tree Removal," 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 and accepted by the Contract Administrator.

## **E26. CONCRETE SIDEWALK WITH BLOCKOUTS**

### DESCRIPTION

- E26.1 Further to CW 3325 – R5, this specification will cover the installation of concrete sidewalk containing block outs for interlocking stone pavers or asphalt as identified on the drawings, including areas under paving patterns, fields, and multi-use path.
- E26.2 Referenced Standard Construction Specifications
- (a) CW 3325 – Portland Cement Concrete Sidewalk – R5
  - (b) CW 3310 – Portland Cement Concrete Pavement Works – R17

### MATERIALS

- E26.3 Concrete mix design shall comply with CW 3310
- E26.4 All other materials as per CW 3310.

### CONSTRUCTION METHODS

- E26.5 Construction as per Contract Drawings and as per CW 3310 and CW3325.
- E26.6 Block outs for all paving patterns, paving fields, and asphalt overlays in sidewalk to be constructed as per the Drawings. All forming is incidental to the unit price Bid for this specification.
- E26.7 Any thickened edges of sidewalk will be incidental to the unit price Bid for the concrete sidewalk.

### MEASUREMENT AND PAYMENT

- E26.8 Supply and Installation of concrete sidewalk with block outs for paving stones will be measured on an area basis and paid for at the Contract Unit Price for "100 mm Concrete Sidewalk with Block Outs for Paving Stones". The area to be paid for shall be the total number of square metres formed and placed in accordance with this Specification and as measured and accepted by the Contract Administrator.
- E26.9 Supply and Installation of concrete sidewalk with block outs for asphalt will be measured on an area basis and paid for at the Contract Unit Price for "100 mm Concrete Sidewalk with Block Outs for 50mm Asphalt Overlay". The area to be paid for shall be the total number of square metres formed and placed in accordance with this Specification and as measured and accepted by the Contract Administrator.
- E26.10 Installation of sign clamps that are supplied by the City of Winnipeg directly into wet concrete shall be considered incidental to the Work.

## **E27. INTSTALLATION OF INTERLOCKING PAVING STONES**

### DESCRIPTION

#### E27.1 General

- E27.1.1 Further to CW 3330 – R5, this specification will cover the installation of interlocking paving stones, as identified on the drawings.
- E27.1.2 Referenced Standard Construction Specifications
  - (a) CW 3330 – Installation of Interlocking Paving Stones – R5
- E27.1.3 Referenced Standard Detail
  - (a) SD-240B – Interlocking Paving Stone Detail for Medians and Private Approaches

### MATERIALS

#### E27.2 Interlocking Paving Stones

- E27.2.1 210x210x60 Charcoal Holland Pavers shall be installed in the concrete sidewalk paving bands.
- E27.2.2 105x210x60 Blue Holland Pavers in Soldier Course shall be installed at Winnipeg Transit bus stops at the locations noted on the drawings.
- E27.2.3 105x210x60 Natural Holland Pavers shall be installed at Winnipeg Transit bus stops at the locations noted on the drawings
- E27.2.4 Paving Stones shall conform to the requirements of CAN3-A231.2, Precast Concrete Pavers.

### CONSTRUCTION METHODS

- E27.3 Paving stones shall be installed as detailed on the drawings and in accordance with CW 3330 – R5.

### MEASUREMENT AND PAYMENT

- E27.4 Supply and installation of Interlocking Paving Stones will be measured by square meter and paid for at the Contract Unit Price for “Supply and Installation of Interlocking Paving Stones”. The area to be paid for will be the total number of square meters of interlocking paving stones supplied and installed in accordance with this specification and as measured and accepted by the Contract Administrator.

## **E28. REINSTATING PRIVATE WALKS**

### DESCRIPTION

- E28.1 Further to CW 3325 – R5 and CW 3330 – R5 this specification covers the reinstatement of private walks following regrading of private property.
- E28.2 Vertical geometry improvements will require regrading into private property necessitating renewal of existing private walks to meet the requirements of the 2015 City of Winnipeg Accessibility Standards.

### CONSTRUCTION METHODS

- E28.3 Private lots will be regraded as directed by the Contractor Administrator.
- E28.4 Renewal limits for private walks will be provided by the Contract Administrator.
- E28.5 Private walks are to be reinstated using the same materials as the existing walks (ie. concrete, paving stones or exposed aggregate concrete).

- E28.5.1 Concrete private walks are to be installed as per CW 3325 – R5.
- E28.5.2 Paving Stone private walks are to be installed as per CW 3330 – R5.
- (a) Existing paving stones are to be carefully removed and stockpiled for reinstallation
  - (b) Where the pre-existing paving stones cannot be salvaged or are damaged, the Contractor is to supply new pavers that match the existing pavers in shape and colour.
- E28.5.3 Exposed aggregate concrete private walks are to be reinstated to match the texture of the existing private walk.

#### MEASUREMENT AND PAYMENT

- E28.6 Supply and Installation of concrete sidewalk with block outs for paving stones will be measured on an area basis and paid for at the Contract Unit Prices under the item for "Private Walks". The area to be paid for shall be the total number of square metres formed and placed in accordance with this Specification and as measured and accepted by the Contract Administrator.
- E28.7 Regrading of private property will be paid as per CW 3110 – R19.

### **E29. HYDRO EXCAVATION FOR 50MM GAS MAIN**

#### DESCRIPTION

- E29.1 General
- E29.1.1 This specification covers the removal of earthen material immediately adjacent to underground utilities infrastructure by means of high pressure water spray, and the recovery of evacuated material by vacuum type means or equivalent method as approved by the Contract Administrator
- E29.1.2 Further to E21 this item is related specifically to excavation of the roadbed directly over the 50mm longitudinal gas main on Corydon Avenue from Thurso Street to Stafford Street that is under the existing curb lane.

#### MATERIALS

- E29.2 Equipment
- E29.2.1 Hydro Excavation unit shall be capable of maintaining a minimum working pressure of 10,000 psi, at a rate of 10 to 12 gallons per minute. Unit should be adjustable, so as to provide adequate pressure to remove earthen material identified by the Contract Administrator.
- E29.2.2 Spray head shall be equipped with a rotating nozzle, in order to provide a wider path of cut.

#### CONSTRUCTION METHODS

- E29.3 Hydro-Removal of Earthen Material
- E29.3.1 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.
- E29.4 Recovery of Excavated Material
- E29.4.1 The recovery of excavated material shall be done using a vacuum type method, or other type of method approved by the Contract Administrator.
- E29.4.2 The recovery of material shall follow immediately behind the excavation, to avoid excavated areas from filling with excavated material.
- E29.4.3 The use of mechanical sweepers will not be allowed.
- E29.4.4 Dispose of material in accordance with Section 3.4 of CW-1130.

### E29.5 Backfill of Hydro Excavated Hole

E29.5.1 The Contractor shall be responsible for the backfill of the hydro excavated hole upon the completion of the Work described herein, to the approval of the Contract Administrator.

#### MEASUREMENT AND PAYMENT

### E29.6 Hydro Excavation for 50mm Gas Main

E29.6.1 Hydro Excavation of earthen material will be measured on an hourly basis and paid for at the Contract Unit Price per hour for "Hydro Excavation for 50mm Gas Main". The hours to be paid for will be the total number of hours of Hydro Excavation in accordance with this Specification, accepted and measured by the Contract Administrator.

## E30. STREETLIGHT INSTALLATION AND ASSOCIATED WORKS

### E30.1 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 H) issued by each of Manitoba Hydro's Customer Service Centre (CSC) affected to permit work to commence (Permit to work).

### E30.2 DESCRIPTION

E30.2.1 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.

### E30.3 WORK LOCATIONS

E30.3.1 Corydon Avenue – Stafford Street to Cambridge Street

E30.3.2 Taylor Avenue – Wilton Street to Harrow Street

### E30.4 COORDINATION OF WORK

E30.4.1 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.

E30.4.2 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.

E30.4.3 Manitoba Hydro's CSC will provide the Limits of Approach applicable to the Contractor on the Work Clearance form.

### E30.5 ORIENTATION

E30.5.1 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.

### E30.6 PRE-CONSTRUCTION MEETING

E30.6.1 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.

E30.6.2 The Contractor's cost to attend this pre-construction meeting shall be incorporated into the unit prices for the work.

### E30.7 QUALIFICATIONS AND CERTIFICATION

E30.7.1 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.

E30.7.2 Journeyman Power Line Technician (PLT), Journeyman Cableman and Journeyman Lineman are also required to possess a "Limited Specialized - 'M-P' Licence - Power Line" issued by the Province of Manitoba.

E30.7.3 Manitoba "Safe work" Bulletin M&E010 dated January 5, 2011 regarding Electrician Licenses discusses the requirements for a "Limited Specialized Trade Licence - 'M-P' Licence - Power Line".

For more information contact:  
Manitoba  
Mechanical and Engineering Branch 500-401 York Avenue  
Winnipeg, Manitoba R3C 0P8 Tel. 204-945-3373



Fax 204-948-2309

E30.7.4 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.

E30.7.5 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.

E30.8 REFERENCED STANDARD CONSTRUCTION SPECIFICATIONS

E30.8.1 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")

E30.8.2 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 E.

E30.8.3 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.

E30.9 TOOLS, EQUIPMENT AND MATERIALS

E30.9.1 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.

E30.9.2 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

E30.9.3 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.

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

E30.9.4 Alternative equipment manufacturers may be considered upon request by the Contractor and shall be approved for use by Manitoba Hydro prior to use.

E30.9.5 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.

#### E30.10 MATERIAL SUPPLIED BY MANITOBA HYDRO

E30.10.1 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:

E30.10.2 Manitoba Hydro Central Stores (contact personnel will be provided to the successful contractor).

E30.10.3 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.

E30.10.4 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.

E30.10.5 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.

#### E30.11 MATERIAL SUPPLIED BY CONTRACTOR

E30.11.1 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.

#### E30.12 SURPLUS, RECLAIM AND SCRAP MATERIAL

E30.12.1 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.

E30.12.2 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.

E30.12.3 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.

#### E30.13 DE-ENERGIZATION AND LOCKOUT

E30.13.1 **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.

E30.13.2 **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.

E30.13.3 The Contractor shall complete a job planning form (an example is included as Appendix I) on a daily basis before any work commences and provide Manitoba Hydro with copies of the job plans if requested.

#### E30.14 TEMPORARY OVERHEAD FEEDS

E30.14.1 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.

E30.14.2 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.

E30.14.3 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.

E30.14.4 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.

#### E30.15 SAFE EXCAVATION

E30.15.1 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 F and Manitoba Workplace Safety and Health Regulation 217 latest revision.

#### E30.16 SAFE HANDLING

E30.16.1 The Contractor shall apply handling techniques in accordance with Manitoba Workplace Health and Safety Regulation 217 (latest revision).

#### E30.17 ELECTRIC CABLES AND CONDUITS

a) 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.

- b) 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.
- c) 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.
- d) The Contractor shall provide Manitoba Hydro's inspector sufficient opportunity, in the sole discretion of Manitoba Hydro, to inspect the work.

#### E30.18 PRECAST CONCRETE BASES

- E30.18.1 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.
- E30.18.2 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.

#### E30.19 STREET LIGHT POLES AND ARMS

- E30.19.1 The Contractor shall handle, store, transport, and provide proper load securement for the poles and arms in a manner to prevent damage.

#### E30.20 LUMINAIRES

- E30.20.1 The Contractor shall handle, store, transport and unload the luminaires in their original packaging and in a manner to prevent damage.

#### E30.21 SMALL MATERIAL

- E30.21.1 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.

#### E30.22 CARE OF MATERIALS

- E30.22.1 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.

#### E30.23 WIRE AND CABLE REEL STORAGE

- E30.23.1 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.
- E30.23.2 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.

### E30.24 REEL HANDLING

- E30.24.1 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.
- E30.24.2 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.
- E30.24.3 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.
- E30.24.4 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.

### E30.25 PRESSURIZED WATER/VACUUM EXCAVATION

- E30.25.1 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.
- E30.25.2 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 F.

### E30.26 REMOVAL STREET LIGHT POLE FROM EXISTING BASE

- E30.26.1 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.
- E30.26.2 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.
- E30.26.3 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.

### E30.27 REMOVAL OF BASE AND DIRECT BURIED STREET LIGHT POLE

- E30.27.1 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.
- E30.27.2 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.
- E30.27.3 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.

### E30.28 INSTALLATION OF FOUNDATION - CONCRETE BASE

- E30.28.1 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.
- E30.28.2 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.
- E30.28.3 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.
- E30.28.4 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.
- E30.28.5 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.
- E30.28.6 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.
- E30.29 BASE MOUNTED STREET LIGHT POLES**
- E30.29.1 This shall include all work required to install the street light pole on the concrete base as set forth in this Specification.
- E30.29.2 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.
- E30.29.3 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.
- E30.29.4 The Contractor shall level the street light pole in all 4 directions. Leveling shims may be used.
- E30.29.5 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.
- E30.29.6 Unless otherwise specified, excess underground cable and 2C-12 wire shall be left inside the hand hole with the hand hole cover loosely installed.
- E30.29.7 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.
- E30.30 LUMINAIRES AND ASSOCIATED WIRING**
- E30.30.1 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.

E30.30.2 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

E30.30.3 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.

### E30.31 BREAK AWAY BASES

E30.31.1 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.

E30.31.2 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.

### E30.32 SPLICING/CONNECTING CABLES

E30.32.1 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 G). Termination in the hand hole may include the installation of an inline fuse holder.

E30.32.2 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).

### E30.33 EXCAVATION

E30.33.1 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 1/4" 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.

E30.33.2 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.

### E30.34 LAYING CABLES

E30.34.1 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.

- E30.34.2 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.
- E30.34.3 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
- E30.34.4 During installation, under no circumstance is the cable to be subjected to a bending radius tighter than that detailed in the Standards.
- E30.34.5 Where specified in the Standards or on the construction drawings, the Contractor shall install the street light cable in a conduit.

### E30.35 INSTALLING CONDUIT AND CABLE BY BORING (HORIZONTAL DIRECTIONAL DRILLING)

- E30.35.1 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 kelly grip in a manner so as to guard against damage.
- E30.35.2 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 F. Maximum pulling tensions on any streetlight cable shall be limited to 2.9 kN/0.65 kips.
- E30.35.3 Drilling fluids and associated waste materials shall be disposed of in a manner that minimizes environmental effects.
- E30.35.4 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

### E30.36 BURIED UTILITY CROSSINGS

- E30.36.1 All buried obstructions are not necessarily shown on the reference drawings and the locations of those indicated are approximate only.
- E30.36.2 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 F shall be followed when crossing natural gas pipelines and electrical cables by the directional boring method.
- E30.36.3 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.

E30.36.4 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.

### E30.37 BENDING CABLES/CONDUITS AND INSTALLATION INTO STANDARDS

E30.37.1 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.

E30.37.2 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.

E30.37.3 Unless otherwise directed, excess underground cable and 2C-12 wire shall be left inside the hand hole with the hand hole cover loosely installed.

### E30.38 BACKFILL

E30.38.1 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.

E30.38.2 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.

E30.38.3 Excavations remaining where poles have been removed shall be backfilled with spoil, pit run gravel or ¾" 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.

E30.38.4 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.

E30.38.5 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.

#### E30.39 DEFECTIVE WORK & WARRANTY

E30.39.1 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.

E30.39.2 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.

#### E30.40 AS-BUILT DRAWING

E30.40.1 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 poles.

#### E30.41 MEASUREMENT AND PAYMENT

E30.41.1 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.

E30.41.2 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.

E30.41.3 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.

- E30.41.4 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.
- E30.41.5 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.
- E30.41.6 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.
- E30.41.7 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.
- E30.41.8 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.

- E30.41.9 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.
- E30.41.10 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.
- E30.41.11 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.
- E30.41.12 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.
- E30.41.13 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.
- E30.41.14 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.

- E30.41.15 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.
- E30.41.16 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.
- E30.41.17 Expose Underground Cable Entrance of Existing Streetlight Pole and Install New Streetlight Cable(s).
- (a) 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.

### **E31. VIDEO INSPECTION OF SEWERS**

#### DESCRIPTION

- E31.1 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

- E31.2 Video inspection of existing sewers shall be done in accordance with CW 2130 and CW 2145.

#### MEASUREMENT AND PAYMENT

- E31.3 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.

### **E32. CONCRETE RETAINING CURBS AT BACK OF SIDEWALK**

#### DESCRIPTION

- E32.1 General

- E32.1.1 Further to CW 3325 and CW 3310, this specification will cover the installation of concrete sidewalk containing block outs for interlocking stone pavers.

- E32.1.2 Referenced Standard Construction Specifications
- (a) CW 3325 – Portland Cement Concrete Sidewalk
  - (b) CW 3310 – Portland Cement Concrete Pavement Works

#### MATERIALS

E32.2 Concrete mix design shall comply with CW 3310

E32.2.1 All other materials as per CW 3310.

#### CONSTRUCTION METHODS

E32.3 Construction as per Contract Drawings and as per CW 3310 and CW3325.

E32.4 It is anticipated that the St. Ignatius Parish will temporarily remove the chain link fence along their property to accommodate construction of new retaining curb. The existing aluminum posts will remain during construction and all efforts shall be made as to not disturb the posts. Once the retaining curb is complete, the St. Ignatius Parish will reinstall the chain link fence to the existing posts. The Contractor is expected to coordinate with the St. Ignatius Parish for this Work.

E32.5 It is anticipated that St. Ignatius Parish will permit removal of existing trees that are embedded within the existing retaining curb.

E32.6 Height, width and length of retaining curbs at the back of the sidewalk to be constructed as per the Drawings. All forming and reinforcing steel is incidental to the unit bid price Bid for this specification.

E32.7 Any thickened edges of sidewalk will be incidental to the unit bid price Bid for the concrete sidewalk.

E32.8 Retaining curb concrete shall have a smooth face finish.

E32.9 Curing compound is to be applied to all exposed surfaces, and promptly following stripping of forms.

E32.10 Bonding agent is to be applied to bearing surfaces prior to placement of retaining curbs and is incidental to the unit bid price.

E32.11 Free draining granular backfill will be placed behind the retaining curb up to 200mm below lip of curb shall be incidental to the unit bid price. Final surface such as boulevard grading or asphalt shall be paid for at the corresponding unit bid price.

#### MEASUREMENT AND PAYMENT

E32.12 Supply and Installation of concrete retaining curbs up to 200mm tall at the back of sidewalk will be measured on a per metre basis and paid for at the Contract Unit Price for "Construction of Retaining Curb (Up To 200 mm ht Separate)". The length to be paid for shall be the total number of linear metres formed and placed in accordance with this Specification and as measured and accepted by the Contract Administrator.

E32.13 Supply and Installation of concrete retaining curbs 200 to 400mm tall at the back of sidewalk will be measured on a per metre basis and paid for at the Contract Unit Price for "Construction of Retaining Curb (200 to 400mm ht Separate)". The length to be paid for shall be the total number of linear metres formed and placed in accordance with this Specification and as measured and accepted by the Contract Administrator.

**E33. CATCH BASIN OUTFLOW RESTRICTORS**

DESCRIPTION

E33.1 Further to CW 2130, this specification covers the supply and installation of sewer service outlet restrictors.

MATERIALS AND CONSTRUCTION METHODS

E33.2 Restrictors are to be installed as per the Contract Drawings and SD-025B.

MEASUREMENT AND PAYMENT

E33.3 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.

**E34. LONGITUDINAL SAWCUTTING OF SIDEWALK**

DESCRIPTION

E34.1 This specification covers the longitudinal sawcutting of the north and south sidewalks prior to pavement removal.

E34.2 Sidewalk sawcutting will be required to cleanly remove concrete sidewalk to accommodate roadway excavation and temporary widening while maintaining a 1.5m walking path.

CONSTRUCTION METHODS

E34.3 Sawcut and remove sidewalk as per CW 3230 – R8 and 3235 – R9

MEASUREMENT AND PAYMENT

E34.4 Longitudinal sidewalk sawcutting will be measured on a per metre basis and paid for at the Contract Unit Price for "Sawcutting". The length to be paid for shall be the total number of linear metres sawcut in accordance with this Specification and as measured and accepted by the Contract Administrator

**E35. "A" BASE – BASE COURSE MATERIAL**

DESCRIPTION

E35.1 This specification covers the supply and installation of "A" Base - base course material. "A" base – base course material is utilized in this project as an alternative to limestone in areas where the granular backfill will come in direct contact with existing tree root systems.

E35.2 "A" Base is to be used on Corydon Avenue between Thurso Street and Cambridge Street for backfill under the splash strip and on the Harrow Street bike path south of Taylor Avenue.

CONSTRUCTION METHODS

E35.3 "A" Base material shall be supplied and installed in accordance with CW3110 item 3.4 "Placement of Sub-Base Material with Geotextile Fabric".

E35.3.1 Sieve gradation shall be as follows:

Sieve Designation	% Passing
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19mm	100
4.75mm	35-70
0.425mm	15-30
0.075mm	6-17

- E35.4 All "A" Base - base course material shall be placed and compacted in maximum 100mm lifts as specified to finished thickness as shown on the drawings.

#### MESAUREMENT AND PAYMENT

The supply, installation and compaction of "A" Base – base course material will measured on the basis of tonnage and will be paid for at the Contract Unit Price for "Base Course Material – Granular 'A' Base". The tonnage paid will be the total number to tonnes supplied and placed in accordance with this specification as measured and accepted by The Contract Administrator. Payment will be dependant on the review and confirmation of weigh scale tickets supplied to the Contract Administrator by the Contractor.

### **E36. WORKING IN PROXIMITY TO MANITOBA HYDRO OVERHEAD TRANSMISSION LINES**

#### DESRPTION

- E36.1 Contractor is responsible to meet with Manitoba Hydro at the onset of the Taylor Avenue Works to verify the working restrictions, equipment and material storage, location of any site trailers and clearance requirements related to the transmission crossing on Taylor Avenue east of Harrow Street and the lines running longitudinally along the south property line of Taylor Avenue.
- E36.2 The Contractor shall organize all safety watches that may be required.

#### MEASUREMENT AND PAYMENT

- E36.3 Manitoba Hydro safety watches and precautions required for working in proximity to Manitoba Hydro Overhead transmission lines shall not be measured or paid and will be considered incidental to the Work.

### **E37. TEMPORARY WOODEN TRANSIT STOP RAMPS**

#### DESCRIPTION

- E37.1 This specification covers the production, supply and placement of temporary bus stop platforms. They are intended to be portable and moveable to accommodate construction activity through areas where Transit stops are located and passenger loading is temporarily required from a lane that is not adjacent to a curb or sidewalk on the right hand side of a Transit bus.
- E37.2 These stops are intended to enable a wheelchair to navigate up a ramp to a platform that is high enough to accommodate the use of Transit low floor buses such that the wheelchair user can enter the bus directly from the top of the platform.
- E37.3 These are not required at all locations where Transit stops currently exist. Some Transit stops will be relocated to locations where a curb and sidewalk are available, temporarily suspended, or relocated outside of the construction area.

#### CONSTRUCTION METHODS

- E37.4 The stops shall be constructed as determined by the Contractor with the following criteria;
- (i) A durable structure that can be moved by machines on site;
  - (ii) Timber based or better materials;



- (iii) Surface for platform and ramp shall be either plywood or timber decking with zero gap at the time of install;
- (iv) 5-7" in total height;
- (v) Include one ramp with 8-10% grade
- (vi) All connections to be secured with screws.
- (vii) Top of platform to be 2.0m by 2.0m minimum measure from outside edges of top of platform.
- (viii) Platform to be plumb, Contractor to place shims or level course as required, and temporary affix to base, sub-base course, or existing pavement at two points.

E37.5 The stops shall be placed at locations approved by Transit and the Contract Administrator in consultation with the Contractor to accommodate construction staging.

#### MEASUREMENT AND PAYMENT

E37.6 Temporary Wooden Transit Stop Ramps will be measured on a per unit basis and paid for at the Contract Unit Price for "Temporary Wooden Transit Stop Ramps". 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. Placing the stops and relocating will be incidental.

### **E38. TIE BARS FOR LONGITUDINAL JOINTS IN PLAIN DOWELLED CONCRETE**

#### DESCRIPTION

E38.1 Further to CW 3230 and CW 3310, this specification covers the Tie Bar requirements installed in Plain Dowelled concrete on longitudinal joints

#### CONSTRUCTION METHODS

E38.2 20M x 760mm Tie Bars shall be installed on Longitudinal joints as per CW 3310 and spaced at 0.500m OC intervals.

#### MEASUREMENT AND PAYMENT

E38.3 No additional measurement and payment shall be made for 20M installed on longitudinal joints except where they are drilled into existing concrete in which case measurement and payment shall be in accordance with CW 3230.

### **E39. MOBILIZATION AND DEMOBILIZATION PAYMENT**

#### DESCRIPTION

E39.1 This Specification shall cover all operations relating to the mobilization and demobilization of the Contractor to the project location(s).

E39.2 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.

E39.3 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

E39.4 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 and/or sites;
  - (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.

E39.5 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

E39.6 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.

E39.7 Further to B9, B17, C12 and E39.6, 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.

E39.8 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.

E39.9 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.

E39.10 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.

#### **E40. GEOTEXTILE FABRIC AND GEOGRID FOR MAINLINE PAVING**

E40.1 Form B Unit Prices has two line items; one for Class A Geogrid and one for Separation/Filtration Fabric. This results in a two-stage operation for placement of these materials in the field. Alternatively, these materials may be placed as one operation using a Geotextile/Class A Geogrid Composite provided each material individually meets the required City Standard Specification for the respective material.

# **APPENDIX 'A'**

# **GEOTECHNICAL REPORT**

## **APPENDIX 'B'**

# **CYCLEGRIP MMAX SPECIFICATION FOR METHYL METHACRYLATE BIKE LANE TREATMENT**

## **APPENDIX 'C'**

# **APPLICATION INSTRUCTIONS FOR MMAX AREA MARKINGS**

## **APPENDIX 'D'**

# **MANITOBA HYDRO GAS INFRASTRUCTURE OPERATING CONSTRAINTS**

# **APPENDIX 'E'**

## **MANITOBA HYDRO ELECTRICAL STANDARDS**

## **APPENDIX 'F'**

# **MANITOBA HYDRO SAFE EXCAVATION AND SAFETY WATCH GUIDELINES**



## **APPENDIX 'G'**

# **MANITOBA HYDRO GELCAP KIT DETAIL**

## **APPENDIX 'H'**

# **MANITOBA HYDRO ELECTRIC/GAS FACILITIES LOCATE FORM**

# **APPENDIX 'I'**

## **MANITOBA HYDRO SAMPLE JOB PLAN**

## **APPENDIX 'J'**

# **MANITOBA HYDRO NETWORK COMMISSIONING REPORT**

# **APPENDIX 'K'**

## **SITE INVESTIGATION PHOTOS**