



**THE CITY OF WINNIPEG**

**TENDER**

**TENDER NO. 29-2026**

**2026 CORYDON AVENUE PAVEMENT REHABILITATION AND WATER MAIN  
RENEWAL**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 2026 Corydon Avenue Pavement Rehabilitation and Water Main Renewal

### **B2. SUBMISSION DEADLINE**

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

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

### **B3. ENQUIRIES**

B3.1 All enquiries shall be directed to the Contract Administrator identified in D3.1.

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

### **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 they have received all addenda and is advised to check the MERX website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.
- 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 D3.

## **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 their sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.
- 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 they wish 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 their Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with 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 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.
- B7.3 The Bid shall be submitted electronically through MERX at [www.merx.com](http://www.merx.com).
- B7.3.1 Bids will **only** be accepted electronically through MERX.
- B7.4 Bidders are advised that inclusion of terms and conditions inconsistent with the Tender document, including the General Conditions, will be evaluated in accordance with 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 their own name, their name shall be inserted;
  - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
  - (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
  - (d) if the Bidder is carrying on business under a name other than their own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.
- 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 their own name, it shall be signed by the Bidder;
  - (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
  - (c) if the Bidder is a corporation, it shall be signed by their duly authorized officer or officers;

- (d) if the Bidder is carrying on business under a name other than their own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.

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.

B9.1.1 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 the applicable terms of C24 shall apply.

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.

B9.6 Form B: Prices is organized into Parts: Part 1, Part 2, Part 3, Part 4 and Part 5 of the Work. Bidders shall provide a total price for each Part and, on the summary sheet, a Total Bid Price consisting of the sum of prices for Part 1, Part 2, Part 3, Part 4 and Part 5.

## **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) N/A

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

B11.1 Further to C3.3, Bidders, by responding to this Tender, declare that no Conflict of Interest currently exists, or is reasonably expected to exist in the future.

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 their participation in the Tender process or the Work; or
  - (f) has knowledge of confidential information (other than confidential information disclosed by the City in the normal course of the Tender process) of strategic and/or material relevance to the Tender process or to the Work that is not available to other bidders and that could or would be seen to give that Bidder an unfair competitive advantage.

B11.3 In connection with their 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 their sole discretion, waive any and all perceived, potential or actual Conflicts of Interest. The City's waiver may be based upon such terms and conditions as the City, in their sole discretion, requires to satisfy itself that the Conflict of Interest has been appropriately avoided or mitigated, including requiring the Bidder to put into place such policies, procedures, measures and other safeguards as may be required by and be acceptable to the City, in their sole discretion, to avoid or mitigate the impact of such Conflict of Interest.

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 their sole discretion:

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

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

## **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, Purchasing Division website at <https://www.winnipeg.ca/matmgt/Templates/files/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);
- (d) have completed the Accessible Customer Service online training required by the Accessibility for Manitobans Act (AMA) (see B12.5 and C6.19)

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 at [https://www.winnipeg.ca/matmgt/Safety/safety\\_consultant.stm](https://www.winnipeg.ca/matmgt/Safety/safety_consultant.stm).

B12.5 Further to B12.3(d), the Bidder acknowledges that they and all Subcontractors have obtained training required by the Accessibility for Manitobans Act (AMA) available at <https://accessibilityymb.ca/resources-events-and-training/online-training.html> for anyone that may have any interaction with the public on behalf of the City of Winnipeg.

B12.6 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

B12.7 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

### **B13. BID SECURITY**

B13.1 The Bidder shall include in their Bid Submission bid security in the form of a digital bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in Form G1: Bid Bond and Agreement to Bond, available at: <https://www.winnipeg.ca/media/4929/>.

B13.2 Bid security shall be submitted in a digital format meeting the following criteria:

- (a) The version submitted by the Bidder must have valid digital signatures and seals;
- (b) The version submitted by the Bidder must be verifiable by the City with respect to the totality and wholeness of the bond form, including: the content; all digital signatures and digital seals; with the surety company, or an approved verification service provider of the surety company.
- (c) The version submitted must be viewable, printable and storable in standard electronic file formats compatible with the City, and in a single file. Allowable formats include pdf.
- (d) The verification may be conducted by the City immediately or at any time during the life of the bond and at the discretion of the City with no requirement for passwords or fees.
- (e) The results of the verification must provide a clear, immediate and printable indication of pass or fail regarding B13.2(a).

B13.3 Bonds failing the verification process will not be considered to be valid and the bid shall be determined to be non-responsive in accordance with B17.1(a).

B13.4 Bonds passing the verification process will be treated as original and authentic.

B13.4.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.

B13.5 The bid security of the successful Bidder and the next two lowest evaluated responsive and responsible Bidders will be released by the City when a Contract for the Work has been duly formed with the successful Bidder and the contract securities are furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.

B13.6 The bid securities of all Bidders will be released by the City as soon as practicable following notification by the Contract Administrator to the Bidders that no award of Contract will be made pursuant to the Tender.

### **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 their 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(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.
- B17.2.1 Any bid with an apparent imbalance between the unit prices in Part 1, Part 2, Part 3 Part 4 and Part 5 may be determined to be non-responsive and rejected by the Award Authority in their sole discretion, acting reasonably.
- B17.3 Further to B17.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in their Bid or in other information required to be submitted, that they are qualified.
- 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 Further to B17.1(a), in the event that a unit price is not provided on Form B: Prices, the City may determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.
- B17.4.2 Where MRST is shown on Form B as a separate line item, if that Line item is not completed, the MRST shall be considered to be included in the Total Bid Price.
- B17.4.3 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 their own forces;
  - (d) only one Bid is received; or
  - (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.
- B18.3 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 the applicable terms of C24 shall apply.
- 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 their Bid upon written request to the Contract Administrator.
- B18.5 As noted in D2 and identified in Form B: Prices, the Work of Part 2 will be contingent upon Winnipeg Transit approving funding for the Work. If sufficient funding for Part 2 of the Work is not approved by Winnipeg Transit the City shall have the right to eliminate all or any portion of Part 2 of the Work in accordance with D2.
- B18.6 As noted in D2 and identified in Form B: Prices, the Work of Part 3 will be contingent upon City of Winnipeg Active Transportation approving funding for the Work. If sufficient funding for Part 3 of the Work is not approved by City of Winnipeg Active Transportation the City shall have the right to eliminate all or any portion of Part 3 of the Work in accordance with D2.
- B18.7 As noted in D2 and identified in Form B: Prices, the Work of Part 4 and Part 5 will be contingent upon City of Winnipeg Water and Waste approving funding for the Work. If sufficient funding for Part 4 of the Work and/or Part 5 of the Work is not approved by City of Winnipeg Water and Waste the City shall have the right to eliminate all or any portion of Part 4 of the Work and/or Part 5 of the Work in accordance with D2.

## PART C - GENERAL CONDITIONS

### C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2025-11-01) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Purchasing Division website at [http://www.winnipeg.ca/matmgt/gen\\_cond.stm](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 five parts:

- (a) Part 1 – City Funded Work
- (b) Part 2 – Winnipeg Transit Funded Work
- (c) Part 3 – City of Winnipeg Active Transportation Funded Work
- (d) Part 4 – Water and Waste Funded Work
- (e) Part 5 – Water and Waste Funded Water Main Renewal Work

##### **Part 1 – City Funded Work**

D2.2 City Funded Work shall consist of:

- (a) Minor Rehabilitation
  - (i) Westbound Corydon Avenue – Shaftesbury Boulevard to Tuxedo Avenue
  - (ii) Eastbound Corydon Avenue – Tuxedo Avenue to Edgeland Boulevard
- (b) Major Rehabilitation
  - (i) Westbound Corydon Avenue – Tuxedo Avenue to Kenaston Boulevard
  - (ii) Eastbound Corydon Avenue – Edgeland Boulevard to Kenaston Boulevard

##### **Part 2 – Winnipeg Transit Funded Work**

D2.3 Winnipeg Transit Funded Work shall consist of:

- (a) Transit Improvements on Corydon Avenue - Shaftesbury Boulevard to Kenaston Boulevard

##### **Part 3 – City of Winnipeg Active Transportation Funded Work**

D2.4 City of Winnipeg Active Transportation Funded Work shall consist of:

- (a) Construction of Multi Use Path
  - (i) South side of Corydon Avenue – Park Boulevard to Edgeland Boulevard
  - (ii) North side of Corydon Avenue – Edgeland Boulevard to Doncaster Street
  - (iii) Lockston Alley – Doncaster Street to Kenaston Boulevard

##### **Part 4 – Water and Waste Funded Work**

D2.5 Water and Waste Funded Work shall consist of:

- (a) Manhole Repairs
  - (i) Corydon Avenue – Manhole Repair (MH60006038)
  - (ii) Corydon Avenue – Manhole Repair (MH60006036)
  - (iii) Corydon Avenue – Manhole Repair (MH60006086)
  - (iv) Corydon Avenue – Manhole Repair (MH60005911)
  - (v) Doncaster Street – Manhole Repair (MH60006106)

### **Part 5 – Water and Waste Funded Water Main Renewal Work**

- D2.6 Water and Waste Funded Watermain Renewal Work shall consist of:
- (a) Watermain Renewals
    - (i) Corydon Avenue from Park Boulevard North to Tuxedo Avenue,
    - (ii) Handsart Boulevard from Corydon Avenue to Nanton Boulevard
- D2.7 The City currently has no approved funding in the Capital Budget for Part 2, Part 3, Part 4 and Part 5 of the Work, but is anticipating receiving notification about funding from Winnipeg Transit, City of Winnipeg Active Transportation and the City of Winnipeg Water and Waste Department by late May 2026. Part 2, Part 3, Part 4 and Part 5 of the Work is contingent upon Winnipeg Transit, City of Winnipeg Active Transportation and the City of Winnipeg Water and Waste Department approving sufficient funding.
- D2.7.1 Further to C7.1, if notice of sufficient funding is not received, the City shall have the right to eliminate all or any portion of Part 2, Part 3, Part 4 and/or Part 5, and the Contract Price will be reduced accordingly.
- D2.7.2 Further to C7.5, C7.5.1, and C7.6, a reduction in the Contract Price pursuant to D2.7.1 shall not be considered in calculating the aggregate reduction in the Contract Price for purposes of C7.5.
- D2.7.3 If all or any portion of Part 2, Part 3, Part 4 and/or Part 5 is eliminated pursuant to D2.7.1, the time periods stipulated in D18 for Substantial Performance of the Work and in D20 for Total Performance of the Work will be reduced proportionally by the Contract Administrator acting reasonably.
- D2.8 The major components of the Work are as follows:
- (a) Minor Rehabilitation
    - (i) Planing existing asphalt pavement
    - (ii) Removal of existing asphalt and concrete pavement
    - (iii) Removal of existing catch pits and catch basins
    - (iv) Installation of catch basins and sewer service pipe
    - (v) Removal of existing concrete curbs and splash strip
    - (vi) Full depth concrete repairs of existing joints and slabs
    - (vii) Construction of monolithic concrete curb and splash strip
    - (viii) Construction of monolithic concrete bullnose and median slabs
    - (ix) Construction of 150mm concrete barrier curb
    - (x) Construction of asphalt pavement overlay type SP1
    - (xi) Renewal of 100mm concrete sidewalk
    - (xii) Construction of 150mm reinforced concrete sidewalk
    - (xiii) Installation of detectable surface warning tiles
    - (xiv) Placement of imported fill
    - (xv) Boulevard grading and sodding
  - (b) Major Rehabilitation
    - (i) Complete manhole and sewer Work (sewer inspections as required)
    - (ii) Planing existing asphalt pavement
    - (iii) Removal of existing asphalt and concrete pavement
    - (iv) Removal of existing catch pits and catch basins
    - (v) Installation of catch basins and sewer service pipe
    - (vi) Removal of concrete barrier and modified barrier curbs
    - (vii) Placement of separation/filtration geotextile fabric
    - (viii) Placement and compaction of sub-base and base course material

- (ix) Modifications to Traffic Signals and Pedestrian Crossings (By Others)
  - (x) Construction of 200mm reinforced concrete pavement
  - (xi) Construction of monolithic concrete curb and splash strip
  - (xii) Construction of monolithic concrete bullnose and median slabs
  - (xiii) Construction of 150mm concrete barrier curb
  - (xiv) Construction of 180mm concrete modified barrier curb
  - (xv) Construction of asphalt pavement overlay type SP1
  - (xvi) Renewal of 100mm concrete sidewalk
  - (xvii) Construction of 150mm reinforced concrete sidewalk
  - (xviii) Installation of detectable surface warning tiles
  - (xix) Placement of imported fill
  - (xx) Boulevard grading and sodding
- (c) City of Winnipeg Active Transportation Work
- (i) Tree trimming
  - (ii) Installation of bollards
  - (iii) Removal of concrete pavement and curbs
  - (iv) Relocation of Hydrants
  - (v) Relocation of Hydro Poles (By Others)
  - (vi) Construction of 150mm concrete barrier curb
  - (vii) Construction of monolithic concrete ramp curb and sidewalk
  - (viii) Installation of detectable surface warning tiles
  - (ix) Construction of multi-use asphalt path (Type MS1 asphalt) including excavation and placement of pathway structure
- (d) Water and Waste Work
- (i) Replace manhole base, replace manhole risers, repair and grout cracks
- (e) Water and Waste Watermain Renewal Work
- (i) Installation of 200 mm and 150 mm PVC water main by trenchless methods
  - (ii) Install new valves, water service shutoff valves
  - (iii) Abandonment of existing water mains
  - (iv) Installation of hydrant assemblies, gate valves and other appurtenances
  - (v) Reconnection and renewal of water services
  - (vi) Tie-in to existing water mains
  - (vii) Removal of existing hydrants
  - (viii) Abandonment of existing gate valves
  - (ix) Flushing, hydrostatic leakage testing and disinfection of new water main
  - (x) Restoration of pavement, sidewalk and boulevard

### **D3. CONTRACT ADMINISTRATOR**

D3.1 The Contract Administrator is AECOM Canada ULC, represented by:

Thomas Findlay, P.Eng.

Project Manager, Transportation Engineer

Telephone No. (204) 390-1464

Email Address [thomas.findlay@aecom.com](mailto:thomas.findlay@aecom.com)

D3.2 At the pre-construction meeting, Thomas Findlay 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 their 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. FURNISHING OF DOCUMENTS**

- D5.1 Upon award of the Contract, the Contractor will be provided with 'issued for construction' Contract Documents electronically, including Drawings in PDF format only.

#### **SUBMISSIONS**

#### **D6. AUTHORITY TO CARRY ON BUSINESS**

- D6.1 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.

#### **D7. SAFE WORK PLAN**

- D7.1 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.
- D7.2 The Safe Work Plan shall be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Purchasing Division website at <http://www.winnipeg.ca/matmgt/safety/default.stm>
- D7.3 Notwithstanding B12.4 at any time during the term of the Contract, the City may, at their sole discretion and acting reasonably, require an updated COR Certificate or Annual Letter of good Standing. A Contractor, who fails to provide a satisfactory COR Certificate or Annual Letter of good Standing, will not be permitted to continue to perform any Work.

#### **D8. INSURANCE**

- D8.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least five million dollars (\$5,000,000.00) inclusive, with The City of Winnipeg and Manitoba, its Ministers, officers, employees and agents added as additional insureds; such liability policy to also contain a cross-liability clause, contractual liability, unlicensed motor vehicle liability, non-owned automobile liability and products and completed operations cover, to remain in place at all times during the performance of the Work and throughout the warranty period;
  - (b) Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$5,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence.
  - (c) an all risks Installation Floater carrying adequate limits to cover all supplies and/or materials intended to form party of any installation.

- (d) all risks property insurance for all Contractors equipment and tools to be used in the connection of the work.

D8.2 Deductibles shall be borne by the Contractor.

D8.3 All subcontractors performing Work on the Project shall provide the Contractor with evidence of insurance as outlined in D 8.1 (a) and D8.1 (b) above and be registered with Workers Compensation Board of Manitoba and maintain insurance and workers compensation coverage throughout the performance of the Work, the Contractor shall provide the Contract Administrator with evidence of same prior to the commencement of any Work by the Subcontractor.

D8.4 All policies shall be taken out with insurers duly licensed to carry on business in the Province of Manitoba.

D8.5 The Contractor shall provide the Contract Administrator with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in C4 for the return of the executed Contract Documents, as applicable.

D8.6 The Contractor shall not cancel, materially alter, or cause the policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

## **D9. CONTRACT SECURITY**

D9.1 The Contractor shall provide and maintain the performance bond and the labour and material payment bond until the expiration of the warranty period in the form of:

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

D9.1.1 Bonds are available at:

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

D9.1.2 Where the contract security is a performance bond, it may be submitted in hard copy or digital format. If submitted in digital format the contract security must meet the following criteria:

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

- (c) the version submitted must be viewable, printable and storable in standard electronic file formats compatible with the City, and in a single file. Allowable formats include pdf.
- (d) the verification may be conducted by the City immediately or at any time during the life of the bond and at the discretion of the City with no requirement for passwords or fees.
- (e) the results of the verification must provide a clear, immediate and printable indication of pass or fail regarding D9.1(b).

D9.1.3 Digital bonds failing the verification process will not be considered to be valid and may be determined to be an event of default in accordance with C18.1. If a digital bond fails the verification process, the Contractor may provide a replacement bond (in hard copy or digital format) within seven (7) Calendar Days of the City's request or within such greater period of time as the City in their discretion, exercised reasonably, allows.

D9.1.4 Digital bonds passing the verification process will be treated as original and authentic.

D9.2 The Contractor shall provide:

- (a) the required Contract Security to:

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

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

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

D9.3 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 D9.1(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.

## **D10. SUBCONTRACTOR LIST**

D10.1 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 two (2) Business Days prior to the commencement of any Work on the Site.

## **D11. DETAILED WORK SCHEDULE**

D11.1 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.

D11.2 If, prior to submitting the Detailed Work Schedule, the Contractor does not receive notification pursuant to D13.4 that all or some portion of Part 2, Part 3, Part 4 and Part 5 of the Work may be commenced, they shall complete the Detailed Work Schedule for only Part 1 of the Work assuming that, if all of Part 2, Part 3, Part 4 and Part 5 is eliminated, the time periods stipulated in D18 for Substantial Performance of the Work and in D20 for Total Performance of the Work will be reduced by two (2) Working Days per part.

D11.3 If, after submitting the Detailed Work Schedule, the Contractor receives notification that all or any portion of Part 2, Part 3, and Part 4 of the Work may be commenced, they shall submit a

revised Detailed Work Schedule no later than two (2) Business Days from receipt of the notification.

- D11.4 The detailed work schedule shall consist of the following:
- (a) a Gantt chart for the Work acceptable to the Contract Administrator
- D11.5 Further to D11.4(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.

## **D12. REQUIREMENTS FOR SITE ACCESSIBILITY PLAN**

- D12.1 The Contractor shall provide the Contract Administrator with an Accessibility Plan at least five (5) Business Days prior to the commencement of any Work on the Site.
- D12.2 The Accessibility Plan shall demonstrate how the Contractor will accommodate the safe passage of pedestrians and cyclists in accordance with the Manual of Temporary Traffic Control, the Contract Drawings, Staging Plans, and Streets By-Law No. 1481/77 at all times for the duration of the Construction. Unless noted in the Contract, the Accessibility Plan must include a written plan for the following:
- (a) How the Contractor will maintain at least one crossing in each direction for each intersection (one north/south crosswalk and one east/west crosswalk).
  - (b) How the Contractor will maintain access to bus stops within the site.
  - (c) How the Contractor will maintain access to pedestrian corridors and half signals.
  - (d) How the Contractor will maintain cycling facilities.
  - (e) How the Contractor will maintain access to residents and businesses unless otherwise noted in the Contract.
  - (f) Any required detour signage at adjacent crossings to facilitate sidewalk or active transportation pathway closures.
- D12.3 The Accessibility Plan may also include figures, sketches, or drawings to demonstrate the proposed plan.
- D12.4 The Accessibility Plan shall include written details on how the Contractor intends to review, maintain, and document all items related to the Accessibility Plan on-site during Construction, including, but not limited to:
- (a) Signage
  - (b) Temporary Ramping
  - (c) Transit Stops
  - (d) Detour Signage
- D12.5 At minimum, the Contractor shall review the site conditions on a daily basis to ensure that all features related to the Accessibility Plan are in place. The site review is intended to correct deficiencies as a result of unforeseen events such as wind, traffic, or the general public. Deficiencies that are direct result of the Contractors actions must be corrected immediately.
- D12.6 Any changes to the Accessibility Plan must be approved by the Contract Administrator.
- D12.7 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the site has been maintained.
- D12.8 Deficiencies as a direct result of actions by the Contractor that are not immediately corrected and/or failure to produce records that demonstrate that the site was maintained in compliance with the Accessibility Plan may result in a pay adjustment via the monthly Progress Payment. The rate of pay adjustment will be as per the following schedule:

- (a) First Offence – A warning will be issued and documented in the weekly or bi-weekly site meeting.
- (b) Second Offence – A field instruction to immediately correct the site will be issued by the Contract Administrator.
- (c) Third and subsequent Offences – A pay reduction will be issued in the amount of \$250.00 per instance and per day.

## **SCHEDULE OF WORK**

### **D13. COMMENCEMENT**

- D13.1 The Contractor shall not commence any Work until they are in receipt of an award letter from the Award Authority authorizing the commencement of the Work.
- D13.2 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 D6;
    - (ii) evidence of the workers compensation coverage specified in C6.17;
    - (iii) the twenty-four (24) hour emergency response phone number specified in D4.2.
    - (iv) the Safe Work Plan specified in D7;
    - (v) evidence of the insurance specified in D8;
    - (vi) evidence of the contract security specified in D8;
    - (vii) the subcontractor list specified in D10;
    - (viii) the detailed work schedule specified in D11;
    - (ix) the Requirements for Site Accessibility Plan specified in D12; and
    - (x) the direct deposit application form specified in C12.20.
  - (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.
- D13.3 The Contractor shall not commence the Work on the Site before May 19, 2026, and shall commence the Work on Site no later than May 25, 2026, as directed by the Contract Administrator and weather permitting.
- D13.4 The Contractor shall not commence Part 2, Part 3, Part 4 or Part 5 of the Work as described in D2 and identified in Form B: Prices, unless prior to May 19, 2026, they have received notification from the Contract Administrator that the City has received notice of sufficient funding from Winnipeg Transit, City of Winnipeg Active Transportation and the City of Winnipeg Water and Waste Department.
- D13.5 The City intends to award this Contract by May 15, 2026.
- D13.5.1 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 difference between the aforementioned intended and actual dates.

### **D14. WORKING DAYS**

- D14.1 Further to C1.1(xx);
- D14.1.1 The Contract Administrator will determine daily if a Working Day has elapsed and will record their assessment. On a weekly basis the Contract Administrator will provide the Contractor with a record of the Working Days assessed for the preceding week. The Contractor shall sign each report signifying that they agree with the Contract Administrator's determination of the Working Days assessed for the report period.

D14.1.2 Work done to restore the Site to a condition suitable for Work, shall not be considered “work” as defined in the definition of a Working Day.

D14.1.3 When the Work includes two or more major types of Work that can be performed under different atmospheric conditions, the Contract Administrator shall consider all major types of Work in determining whether the Contractor was able to work in assessing Working Days.

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

D15.1 Further to 3.10 of CW 1130, the Contractor shall require written permission forty-eight (48) hours in advance from the Contract Administrator for any work to be performed between 2000 hours and 0700 hours, or on Saturdays, Sundays, Statutory Holidays and or Civic Holidays.

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

D16.1 Further to C6.26, the Contractor’s attention is directed to the fact that other Contractors, the personnel of Utilities and the staff of the City may be working within the project limit, approach roadway, adjacent roadways or right-of-way. The activities of these agencies may coincide with the Contractors execution of work and it will be the Contractor’s responsibility to cooperate to the fullest extent with other personnel working in the area, and such cooperation is an obligation of the Contractor under the terms of Contract.

D16.2 Work by others on or near the Site will include but not necessarily be limited to:

- (a) Manitoba Hydro (Distribution)
  - (i) Relocation of distribution poles, guy wires and anchors
- (b) Manitoba Hydro (Gas)
  - (i) Safety watch for gas mains as required
- (c) Winnipeg Transit – Operation of regular bus routes and removal/Installation of transit shelters and bus stops signage where required
- (d) City of Winnipeg Traffic Service Branch – supply of signs as necessary and completion of line painting
- (e) City of Winnipeg Water and Waste Department – Possible investigation of services, operating water main valves, emergency repairs to Water and Waste Department Infrastructure and input related to the Water Main Renewal including inspection of main line water valves, watermain shutdowns and turn-ons, hydrant relocations.
- (f) Bell MTS / Rogers Shaw – adjustment of service pits / fibre optic cables as required
- (g) Telus – adjustment of manholes as required
- (h) City of Winnipeg Geomatics Branch – various work on survey monuments as required
- (i) City of Winnipeg Traffic Signals Branch – Installation of traffic signal poles and bases, pedestrian corridor poles and electrical cutovers
- (j) Manitoba Hydro Gas Division – Lowering and /or rock wrapping of underground main and services as required, and adjustment of impacted gas valves
- (k) City of Winnipeg - Streets Preservation Mill and Fill - East Bound Grant Avenue from Haney Street to Shaftesbury Boulevard and West Bound Grant Avenue from Shaftesbury Boulevard to Chalfont Road. Review schedule and traffic impacts. Contact Ryan Demianiw, C.E.T. Telephone No. 204 470-7226

D16.3 Further to D16.1 the Contractor shall cooperate and coordinate all activities with all parties performing required Work by Others. The Contractor must include and accommodate Work by Others identified in D16.2 or additional parties, in their construction schedule as per D11 and accommodate the necessary area on Site required for the Work by Others to complete the Work.

## 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 stages, which are identified on the Construction Staging plans listed in E1.4. Stages are further subdivided into major items of work.

- (a) Prior to commencing Stage 1, complete all required temporary pavement works and complete all possible under ground work within the project area including manhole repairs, manhole replacements, sewer repairs, sewer connections, catchbasin lead repairs, catchbasin/catchpit installations and associated inspections.
- (b) Coordinate with City of Winnipeg Traffic Signals to schedule required signals modifications and adjust pedestrian crossings as required.
- (c) **Stage 1**
  - (i) Corydon Avenue between Shaftsbury Boulevard and Tuxedo Avenue
    - ◆ Concrete Pavement Rehabilitation of gutter lane of westbound Corydon Avenue from Tuxedo Avenue to Shaftsbury Boulevard.
    - ◆ All Water Main Renewal scope of work on Corydon Avenue from Park Boulevard to Tuxedo Avenue.
    - ◆ All Water Main Renewal scope of work on Handsart Boulevard from Corydon Avenue to Nanton Avenue. Any Additional sequence of Work notes for Water main??
    - ◆ Concrete Pavement work on Grenfell Boulevard including the closure of the south end of Grenfell Boulevard at Corydon Avenue and the new pavement to connect Grenfell Boulevard to Tuxedo Avenue.
  - (ii) Corydon Avenue between Tuxedo Avenue and Kenaston Boulevard
    - ◆ Concrete Pavement Rehabilitation of the westbound lanes of Corydon Avenue from Tuxedo Avenue to Kenaston Boulevard, including construction of new transit bump out west of Edgeland Boulevard. Stage construction of pavement on Corydon Avenue westbound between Kenaston Boulevard and Grenadier Drive to maintain one lane of traffic in each direction at all times.
    - ◆ Construction of multi-use pathway on the north side of Corydon Avenue from Edgeland Boulevard to Doncaster Street. Including multi-use pathway work on Doncaster Street and the Lockston Avenue back lane.
- (d) **Stage 2**
  - (i) Corydon Avenue between Shaftsbury Boulevard and Tuxedo Avenue
    - ◆ Concrete Pavement Rehabilitation of median lane of westbound Corydon Avenue from Tuxedo Avenue to Shaftsbury Boulevard.
    - ◆ Construction of multi-use pathway on the south side of Corydon Avenue from Park Boulevard North to Edgeland Boulevard including multi-use pathway crossings.
  - (ii) Corydon Avenue between Tuxedo Avenue and Kenaston Boulevard
    - ◆ Concrete Pavement Rehabilitation of the eastbound lanes of Corydon Avenue from Tuxedo Avenue to Kenaston Boulevard. Stage construction of pavement on Corydon Avenue westbound between Kenaston Boulevard and Grenadier Drive to maintain one lane of traffic in each direction at all times.

- ◆ Construction of multi-use pathway on the south side of Corydon Avenue from Park Boulevard to Edgeland Boulevard including multi use pathway crossings.
- (e) For intersections open to traffic during construction, asphalt milling shall occur no earlier than 72 hours prior to final paving.
- (f) Final asphalt lift for gutter lane and median lane of Corydon Avenue westbound from Tuxedo Avenue to Shaftesbury to be completed during final paving of Stage 2.
- (g) Staging to occur as per CT-01 and CT-02.
- (h) Stage 1 to be completed prior to commencing Stage 2. Topsoil placement and finished grading of all boulevards and medians shall be completed prior to commencing construction of the asphaltic concrete overlay, including the scratch course.
- (i) Immediately following the completion of each stage, the Contractor shall clean up the Site and remove all plant, surplus material, waste and debris, other than that left by the City or other Contractors.

#### **D18. CRITICAL STAGES**

- D18.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:
- (a) Critical Stage 1 – Stage 1 work, including the Water Main Renewal on Corydon Avenue and Handsart Boulevard, as noted in D17.1.1(c), shall be substantially completed within 45 consecutive Working Days of the commencement.
- D18.2 When the Contractor considers the Work associated with Critical Stage 1 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 Critical Stage 1 Work has been accepted by the Contract Administrator as being completed to the requirements of the Contract is the date on which completion of Critical Stage 1 has been achieved.

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

- D19.1 The Contractor shall achieve Substantial Performance within eighty (80) consecutive Working Days of the commencement of the Work as specified in D13.
- 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 within eighty-five (85) consecutive Working Days of the commencement of the Work as specified in D13.
- 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 Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Working Day for each and every Working Day following the days fixed herein for same during which such failure continues:

- (a) Critical Stage 1 – Three Thousand Five Hundred Dollars (\$3500);
- (b) Substantial Performance – Three Thousand Five Hundred Dollars (\$3500);
- (c) Total Performance – One Thousand Five Hundred Dollars (\$1500).

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

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

#### **D22. SCHEDULED MAINTENANCE**

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

- (a) Reflective Crack Maintenance as specified in CW 3250-R7;
- (b) Sod Maintenance as specified in CW 3510-R10.

- D22.2 Determination of Substantial Performance and Total Performance shall be exclusive of scheduled maintenance identified herein. All scheduled maintenance shall be completed prior to the expiration of the warranty period. Where the scheduled maintenance cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the scheduled maintenance.

### **CONTROL OF WORK**

#### **D23. JOB MEETINGS**

- D23.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.

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

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

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

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

D25.1 Further to 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 their sole discretion and acting reasonably, require updated proof of compliance, as set out in B12.4.

## **PAYMENT**

### **D26. PAYMENT**

D26.1 Further to E3, no payment will be made for Cash Allowances other than as set out in E3.4.

### **D27. FUEL PRICE ADJUSTMENT**

D27.1 The Contract is subject to a fuel price adjustment which will be calculated monthly based on eligible Work completed utilizing the following mathematical formulas;

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

D27.1.1 Eligible Work will be determined in accordance with D27.5.

D27.1.2 The base fuel index (BFI) will be the retail price of fuel identified on the Submission Deadline based on latest published "Monthly average retail prices for gasoline and fuel by geography" for Winnipeg, published by [Statistics Canada, Table 18-10-0001-01](#). The BFI is a blended rate based on 15% regular unleaded gasoline at self-service filling stations and 85% diesel fuel at self-service filling stations.

D27.1.3 The current fuel index (CFI) based on the above blended rate will be determined for each monthly progress estimate and applied on the following progress estimate as a change order once rates are published by Statistics Canada.

D27.1.4 A Fuel Factor (FF) rate of the monetary value of all eligible Work completed that month based on the Contract unit prices will be used to calculate the assumed apportioned cost of fuel.

D27.2 Fuel cost adjustments may result in additional payment to the Contractor or credit to the City within the Contract by way of a monthly change order.

D27.3 The fuel escalation or de-escalation adjustment will not be applied if the CFI is within  $\pm 15\%$  of the BFI.

D27.4 Fuel escalation adjustments will not be considered beyond Substantial Performance except where the Working Days are adjusted by change order. Fuel de-escalation adjustments will apply for Work that extends beyond the Working Days specified for Substantial Performance.

D27.5 The Fuel Factor (FF) rates will be set as follows:

- (a) The Fuel Factor rate shall be set at 2.7% of the monetary value of all Work based on unit prices except for the portions of the Contract identified below;
- (b) The Fuel Factor will not apply to Part 4 Water & Waste Work or Part 5 Water Main Work identified on Form B: Prices related to Water & Waste Work.

## **WARRANTY**

### **D28. WARRANTY**

- D28.1 Notwithstanding C13.2, the warranty period shall begin on the date of Substantial Performance and shall expire one (1) year thereafter unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.
- 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 Substantial 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.
- 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.

## **INDEMNITY**

### **D29. INDEMNITY**

- D29.1 Indemnity shall be as stated in C17.

**FORM J: SUBCONTRACTOR LIST**  
(See D10)

**2026 CORYDON AVENUE PAVEMENT REHABILITATION AND WATER MAIN RENEWAL**

<u>Portion of the Work</u>	<u>Name</u>	<u>Address</u>
<b>SURFACE WORKS:</b>		
<i>Supply of Materials:</i>		
Concrete		
Asphalt		
Base Course & Sub-Base		
Sod		
Separation/Filtration Geotextile Fabric		
Geogrid		
<i>Installation/Placement:</i>		
Concrete		
Asphalt		
Base Course & Sub-Base		
Sod		
Joint Sealant		
<b>UNDERGROUND WORKS:</b>		
<i>Supply of Materials:</i>		
Sewer Service Pipe/Drainage Connection Pipe		
Sub Drains		
Pre-Cast Manholes/Catch Basins/Catch Pits		
Frames and Covers		
<i>Installation/Placement:</i>		
Sewer Service Pipe/Drainage Connection Pipe		
Pre-Cast Manholes		
Catch Basins/Catch Pits		
<b>WATER MAIN RENEWALS</b>		
<i>Supply of Materials:</i>		
Water Main Pipe and Services		
Corporation Stops and Curb Stops		
Hydrants		
<i>Installation/Placement:</i>		
Water Main Pipe and Services		

## PART E - SPECIFICATIONS

### GENERAL

#### E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 *The City of Winnipeg Standard Construction Specifications* in their entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Purchasing Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4(d), Specifications included in the Tender shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 Bidders are reminded that requests for approval of substitutes as an approved equal or an approved alternative shall be made in accordance with 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>
CT-00	Cover Sheet and Location Plan	A1
CT-01	Construction Staging and Traffic Management – Stage 1	A1
CT-02	Construction Staging and Traffic Management – Stage 2	A1
CT-03	Alignment Geometry	A1
CT-04	Plan/Profile – Shaftesbury Boulevard to Station 0+190	A1
CT-05	Plan/Profile – Station 0+190 to Station 0+320	A1
CT-06	Plan/Profile – Station 0+320 to Station 0+460	A1
CT-07	Plan/Profile – Station 0+460 to Station 0+600	A1
CT-08	Plan/Profile – Station 0+600 to Station 0+730	A1
CT-09	Plan/Profile – Station 0+730 to Station 0+880	A1
CT-10	Plan/Profile – Station 0+880 to Station 1+020	A1
CT-11	Plan/Profile – Station 1+020 to Station 1+160	A1
CT-12	Plan/Profile – Station 1+160 to Station 1+290	A1
CT-13	Plan/Profile – Station 1+290 to Station 1+420	A1
CT-14	Plan/Profile – Station 1+420 to Station 1+545	A1
CT-15	Plan/Profile – Station 1+545 to Station 1+675	A1
CT-16	Plan/Profile – Station 1+675 to Station 1+765	A1
CT-17	Plan/Profile – Station 1+765 to Kenaston Boulevard	A1
CT-18	Plan/Profile – Tuxedo Avenue Intersection	A1
CT-19	Plan – Doncaster Street and Lockston Avenue – Multi-Use Path	A1
<b>Water Main Renewals</b>		
D-17440	Key Plan, Abbreviations, Legend and Notes	A1
D-17441	Corydon Avenue – 15m W of Park Boulevard North to – 75m E of Park Boulevard North	A1
D-17442	Corydon Avenue – 10m W of Lamont Boulevard to – 4m E of Handsart Boulevard	A1
D-17443	Corydon Avenue – 81m W of Park Boulevard North to – 75m E of Park Boulevard North	A1
D-17444	Park Boulevard North – 10m S of Corydon Avenue to – 10m N of Corydon Avenue	A1
D-17445	Handsart Boulevard – Corydon Avenue to – 110m N of Corydon Avenue	A1
D-17446	Handsart Boulevard – 110m N of Corydon Avenue to – 101m S of Nanton Boulevard	A1

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
D-17447	Handsart Boulevard – 101m S of Nanton Boulevard to – 9m N of Nanton Boulevard	A1

## **E2. MOBILIZATION AND DEMOBILIZATION PAYMENT**

### DESCRIPTION

- E2.1 This Specification shall cover all operations relating to the mobilization and demobilization of the Contractor to the project location(s).
- E2.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as hereinafter specified.
- E2.3 The inclusion of a payment item for the Work under this Specification shall not release or reduce the responsibilities of the Contractor under any other specification in this Contract.

### SCOPE OF WORK

- E2.4 Further to C12 of the General Conditions, where Mobilization and Demobilization is included as a bid item, it shall consist of the following, as applicable:
- (a) Mobilization shall include, but not be limited to:
    - (i) All activities and associated costs for transportation of the Contractor's personnel, equipment, and operating supplies to the site, and/or sites, and/or between sites;
    - (ii) Establishment of offices, buildings, other necessary general facilities and equipment parking/staging areas for the Contractor's operations at the site or sites;
    - (iii) Premiums paid for performance and payment bonds including coinsurance and reinsurance agreements as applicable;
    - (iv) General cleanup and housekeeping needed maintain a neat and orderly project site(s);
    - (v) Other job related items.
  - (b) Demobilization shall include, but not be limited to:
    - (i) All activities and costs for transportation of personnel, equipment, and supplies not used in the project from the site, and/or sites, and/or between sites;
    - (ii) Disassembly, removal, and site cleanup and restoration of offices, buildings, and other facilities assembled on the site and/or sites;
    - (iii) Repair of access roads, temporary haul roads, and equipment parking areas leaving the project site in the same or better condition than at the start of the project;
    - (iv) General cleanup and housekeeping needed to restore a neat and orderly project site.
- E2.5 Access to the site, equipment parking, and staging areas are limited to that shown on the drawings or as approved by the Contract Administrator.

### MEASUREMENT AND PAYMENT

- E2.6 The lump-sum price for the Mobilization and Demobilization bid item shall not exceed five percent (5.00%) of the total bid price for the Contract.
- E2.6.1 Further to B9, B17, C12 and E2.6, should the lump sum price exceed 5% of the Total Bid Price the lump sum price will be reduced to 5% of the Total Bid Price, the Total Bid Price will be determined using the reduced lump sum price and payment will be based on the reduced lump sum price.

- E2.7 Payment for Mobilization:
- (a) 60% of the lump-sum price will be paid to the contractor for Mobilization on the first Progress Estimate for the Contract.
- E2.8 Payment for Demobilization:
- (a) The remaining 40% of the lump-sum price will be paid upon:
    - (i) Restoration of the site and/or sites to the satisfaction of the Contract Administrator;
    - (ii) Distribution of the Declaration of Total Performance.
- E2.9 Pay Reduction for Accessibility Plan
- (a) The Demobilization payment will be reduced by the number of pay adjustments incurred in accordance with D12 and as determined by the Contract Administrator.
- E2.10 Mobilization and Demobilization will be paid only once (to a maximum of 100%), regardless of the number of times the Contractor mobilizes to the site and/or sites.

### **E3. CASH ALLOWANCE FOR ADDITIONAL WORK**

- E3.1 Additional Work may be necessitated due to unforeseen circumstances that may arise during the course of the project due to:
- (a) Additions to the scope of the Water Main Renewal Work by the Contract Administrator, beyond that defined herein.
- E3.2 A cash allowance has been included on Form B: Prices.
- E3.3 The City reserves the right to delete any or all of the Cash Allowance from the Contract if the Work intended to be covered by the Cash Allowance is not required, or if the Works intended are found to be more extensive than the provisional Cash Allowance.
- E3.4 Cost of additional work shall be evaluated by the methods outlined in C7.4, and a Change Order prepared by the Contract Administrator. Cost of the Change Order will be paid on the Progress Estimate and deducted from the Cash Allowance. If the valuation of the authorized work exceeds the Value of the Cash Allowance, the Contract Value will be adjusted by the shortfall.
- E3.5 Additional services and/or Work will not be initiated for:
- (a) Reasons of lack of performance or errors in execution.
  - (b) Scheduling changes initiated by the City, where at least 24 hours' notice is given prior to the Contractors schedule time to be on Site.
- E3.6 Should it be determined that additional material or services are required, the Contract Administrator shall approve the Work, prior to commencement of the additional Work.
- E3.7 Material Mark-Up Factors:
- (a) The base cost is to be the wholesale cost of the material, regardless of the Contractor or Subcontractor supplying the material.
  - (b) In general, the party (Contractor or Subcontractor) supplying the material is the party that purchases the material from a supplier who does not perform any work on Site, unless otherwise determined by the Contract Administrator.
  - (c) Where the Contractor is supplying the material, the mark-up on the material is limited to fifteen percent (15%).
  - (d) Where the Contractor's immediate Subcontractor is supplying the material the total mark-up on the material including all Subcontractors and the Contractor is limited to twenty-five percent (25%)
    - (i) The Subcontractor's mark-up on the material is limited to fifteen percent (15%);
    - (ii) The Contractor's mark-up on the material is limited to ten percent (10%).

- (e) A Third-Level Subcontractor is a Subcontractor of a Subcontractor of the Contractor.
  - (i) No Third-Level Subcontractors on this project are approved for additional mark-up.
  - (ii) In the event that a Third-Level Subcontractor is utilized, that is not approved for additional mark-up, the Contractor is responsible for coordinating the split of the maximum approved mark-up between the Contractor and Subcontractors.

#### **E4. PAVEMENT CORING REPORT**

- E4.1 Further to C3.1, the pavement coring report is provided to aid the Contractor's evaluation of the pavement structure and/or existing soil conditions. The pavement coring report is contained in Appendix 'A'.

#### **E5. OFFICE FACILITIES**

- E5.1 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 20 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 table 3m x 1.2m, one stool, and a minimum of 8 chairs.
  - (g) A portable toilet shall be located near the field office building. The toilet shall have a locking door and be for the exclusive use of the Contract Administrator and other personnel from the City.
  - (h) The field office building and the portable toilet shall be cleaned on a weekly basis immediately prior to each site meeting. The Contract Administrator may request additional cleaning when they deem it necessary.
- E5.2 The Contractor shall be responsible for all installation and removal costs, all operating costs, and the general maintenance of the office facilities.
- E5.3 The office facilities will be provided from the date of the commencement of the Work to the date of Total Performance.

#### **E6. PROTECTION OF EXISTING TREES**

- E6.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities to existing boulevard trees within the limits of the construction area:
  - (a) The Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.
  - (b) Trees identified to be at risk by the Contract Administrator are to be strapped with 25 x 100 x 2400mm wood planks, or suitably protected as approved by the Contract Administrator.
  - (c) Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the excavation shall be a minimum of 1.5 times the diameter (measured in inches), with the outcome read in feet, from the closest edge of the trunk. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation.

- (d) Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of trees. The dripline of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.
- (e) Work on-site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to branches does occur, they shall be neatly pruned.

E6.2 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or their designate.

E6.3 No separate measurement or payment will be made for the protection of trees.

E6.4 Except as required in E6.1(c) and E6.1(e), Elm trees shall not be pruned at any time between April 1 and July 31.

## **E7. TRAFFIC CONTROL**

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

- (a) Where directed by the Contract Administrator, the Contractor shall construct and maintain temporary asphalt ramps to alleviate vertical pavement obstructions such as manholes and planing drop-offs to the satisfaction of the Contract Administrator. Payment shall be in accordance with CW3410.
- (b) In accordance with the Manual of Temporary Traffic Control on City Streets (MTTC), the Contractor ("Construction Agency" in the Manual) shall be responsible for placing, maintaining and removing the appropriate temporary traffic control devices as specified by the MTTC, the Contract Drawings, Staging Plans and Traffic Management Plans or by the Traffic Management Branch of the City of Winnipeg Public Works Department. The Contractor shall bear all costs associated with the placement of temporary traffic control devices by their own forces or Subcontractor.
- (c) In addition, the Contractor shall be responsible for **supplying**, removing, placing and maintaining all regulatory signing including but not limited to:
  - (i) Parking restrictions;
  - (ii) Stopping restrictions;
  - (iii) Turn restrictions;
  - (iv) Diamond lane removal;
  - (v) Full or directional closures on a Regional Street;
  - (vi) Traffic routed across a median;
  - (vii) Full or directional closure of a non-regional street where there is a requirement for regulatory signs (turn restrictions, bus stop relocations, etc.) to implement the closure.
- (d) The Contractor shall remove and stockpile any regulatory signage not required during construction such as, but not limited to, parking restrictions, turn restrictions and loading restrictions.

E7.2 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the site has been maintained.

E7.3 Further to E7.1(c) and E7.1(d) the Contractor shall make arrangements with the Traffic Services Branch of the City of Winnipeg to reinstall the permanent regulatory signs after the Contract

Work is complete. The Contractor shall make arrangements to drop off the stockpiled materials to Traffic Services at 495 Archibald Street.

E7.4 Any changes to the approved Traffic Management Plan must be submitted to the Contract Administrator a minimum of five (5) Working Days prior to the required change for approval.

E7.5 If the Contract Administrator determines that the Contractor is not performing Traffic Control in accordance with this specification, Traffic Services may be engaged to perform the Traffic Control. In this event the Contractor shall bear costs charged to the project by the Traffic Services Branch of the City of Winnipeg in connection with the required Works.

## **E8. TRAFFIC MANAGEMENT**

E8.1 Further to 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.

E8.1.1 Maintain a minimum of one lane of westbound traffic and one lane of eastbound traffic on Corydon Avenue during each Stage, including during paving or milling operations.

E8.1.2 Maintain a minimum of one lane of northbound traffic and one lane of southbound traffic on Tuxedo Avenue during each Stage

E8.1.3 Construct temporary asphalt crossings prior to full directional closures of Corydon Avenue to route traffic across the medians. Review closures with Traffic Signals and Traffic Management to ensure all required Traffic Signals work is applicable to detours being installed.

E8.1.4 Stage 1

(a) Maintain right turn traffic for passenger vehicles from the westbound median lane of Corydon Avenue to the northbound median lane of Tuxedo Avenue. Restrict right-turn for trucks with R52A or similar signage.

(b) Maintain access to Park Boulevard, Lamont Boulevard, Handsart Boulevard, Edgeland Boulevard, Doncaster Street and Ubique Crescent to eastbound and westbound Corydon traffic as much as possible. Do not close consecutive intersections. Required closures to be reviewed with Traffic Management.

(c) Maintain all traffic movements through Edgeland Boulevard. Required closures to be reviewed with Traffic Management.

(d) Maintain one entrance and traffic on Corydon Avenue to the Tuxedo Park Shopping Centre at all times.

(e) Maintain access to 2020 Corydon Avenue approach off eastbound Corydon Avenue.

E8.1.5 Stage 2

(a) Maintain right turn traffic for passenger vehicles from the westbound gutter lane of Corydon Avenue to the northbound gutter lane of Tuxedo Avenue through the new right turn cut-off.

(b) Maintain access to Bower Boulevard, Laidlaw Boulevard, Boreham Boulevard, Kelvin Boulevard, Hosmer Boulevard, Park Boulevard, Lamont Boulevard, Handsart Boulevard, Edgeland Boulevard, Doncaster Street and Ubique Crescent to eastbound and westbound Corydon traffic as much as possible. Do not close consecutive intersections. Required closures to be reviewed with Traffic Management.

(c) Maintain sole access to Tuxedo Community Centre / 2090 Corydon Avenue (Directly across Corydon Avenue from Grenfell Boulevard).

(d) Maintain Southport Boulevard approach to allow access to Tuxedo Villa Extencicare.

- (e) Maintain Access to Tuxedo Villa Extendicare loading zone allowing traffic through median opening
- (f) Maintain all traffic movements through Edgeland Boulevard. Required closures to be reviewed with Traffic Management.
- (g) Maintain access to the east approach of 2020 Corydon Avenue off Edgeland Boulevard.

#### E8.1.6 Major Intersections

- (a) Corydon Avenue and Shaftesbury Boulevard
  - (i) Maintain westbound right-turn from the median lane of Corydon Avenue into Assiniboine Park
  - (ii) Maintain east/west pedestrian crossings, and north/south pedestrian crossing on the west side of Shaftesbury Boulevard
- (b) Corydon Avenue and Tuxedo Avenue
  - (i) Traffic must be maintained during construction to allow for one lane of traffic in east/west direction to go straight through, one eastbound lane to turn left and one each of the westbound and southbound lanes to turn right.
- (c) Corydon Avenue and Edgeland Boulevard
  - (i) Maintain all traffic movements through Edgeland Boulevard. Required closures to be reviewed with Traffic Management.
  - (ii) Review with Winnipeg Transit if Edgeland Transit route 70 can be re-directed to Tuxedo Avenue
- (d) Corydon Avenue and Doncaster Street
  - (i) Maintain all traffic movements through Doncaster Street. Required closures to be reviewed with Traffic Management.
- (e) Corydon Avenue and Kenaston Boulevard
  - (i) During Stage 1 and 2 Corydon Avenue gutter lanes and median lanes shall be closed respectively.
  - (ii) Install single lane diversion/closures east of Kenaston Boulevard.

E8.1.7 Intersecting local street, median opening and private approach access shall be maintained as noted in E8 unless joint/slab repairs or planing/paving operations require temporary closure. Temporary closures are to be staggered such that consecutive intersections are not closed at the same time. Traffic on intersecting regional/collector streets shall be maintained at all times, unless planing/paving operations require temporary complete closures. Temporary complete closures shall be no longer than 10 minutes during asphalt planing/paving operations and shall be completed during off peak hours.

E8.1.8 Flag persons may be necessary to maintain the flow of traffic during certain work operations.

E8.1.9 Should the Contractor be unable to maintain pedestrian or vehicular access to a residence or business, they shall review the planned disruption with the business or residence and the Contract Administrator, and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of 24 hours notification to the affected residence or business and the Contract Administrator, prior to disruption of access.

E8.1.10 Pedestrian access must be maintained on both sides of the road during all phases. Required closures to be reviewed with Traffic Management.

E8.1.11 When no work is being performed on site, non-essential lane closures will not be permitted.

E8.1.12 Ambulance/emergency vehicle access must be maintained at all times.

E8.1.13 Access to loading or delivery zones must be maintained at all times.

## **E9. REFUSE AND RECYCLING COLLECTION**

E9.1 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 to a nearby common area, prior to an established time, in accordance with E9.2 to permit the normal collection vehicles to collect the materials. Immediately following recycling collection the Contractor shall return recycling receptacles to the addresses marked on the receptacles.

E9.2 Collection Schedule:

### **Extencicare Tuxedo Villa – 2060 Corydon Avenue.**

*Collection Day(s):* **Tuesday / Friday (Garbage), Wednesday (Recycling)**

*Collection Time:* **Varies**

*Common Collection Area:* **Maintain access for private collection**

### **Tuxedo Towers – 1975 Corydon Avenue.**

*Collection Day(s):* **Tuesday / Friday (Garbage), Wednesday (Recycling)**

*Collection Time:* **Varies**

*Common Collection Area:* **Maintain access for private collection**

### **Handsart Boulevard – Corydon Avenue to Nanton Boulevard.**

*Collection Day(s):* **Monday (Garbage), Monday (Recycling)**

*Collection Time:* **6:00 a.m. – 10:00 p.m.**

*Common Collection Area:* **Back Lane**

*Additional Information:* **Contractor shall ensure back lane access is maintained during construction. If access cannot be maintained, contractor shall move bins to one end of the back lane by 7 a.m. on collection days.**

E9.3 No measurement or payment will be made for the work associated with this specification.

## **E10. WATER OBTAINED FROM THE CITY**

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

E10.1.1 Charges for permit and water meters used to supply temporary pressurized water to residents and businesses will be reimbursable. The Contractor shall forward the invoice for hydrant permits, meter rental and billing for water usage for temporary pressurized water supply to the Contract Administrator for reimbursement. The Tender number shall be noted on each permit.

## **E11. SURFACE RESTORATIONS**

E11.1 Further to 3.3 of CW 1130, when Total Performance is not achieved in the year the Contract is commenced, the Contractor shall temporarily repair any Work commenced and not completed to the satisfaction of the Contract Administrator. The Contractor shall maintain the temporary repairs in a safe condition as determined by the Contract Administrator until permanent repairs are completed. The Contractor shall bear all costs associated with temporary repairs and their maintenance.

## **E12. INFRASTRUCTURE SIGNS**

E12.1 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.

## **E13. INSTALLATION OF EPOXY COATED DOWEL BAR ASSEMBLIES**

### DESCRIPTION

E13.1 General

E13.1.1 The specification covers the supply and installation of epoxy-coated dowel bar assemblies along transverse pavement joints in 150mm and 200mm reinforced concrete pavement.

E13.1.2 Referenced Standard Construction

(a) CW 3310 – Portland Cement Concrete Pavement Works

### MATERIALS

E13.2 Storage and Handling

E13.2.1 Store and handle material in accordance with Section 5 of CW 3310.

E13.3 Epoxy-Coated Dowel Bar Assemblies

E13.3.1 19.1 mm Dowel Bar Assemblies in accordance with CW 3310.

### CONSTRUCTION METHODS

E13.4 In addition to CW 3310, the Contractor must remove all reinforcing steel within 300 mm of the transverse joint. The location of the transverse joints will be at a spacing of 5 m or as directed by the Contract Administrator. The Contractor shall place the 19.1 mm dowel bar assemblies across the transverse joint. Dowel bar spacing in assemblies shall be 450 mm O.C.

### MEASUREMENT AND PAYMENT

E13.5 Epoxy-Coated Dowel Bars

E13.5.1 All work involved in the supply and installation of the epoxy-coated dowel bar assemblies shall be considered incidental to the items of work listed below.

E13.5.2 Items of Work:

- (a) "200 mm Type 1 Concrete Pavement (Reinforced)"
- (b) "200 mm Type 4 Concrete Pavement for Early Opening 72 Hour (Reinforced)"
- (c) "200 mm Type 3 Concrete Pavement for Early Opening 24 Hour (Reinforced)"
- (d) "Construction of 200 mm Type 1 Concrete Pavement - (Reinforced)"
- (e) "Construction of 200 mm Type 3 Concrete Pavement for Early Opening 24 Hour (Reinforced)"
- (f) "Construction of 200 mm Type 4 Concrete Pavement for Early Opening 72 Hour (Reinforced)"
- (g) "Type 1 Concrete 150mm Reinforced Sidewalk"
- (h) "Type 1 Concrete Monolithic Curb and 150mm Sidewalk (Reinforced)"

## **E14. CONSTRUCTION OF MONOLITHIC CURB AND CONCRETE SIDEWALKS**

### DESCRIPTION

E14.1 This specification shall supplement CW 3325-R5 "Portland Cement Concrete Sidewalks".

### MEASUREMENT AND PAYMENT

E14.2 Add the following to Section 12:

E14.2.1 Construction of monolithic curb and concrete sidewalks will be measured on surface area basis. The surface area to be paid for shall be the number of square metres constructed in accordance with this specification and accepted by the Contract Administrator, as computed by measurements made by the Contract Administrator.

### BASIS OF PAYMENT

E14.3 Add the following to section 13:

E14.3.1 Construction of monolithic curb and concrete sidewalks will be paid for at the Contract Unit Price per square meter for the "Items of Work" listed here below, measured as specified herein, which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the work included in this specification.

E14.3.2 Items of Work:

- (a) Type 1 Concrete Monolithic Curb and Sidewalk
- (b) Type 1 Concrete Monolithic Curb and 150mm Sidewalk (Reinforced)

E14.3.3 Concrete thickness greater than the specified sidewalk thickness as a result of shaping the base material is incidental to the listed Items of Work.

E14.3.4 Construction of 100mm or 150mm reveal height barrier curb, 150 mm reveal height modified barrier curb, and 8-12 mm reveal height monolithic curb ramp shall be incidental to the construction of the above Items of Work.

## **E15. SIDEWALK EXPANSION JOINTS**

### DESCRIPTION

E15.1 Further to CW 3325-R5, CW 3235-R9 and CW 3310-R19, this specification covers the supply and installation of expansion joints to be constructed within concrete sidewalk.

E15.2 Referenced Standard Details

- (a) SD-228D Sidewalk Expansion Joints (Appendix 'B')

### MATERIALS

E15.3 Use only those materials listed as Approved Products for Surface Works. The Approved Products are available in Adobe Acrobat (.pdf) format at the City of Winnipeg, Corporate Finance, Material Management Internet site at:  
[https://legacy.winnipeg.ca/finance/findata/matmgt/std\\_const\\_spec/current/Docs/Approved Product Surface Works.pdf](https://legacy.winnipeg.ca/finance/findata/matmgt/std_const_spec/current/Docs/Approved_Product_Surface_Works.pdf)

E15.4 Expansion Joint Filler

- (a) Sidewalk expansion joints shall be a closed-cell expansion joint filler.

E15.5 Reinforcing Steel

- (a) Dowels bars may consist of the following:

- (i) 300mm long 10M dowels, epoxy coated, meeting the requirements of ASTM Standard A934/A934M, Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars.
- (ii) 300mm long, 12.7mm diameter long galvanized smooth bars
- (b) Dowel bars shall be plain round bars of grade 300 or better in accordance with CSA G40.21.
- (c) The dowels shall be placed half depth of the sidewalk and aligned parallel to the centreline and surface of the slab with a maximum allowable tolerance of  $\pm 5$  mm. The dowels shall be positioned sufficiently rigid so the dowels are held in alignment within the specified tolerance, both horizontally and vertically, until the concrete placing and setting cycle is complete.
- (d) All areas of the dowel bar with damaged epoxy coating shall be cleaned and painted to the satisfaction of the Contract Administrator.
- (e) All dowels shall be thoroughly coated with a thin uniform coating of bond breaker or lubricant such as oil, grease, or synthetic materials to prevent bonding with the concrete for the length of the dowel. The bond breaker coating shall be smooth and free of voids.

#### CONSTRUCTION METHODS

- E15.6 Install sidewalk expansion joints as detailed in SD-228D Sidewalk Expansion Joints.
- E15.7 Expansion joints shall be constructed and installed as indicated in the Contract Documents or directed by the Contract Administrator.
- E15.8 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.
- E15.9 Dowels shall be placed at 0.45m O/C spacing. Three dowels shall be installed at each expansion joint no closer than 0.15m from edge of concrete. If dowels are displaced during concrete placing operations, concrete placement shall cease and shall not resume until the displaced dowels have been reset to the true design position.
- E15.10 Once dowels are in position, they shall be inspected and approved by the Contract Administrator before any concrete is placed. Otherwise the concrete will be rejected by the Contract Administrator and shall be removed by the Contractor at his own expense.
- E15.11 Expansion joints shall be installed every 15 meters when constructing new or renewing existing sidewalk. If sidewalk is constructed during cold weather concreting period, expansion joints shall be installed every 12 meters. Expansion joints shall not be installed when renewing less than 15m of sidewalk.
- E15.12 Where the Drawings call for a new slab to be tied into an existing slab along a transverse joint, the Contractor shall construct an expansion joint and install dowels into the existing slab in accordance with Clause 6.3.2., CW 3310. Following installation of dowels, the ends of the dowels that extend into the new area shall be completely coated with a thin uniform coating of approved bond breaker or lubricant.
- E15.13 When replacing heaved panels in an existing sidewalk, expansion joints shall be installed on both ends of the replaced panels.
- E15.14 Expansion joints shall not be installed when constructing monolithic curb and sidewalk.
- E15.15 Expansion joints shall be installed when installing separate concrete splash strip.

#### MEASUREMENT AND PAYMENT

- E15.16 No payment shall be made for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification.

## **E16. APPLICABLE STANDARD DETAILS**

### DESCRIPTION

- E16.1 Further to CW 3110-R22, CW3120-R4, CW3130-R5, CW 3210-R8, CW3230-R8, CW 3235-R9, CW3240-R10, CW 3310-R19, CW 3325-R5, CW 3330-R5, CW 3335-R1, CW 3410-R12 and CW 3530-R3 this specification covers the use of updated and new standard details.
- E16.2 The following updated Standard Details are provided in Appendix 'B':
- (a) SD-200A – Barrier Curb for Asphalt Pavement
  - (b) SD-200B – Barrier Curb and Reversed Gutter for Asphalt Pavement
  - (c) SD-202D – 75 mm Lip Curb for Asphalt Pavement
  - (d) SD-202E – 75 mm Lip Curb with Integral Approach for Asphalt Pavement
  - (e) SD-202F – Lip Curb with Integral Approach for Asphalt Pavement
  - (f) SD-203C – Modified Barrier Curb for Asphalt Pavement
  - (g) SD-203D – Modified Barrier Curb with Reversed Gutter for Asphalt Pavement
  - (h) SD-204 – Barrier Curb Integral
  - (i) SD-210A – Longitudinal Joint for Concrete Pavement
  - (j) SD-210B – Longitudinal Joint for Concrete Pavements with Bar Mat Reinforcement
  - (k) SD-211A – Construction Joint for Reinforced Concrete Pavement
  - (l) SD-211B – Contraction Joint for Reinforced Concrete Pavement
  - (m) SD-211C – Construction Joint and Contraction Joint for Plain Dowelled Concrete Pavement
  - (n) SD-212 – Sawn Joint and Butt Joint for Concrete Pavements
  - (o) SD-213B – Full-Depth Patches and Slab Replacement
  - (p) SD-214A – Longitudinal Joint Repair Details Full-Width Patch (Both Sides at Same Time)
  - (q) SD-214B – Longitudinal Joint Repair Details Lane-at-a-Time Patch
  - (r) SD-214C – Longitudinal Joint Patch Details One Side Only
  - (s) SD-215 – Load Transfer Device for Plain Dowelled Concrete Pavement
  - (t) SD-216 – Steel Reinforcement for Reinforced Concrete Pavement
  - (u) SD-217 – Layout for Type “A” and “B” Bar Mat Reinforcement
  - (v) SD-218A – Typical Joint Detail for Portland Cement Concrete Pavements
  - (w) SD-218B – Location of Longitudinal Joints in Concrete Pavements
  - (x) SD-219 – Typical Public Lane Details
  - (y) SD-220A – Manhole Isolation Detail for Concrete Pavements
  - (z) SD-220B – Manole Isolation Detail in Existing Pavements
  - (aa) SD-220C – Curb and Gutter Inlet Isolation Detail
  - (bb) SD-220D – Barrier Curb and Gutter Inlet Isolation Detail for Exposed Concrete Pavements
  - (cc) SD-220E – Barrier Curb and Gutter Inlet Isolation Detail for New Asphalt Pavements
  - (dd) SD-220F – Lip Curb and Gutter Inlet Isolation Detail for Exposed Concrete Pavements
  - (ee) SD-220G – Manhole Isolation Detail for Asphalt Pavements
  - (ff) SD-221 – Curb Inlet with Catch Basin in Pavement
  - (gg) SD-222 – Curb Inlet with Catch Basin in Boulevard
  - (hh) SD-228A – Concrete Sidewalk

- (ii) SD-228D – Sidewalk Expansion Joints
- (jj) SD-229F – Curb Ramp for Asphalt Pavement
- (kk) SD-235 – Residential Approach – Concrete (With Existing Barrier Curb)
- (ll) SD-236 – Residential Approach – Concrete (With Existing Lip Curb)
- (mm) SD-237A – Residential Approach – Paving Stone (With Existing Barrier Curb)
- (nn) SD-237B – Residential Approach – Asphalt (With Existing Barrier Curb)
- (oo) SD-238A – Residential Approach – Paving Stone (With Existing Lip Curb)
- (pp) SD-238B – Residential Approach – Asphalt (With Existing Lip Curb)
- (qq) SD-240A – Interlocking Paving Stone Detail for Residential Approaches
- (rr) SD-242 – C.S.P. Enclosure for Gate Valve
- (ss) SD-245 – Subdrain Installation Detail

#### MATERIALS

- E16.3 Use only those materials listed as Approved Products for Surface Works. The Approved Products are available in Adobe Acrobat (.pdf) format at the City of Winnipeg, Corporate Finance, Material Management Internet site at:  
[https://legacy.winnipeg.ca/finance/findata/matmgt/std\\_const\\_spec/current/Docs/Approved Product Surface Works.pdf](https://legacy.winnipeg.ca/finance/findata/matmgt/std_const_spec/current/Docs/Approved_Product_Surface_Works.pdf)

#### CONSTRUCTION METHODS

- E16.4 Construct in accordance with Standard Details provided in Appendix 'B' and applicable referenced specs noted in each detail.

#### MEASUREMENT AND PAYMENT

- E16.5 Measurement and payment in accordance with the referenced specs noted in each standard detail.
- E16.6 No measurement or payment shall be made for Dowels or Dowel Assemblies for transverse joints as required for Full Slab Replacement under CW3230-R8 and shown in SD-211A or SD-211B. Dowels and Dowel Assemblies shall be incidental to Concrete Pavement works as defined in CW3310-R19.

### **E17. BARRIER CURB AND ARCHED GUTTER INLET FRAME, BOX AND INLET COVER**

#### DESCRIPTION

- E17.1 General
- E17.1.1 This Specification shall cover the replacement of Barrier Curb and Gutter Inlet Frame and Box (AP-011) and Inlet Cover (AP-012) with Barrier Curb and Arched Gutter Frame, Box and Inlet Cover on existing Catch Pits, Catch Basins and with Installation of New Catch Pit (SD-023) and New Catch Basin (SD-024).
- E17.2 Referenced Standard Construction Specifications
- (a) CW 3210 – Adjustment of Pavement and Boulevard Structures;
  - (b) CW 2130 – Gravity Sewers; and
  - (c) Barrier Curb and Arched Gutter Inlet Frame, Box and Inlet Cover (Appendix C).

#### MATERIALS

- E17.3 Approved Products
- (a) D&L Foundry Inc. – TF-103-3F-A (frame)

- (b) D&L Foundry Inc. – TF103-SI (box)
- (c) D&L Foundry Inc. – TF-103-G-A (cover)

#### MEASUREMENT AND PAYMENT

- E17.4 Barrier curb and arched gutter inlet frames, boxes and inlet covers for catch basins and catch pits will be included in the price for Items of Work “Catch Basin” and “Catch Pit”, as per Clause 4.4 of CW 2130.
- E17.5 Barrier curb and arched gutter inlet frames, boxes and inlet covers will be measured on a unit basis and paid for at the Contract Unit Price per unit for the “Barrier Curb and Arched Gutter Inlet Frame, Box and Inlet Cover”. The number of units to be paid for will be the total number of each unit supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

### **E18. ASPHALT SPECIAL PROVISION**

#### DESCRIPTION

- E18.1 General
  - E18.1.1 This specification covers the requirements for the materials, equipment, and processes for proportioning and mixing hot mix asphalt (HMA) including warm mix asphalt (WMA), recycled mixes, and mixes for miscellaneous work in accordance with the Marshall and Superpave methods.
  - E18.1.2 This Specification covers the preparation of hot/warm-mixed, hot/warm-laid, asphalt paving mixes for, and all placing operations relating to, the construction of asphalt pavements, overlays and other related pavement works.
  - E18.1.3 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 other things necessary for and incidental to the satisfactory performance and completion of all work as hereinafter specified.
- E18.2 Definitions
  - E18.2.1 Hot Mix Asphalt (HMA) means hot mixed, hot laid asphalt. The terms are used interchangeably. HMA may include recycled or specialty mixes.
  - E18.2.2 Warm Mix Asphalt (WMA) means warm mixed, warm laid asphalt produced using technologies that allow for the mixing, handling, and compaction of the asphalt concrete mixture at a temperature typically lower than conventional hot mix asphalt.
  - E18.2.3 Lift means the compacted thickness of asphalt material laid in a single application.
  - E18.2.4 Base Course means the layer of material between the sub-base and the pavement wearing surface.
  - E18.2.5 SP1 means dense-graded asphalt mix using Superpave mix design for surface course. SP1 is intended for the reconstruction of expressways, major arterials, and minor arterials, industrial/commercial collectors, residential major collectors, as well as the paving of bridge decks. SP1 can also be used for asphalt overlay of expressways, major arterials, and minor arterials, where specified in the Contract Documents.
  - E18.2.6 SP2 means dense-graded asphalt mix using Superpave mix design for intermediate and bottom lifts. SP2 is intended for the reconstruction of high traffic volume streets, including expressways, major arterials, minor arterials, industrial/commercial collectors as well as the paving of bridge decks.
  - E18.2.7 MS1 means dense-graded asphalt mix using Marshall mix design for surface course. MS1 is intended for the reconstruction of intermediate and low volume streets including residential minor collectors, residential local, public lanes, asphalt pathways and

- associated approaches. MS1 is also intended for asphalt overlay of all street classifications and the reconstruction or asphalt overlay of all approaches except where otherwise specified in the Contract Documents.
- E18.2.8 MS2 means dense-graded asphalt mix using Marshall mix design for intermediate and bottom lifts. MS2 is intended for intermediate and low volume streets including residential major or minor collectors, residential local, public lanes, asphalt pathways and associated approaches.
- E18.2.9 MS3 means a fine-graded asphalt mix using Marshall mix design intended for thin asphalt overlays and specialized surfaces such as basketball courts, tennis courts, driveways, sidewalks, boulevards, and other narrow or constrained paving areas.
- E18.2.10 Reclaimed asphalt pavement (RAP) means the processed HMA or WMA material that is recovered by partial or full depth removal.
- E18.2.11 Deleterious Material means soft or friable material that would decay or disintegrate from weathering including ironstone, porcelain, vegetation, organic material, wood, glass, alkali, plastic, metal, reinforcing steel, building rubble, brick, shale, mica, coal, clay lumps, and loam or other deleterious substances.
- E18.2.12 Job-Mix Formula (JMF) means the percentage passing on each designated sieve of the total mass of aggregate and the amount of asphalt cement as a percentage by mass of the mixture that are based on specified mix design procedures, and when mixed results in a paving mixture in accordance with this specification.
- E18.2.13 Mix Design means the design of the proportions of aggregates, asphalt cement, and additives that when uniformly mixed results in an acceptable asphalt mix in accordance with the specified method.
- E18.2.14 Performance Graded Asphalt Cement (PGAC) means an asphalt binder that is asphalt-based cement produced from petroleum residue, either with or without the addition of non-particulate modifiers, in accordance with AASHTO M320.
- E18.2.15 Superpave means the method for specifying material components and asphalt mix design using the Superpave Gyratory Compactor (SGC).
- E18.2.16 Effective Asphalt Cement is the portion of asphalt binder in hot and warm asphalt mixes that remains effective (available) to coat aggregate particles and provide binding after subtracting the asphalt absorbed into the aggregate.
- E18.2.17 Joint means a vertical contact between a new asphalt pavement course and any existing asphalt pavement or any rigid object that exists at the time the HMA is laid.
- E18.2.18 Prime Coat means application of emulsified asphalt cement on a granular surface.
- E18.2.19 Tack Coat means application of emulsified asphalt cement on existing asphalt or portland cement concrete pavement prior to overlay, or between layers of new bituminous pavement.
- E18.2.20 Prime coat has cured when water has totally separated from the emulsified asphalt. Prime coat is required to fully set and not remain tacky before placing asphalt.
- E18.2.21 Tack coat break is when water has separated enough from the emulsified asphalt to show a color change from brown to black and remain tacky. Tack coat is not required to fully cure; however, asphalt placement shall not proceed until the emulsion has broken and sufficient bond can be achieved without pickup or tracking.
- E18.2.22 Segregation means a condition of the pavement characterized by areas with comparatively coarser texture than that of the surrounding pavement.
- E18.2.23 Lot means a specific quantity of material, approximately 150 tonnes or less, from a single source and produced by the same process within a single operational day. Actual size of Lot may vary based on scaled quantities delivered to the road.

## MATERIALS

**E18.3 Handling and Storage of Materials**

- E18.3.1 All asphalt constituent materials shall be stored in a manner that will prevent contamination or deterioration. Access to the storage facilities shall be provided for inspection by the Contract Administrator.
- E18.3.2 All fabricated and incidental materials, such as anti-stripping, prime coat, tack coat, etc., shall be stored in accordance with the manufacturer's instructions.
- E18.3.3 The Contract Administrator shall approve all materials before any construction is undertaken. If, in the opinion of the Contract Administrator, such materials, in whole or in part, do not conform to this Specification or are found to be defective in manufacture or have become damaged in transit, storage or handling operations, then such material shall be rejected by the Contract Administrator and replaced by the Contractor at his own expense. There shall be no charge to the City for any materials taken for testing purposes.

**E18.4 Aggregate**

- E18.4.1 Aggregate shall consist of crushed stone or gravel or a combination of these materials conforming to the requirements of this Specification.
- (a) Each of the fine- and coarse-fractions of the combined aggregate shall meet all the requirements of this Specification and shall be handled and weighed separately to maintain uniformity. The supplier shall provide the City of Winnipeg, Research and Standards Engineer with test data demonstrating that the material will produce asphalt mixes of acceptable quality that meet all the requirements of this Specification.
- (b) Aggregates shall be hard and durable fragments with a maximum of 2% deleterious materials in both coarse and fine aggregates in accordance with ASTM Standard C142, Standard Test Method for Clay Lumps and Friable Particles in Aggregate and ASTM C123/C123M - Standard Test Method for Lightweight Particles in Aggregate by Washing as well as visual inspection of aggregates to identify deleterious materials.
- (c) The combined aggregate gradation and physical properties shall comply with the requirements in Table CW 3410.1.

**TABLE CW 3410.1 - Combined Aggregate Gradation and Physical Properties Limits**

	Test Method	SP1	SP2	MS 1	MS 2	MS 3
Sieve Size, mm		Percent of Total Dry Weight Passing Each Sieve				
19.0		--	100%	--	100%	--
16.0		100%	90% - 100%	100%	90% - 100%	--
12.5	ASTMC	90% - 100%	70% - 90%	90% - 100%	75% - 95%	--
9.5	136	75% - 90%	60% - 80%	75% - 90%	70% - 90%	100%
4.75	or	48% - 70%	40% - 62%	48% - 70%	55% - 70%	90% - 95%
2.36	ASTM	28% - 58%	23% - 50%	28% - 58%	35% - 55%	74% - 80%
1.18	D5444	19% - 40%	15% - 35%	19% - 40%	28% - 46%	55% - 64%
0.60	(Note 1)	13% - 30%	10% - 22%	13% - 30%	17% - 32%	35% - 46%
0.15		4% - 15%	4% - 14%	4% - 15%	4% - 12%	11% - 30%
0.075		2% - 8%	2% - 8%	2% - 8%	3% - 10%	5% - 11%
Fine Aggregate Angularity, %min (Note 2)	ASTM C1252 – Method A	45%	45%	40%	40%	40%
Clay Content (Sand Equivalency), %min (Note 3)	ASTM D2419	45%	45%	45%	40%	40%
Crush Count, %min (2 Fractured Faces) (Note 4)	ASTM D5821	95%	80%	80%	80%	80%
Flat and Elongated Particles, % Max	ASTM D4791	6%	10%	--	--	--

Absorption, %max	ASTM C127	2%	2%	2%	2%	2%
Abrasion, %max (Note 4)	ASTM C131	35%	35%	35%	35%	35%
Micro-Deval, %max (Note 4)	ASTM D6928	15%	15%	15%	17%	15%
Soundness (Note 5)	ASTM C88	Note 3	Note 3	Note 3	--	--
Lightweight Particles Content, %max (Note 6)	ASTM C123	3%	5%	3%	5%	3%

- Note 1: ASTM C136 shall be used for determining the particle size distribution of fine and coarse virgin aggregates while ASTM D5444 shall be used for determining the particle size distribution of extracted aggregates from bituminous mixtures.
  - Note 2: Test criteria shall apply for fine aggregates passing 4.75mm sieve. Test results shall be based on combined aggregates prior to the addition of RAP. Fine Aggregate Angularity (FAA) of 43% is acceptable, provided the mix complies with all other specified requirements.
  - Note 3: Test results shall be conducted on the combined aggregate mix before the addition of Reclaimed Asphalt Pavement (RAP).
  - Note 4: Test criteria shall apply for coarse aggregates retained on 4.75 mm sieve.
  - Note 5: Soundness - Coarse aggregate when subjected to five cycles of the soundness test shall have a weighted loss of not more than twelve (12) percent when sodium sulphate is used or not more than eighteen (18) percent when magnesium sulphate is used in accordance with ASTM Standard C88, Test for Soundness of Aggregates by Use of Sodium Sulphate or Magnesium Sulphate.
  - Note 6: The lightweight particle content is the percentage of lightweight particles by weight of all particles retained on 4.75mm sieve.
- (d) Quarried limestone and dolomite shall not be acceptable as asphalt aggregate materials for Superpave mixes and MS1 surface lifts.

## E18.5 Asphalt Cement

- E18.5.1 Asphalt cement shall be performance graded asphalt cement in accordance with AASHTO M 320 unless otherwise specified in the Contract Documents.
- (a) Use only those materials listed as Approved Products for Surface Works. The Approved Products are available in Adobe Acrobat (.pdf) format at the City of Winnipeg, Corporate Finance, Material Management Internet site at:  
<https://legacy.winnipeg.ca/matmgt/spec/default.stm>
- E18.5.2 The PGAC shall be homogeneous, free of water and any contamination, and shall not foam when heated to the temperatures specified by the manufacturer for the safe handling and use of the product. It shall be shipped, used, and always handled in accordance with the manufacturer's specifications.
- E18.5.3 All PGAC shall be in accordance with AASHTO M 320 when tested using the methods designated in AASHTO R29, Test Procedure for Grading an Unknown Asphalt Binder and continuous grading temperatures and reported continuous grading temperatures rounded to the nearest 0.1 °C.
- E18.5.4 Grades shall be tested at a temperature of 58 °C to determine the average percent recovery at 3.2 kPa (R<sub>3.2</sub>) in accordance with the requirements of AASHTO T350 Multiple Stress Creep Recovery (MSCR) Test using a Dynamic Shear Rheometer. The minimum MSCR Elastic Recovery shall be 25%.
- E18.5.5 The PGAC performance grading test result requirements shall be
- Equal to or above XX\* and equal to or below -YY\*; or
  - ≤ 0.5 °C below XX and ≤ 0.5 °C above -YY

Where \*XX is the specified high temperature performance grade and design maximum pavement temperature and -YY is the specified low temperature performance grade and design minimum pavement temperature.

E18.5.6 The PGAC shall comply with the performance grading requirements in Table CW 3410.2.

**Table CW 3410.2: Categories for PGAC**

Asphalt Type		Specified Standard Grade*
Top lift	SP1	PG 64-34P
	MS1	PG 58-34
	MS3	PG 58-34
Other lifts	SP2	PG 58-34P
	MS2	PG 58-34

E18.6 Mineral Filler

E18.6.1 Mineral filler, when required, shall consist of finely divided mineral matter such as rock dust, slag dust, hydrated lime, hydraulic cement, fly ash, loess or other suitable mineral matter, and shall conform to the requirements of ASTM Standard D242, Standard Specification for Mineral Filler for Bituminous Paving Mixtures. Mineral filler shall be free from organic matter and shall be non-plastic when tested in accordance with ASTM D2974 Standard Test Methods for Determining the Water (Moisture) Content, Ash Content, and Organic Material of Peat and Other Organic Soils.

E18.7 Incidental Materials

E18.7.1 Prime Coat

- (a) Prime coat shall consist of an emulsified asphalt. Method of application shall conform to the manufacturer's recommendations.
- (b) Use only those materials listed as Approved Products for Surface Works. The Approved Products are available in Adobe Acrobat (.pdf) format at the City of Winnipeg, Corporate Finance, Material Management Internet site at: <https://legacy.winnipeg.ca/matmgt/spec/default.stm>

E18.7.2 Tack Coat

- (a) Tack coat shall consist of emulsified asphalt. Method of application shall conform to the manufacturer's recommendations.
- (b) Use only those materials listed as Approved Products for Surface Works. The Approved Products are available in Adobe Acrobat (.pdf) format at the City of Winnipeg, Corporate Finance, Material Management Internet site at: <https://legacy.winnipeg.ca/matmgt/spec/default.stm>

E18.7.3 Reclaimed Asphalt Pavement (RAP)

- (a) Reclaimed asphalt pavement shall consist of sound durable particles produced by crushing and screening.
- (b) RAP is not permitted in Superpave mixes.
- (c) Up to 10% by mass of RAP is permitted in MS1 where used as a surface course.
- (d) Up to 15% by mass of RAP is permitted in MS1, MS2, and SP2 where used in lifts other than surface course.
- (e) RAP shall be blended during production of the asphalt and the mix produced shall consist of a uniform blend of all materials.
- (f) All physical requirements and combined aggregate gradation limits shall meet the requirements of Table CW 3410.1.

#### E18.7.4 Recycled Asphalt Shingles (RAS)

- (a) RAS shall be blended during production of the asphalt and the mix produced shall consist of a uniform blend of all materials.
- (b) RAS shall consist of sound durable particles produced from recovered organic asphalt, shingles, asphalt caps and asphalt rolled roofing. Fiberglass shingles are not permitted.
- (c) RAS material can be incorporated to a maximum 3% by weight of the total mix into MS1, MS2, and SP2 where used in lifts other than surface course.
- (d) RAS particles shall be a maximum size of 10mm and shall otherwise meet the gradation requirements in Table CW 3410.1.
- (e) RAS shall be free of chemical contaminants. Deleterious substances shall be a maximum of 3% of RAS by weight. Deleterious substances include fiberglass shingles, metal, glass, rubber, nails, soil, brick, tars and asbestos.

#### DESIGN REQUIREMENTS FOR ASPHALT PAVING MIX

#### E18.8 Testing Laboratories

E18.8.1 The City of Winnipeg, Research and Standards Engineer will maintain a list of approved Testing Laboratories. To obtain approval, Testing Laboratories must submit the following information to the Research and Standards Engineer annually prior to April 1<sup>st</sup>:

- (a) Valid Category "B" Asphalt laboratory certification or higher by Canadian Council of Independent Laboratories (CCIL);
- (b) A complete list of the certified testing; and,
- (c) List of the field personnel and their qualifications.

#### E18.9 Asphalt Suppliers

E18.9.1 Asphalt suppliers must submit the following information to the Research and Standards Engineer three weeks prior to paving:

- (a) Asphalt suppliers Approval Guidelines and Application is available at the City of Winnipeg, Corporate Finance, Material Management Division website at; <https://legacy.winnipeg.ca/matmgt/spec/default.stm>
- (b) Names of suppliers and sources for all materials and admixtures;
- (c) Asphalt mix designs. The mix design shall be completed by an approved laboratory with CCIL Type "A" certification based on the asphalt type;
- (d) Copies of valid scale calibration reports for the asphalt batch plant;
- (e) Test data for aggregates (in accordance with Clause E18.4);
- (f) Sieve analysis test reports for the individual aggregates and the combined aggregate gradations to be used in the asphalt. The sieve analysis test reports shall be representative of the material to be used during asphalt production;
- (g) Test data for asphalt cement (in accordance with Clause E18.5) and the following items shall be submitted:
  - (i) The PGAC supplier and location that the product shall be supplied from;
  - (ii) All documentation from the PGAC supplier confirming the grade of PGAC;
  - (iii) Applicable mixing and compaction temperatures for the product;
  - (iv) The minimum temperature of the mix immediately after spreading as recommended by the PGAC supplier; and,
  - (v) Documentation of construction, storage, and handling requirements, including the material safety data sheet, recompaction temperature, and mix discharge temperature.

- (h) Performance data from trial batches prior to construction to demonstrate the asphalt mix will achieve the performance criteria in Table CW 3410.4 and Table CW 3410.5. Three (3) separate sets of test results from a trial batch will be required for approval of the corrected mix design statement;
- (i) Quality control program for all materials, including a proposed sampling and testing plan in accordance with Clause E18.11;
- (j) The supplier shall hold a valid development license issued in accordance with the Manitoba Environment Act for the operation of the Bituminous Mix plant. The plant shall be located and operated in accordance with the terms and conditions of the license; and,
- (k) The supplier shall control dust at the plant site in accordance with health, safety and environmental requirements.

E18.9.2 The City of Winnipeg, Research and Standards Engineer will conduct inspections at least once a year during production. Samples of materials may be taken and tested.

E18.9.3 Testing for qualification or acceptance purposes shall be done in accordance with this Specification and applicable test procedures and standard practices. There shall be no charge for any materials taken for testing purposes.

E18.9.4 Changes in the source of any asphalt constituent materials will not be permitted without approval of the City of Winnipeg, Research and Standards Engineer. For new sources, all materials shall be tested.

E18.9.5 Once approved, all asphalt shall be supplied in accordance with the approved Mix Design Statement. No changes in the asphalt mix designs will be permitted without written permission from the City of Winnipeg, Research and Standards Engineer.

E18.9.6 Any change in the constituent materials of the asphalt shall require a new asphalt mix design.

E18.9.7 No asphalt supply or placement shall proceed until the asphalt cement submittal, mix design and Job Mix Formula are approved.

E18.10 Asphalt Mix Design and Job Mix Formula

E18.10.1 The Mix Design Statements for all asphalt types shall be submitted to the City of Winnipeg, Research and Standards Engineer for approval. The mix shall be proportioned to produce asphalt in accordance with the requirements of Table CW 3410.3 or Table CW 3410.4.

**Table CW 3410.3: Marshall Mix Requirements**

Mix Properties	MS1	MS2	MS3
Asphalt Cement, % total sample weight	5.3% to 6.5%	5.0% to 6.0%	5.5% to 6.5%
Effective Asphalt Cement, %min	4.8%	4.5%	4.8%
Voids in Mineral Aggregate, %min	14%	13%	16%
Voids Filled with Asphalt (%)	67% to 78%	67% to 75%	67% to 78%
Air Voids	3.0% to 5.0%	3.0% to 5.0%	3.0% to 5.0%
Marshall Stability, kN at 60°C	8 min.	8 min.	5 min.
Flow Index, units of 250 µm	8.0 to 14.0	8.0 to 16.0	8.0 to 16.0

**Table CW 3410.4: Superpave Mix Requirements**

Mix Properties			SP1	SP2
		Mix Gyrotory Compaction Requirements		

% of Theoretical Maximum Specific Gravity	N <sub>initial</sub>	8	≤ 89.0	≤ 90.5
	N <sub>design</sub>	100	96.0	96.0
	N <sub>max</sub>	160	≤ 98.0	≤ 98.0
Voids in Mineral Aggregate, %min			14	13
Voids Filled with Asphalt, %			67 – 75	65 – 75
Air Voids, %			3.8 – 4.2	3.8 – 4.2
Dust to Binder Ratio			0.6 – 1.2	0.6 – 1.2
Minimum Tensile Strength Ratio (TSR), % (AASHTO T283)*			80%	70%
Asphalt Cement, %min total sample weight			4.8%	4.6%
Effective Asphalt Cement, %min			4.5%	4.3%

\* If the specified TSR is not met, an approved anti-stripping additive shall be incorporated into the mix at a rate recommended by the anti-strip manufacturer and approved by the City of Winnipeg, Research and Standards Engineer.

- E18.10.2 If the deviation between QA results and JMF exceeds those identified in Table CW 3410.5, the asphalt supplier shall submit new Mix Design(s) to the City of Winnipeg, Research and Standards Engineer for approval.

**Table CW 3410.5: Maximum Deviation from JMF**

Mix Properties	Maximum Deviation Between the QA Results and JMF, %
Asphalt Cement	± 0.3
Effective Asphalt Cement	± 0.3
RAP	± 5
Passing 16.0 mm, 12.5 mm, 9.5 mm sieves	5.0
Passing 4.75 mm, 2.36 mm, 1.18 mm, 0.6 mm, 0.15 mm sieves	3.0
Passing 0.075 mm sieve	1.0

- E18.10.3 The mix design shall be valid for a maximum of twelve (12) months from when the mix design was developed. To extend use of the mix design beyond the initial twelve (12) months, a minimum of one test of each property listed in E18.11 shall be submitted to the City of Winnipeg, Research and Standards Engineer for approval. A full mix design shall be submitted every three years.

#### E18.11 Plant Quality Control

- E18.11.1 The asphalt supplier shall be responsible for quality control of the plant to ensure all materials meet the approved mix designs. This information shall be submitted monthly and will be monitored by the City of Winnipeg, Research and Standards Engineer. Failure to submit the quality control results shall be cause for immediate suspension of the asphalt supplier.
- E18.11.2 Quality Control testing shall be conducted by a laboratory certified in accordance with the requirements of Clause E18.8.1 and approved by the City of Winnipeg, Research and Standards Engineer.
- E18.11.3 The quality control program shall include all testing in accordance with Sections E18.3 to E18.11 of this Specification. A minimum of one test for aggregate gradation and asphalt materials shall be provided monthly during production.
- E18.11.4 Testing of any asphalt constituent materials may be undertaken by a testing laboratory designated by the City of Winnipeg, Research and Standards Engineer. The asphalt supplier shall be equipped with suitable means or a device for obtaining a representative sample of the asphalt cement. Any material which fails to comply with the requirements of this specification will be rejected. Material that has been rejected must be removed immediately by the asphalt supplier.

## SUPPLY OF MATERIALS

### E18.12 General

- E18.12.1 All asphalt suppliers shall be approved by the City of Winnipeg, Research and Standards Engineer. A list of approved asphalt suppliers is available at the City of Winnipeg, Corporate Finance, Material Management Division website at:  
<https://legacy.winnipeg.ca/matmgt/spec/default.stm>
- E18.12.2 Unless otherwise specified, only use of stationary asphalt mixing plants will be permitted.

### E18.13 Aggregate

- E18.13.1 The different sizes of aggregate used shall be kept separate and adequate provision shall be made to keep them from becoming mixed or otherwise contaminated.
- E18.13.2 Where blending of materials from one or more sources and/or sizes, each material shall be placed in separate stockpiles.
- E18.13.3 Separate aggregate feeds capable of delivering a uniform flow of material to the dryer shall be provided for each separate stockpile of aggregate, RAP, supplementary material and VMA additive used to produce the asphalt mix.
- E18.13.4 The aggregates shall be dried at a minimum temperature of 135°C before mixing with the asphalt.

### E18.14 Asphalt Cement

- E18.14.1 The asphalt cement shall be heated in a storage tank to a temperature that falls within the mixing temperature range recommended by the asphalt cement manufacturer. The mixing temperature shall be based on the temperature-viscosity curve for the asphalt cement and shall be sufficient to produce a uniform and homogeneous mixture in which all particles of the aggregate are thoroughly and uniformly coated. All information related to the asphalt cement shall be made available to the Contract Administrator upon request.
- E18.14.2 The asphalt cement shall be heated at the plant to a maximum temperature of 160°C before mixing with the aggregates. In no case shall the temperature of the asphalt and aggregates differ by more than 15°C when placed in the mixing drum.

### E18.15 Transportation of Asphalt Paving Mix

- E18.15.1 The mixture shall be transported from the plant to the site in trucks with metal bottoms previously cleaned of all foreign materials. If required, truck boxes shall be lightly coated with a uniform application of a non-petroleum-based asphalt release agent. The release agent shall conform to the Manufacturer's specifications and approved by the Contract Administrator. Excess lubricants shall be removed before trucks are loaded with asphalt. Release agents that adversely affect the quality or performance of the asphalt mix shall not be used.
- E18.15.2 The trucks shall be suitably insulated, as required. Each vehicle shall be equipped with a tarpaulin or other suitable covering material of sufficient size to overhang the truck box on three sides when the vehicle is fully loaded. Such tarpaulins shall be on the truck at all times and shall be used to cover the mixture completely as directed by the Contract Administrator.

## EQUIPMENT

### E18.16 General

- E18.16.1 All equipment shall be of a type approved by the Contract Administrator. The equipment shall be in good working condition for the duration of the Contract.
- E18.17 Prime/Tack Coat Distributors

- E18.17.1 For main lane paving, prime/tack coat shall be applied using self-propelled or tow-along pressure distributors capable of applying the product at the specified rate and in a continuous and uniform manner both longitudinally and transversely for the full lane width.
- E18.17.2 The distributors shall be equipped with a volume metering system of sufficient sensitivity to measure the quantity of tack/prime coat. The metering system shall be calibrated annually and all the certifications shall be made available to the Contract Administrator upon request. The distributors shall contain a thermometer for measuring the temperature of the tank contents.
- E18.17.3 All nozzles shall be set in the spray bar such that the nozzle slots make an angle between 15° to 30° with the longitudinal axis of the spray bar. Clogged nozzles shall be removed and cleaned with solvent before being used.
- E18.17.4 The use of a hand-held pressure applicator is acceptable only for prime/tack coating of small or irregularly shaped areas such as cuts, approaches, etc.

E18.18 Mechanical Pavers

- E18.18.1 Asphalt pavers shall be self-propelled and capable of laying a consistent lift which is true to the specified geometrics, cross-section and alignment. Pavers shall be equipped with hoppers and distributing screws capable of placing the hot mix evenly in front of the screeds.
- E18.18.2 Asphalt pavers shall be equipped with automatic longitudinal and transverse grade and slope controls which are capable of being operated from either side of the paver. The longitudinal grade control shall be readily adjustable for lift thickness in small increments without the necessity of stopping the paver.
- E18.18.3 The use of any paver that is experiencing difficulty in achieving a consistent and smooth lift in conformance with this Specification shall be discontinued until the Contractor demonstrates suitable corrective measures.

E18.19 Rollers

- E18.19.1 A rolling pattern shall be established and submitted by the Contractor to the Contract Administrator for approval before paving. The Contract Administrator shall approve any deviation from the rolling pattern during construction.
- E18.19.2 The Contract Administrator shall be provided with the mass of the rollers and may require they be weighed.
- E18.19.3 Rollers shall be classified into categories in accordance with Table CW 3410.6.

**Table CW 3410.6: Roller Classifications**

Type	Description	Classification	Minimum Mass, tonnes
Class S	Self-propelled steel-drum roller	S1	7
		S2	9
Class R	Self-propelled pneumatic-tired rollers Or	R1	8
	Self-propelled combination roller	R2	15
Class V	Self-propelled vibratory roller	V1	4
		V2	5.2
		V3	5.8

- E18.19.4 Rollers shall be equipped with an automatic device that prevents the drum from vibrating unless the roller is moving and shall automatically halt vibration before coming to a stop. Frequency of vibration shall not be less than 2200 per minute. Vibration should not be used

where there is potential to damage services and structures, or cause nuisance complaints as directed by the Contract Administrator.

## CONSTRUCTION METHODS

### E18.20 General

E18.20.1 All construction methods shall conform to this Specification, except as otherwise approved by the Contract Administrator.

### E18.21 Preparation of Base Course for Asphalt Pavement

#### E18.21.1 General

- (a) Placing of the asphalt mixture shall not commence until the construction of the sub-grade, sub-base and Base Course has been completed in accordance with the requirements of Specification CW 3110, and the installation of pavement and boulevard structures and appurtenances has been completed to the satisfaction of the Contract Administrator.
- (b) Where Base Course has raveled, the loose material shall be removed or recompact to a uniform surface.

#### E18.21.2 Prime Coat

- (a) Application of prime coat shall consist of flushing the final accepted Base Course layer with diluted emulsified asphalt. Use an equal volume of water to dilute the emulsified asphalt unless otherwise specified by the Contract Administrator. Surfaces to be prime coated shall be free of standing water and contamination, such as mud, loose aggregate, or debris.
- (b) The application rate of undiluted prime shall be between 0.5 to 1.0 L/m<sup>2</sup> and shall be approved by the Contract Administrator.
- (c) Prime coat shall be placed with sufficient time to cure prior to paving. Asphalt mix shall not be placed on prime coated areas until the prime coat is fully cured for a minimum of eight (8) hours or until prime coat cannot be tracked by foot traffic and tires. Paving and construction equipment shall not be permitted onto the prime coat until it has fully cured and set. Traffic shall not be permitted on the prime coat.
- (d) Prime coat shall be visually uniform. Prime coat shall be reapplied to areas of insufficient or non-uniform coverage. A hand spray can be used to apply prime coat to areas missed or inaccessible by the distributor. When prime coating is performed using hand spray, the visual appearance of such areas shall be consistent with the adjacent areas.
- (e) Prime coat shall not be applied when the weather is foggy or rainy or when the ambient temperature is less than 0°C. If the ambient temperature is less than 0°C as forecast by the nearest official meteorological office, the product used for prime coat shall be approved by the Contract Administrator.
- (f) Before applying the prime coat, the surface shall be flushed with water to create optimal conditions for adhesion, absorption control, and overall effectiveness of the prime coat and shall be approved by the Contract Administrator.
- (g) After curing, if any excess primer remains on the surface, the Contractor shall apply an approved sand where necessary to blot up the excess prime. The sand cover, where used, shall consist of clean, granular, mineral material approved by the Contract Administrator, all of which shall pass a 4.75 mm sieve. Only sufficient sand shall be spread to blot up excess prime and such areas shall be broomed to remove the excess sand prior to paving.
- (h) Prime coat shall be inspected and approved by the Contract Administrator before any asphalt is placed. Otherwise the asphalt shall be rejected by the Contract Administrator and shall be removed by the Contractor at his own expense.

- (i) When traffic flow must be maintained, prime coat shall be applied to one direction of the roadway at a time. No prime coat shall be applied to the other direction of the roadway until the first direction has cured to accommodate vehicular traffic.

## E18.22 Preparation of Asphalt or Portland Cement Concrete Pavement for Asphalt Overlay

### E18.22.1 Asphalt Surface Pavement

- (a) A layer of the existing asphalt surface course shall be removed to such depth as is specified on the Drawings or as directed by the Contract Administrator. This work will be done and paid for in accordance with Specification CW 3450.
- (b) If the entire existing asphalt overlay is removed to the existing portland cement concrete pavement, the preparation of the existing Portland cement concrete pavement for asphalt overlay shall be in accordance with Section 6.4 of this Specification.
- (c) If the surface remaining after the removal of the specified layer of asphalt surface course is asphalt, the Contractor shall proceed to fill any remaining holes and depressions with asphalt paving mixture and compact these areas with a steel wheel roller before paving. The asphalt surface upon which the asphalt overlay is to be placed shall be approved by the Contract Administrator prior to placing asphalt.
- (d) At the locations designated on the Drawings and at any other locations designated by the Contract Administrator, the Contractor shall adjust existing structures and appurtenances, reconstruct sections of curb, seal all cracks and do other repair works as required. The adjustment of existing structures and appurtenances shall be done and paid for in accordance with Specification CW 3210, and the curb renewal, crack sealing and other repair works shall be done and paid for in accordance with Specifications CW 3230, CW 3240, and CW 3250.

### E18.22.2 Portland Cement Concrete Pavement Surface

- (a) At the locations designated on the Drawings and at any other locations designated by the Contract Administrator, the Contractor shall adjust existing structures and appurtenances, reconstruct sections of concrete pavement, reconstruct sections of curb, seal all joints and cracks and do other repair works as required. The adjustment of existing structures and appurtenances shall be done and paid for in accordance with Specification CW 3210, and the pavement reconstruction, curb renewal, joint and crack sealing and other repair works shall be done and paid for in accordance with Specifications CW 3230, CW 3240, and CW 3250.

### E18.22.3 Tack Coat

- (a) Application of tack coat shall consist of flushing the final accepted surface with undiluted emulsified asphalt. Surfaces to be tack coated shall be free of standing water and contamination, such as mud, loose aggregate, or debris.
- (b) Tack coat shall be required between layers of asphalt material and the application rate shall be in accordance with Table CW 3410.7, unless otherwise specified by the Contract Administrator.

**Table CW 3410.7: Application Rate for Tack Coat**

Surface Type	Application Rate, L/m <sup>2</sup>	Max Allowable Tolerance, L/m <sup>2</sup>
New Asphaltic pavement	0.25	0.03
Old Asphaltic pavement, Portland Cement Concrete, Milled Surface	0.35	0.05

- (c) Tack coat shall be placed with sufficient time to break prior to paving. Asphalt mix shall not be placed on tack coated areas until the tack coat is broken for a minimum of three (3) hours or until tack coat cannot be entirely tracked by foot traffic and tires. If trackless tack is used, the breaking time can be reduced in accordance with the

manufacturer's specifications unless otherwise specified by the Contract Administrator. Paving and construction equipment shall not be permitted onto the tack coat until it has broken. Traffic shall not be permitted on the tack coat.

- (d) Tack coat shall be visually uniform. Areas of insufficient or non-uniform tack coat coverage shall be re-sprayed. Hand spray can be used to apply tack material to areas missed or inaccessible by the distributor including curb areas attached to the asphalt. When tack coating is performed using hand spray, the visual appearance of such areas shall be consistent with the adjacent areas of machine applied material.
- (e) Tack coat shall not be applied when the weather is foggy or rainy or when the ambient temperature is less than 5°C. If the ambient temperature is less than 5°C as forecast by the nearest official meteorological office, the product used for tack coat shall be approved by the Contract Administrator.
- (f) Tack coat shall be inspected and approved by the Contract Administrator before any asphalt is placed. Otherwise the asphalt shall be rejected by the Contract Administrator and shall be removed by the Contractor at his own expense.

### E18.23 Placing Asphalt Paving Mixture

#### E18.23.1 General

- (a) The Contract Administrator shall approve the surface upon which new asphalt is to be placed before paving operations may begin.
- (b) The mixture shall be delivered to the job and placed at a temperature that allows for proper compaction, taking into consideration the weather conditions, the temperature of the surface on which the mixture is to be placed, and the thickness of the lift. In no case shall the asphalt mixture be placed at a temperature lower than the values specified in Table CW 3410.8.

**Table CW 3410.8: Limits for Asphalt Mixes Temperatures**

Asphalt Type	Temperature for Asphalt before Placing, °C		Minimum Temperature During Rolling, °C
	Minimum	Maximum	
HMA	125	160	90
WMA	115	155	80

- (c) Unless otherwise permitted by the Contract Administrator, the mixture shall be spread by means of a mechanical self-powered paver capable of spreading the mixture true to the line, grade and crown required.
- (d) Pavers shall be equipped with hoppers and distributing screws of the reversing type to place the mixture evenly in front of adjustable screeds. The mixture shall be dumped in the centre of the hoppers and care exercised to avoid overloading and slopping over of the mixture upon the base.
- (e) When laying the mixture, pavers shall operate so as to provide as continuous an operation as possible at a speed of between three meters and six meters per minute. They shall be equipped with a quick and efficient steering device and shall have forward and reverse travelling speeds of not less than 25 meters per minute.
- (f) Pavers shall be capable of spreading the mixture, without segregation, in thicknesses as specified on the Drawings or approved by the Contract Administrator. Placement widths shall vary from a minimum of 1.5 meters to a maximum of 4.5 meters unless approved by the Contract Administrator. They shall be equipped with blending or joint levelling devices for smoothing and adjusting all longitudinal joints between strips or courses of the same thickness. Pavers shall be equipped with screeds.
- (g) The term screed includes any strike-off device operated at workable temperature without tearing, shoving or gouging the finished surface.

- (h) The minimum and maximum thickness of a compacted lift for reconstruction shall be in accordance with Table CW 3410.9, unless otherwise specified by the Contract Administrator.

**Table CW 3410.9: Lift Thicknesses**

Mix Type	Thickness, mm	
	Minimum	Maximum
MS1	35	55
MS2	50	75
MS3	25	40
SP1	35	55
SP2	50	75

- (i) No construction traffic shall travel on the finished surface until the surface has cooled to a temperature of 60°C or less.

**E18.23.2 Main Line Paving**

- (a) Main line paving shall include the placement of bottom and top lifts for asphalt pavements and overlays utilizing mechanical pavers with automatic grade control for:
- (i) All through and parallel turning lanes greater than 15.0 meters in length;
  - (ii) Other lanes greater than 15.0 metres in length; and,
  - (iii) Intersections through which the main line continues.
- (b) Main line paving with mechanical pavers shall utilize automatic grade control, except for:
- (i) Intersections through which the main line continues and where traffic must be maintained; and,
  - (ii) The side of the paver adjacent active traffic.
- (c) Hand placement shall be minimized. Hand placed asphalt shall be spread and compacted to match the finished grade to the satisfaction of the Contract Administrator.

**E18.23.3 Tie-Ins and Approaches**

- (a) Tie-Ins and approaches shall include the placement of leveling and surface courses for pavements and overlays for all areas other than main line paving lanes. This includes intersecting side streets to the main road under construction except as noted in Section E18.23.2 of this specification, intersection turnouts, right turn cut-offs, median openings, and private approaches. Tie-ins include miscellaneous asphalt for temporary ramping, sidewalk in-fill and isolations.
- (b) Tie-Ins and approaches shall utilize mechanical pavers where possible with or without automatic grade control, or hand methods as approved by the Contract Administrator.
- (c) Hand placement shall be minimized. Hand placed asphalt materials shall be spread and compacted to match the finished grade to the satisfaction of the Contract Administrator.

**E18.23.4 Weather Limitations**

- (a) Asphalt shall be laid upon a surface which is dry, clean and free from standing water, and only when weather conditions are suitable in accordance with Table CW 3410.10.

**Table CW 3410.10: Minimum Placement Temperature for Asphalt**

Asphalt Type	Location	Lift Thickness, mm	Temperature*, C°	
			Wind Speed, km/hr > 10	Wind Speed, km/hr ≤ 10
HMA	Top Lift	< 50	10°C	6°C
		≥ 50	8°C	6°C
	Other than top lift	> 50	2°C	2°C

WMA	Top Lift	< 50	4°C	0°C
		≥ 50	2°C	0°C
	Other than top lift	> 50	0°C	-2°C

\*Temperature shall be based on the nearest official meteorological office. The Contract Administrator may confirm the temperature by measuring the temperature in the shade and 150 mm above the surface.

- (b) Asphalt shall be placed on unfrozen material, free of water, snow, and ice. Frozen material will be identified by measuring the surface temperature using infrared thermometers or similar devices. If the surface temperature is less than or equal to 0°C, the material will be considered frozen. The Contractor shall use suitable heating methods to maintain the surface temperature above 0°C. Salt shall not be used to thaw ice, snow, or frost.
- (c) Paving shall not be permitted while there is frost within 750 mm of the surface upon which the asphalt is to be placed. Asphalt shall only be laid under conditions that the Contract Administrator determines to be conducive to obtaining the specified results.
- (d) Notwithstanding the above, when weather conditions are unfavourable, or are likely to become unfavourable, paving operations shall be suspended.

## E18.24 Joints

### E18.24.1 General

- (a) Joints shall be smooth, well bonded and tightly sealed. Joints shall conform smoothly and accurately to adjacent pavement surfaces such that when tested with a 3-metre straight edge placed across the joint the distance between the straight edge and the surface of the pavement shall not exceed 5 mm at any point.
- (b) When matching a compacted joint, the depth of the uncompacted lift shall be set to allow for compaction. The paver screed shall overlap the adjoining lift by no more than 25 mm.
- (c) On straight sections the joint line shall not deviate from a straight line by more than 75 mm at any point. On curved or tapered sections, the joint shall be shaped so as to be as smooth as possible. Jagged, stepped or wandering edges shall be reshaped to a smooth line, to the satisfaction of the Contract Administrator, before the adjacent lift is laid.

### E18.24.2 Location of Joints

- (a) The location of joints shall be subject to the approval of the Contract Administrator and shall conform to the following requirements:
  - (i) Longitudinal joints shall not be located within 150 mm of a longitudinal joint in any underlying pavement structure.
  - (ii) Transverse joints shall not be located within two (2) meters of any other transverse joint in the same paving course or within one (1) meter of a transverse joint in any underlying pavement structure.
- (b) Longitudinal cold joints are to be avoided wherever possible. Transverse joints shall be established with sufficient frequency to allow the full width of the paving course to be placed in a single shift. No paving lane shall progress more than 500 m beyond the end of an adjacent paving lane in the same course without the prior approval of the Contract Administrator.

### E18.24.3 Preparation of Joints

- (a) Hot Joints
  - (i) Hot joints shall be considered to be those longitudinal joints between adjacent mats in which the previously laid lift retains sufficient heat, above 90 °C for HMA and 75 °C for WMA, to facilitate good bonding and sealing of the joint. The edge of the previously laid lift shall be inspected prior to laying the new mat. Any areas not conforming to line and grade or having a rounded-off top

corner shall be cut out to the full depth of the lift to a minimum width of 100 mm and replaced with fresh material and compacted when laying the new mat.

- (ii) If the previously laid lift temperature is below 90 °C for HMA and 75 °C for WMA but higher than 60 °C, then the joints shall be painted with a thin uniform tack coat before the new asphalt is placed against it.

(b) Cold Joints

- (i) Cold joints shall be considered to be those longitudinal and transverse joints where the existing adjacent pavement lift is at or below 90 °C. Transverse joints shall be cut back to a straight line for the full depth and width of the mat. The transverse joint shall be cut back to a location such that the pavement immediately before the joint, where checked with a 3-metre straight edge, exhibits no tapering or rounding.
- (ii) Longitudinal edges of existing mats shall be inspected before laying the new mat. Any areas not conforming to line and grade shall be cut out full depth to a minimum width of 150 mm and replaced with fresh material and compacted when laying the new mat. Any areas with a rounded corner shall be cut back to the full depth of the lift to form a vertical face with a square corner.
- (iii) Joints against existing asphalt pavements shall be prepared by saw cutting, cold planning or other method(s) approved by the Contract Administrator, such that the face of the existing pavement is vertical with a square corner.
- (iv) All contact surfaces of cold joints shall be painted with a uniform coat of tack before the new asphalt is placed against them.

E18.24.4 Construction of Joints

- (a) Fresh asphalt shall not be placed against the existing lift until the joint preparation has been completed in accordance with E18.24.3 and is approved by the Contract Administrator.
- (b) For asphalt reconstructions, longitudinal joints shall be prepared in accordance with Section E18.24.3(b) unless the Contractor maintains joint temperatures that meet the requirements of E18.24.3 at the time the adjacent mat is placed. Acceptable methods to maintain hot joint conditions include, but are not limited to, echelon paving, staggered paving operations, or the use of infrared joint heating equipment, subject to approval of the Contract Administrator.
- (c) For pavements with an asphalt overlay on residential local streets and public lanes, or where otherwise specified by the Contract Administrator, cutting of longitudinal joints is not required where paving is completed as a continuous operation within the same day. Where paving is completed on separate days, longitudinal joints shall be cut unless pavement repair fabric is used, subject to approval of the Contract Administrator.
- (d) The fresh lift shall be laid to an elevation such that, when compacted, it will conform accurately to the grade of the existing pavement. Wherever practicable, this shall be done using mechanical pavers.
- (e) Joints shall always be rolled before the remainder of the mat. Wherever practicable the joint shall be rolled with the roller travelling parallel to the joint and with a minimum of seventy-five (75%) percent of the width of the main roller(s) supported on the existing mat.

E18.25 Asphalt Patching

E18.25.1 Remove and replace existing asphalt pavements adjacent to proposed or renewed sidewalks and concrete approaches for grade adjustment to ensure drainage and rideability are maintained. Areas to be considered as asphalt patches shall be less than 1.5 meters in width. The locations requiring asphalt patching shall be shown on the Drawings or as directed by the Contract Administrator.

E18.25.2 The Contractor shall saw cut the asphalt pavement full-depth along the limits designated. The asphalt pavement shall be removed and disposed of in accordance with CW 3110.

Upon removal of asphalt, the existing base materials shall be levelled and compacted. The asphalt shall match the thickness of the existing pavement. The material shall be placed and compacted by acceptable methods in accordance with Clause E18.26 of this specification to the satisfaction of the Contract Administrator.

E18.25.3 All costs incurred for asphalt removal, compaction of existing base materials and placement of Base Course and asphalt materials shall be included in the unit price for "Construction of Asphalt Patches"

E18.26 Compaction of Asphalt Paving Mixture

E18.26.1 General

- (a) A rolling pattern shall be established by the Contractor and approved by the Contract Administrator. The Contract Administrator shall approve any deviation from the rolling pattern.
- (b) The minimum number of rollers is identified in Table CW 3410.11.

**Table CW 3410.11: Maximum Rates Per Paver and Roller Sequence**

Asphalt Placement, tonnes/hr	Minimum Roller Combinations per Paver Breakdown + Intermediate + Finish*
≤ 100	S2 + R1 + S1 V1 + R1 + S1
> 100	S2 + 2 x R1 + S1 S2 + R2 + S1 V2 + 2 x R1 + S1 V2 + R2 + S1

\*No vibration shall be used when paving bridge decks. If Class V rollers are used, they shall be in static mode. The V3 roller can be used as a substitute for the V2 roller.

- (c) The operating speed of rollers shall not exceed 5 km/hr and shall be slow enough to avoid undue displacement of the asphalt. Rollers shall operate with the drive wheel forward in the direction of paving.
- (d) Any displacement occurring as a result of reversing the direction of the roller or any other cause shall be corrected. Rolling shall proceed continuously until all roller marks are eliminated and no further compression is possible. To prevent adhesion of the mixture to the roller, the wheels shall be kept properly moistened with water, limewater, or an approved detergent. Excess moisture will not be permitted.

E18.26.2 Rolling Procedures

- (a) Compaction of the paving mixture shall consist of three (3) separate rolling operations as follows:
  - (i) Breakdown rolling: Rolling shall start longitudinally at the sides and proceed toward the centre of the pavement overlapping on successive passes by at least 150 mm. Breakdown rolling shall consist of at least two complete coverages by the roller. Delays in rolling freshly placed asphalt shall not be permitted.
  - (ii) Intermediate rolling shall immediately follow breakdown rolling. Passes shall be arranged to ensure overlapping successive tire paths. The rolling operation shall prevent pick-up of the mixture on the tires.
  - (iii) Final rolling shall be undertaken while the paving mixture is still warm enough to eliminate roller marks. Where the width permits, the asphalt shall be rolled diagonally in two directions, the second diagonal rolling crossing the first rolling direction. Final rolling shall start longitudinally at the high edge and proceed towards the lower edge of the mat. Final rolling shall be continue until there is no evidence of consolidation.

#### E18.27 Compaction of Irregular Areas

E18.27.1 Along curbs, manholes and similar structures and at all places not accessible to rollers, compaction shall be performed by plate compactors to the satisfaction of the Contract Administrator. All joints around these structures shall be effectively sealed.

E18.27.2 The asphalt may be heated to a maximum temperature of 120°C to facilitate the compaction where approved by the Contract Administrator.

#### E18.28 Requirements After Final Rolling

E18.28.1 After final rolling the surface of each lift shall be smooth and true to the established crown and grade. Any low or defective spots shall be remedied by milling to a minimum depth of 40 mm or as directed by the Contract Administrator, and replacing it with a fresh mixture.

E18.28.2 The corrected area shall have a smooth transition to the surrounding pavement without negatively affecting any adjacent sections, impairing the functionality and the service life of the area.

#### E18.29 Filling of Core Holes

E18.29.1 Where cores are collected, the Contractor shall patch each core hole immediately with an approved cold asphalt product.

E18.29.2 The patch shall be finished flush with the surface. Immediately before filling, the surface of each hole shall be thoroughly cleaned to ensure a proper bond. After filling each hole, all excess material shall be removed from the surface.

E18.29.3 Where HMA or WMA are not available, use only those materials listed as Approved Products for Surface Works. The Approved Products are available in Adobe Acrobat (.pdf) format at the City of Winnipeg, Corporate Finance, Material Management Internet site at: <https://legacy.winnipeg.ca/matmgt/spec/default.stm>

#### E18.30 Surface Tolerance

E18.30.1 The surface of the asphalt pavement shall be checked with a 3-metre straight edge and be within  $\pm 5$  mm from the surrounding area. Areas that do not meet these tolerances shall be corrected to the satisfaction of the Contract Administrator.

E18.30.2 Where the posted speed limit is greater than 60 km/hr, the Contract Documents shall identify smoothness requirements for longitudinal profile of the pavement surface. The smoothness requirements shall be approved by the City of Winnipeg, Research and Standards Engineer.

#### E18.31 Opening to Traffic

E18.31.1 In no case shall traffic or construction equipment be allowed on the asphalt pavement until completion of quality assurance testing by the Contract Administrator and until the completed pavement has cooled to atmospheric temperature or to such other temperature, as may be approved by the Contract Administrator, that will ensure no deformation of the pavement surface under traffic loading.

E18.31.2 The Contract Administrator's decision as to when the pavement will be opened to traffic shall be final. Prior to opening to traffic, the pavement shall be clean and free of aggregates or other deleterious materials on the surface.

### QUALITY ASSURANCE

#### E18.32 General

E18.32.1 Tests used for purposes of assessing compliance with this specification or for acceptance of any products shall be conducted by a certified laboratory approved by the City of Winnipeg, Research and Standards Engineer.

E18.32.2 Field sampling and testing of asphalt shall be performed by a certified person.

- E18.32.3 The Contract Administrator shall be allowed access to all sampling locations and reserves the right to request quality assurance sample(s) at any time.
- E18.32.4 Samples shall be protected during transportation from any exposure to adverse conditions.
- E18.32.5 If any sample shows distinct evidence of improper sampling, handling, or testing, the test shall be disregarded and a new sample shall be collected.
- E18.32.6 Testing in addition to the requirements of this Specification shall be as directed by the Contract Administrator.

E18.33 Testing Frequency

- E18.33.1 Asphalt shall be sampled for acceptance in accordance with Table CW 3410.12.

**Table CW 3410.12: Frequency of Sampling and Testing of Asphalt**

Asphalt Type	Quantity (tonnes)	Minimum Frequency
MS1, MS2	< 150	2 test/day
	150 - 300	3 tests/day
	> 300	2 test/150 tonnes
MS3	< 50	1 test/day
	50 - 100	2 tests/day
	> 100	2 test/100 tonnes
SP1, SP2	--	2 test/150 tonnes

- E18.33.2 Additional testing shall be as directed by the Contract Administrator.
  - E18.33.3 Copies of all test results shall be sent to the City of Winnipeg, Research and Standards Engineer and to the Contract Administrator.
  - E18.33.4 Copies of asphalt plant scale tickets shall be provided to the Contract Administrator.
- E18.34 Acceptance Criteria
- E18.34.1 The Contractor shall reimburse the City for any additional costs the City incurs as a result of failed tests.
  - E18.34.2 Where the work is not funded or administered by the City of Winnipeg or their representative, the party approved by the City of Winnipeg to execute the work will be responsible for making pay adjustments to the City of Winnipeg.
  - E18.34.3 All corrective actions shall be performed at the Contractor's expense.
  - E18.34.4 Acceptance of asphalt shall be based on the following:
    - (a) Visual Inspection:
      - (i) The Contract Administrator may reject visually defective asphalt areas based on, but not limited to the following defects: flushing, bleeding, segregation, fat spot, surface damage, and surface contamination. Such defective areas shall be removed and replaced at the Contractor's expense.
    - (b) Bituminous Mix Properties:
      - (i) Air Voids: If the measured air voids fall outside the limits specified in Clause E18.8.1 of this Specification, the Contract Administrator shall apply a payment adjustment in accordance with Table CW 3410.13 against the entire Lot represented by the failed test(s).

**TABLE CW 3410.13 – Payment Adjustment for Air Voids**

Asphalt Type	Average of the Failed Tests	Percent of Price Reduction %
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MS1, MS2, MS3 SP1, SP2	≤ 0.5%	0.0
	0.5% to 1%	0.0*
	> 1%	Remove and replace at Contractor's expense

\*Paving shall be suspended until necessary adjustments are made and approved by the Contract Administrator.

- (ii) Voids in Mineral Aggregate (VMA): If the measured voids in mineral aggregate falls outside the limits specified in Clause E18.10 of this Specification, the Contract Administrator shall apply a payment adjustment in accordance with Table CW 3410.14 against the entire Lot represented by the failed test(s).

**TABLE CW 3410.14 – Payment Adjustment for Voids in Mineral Aggregate**

Average of the Failed Tests	Percent of Price Reduction %
≤ 0.5%	0.0
0.5% to 1%	0.0*
1% to 2%	
> 2%	Remove and replace at Contractor's expense

\*Paving shall be suspended until necessary adjustments are made and approved by the Contract Administrator.

- (iii) Asphalt Cement Content: If the measured asphalt cement content falls outside the limits specified in Clause E18.10 of this Specification or if it exceeds the allowable deviation for the JMF specified in Table CW 3410.5, the Contract Administrator shall apply a payment adjustment in accordance with Table CW 3410.15 against the entire Lot represented by the failed test(s).

**TABLE CW 3410.15 – Payment Adjustment for Asphalt Cement Content**

Average of the Failed Tests	Percent of Price Reduction %
≤ 0.15%	0.0
0.15% to 0.5%	0.0*
> 0.5%	Remove and replace at Contractor's expense

\*Paving shall be suspended until necessary adjustments are made and approved by the Contract Administrator.

- (iv) Gradation: If the gradation falls outside the limits specified in Table CW 3410.1 or if it exceeds the allowable deviation for the JMF specified in Table CW 3410.5, the Contract Administrator shall apply a payment adjustment in accordance with Table CW 3410.16 against the entire Lot represented by the failed test(s).

**TABLE CW 3410.16 – Payment Adjustment for Gradation**

Percent Passing Outside the JMF for Each Sieve			Percent of Price Reduction %
19, 16, 12.5, 9.5	4.75, 2.36, 1.18, 0.6, 0.15	0.075	
<2	<1	-	0.0

2-4	1-2	<1	0.0*
> 4	> 2	≥ 1	Remove and replace at Contractor's expense

\*Paving shall be suspended until necessary adjustments are made and approved by the Contract Administrator.

(c) Density:

- (i) Density testing shall be conducted at least once every 150 m<sup>2</sup>. The Contract Administrator shall ensure that the density tests cover the full width of the construction area.
- (ii) An area is deemed unacceptable if the compaction does not meet all of the following:
  - i. The average density results shall be between 93% and 95% of the theoretical maximum density; and,
  - ii. No individual location shall be less than 90% or higher than 98% of the theoretical maximum density.
- (iii) Nuclear density test gauge results shall be used to assess in-place density. When density test results do not meet the minimum percent density specified herein, a coring and testing program can be undertaken to verify density percentage of the mix by Core Density Testing. If core density results confirm the Nuclear density results, the Contractor shall reimburse the City for any additional costs associated with coring, transmittal of cores, filling of cores and testing the City incurs as a result of failed tests.
- (iv) The Contract Administrator shall apply a payment adjustment in accordance with Table CW 3410.17 against the entire lot represented by the failed test(s).

**TABLE CW 3410.17 – Payment Adjustment for Density**

Average of the Density Tests	Percent of Price Reduction %
> 98%	Remove and replace at Contractor's expense
97.9% to 97.1%	0%*
97% to 93%	0%
92.9% to 90%	0%*
< 90%	Remove and replace at Contractor's expense

\*Paving shall be suspended until necessary adjustments are made and approved by the Contract Administrator.

(d) Segregation and Surface Defects

- (i) Surface defects include but are not limited to: gouges, slippage, cracking, tearing, pocketing, blistering, shoving, wash boarding, surface depressions or surface defects shall be repaired to the satisfaction of the Contract Administrator.

(e) Asphalt Thickness:

- (i) A Lot is deemed unacceptable if the asphalt thickness does not meet all of the following:
  - i. The average thickness is less than the required thickness; and,
  - ii. No individual thickness shall be less than 90% of the required thickness.

- (ii) The Contract Administrator shall apply a payment adjustment in accordance with Table CW 3410.19 against the entire Lot represented by the insufficient thickness.

**TABLE CW 3410.19 – Payment Adjustment for Pavement Thickness**

Average Thickness	Percent of Price Reduction %
Less than specified thickness but more than 90% of specified thickness	0.0*
Less than 90% of specified thickness	Remove and replace at Contractor's expense

\*Paving shall be suspended until necessary adjustments are made and approved by the Contract Administrator.

#### MEASUREMENT AND PAYMENT

##### E18.35 Construction of Asphalt Pavement

E18.35.1 Construction of asphalt pavement will be measured and paid for at the Contract Unit Price per tonne for the "Items of Work" listed here below, measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the work included in this Specification.

**Items of Work:**

- (a) Construction of Main line Paving (\*)
  - (b) Construction of Tie-ins and Approaches (\*)
- \* Specify either MS1, MS2, MS3, SP1, or SP2

E18.35.2 The weight to be paid for shall be the total number of tonnes placed and compacted in accordance with this Specification and accepted by the Contract Administrator, as measured on a certified weigh scale.

##### E18.36 Construction of Asphalt Patches

E18.36.1 Construction of asphalt patches will be measured and paid for at the Contract Unit Price per square meter for "Construction of Asphalt Patches", measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the work included in this Specification.

#### **E19. CORYDON AVENUE CONSTRUCTION STAGING – BUSINESS SIGNAGE AND ACCESS**

##### DESCRIPTION

E19.1 The Contractor shall coordinate with businesses on Corydon Avenue to schedule property access for large vehicles and may be required to supply and install business information signs that identify the names of each of the business within that block. Construction staging will be required for the placement of approach and mainline infill concrete in the vicinity of each business. If large vehicle access is required during the week and cannot be coordinated, the contractor shall complete the construction of approach and mainline infill concrete works on a Saturday or Sunday. Working days will not be assessed for approach or mainline infill concrete works performed on Saturdays or Sundays.

E19.1 The signs shall be a minimum of 1.22m x 2.44 m (4 feet x 4 feet) mounted with the longest dimension vertical with sufficient support and ballast to not be blown over. The signs shall have a white background, with each business name stenciled in black lettering of sufficient size to be read at a distance of 10m.

## MEASUREMENT AND PAYMENT

E19.2 No measurement or payment will be made for meeting the requirements of this specification.

## **E20. WORK PRACTICES ON ASBESTOS-CEMENT PIPE**

E20.1 Further to C.6.26, the Contractor's attention is directed to the possible health dangers associated with working with asbestos cement pipe and all work associated with the existing AC watermains shall conform to the following publications:

- (a) "Work Practices for Asbestos-Cement Pipe", AWWA No. M16, published by the American Water Works Association.
- (b) "Recommended Work Practices for AC Pipe", 1977, published by the AC Pipe producers Association.
- (c) The Contractor shall state in the "job specific safe work plan" the proposed procedure for working on AC pipe. The Contractor shall also provide proof of asbestos handling training or certification.

## **E21. WATER SERVICE INTERRUPTIONS TO BUSINESSES, SCHOOLS, AND APARTMENT BUILDINGS**

E21.1 Further to CW 1120 clause 3.6, should the Contract Administrator require that work be carried out on evenings, nights, weekends or Public Holidays where required to minimize water service interruptions on this project, the Contractor shall comply without additional compensation being considered to meet the requirement.

E21.2 Water shutdowns to businesses, schools and apartment buildings will be arranged by the Contractor in consultation with the owner. Shutdowns shall be scheduled in accordance with these discussions, which include the Contract Administrator. The Contractor shall contact the affected buildings a minimum of five (5) business days prior to any anticipated service interruption.

E21.3 The Contractor shall be required to submit a written work plan to the Contract Administrator a minimum of five (5) Business Days prior to any construction activities to illustrate how the work will be performed to minimize or eliminate water shutdowns on this project. The plan will be reviewed by the Contract Administrator and revised by the Contractor as required.

E21.4 Further to CW 1120 clause 3.6.4, adequately sized temporary pressurized water supply shall mean sized such that the building is able to continue with normal day to day operations, with water pressure being maintained on all floors of the property.

E21.5 Coordination of water service interruptions with property owners, and measures taken to minimize water service disruptions shall be considered incidental to the Work and will not be measured for payment. No separate payment will be made.

## **E22. WATER MAIN TESTING**

E22.1 Further to CW 2125 Clause 3.4.3, samples must be submitted to the laboratory no later than 20 hours following sampling.

## **E23. RESTORATIONS – WATERMAIN RENEWAL WORK**

### GENERAL

E23.1 Further to Section 3.3 of CW 1130 of the General Requirements, permanent surface restorations including all sodding and pavement works for each renewal shall be completed within ten (10) working days from the date that the renewal is completed.

E23.2 Where excavations are to be restored with 24-hour early opening concrete, the Contractor shall make it his priority to; backfill the excavation; pour the 24-hour concrete; where required, lay asphalt as soon as the 24-hour curing period is up and open the closed lane to traffic.

- (a) Permanent restorations are required on all Water Main work on Handsart Boulevard
- (b) Permanent restorations are required on all Water Main work outside of the limits of rehabilitation surface works on Corydon Avenue.

**EXECUTION**

E23.3 Permanent Surface Restoration

- (a) The Contractor will follow the City’s Street By-law No. 1481/77 and the current version of the Street Cuts Manual for all pavement restoration unless otherwise shown on the drawing or specifications or as directed by the Contract Administrator. The Contractor or their subcontractor shall hold a Restoration Contractor’s License issued under the Streets By-law in order to restore pavement cuts in accordance with the City of Winnipeg Street Cuts Manual.
- (b) The Street Classification and Surface Type within the project work area are classified as follows:

<b>Street Name</b>	<b>Segment</b>	<b>Classification</b>	<b>Pavement Type</b>	<b>General Condition</b>
Handsart Boulevard	Corydon Avenue to Nanton Boulevard	Local	Asphalt over Concrete	Good
Nanton Boulevard	Lamont Boulevard to Park Boulevard North	Local	Asphalt over Concrete	Good
<p>Note: Values obtained from City of Winnipeg Street Conditions Map available at:  <a href="https://winnipeg.ca/publicworks/maps/streetconditions.asp">https://winnipeg.ca/publicworks/maps/streetconditions.asp</a>                      Conditions reported at the time of posting may not reflect existing conditions.</p>				

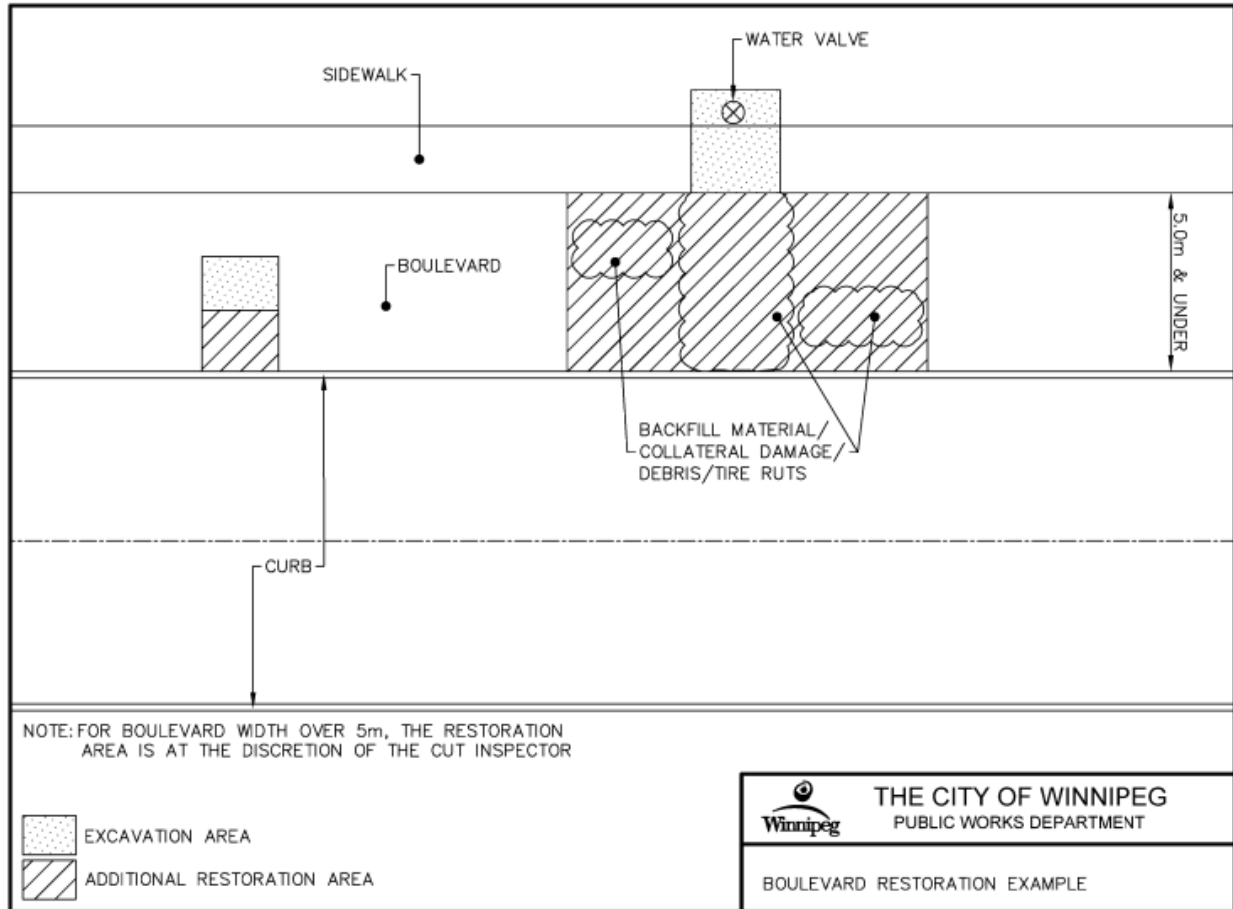
- (c) All street segments within the work area impacted by the Work as determined by the Contract Administrator shall be maintained and restored with the following additional requirements.
  - (i) Review and record the condition of each street segment with the Contract Administrator and a City Representative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

◆ Asphalt and Asphalt over Concrete:

Rated Pavement Condition of Segment	Regional Streets	Non-Regional Streets
	Action Required	Action Required
<b>New</b>	Grind and repave full lane width, and length of excavation or project (see <i>Pavement Restoration Requirements for Series of Cuts</i> )	Grind and repave full lane width, and length of excavation or project (see <i>Pavement Restoration Requirements for Series of Cuts</i> )
<b>Good</b>		
<b>Fair</b>		Decision after inspection by Public Works Department (see <i>Notes A-2, A-3 and Restoration Example</i> )
<b>Poor</b>	Decision after inspection by Public Works Department (see <i>Notes A-2, A-3 and Restoration Example</i> )	Isolated repairs accepted

E23.4 Methods

- (a) The Contractor shall permanently restore all existing surface areas disturbed by construction activities including but not limited to areas disturbed by; construction equipment, placement of equipment trailers and where construction materials were stockpiled, shall be restored as follows:
- (b) Full depth partial slab patches in accordance with CW 3230.
- (c) Boulevards, ditches and grassed areas - sodding using imported topsoil in accordance with CW 3510. The Contractor shall restore all areas disturbed during construction to existing condition or better, using topsoil and sod at its own cost.
  - (i) All boulevard restoration areas shall be rectangular in shape and extend to the back of curb if boulevard width is five (5) meters or less.
  - (ii) Collateral damages shall be included for the restoration area which encompasses access to the cut area, stored debris and backfill material piles, ruts, concrete work, and any other action that may cause damage to the cut location.
  - (iii) Boulevard restoration shall be as summarized below:



- (d) Asphalt surfaces – match existing base course and asphalt thickness or a minimum of 150 mm of base course and 75 mm of Type 1A Asphaltic Concrete, whichever is greater, in accordance with CW 3410.
- (e) Miscellaneous concrete slabs, including sidewalk - in accordance with CW 3235.
- (f) Interlocking stones – in accordance with CW 3330.
- (g) Concrete curb and gutter – in accordance with CW 3240.
- (h) Trees - requiring replacement due to construction activities (as directed by the Contract Administrator) shall be installed in accordance with CW 3510. The Contractor will not be reimbursed under a separate pay item for replacing trees damaged by construction activities. The work will be considered incidental to the Work.

#### MEASUREMENT AND PAYMENT

- E23.5 Partial Slab Patches shall be constructed, measured and paid for as per CW 3230 except that no differentiation will be made for class of patch. Furthermore, no separate measurement or payment will be made for Drilled Dowels or Tie Bars, the cost for which shall be included in the prices bid for Partial Slab Patches.
- E23.6 Construct miscellaneous concrete slab renewals in accordance with CW 3235. Miscellaneous Concrete slab renewals for sidewalk shall be measured on an area basis and paid for at the Contract Unit Price per square metre for “Miscellaneous Concrete Slab Renewals – Sidewalk” in Section D of Form B of the Bid Submission.
- E23.7 Concrete curb renewal shall be measured on a length basis and paid for at the Contract Unit Price per metre for “Concrete Curb Renewal” for each curb type listed in Section D of Form B of the Bid Submission.

- E23.8 Construction of asphalt patches shall be measured on an area basis and paid for at the Contract Unit Price per square metre for “Construction of Asphalt Patches” listed in Section D of Form B of the Bid Submission.
- E23.9 Boulevard restoration is incidental to the construction of watermain renewals.
- E23.10 Temporary surface restorations related to the construction of watermain renewals, including those required to reopen lanes to traffic will be considered incidental to the Work and will not be measured for payment. No additional payment will be made.

#### **E24. EXPOSING EXISTING UTILITIES**

- E24.1 Where indicated on the drawings or as directed by the Contract Administrator, expose existing utilities by hydrovac excavation methods. Backfill test excavations to the same standard as specified for the water main renewal. Where these test excavations occur within pavement limits, plate excavations to allow for reopening of lanes to traffic prior to completing permanent pavement restoration. No separate measurement or payment shall be made for test excavations, backfilling, or plating excavations prior to permanent restoration. Pavement restorations will be measured and paid for as specified in E23.

#### **E25. CONNECTION TO EXISTING WATER SERVICES**

- E25.1 This specification shall amend Clause 4.22 of CW 2110.
- (a) Connection to existing lead water services will be measured and paid for in accordance with Clause 4.13 of CW 2110, “Connecting Existing Copper Water Services to New Water main” for each connection made, regardless of the material of the existing water service being connected to. Connecting to existing lead water services will not be included in the installation of a curb stop.

#### **E26. PROVISIONAL ITEMS**

- E26.1 The Provisional Items listed in the Schedule of Prices are a part of the Contract.
- E26.2 The Contractor shall not perform Work included in the Provisional Items without prior authorization from the Contract Administrator. All Work included in the Provisional Items will be carried out within the construction areas shown on the drawings.
- (a) Notwithstanding C:7, the City reserves the right to diminish all or any portion of the items of Work listed in the Provisional Items and no claim shall be made for damages on grounds of loss of anticipated profit or for any other reason.

#### **E27. SUPPLY AND INSTALLATION OF BOLLARDS**

##### DESCRIPTION

- E27.1 General
- E27.1.1 This Specification covers all operations relating to the supply and installation of permanent security bollards in the Lockston Avenue Alley between Doncaster Street and Kenaston Boulevard.
- E27.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labor, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as hereinafter specified.

##### MATERIALS

- E27.2 Bollards

- E27.2.1 Bollards supplied and installed shall meet the specifications outlined in “Detail 2 – Bollard” on drawing CT-19.

#### CONSTRUCTION METHODS

- E27.3 Installation

- E27.3.1 The bollards shall be installed at the locations shown on the drawings, or as directed by the contract administrator. The bollards and foundations shall be installed/constructed in accordance with “Detail 2- Bollard” on drawing CT-19.

#### MEASUREMENT AND PAYMENT

- E27.3.2 Supply and Installation of Bollards shall be measured on a unit basis and will be paid for at the contract Unit Price for “Items of Work” listed here below. The number of bollards to be paid for shall be the number supplied and installed, including steel piping and concrete, in accordance with this specification and accepted and measured by the Contract Administrator.

Items of Work:

- (a) “Supply and Installation of Bollards”

### **E28. SUPPLY AND INSTALL WATERMAIN AND WATER SERVICE INSULATION**

#### DESCRIPTION

- E28.1 Notwithstanding 3.12 of CW 2110, this specification covers the supply and installation of insulation in roadway excavations over watermains and water services.
- E28.2 Referenced Standard Construction Specifications
- (a) CW 2030 – Excavation Bedding and Backfill
  - (b) CW 3110 – Sub-grade, Sub-base and Base Course Construction
- E28.3 Referenced Standard Details
- (a) SD-018 - Watermain and Water Service Insulation

#### MATERIALS

- E28.4 Acceptable insulation is:
- (a) Extruded Polystyrene rigid foam insulation – Type 4 100 mm (4”) in thickness.
    - (i) DOW - Roofmate or Highload 40
    - (ii) Owen’s Corning - Foamular 350 or Foamular 400.
    - (iii) Eco Carbon Foam – Eco 40 XPS
- Panel sizes - 2” X 48” X 96”, 2” X 24” X 96”, 4” X 24” X 96”

- E28.5 Sand Bedding:
- (a) In accordance with CW 2030

#### CONSTRUCTION METHODS

- E28.6 Prior to the placement of any geotextile material or sub-base material, Contractor shall 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.

- E28.7 Thickness of insulation is 100 mm (4"). If using 50 mm (2") panels 2 layers are required. Total width of insulation to be as directed by the Contract Administrator. Place sufficient full width panels to meet or exceed the specified width.
- E28.8 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.
- E28.9 Use full panels of insulation where possible. Where necessary cut insulation panels to obtain coverage to specified lengths. Insulation pieces shall be a minimum of dimension of 300 mm in width or length.
- E28.10 Take appropriate measures to ensure panels are not displaced when installing geotextiles and during backfilling operations.

#### MEASUREMENT AND PAYMENT

- E28.11 Watermain and Water Service Insulation shall be measured on an area basis and paid for at the Contract Unit Price 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.
- (a) Excavation of the roadway subgrade in accordance with E28.6 will not be measured for payment and will be included in the payment for "Watermain and Water Service Insulation".