



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 332-2014

**WAVERLEY WEST ARTERIAL ROADS PROJECT (WWARP) PART 3 - CONTRACT
4 - KENASTON BOULEVARD EXTENSION TO PTH 100 & WAVERLEY
STREET/PTH 100 PARTIAL CLOSURE AND INTERSECTION IMPROVEMENTS**

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

- B1.1 Waverley West Arterial Roads Project (WWARP) Part 3, Contract 4 – Kenaston Boulevard Extension to PTH 100 & Waverley Street/ PTH 100 Partial Closure and Intersection Improvements.

B2. SUBMISSION DEADLINE

- B2.1 The Submission Deadline is 12:00 noon Winnipeg time, May 2, 2014.
- B2.2 Bids determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.
- B2.3 The Contract Administrator or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. SITE INVESTIGATION

- B3.1 Further to C3.1, the Bidder may view the Site without making an appointment.
- B3.2 The Bidder shall not be entitled to rely on any information or interpretation received at the Site investigation unless that information or interpretation is the Bidder's direct observation, or is provided by the Contract Administrator in writing.

B4. ENQUIRIES

- B4.1 All enquiries shall be directed to the Contract Administrator identified in D4.1.
- B4.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.
- B4.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.
- B4.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator only to the Bidder who made the enquiry.
- B4.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B4 unless that response or interpretation is provided by the Contract Administrator in writing.

B5. CONFIDENTIALITY

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

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

B6. ADDENDA

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

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

B6.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/bidopp.asp>

B6.2.2 The Bidder is responsible for ensuring that he/she has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

B6.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B7. SUBSTITUTES

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

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

B7.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.

B7.4 The Bidder shall ensure that any and all requests for approval of a substitute:

- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
- (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
- (c) identify any anticipated cost or time savings that may be associated with the substitute;
- (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;
- (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.

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

- B7.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, only to the Bidder who requested approval of the substitute.
- B7.6.1 The Bidder requesting and obtaining the approval of a substitute shall be entirely responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.
- B7.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B7.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B16.
- B7.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.
- B7.10 Notwithstanding B7.2 to B7.9, in accordance with B8.6, deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B16.1(a).
- B7.11 The signal equipment described in the Contract Documents and included in Appendix C shall be used; alterations to the equipment will not be accepted by the Contract Administrator.

B8. BID COMPONENTS

- B8.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
 - (b) Form B: Prices, hard copy;
 - (c) Bid Security
 - (i) Form G1: Bid Bond and Agreement to Bond, or
 - (ii) Form G2: Irrevocable Standby Letter of Credit and Undertaking, or
 - (iii) a certified cheque or draft.
- B8.2 Further to B8.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B7.
- B8.3 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Bid.
- B8.4 The Bid shall be submitted enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address.
- B8.4.1 Samples or other components of the Bid which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid.
- B8.4.2 A hard copy of Form B: Prices must be submitted with the Bid. If there is any discrepancy between the Adobe PDF version of Form B: Prices and the Microsoft Excel version of Form B: Prices, the PDF version shall take precedence.
- B8.5 Bidders are advised not to include any information/literature except as requested in accordance with B8.1.

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B8.6 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B16.1(a).

B8.7 Bids submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.

B8.8 Bids shall be submitted to:

The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg MB R3B 1J1

B9. BID

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

B9.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, his/her name shall be inserted;
- (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
- (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
- (d) if the Bidder is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

B9.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B9.2.

B9.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.

B9.4 Paragraph 12 of Form A: Bid shall be signed in accordance with the following requirements:

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

B9.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.

B9.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

B10. PRICES

B10.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.

B10.1.1 For the convenience of Bidders, and pursuant to B8.4.2 and B16.4.2, an electronic readsheet Form B: Prices in Microsoft Excel (.xls) format is available along with the Adobe

PDF documents for this Bid Opportunity on the Bid Opportunities page at the Materials Management Division website at <http://www.winnipeg.ca/matmgt/>

- B10.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.
- B10.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.
- B10.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B11. QUALIFICATION

- B11.1 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.
- B11.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:
- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/debar.stm>
- B11.3 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).
- B11.4 Further to B11.3(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) a valid COR certification number 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
 - (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>
- B11.5 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

B11.6 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B12. BID SECURITY

B12.1 The Bidder shall provide bid security in the form of:

- (a) a bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in the form included in the Bid Submission (Form G1: Bid Bond and Agreement to Bond); or
- (b) an irrevocable standby letter of credit, in the amount of at least ten percent (10%) of the Total Bid Price, and undertaking issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form included in the Bid Submission (Form G2: Irrevocable Standby Letter of Credit and Undertaking); or
- (c) a certified cheque or draft payable to "The City of Winnipeg", in the amount of at least fifty percent (50%) of the Total Bid Price, drawn on a bank or other financial institution registered to conduct business in Manitoba.

B12.1.1 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.

B12.1.2 All signatures on bid securities shall be original.

B12.1.3 The Bidder shall sign the Bid Bond.

B12.1.4 The Surety shall sign and affix its corporate seal on the Bid Bond and the Agreement to Bond.

B12.2 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 executed by the successful Bidder and the performance security furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.

B12.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B12.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.

B12.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.

B12.3 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 Bid Opportunity.

B13. OPENING OF BIDS AND RELEASE OF INFORMATION

B13.1 Bids will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Division, or in such other office as may be designated by the Manager of Materials.

B13.1.1 Bidders or their representatives may attend.

B13.1.2 Bids determined by the Manager of Materials, or his/her designate, to not include the bid security specified in B12 will not be read out.

B13.2 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 Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at

The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>

- B13.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>
- B13.4 The Bidder is advised that any information contained in any Bid may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

B14. IRREVOCABLE BID

- B14.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.
- B14.2 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 executed and the performance security 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.

B15. WITHDRAWAL OF BIDS

- B15.1 A Bidder may withdraw his/her Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.
- B15.1.1 Notwithstanding C23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.
- B15.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid, and only such person, has authority to give notice of withdrawal.
- B15.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:
- (a) retain the Bid until after the Submission Deadline has elapsed;
 - (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid; and
 - (c) if the notice has been given by any one of the persons specified in B15.1.3(b), declare the Bid withdrawn.
- B15.2 A Bidder who withdraws his/her Bid after the Submission Deadline but before his/her Bid has been released or has lapsed as provided for in B14.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law, including the right to retain the Bidder's bid security.

B16. EVALUATION OF BIDS

- B16.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Bid Opportunity, or acceptable deviation therefrom (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B11 (pass/fail);
 - (c) Total Bid Price;

(d) economic analysis of any approved alternative pursuant to B7.

B16.2 Further to B16.1(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.

B16.3 Further to B16.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is responsible and qualified.

B16.4 Further to B16.1(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.

B16.4.1 Further to B16.1(a), in the event that a unit price is not provided on Form B: Prices, the City will determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

B16.4.2 The electronic Form B: Prices and the formulas imbedded in that spreadsheet are only provided for the convenience of Bidders. The City makes no representations or warranties as to the correctness of the imbedded formulas. It is the Bidder's responsibility to ensure the extensions of the unit prices and the sum of Total Bid Price performed as a function of the formulas within the electronic Form B: Prices are correct.

B17. AWARD OF CONTRACT

B17.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

B17.2 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 responsible and qualified, and the Bids are determined to be responsive.

B17.2.1 Without limiting the generality of B17.2, the City will have no obligation to award a Contract where:

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

B17.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B16.

B17.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2006 12 15) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm
- C0.2 A reference in the Bid Opportunity to a section, clause or sub clause with the prefix “**C**” designates a section, clause or sub clause in the *General Conditions for Construction*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

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

D2. SCOPE OF WORK

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

- (a) Construction of two (2) new southbound & two (2) new northbound lanes of asphalt pavement for Kenaston Boulevard from Sta. 1+450 to Sta.0+960 at PTH 100;
- (b) Waverley Street/ PTH 100 Partial Closure and Intersection Improvements from Sta. 0+370 to Sta. 0+510 at PTH100.

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

- (a) Construction of two (2) new southbound & two (2) new northbound lanes of asphalt pavement for Kenaston Boulevard from Sta.1+450 to Sta.0+960 at PTH 100
 - (i) Excavation;
 - (ii) Removal of existing asphalt pavement;
 - (iii) Removal of existing curb & gutter;
 - (iv) Remove existing curb & gutter inlet;
 - (v) Remove existing Corrugated Metal Pipe (CMP) man holes;
 - (vi) Installation of new catch pits;
 - (vii) Installation of new CMP leads with connections to existing CMP culverts;
 - (viii) Installation of new bevelled CMP culverts (various sizes);
 - (ix) Placing suitable site material;
 - (x) Compaction of existing sub-grade;
 - (xi) Placement of separation geotextile fabric;
 - (xii) Placement of geogrid where necessary;
 - (xiii) Placement of sub-base and base course materials;
 - (xiv) Construction of semi-mountable curb "Type C";
 - (xv) Construction of 170 mm asphalt pavement (50 mm Type 1A, 120 mm Type III);
 - (xvi) Construction of 100 mm asphalt shoulder;
 - (xvii) Construction of reclaimed asphalt median;
 - (xviii) Installation of French drains;
 - (xix) Construction of rip rap;
 - (xx) Boulevard grading;
 - (xxi) Ditch grading and sloping;
 - (xxii) Landscaping (Topsoil & Seeding);
 - (xxiii) Installation of Traffic signals;
 - (xxiv) Reflective Crack Maintenance; and
 - (xxv) Crack Sealing of Curb and Gutter / Asphalt Pavement Interface.
- (b) Waverley Street/ PTH 100 Partial Closure and Intersection Improvements from Sta. 0+370 to Sta. 0+510 at PTH100
 - (i) Excavation;
 - (ii) Removal of existing asphalt pavement;

- (iii) Placing suitable site material;
- (iv) Compaction of existing sub-grade;
- (v) Placement of separation geotextile fabric;
- (vi) Placement of geogrid where necessary;
- (vii) Placement of sub-base and base course materials;
- (viii) Construction of semi-mountable curb "Type A";
- (ix) Construction of 170 mm asphalt pavement (50 mm Type 1A, 120 mm Type III);
- (x) Construction of 100 mm asphalt shoulder;
- (xi) Construction of reclaimed asphalt median;
- (xii) Construction of 200mm reinforced concrete;
- (xiii) Construction concrete median;
- (xiv) Boulevard grading;
- (xv) Ditch grading and sloping;
- (xvi) Landscaping (Topsoil, Seeding); and
- (xvii) Reflective Crack Maintenance.

D3. DEFINITIONS

D3.1 When used in this Bid Opportunity:

- (a) "**Part A**" is defined as Kenaston Boulevard Through Lanes and Associated Works;
- (b) "**Part B**" is defined as the Waverley Street/ PTH 100 Partial Closure and Intersection Improvements ;

D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is Stantec Consulting Ltd., represented by:

Brad Cook, P.Eng. . Project Manager

Telephone No. 204-478-8939

Facsimile No. 204-284-4795

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

D4.3 Bids Submissions must be submitted to the address in B8.8

D5. CONTRACTOR'S SUPERVISOR

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

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

D6. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE

D6.1 The Contract, all deliverables produced or developed, and information provided to or acquired by the Contractor are the property of the City and shall not be appropriated for the Contractors own use, or for the use of any third party.

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- D6.2 The Contractor shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Contract Administrator.
- D6.3 The following shall be confidential and shall not be disclosed by the Contractor to the media or any member of the public without the prior written authorization of the Contract Administrator;
- (a) information provided to the Contractor by the City or acquired by the Contractor during the course of the Work;
 - (b) the Contract, all deliverables produced or developed; and
 - (c) any statement of fact or opinion regarding any aspect of the Contract.
- D6.4 A Contractor who violates any provision of D6 may be determined to be in breach of Contract.

D7. NOTICES

- D7.1 Except as provided for in C23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.
- D7.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D7.3 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the facsimile number identified in D4.1.
- D7.3 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following facsimile number:
- The City of Winnipeg
Legal Services Department
Attn: Director of Legal Services
Facsimile No.: 204-947-9155

D8. FURNISHING OF DOCUMENTS

- D8.1 Upon award of the Contract, the Contractor will be provided with five (5) complete sets of the Bid Opportunity. If the Contractor requires additional sets of the Bid Opportunity, they will be supplied to him/her at cost.

SUBMISSIONS

D9. AUTHORITY TO CARRY ON BUSINESS

- D9.1 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.

D10. SAFE WORK PLAN

- D10.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.
- D10.2 The Safe Work Plan shall be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate

Finance, Materials Management Division website at
<http://www.winnipeg.ca/matmgt/safety/default.stm>

D11. INSURANCE

D11.1 The City shall provide and maintain the following owned controlled project insurance coverage:

- (a) Wrap-Up Liability Insurance in an amount of no less than five million dollars (\$5,000,000.00) inclusive per occurrence and five million dollars (\$5,000,000) general aggregate. Such policy shall include an additional 24 months completed operations coverage which will take effect after substantial performance and shall cover all contractors, sub-contractors, consultants, Canada and their Ministers, officers, employees and agents.

D11.2 The Contractor shall provide and maintain the following insurance coverage:

- (a) Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence;
- (b) An all risks Installation Floater carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.

D11.3 Deductibles shall be borne by the Contractor.

D11.4 The Contractor shall provide the City Solicitor with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in the C4.1 for the return of the executed Contract.

D11.5 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D11.6 All policies shall be taken out with insurers duly licensed to carry on business in the Province of Manitoba or as determined to be acceptable by the Contract Administrator in consultation with the City Solicitor of the City of Winnipeg.

D12. PERFORMANCE SECURITY

D12.1 The Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:

- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or
- (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
- (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.

D12.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.

D12.2 If the bid security provided in his/her Bid was not a certified cheque or draft pursuant to B12.1(c), the Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of letter of

intent and prior to the commencement of any Work on the Site and in no event later than the date specified in the C4.1 for the return of the executed Contract.

D13. SUBCONTRACTOR LIST

- D13.1 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 but in no event later than the date specified in the C4.1 for the return of the executed Contract.
- D13.2 The Contractor shall provide the Contract Administrator with the Subcontractor whom is to perform the traffic signal installation. This Subcontractor shall be one of the two qualified Traffic Signal Contractors, All Points Electric Ltd. or Tri-Star Traffic Controls Sys. Inc., alternates will not be accepted.

D14. EQUIPMENT LIST

- D14.1 The Contractor shall provide the Contract Administrator with a complete list of the equipment which the Contractor proposes to utilize (Form K: Equipment List) at or prior to a pre-construction meeting, or at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the C4.1 for the return of the executed Contract.

D15. DETAILED WORK SCHEDULE

- D15.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the General Conditions for the return of the executed Contract.
- D15.2 The detailed work schedule shall consist of the following:
- (a) a Gantt chart for the Work;
all acceptable to the Contract Administrator.
- D15.3 Further to D15.2(a), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.

SCHEDULE OF WORK

D16. COMMENCEMENT

- D16.1 The Contractor shall not commence any Work until he/she is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.
- D16.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D9;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the twenty-four (24) hour emergency response phone number specified in D5.2.
 - (iv) the Safe Work Plan specified in D10;
 - (v) evidence of the insurance specified in D11;
 - (vi) the performance security specified in D12;
 - (vii) the subcontractor list specified in D13;
 - (viii) the equipment list specified in D14; and

- (ix) the detailed work schedule specified in D15.
- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.

D16.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the letter of intent.

D16.4 The City intends to award this Contract by May 22, 2014.

D16.4.1 If the actual date of award is later than the intended date, the dates specified for Critical Stages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D17. RESTRICTED WORK HOURS

D17.1 Further to clause 3.10 of CW 1130, the Contractor shall require written permission forty-eight (48) hours in advance from the Contract Administrator for any work to be performed between 1900 hours and 0700 hours, or on Saturdays, Sundays, Statutory Holidays and or Civic Holidays.

D18. WORK BY OTHERS

D18.1 Work by others on or near the Site will include but not necessarily be limited to:

- (a) Manitoba Hydro – Installation of new street lighting adjacent the new road construction. The Contractor is expected to coordinate with Manitoba Hydro to facilitate construction.
 - (i) Manitoba Hydro will be relocating the overhead crossing at PTH 100 & Kenaston Boulevard, this includes 2 pole relocations.
 - (ii) Manitoba Hydro will be relocating a light standard on the southwest corner of PTH 100 & Waverley Street.
- (b) City of Winnipeg Traffic Services – Where applicable the Contractor shall adhere to the City of Winnipeg Manual of Temporary Traffic Control, and notify and coordinate with the City of Winnipeg Traffic Services regarding any disruption to traffic during construction.
- (c) City of Winnipeg Traffic Services – Where applicable the Contractor shall coordinate with the City of Winnipeg Traffic Services regarding the installation of pavement marking and permanent signage.
- (d) Manitoba Infrastructure and Transportation – Where applicable the Contractor shall adhere to Manitoba Work Zone Traffic Control Manual - Provincial Roads and Provincial Trunk highways, and notify and coordinate with Manitoba Infrastructure and Transportation regarding any disruption to traffic during construction.
- (e) Manitoba Infrastructure and Transportation – Where applicable the Contractor shall coordinate with Manitoba Infrastructure and Transportation Traffic Services regarding the installation of pavement marking and permanent signage.
- (f) Manitoba Infrastructure and Transportation – Where applicable the Contractor shall coordinate with Manitoba Infrastructure and Transportation Traffic Signal staff for performing critical inspections of traffic signal equipment and installations at PTH 100 & Kenaston Boulevard.

D19. SEQUENCE OF WORK

D19.1 Further to C6.1, the sequence of work shall be as follows:

D19.1.1 Construction activity shall commence at Part A of this Work (Kenaston & PTH 100 intersection).

D19.1.2 Construction of the Waverley Street lanes of the roadway (Part B) including closure of Waverley Street north of PTH 100 shall not to commence until all work for Part A including

pavements, street lighting and traffic signal installation has been completed and approved by the Contract Administrator and the Part A roadways are open to traffic.

D19.1.3 The expected completion for Part A of this Work is August 29, 2014.

D19.1.4 The Contractor shall delay placing the final lift of asphalt on Kenaston Boulevard, so that the final lift of all lanes are placed in one operation. The Contractor is allowed to place asphalt on the eastbound PTH 100 left turn lane as a separate operation to ensure minimal traffic disruptions.

D20. SITE ACCESS

D20.1 The Contractor may enter the WWARP Part 3 – Contract 3 project Site through the westbound Waverley Street lanes. Coordination and approval from the Contract Administrator from the WWARP 3 – Contract 3 (Dillon Consulting) along with the Contactor onsite (Borland Construction) is required prior to any use of this access. Any damages caused by the Contractor through the WWARP 3 - Contract 3 site shall be restored to the original condition. The repairs and restoration will be subject to inspection and approval from both the Contract Administrator for WWARP 3 – Contract 4 and the Contract Administrator for WWARP 3 – Contract 3.

D20.2 The Contractor may enter the Site from access off of the service roads running along the north side of PTH 100 as detailed below. The service road access west of Kenaston Boulevard can only be entered from westbound PTH 100. At no time shall construction traffic cross the median. The service road access east of Kenaston Boulevard can be entered as the Contractor deems suitable, however shall be reviewed by the Contract Administrator post Contract Award Date.

D20.3 A proposed haul route from the Contractor will be required once awarded the Contract. A haul route is not required for bidding purposes but should be considered when submitting bid prices.



- D20.4 At any time during construction, the Contractor is not allowed to use PTH 100 as a means to transport or store materials.
- D20.5 The Contractor shall provide all Site access roads required to facilitate construction of the Work and these roads shall have dimensions, geometry, slope, drainage and base material designed and constructed by the Contractor for the size and weights of the construction traffic.
- D20.6 The Contractor shall undertake all measures necessary to prevent any construction Site mud and/or debris from being deposited upon any part of public roads. If mud is deposited on public roads the Contractor shall promptly remove the mud using a motor grader and sweeper as required.
- D20.7 The Contractor shall ensure that the existing temporary construction accesses are suitable for the work, and provide modifications if required.
- D20.8 The Contractor is responsible for restoration of all areas utilized for Site access back to existing condition as directed by the Contract Administrator. This may include removal of temporary roads, restoration of boulevards and ditches, and restoration of pavement or curb.
- D20.9 All costs associated with the construction and restorations of any temporary roadway are to be borne by the Contractor.

D21. SUBSTANTIAL PERFORMANCE

- D21.1 The Contractor shall achieve Substantial Performance by October 24, 2014.
- D21.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.
- D21.3 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.

D22. TOTAL PERFORMANCE

- D22.1 The Contractor shall achieve Total Performance by July 11, 2015.
- D22.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.
- D22.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

D23. LIQUIDATED DAMAGES

- D23.1 If the Contractor fails to achieve Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Calendar Day for each and every Calendar Day following the days fixed herein for same during which such failure continues:
- (a) Substantial Performance – Three thousand five hundred dollars (\$3,500.00);
 - (b) Total Performance – Two thousand two hundred dollars (\$2,200.00);

D23.2 The amounts specified for liquidated damages in D23.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve Substantial Performance or Total Performance by the days fixed herein for same.

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

D24. SCHEDULED MAINTENANCE

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

- (a) Reflective Crack Maintenance During two Year Maintenance Warranty Period as specified in CW 3250-R7;
- (b) Crack Sealing the interface of Curb and Gutter and Asphalt Pavement shall be completed as per E26 one year after substantial performance has been achieved, unless directed by the Contract Administrator.
- (c) Maintenance of Seeded Area will commence immediately after the completion of the seeding operation, to the satisfaction of the Contract Administrator, and will continue until the criteria specified for Termination of the Maintenance Period has been met as specified in CW 3520-R7;

D24.2 Determination of Substantial Performance and Total Performance shall be exclusive of scheduled maintenance identified herein. All scheduled maintenance shall be completed prior to the expiration of the warranty period. Where the scheduled maintenance cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the scheduled maintenance.

CONTROL OF WORK

D25. JOB MEETINGS

D25.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.

D25.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

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

D26.1 Further to C6.24, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

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

D27.1 Further to B11.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B11.4.

D28. ENCROACHMENT ON PRIVATE PROPERTY

- D28.1 Further to Section 3.11 of CW 3110 of the General Requirements, the Contractor shall confine his Work to the public right-of-ways and construction easements at all times, except if he has received written permission from the property owner. The Contractor shall provide the Contract Administrator with a copy of any written permission he has received to enter onto private property.
- D28.2 The Contractor's construction activities shall be confined to the minimum area necessary for undertaking the Work and he shall be responsible for all damage to private property resulting from his Work. Particular care shall be taken to assure no damage is done to buildings, fencing, trees and plants, and provision shall be made to maintain full drainage for private properties

D29. BUILDING CANADA FUND CONDITIONS

- D29.1 Funding for the Waverley West Arterial Roads Project is being provided to the City of Winnipeg by the Government of Canada ("Canada") and The Province of Manitoba ("Manitoba"). As required by the City's funding agreements with Canada and Manitoba, the Contractor must:
- D29.1.1 Establish and maintain for a period of six (6) years following the date of substantial completion of Waverley West Arterial Roads Project such accounting and other records (including supporting documents), prepared in accordance with generally accepted accounting principles, as are necessary to properly account for the services or goods provided by the Contractor to the City;
- D29.1.2 Permit Canada, the Auditor General of Canada, and/or their designated representatives, to the extent permitted by law, at all times, to inspect the terms of the Contract and any records and accounts respecting the Work, and to have free access to the Work sites and any documentation relevant for the purpose of audit.
- D29.1.3 Permit the City, Winnipeg, Manitoba, Canada and/or Manitoba and its agents, and their respective authorized representatives, to monitor the Work and to inspect and audit the accounting and other records relating to the Work for a period of six (6) years following March 31, 2015.
- D29.1.4 Indemnify and save Manitoba and its Ministers, officers, employees and agents harmless from and against all claims and demands, losses, costs, damages, actions, suit or other proceedings brought or pursued in any manner in respect of any matter caused by the Third Party or arising from the Contract or from the Goods or Services provided, or required to be provided, the Third Party, except those resulting from the negligence of any of the Manitoba's Ministers, officers, servants, employees or agents;
- D29.1.5 Respect all applicable labour, environmental and human rights legislation;
- D29.1.6 Consent to the City providing a copy of the Contract to Manitoba and its agent upon request from Manitoba; and
- D29.1.7 Consent to the City providing Manitoba and its agents with results of the City's inspections and audits of the Work and of the Contractor's accounts and records.
- D29.1.8 Comply with the provision that nothing in the Contract between the Contractor and the City authorizes the Contractor to enter into a Contract on behalf of Canada or Manitoba, to act as agent for Canada or Manitoba, or to otherwise obligate Canada or Manitoba.

MEASUREMENT AND PAYMENT

D30. PAYMENT

- D30.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

WARRANTY

D31. WARRANTY

- D31.1 Notwithstanding C13.2, the warranty period shall begin on the date of Substantial Performance and shall expire two (2) years thereafter unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.
- D31.2 Notwithstanding C13.2 or D31.1, 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.
- D31.2.1 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.

FORM H1: PERFORMANCE BOND
(See D12)

KNOW ALL MEN BY THESE PRESENTS THAT

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

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

_____ dollars (\$ _____)

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

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

BID OPPORTUNITY NO. 332-2014

Waverley West Arterial Roads Project (WWARP) Part 3 - Contract 4 - Kenaston Boulevard Extension to PTH 100 & Waverley Street/PTH 100 Partial closure and Intersection Improvements

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

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

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

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

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

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

_____ day of _____, 20____.

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SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

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

All demands for payment shall specifically state that they are drawn under this Standby Letter of Credit.

Subject to the condition hereinafter set forth, this Standby Letter of Credit will expire on

(Date)

It is a condition of this Standby Letter of Credit that it shall be deemed to be automatically extended from year to year without amendment from the present or any future expiry date, unless at least 30 days prior to the present or any future expiry date, we notify you in writing that we elect not to consider this Standby Letter of Credit to be renewable for any additional period.

This Standby Letter of Credit may not be revoked or amended without your prior written approval.

This credit is subject to the Uniform Customs and Practice for Documentary Credit (2007 Revision), International Chamber of Commerce Publication Number 600.

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

FORM J: SUBCONTRACTOR LIST
 (See D13)

<u>Portion of the Work</u>	<u>Name</u>	<u>Address</u>
<u>SURFACE WORKS</u>		
Supply of Materials		
Concrete		
Asphalt		
Base Course & Sub-base		
Geotextile Materials		
Topsoil/Seed		
Installation/Placement		
Concrete		
Asphalt		
Base Course & Sub-base		
Geotextile		
Topsoil/Seed		
<u>UNDERGROUND WORKS</u>		
Supply of Materials		
Corrugated Metal Pipe (CMP)		
Precast Concrete Catch Basins, Manholes and Ring Sections		
Catch Basin & Manhole Frames, Covers & Boxes		
Installation/Placement		
Corrugated Metal Pipe (CMP)		
Precast Concrete Catch Basins/ Manholes/ Ring Sections		
Catch Basin/ Manhole Frames, Covers & Boxes		
<u>SIGNAL WORK</u>		
Supply of Materials - shall be as specified in Appendix C		
Installation/ Placement		
Underground (Conduit)		
Aboveground (Pedestal, Distribution Panel, Controller, Splice Pits, Foundation Bases, Pole erection)		

FORM K: EQUIPMENT
(See D14)

<p>1. Category/type: Underground Works</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>2. Category/type: Earth Moving/ Excavation</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>3. Category/type: Granular Placement, Compaction & Grading</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>

FORM K: EQUIPMENT
(See D14)

<p>4. Category/type: Curb & Gutter (Slipform)</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>5. Category/type: Asphalt Paving</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>6. Category/type: Miscellaneous</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4 (d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 The following are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
P-3355-1	Cover Sheet & Drawing List	A1
P-3355-2	Horizontal Control Geometry – Kenaston	A1
P-3355-3	Horizontal Control Geometry – PTH#100	A1
P-3355-4	Horizontal Control Geometry – PTH#100 to Waverley South	A1
P-3355-5	Horizontal Control Geometry – Waverley North	A1
P-3355-6	Paving and Grading – PTH#100 1 of 3	A1
P-3355-7	Paving and Grading – PTH#100 2 of 3	A1
P-3355-8	Paving and Grading – PTH#100 3 of 3	A1
P-3355-9	Paving and Grading – Kenaston SB 1 of 2	A1
P-3355-10	Paving and Grading – Kenaston SB 2 of 2	A1
P-3355-11	Paving and Grading – Kenaston NB 1 of 2	A1
P-3355-12	Paving and Grading – Kenaston NB 2 of 2	A1
P-3355-13	Paving and Grading – PTH#100 to Waverley 1 of 2	A1
P-3355-14	Paving and Grading – PTH#100 to Waverley 2 of 2	A1
P-3355-15	Paving and Grading – Waverley South	A1
P-3355-16	Paving and Grading – Waverley North	A1
P-3355-17	Road Cross Sections 1 of 2	A1
P-3355-18	Road Cross Sections 2 of 2	A1
P-3355-19	Miscellaneous Road Details 1 of 2	A1
P-3355-20	Miscellaneous Road Details 2 of 2	A1
P-7994-1	MIT - Traffic Signal Surface Plan & Underground	A1

E2. GEOTECHNICAL REPORT

- E2.1 Further to C3.1, the geotechnical report is provided to aid the Contractor's evaluation of the pavement structure and/or existing soil conditions. The geotechnical report is contained in Appendix 'A'.

E3. OFFICE FACILITIES

- E3.1 The Contractor shall supply office facilities meeting the following requirements:
- (a) The field office shall be for the exclusive use of the Contract Administrator.

- (b) The building shall be conveniently located near the site of the Work.
 - (c) The building shall have a minimum floor area of 25 square metres, and 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 four wall outlets.
 - (f) The building shall be furnished with one desk, one drafting table, two 3m x1.2m tables, one four-drawer legal sized filing cabinet and a minimum of 15 chairs.
 - (g) The following appliances shall be provided: a medium sized fridge, microwave, and coffee maker.
 - (h) A portable toilet shall be located near the field office building. The toilet shall have a locking door and be for the exclusive use of the Contract Administrator and other personnel from the City.
 - (i) The field office building and the portable toilet shall be cleaned on a weekly basis immediately prior to each site meeting. The Contract Administrator may request additional cleaning when he/she deems it necessary.
- E3.2 The Contractor shall be responsible for all installation and removal costs, all operating costs, and the general maintenance of the office facilities.
- E3.3 The office facilities will be provided from the date of the commencement of the Work to the date of Total Performance.
- E3.4 On a one time basis, where directed by the Contract Administrator, the Contractor shall relocate the office facilities to a location more convenient for the remaining Work.
- E4. PROTECTION OF EXISTING TREES**
- E4.1 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.
- E4.2 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 his/her designate.

- E4.3 No separate measurement or payment will be made for the protection of trees.
- E4.4 Except as required in clause E4.1(c) and E4.1(e), Elm trees shall not be pruned at any time between April 1 and July 31.

E5. TRAFFIC CONTROL

- E5.1 Further to clauses 3.6 and 3.7 of CW 1130:
- (a) Where directed, 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 in Work Areas on City Streets, the Contractor (“Agency” in the manual) shall make arrangements with the Traffic Services Branch of the City of Winnipeg to place all temporary regulatory signs. The Contractor shall bear all costs associated with the placement of temporary traffic control devices by the Traffic Services Branch of the City of Winnipeg in connection with the works undertaken by the Contractor.
- E5.2 When in the Manitoba Infrastructure and Transportation Right of Way the traffic control measures shall be in accordance with the most recent copy of the Manitoba Work Zone Traffic Control Manual- Provincial Roads and Provincial Trunk highways. Further details regarding lane drops are referenced in Appendix B.
- (a) Anything over and above the standard Traffic Control Manual that may be required is the responsibility of the Contractor and shall be approved and reviewed by the Contract Administrator and Manitoba Infrastructure and Transportation prior to implementation. Any costs associated with this shall be considered incidental to the Contract.
 - (b) It is anticipated that the Work zone on PTH 100 will be posted at a speed limit of 70 kilometers per hour during construction.
 - (c) Any lane closures on PTH 100 shall be coordinated with the existing lane closures that Manitoba Infrastructure and Transportation have in place at the Pembina & PTH100 interchange. If necessary, additional traffic control devices shall be provided to allow continuous lanes closures between both construction areas. Any costs associated with this shall be considered incidental to the Contract.
 - (d) In the event that the median at PTH 100 and Waverley Street is closed to facilitate construction, two (2) Variable Message Signs (VMS) will be provided by the Contractor and placed in the locations directed by the Contract Administrator. Any costs associated with this shall be considered incidental to the Contract.

E6. TRAFFIC MANAGEMENT

- E6.1 Further to clause 3.7 of CW 1130:
- E6.1.1 A minimum of one lane of traffic in the East/ West direction on PTH 100 shall be maintained at all times.
 - E6.1.2 Where left turn lanes exist, an additional lane to accommodate the left turn storage lane shall be maintained at all times.
 - E6.1.3 No roadway closures will be permitted at the Waverley & PTH 100 intersection until construction of Part A (Kenaston & PTH 100 intersection) is complete and open to the public.
 - E6.1.4 Once work on Part B (Waverley & PTH 100 intersection) commences, a minimum of one lane of traffic in the North/South direction on Waverley Street south of PTH 100 shall be maintained at all times.
 - E6.1.5 Should the Contractor be unable to maintain pedestrian or vehicular access to a residence or business, he/she shall review the planned disruption with the business or residence and

the Contract Administrator, and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of 24 hours notification to the affected residence or business and the Contract Administrator, prior to disruption of access.

E6.1.6 Ambulance/emergency vehicle access must be maintained at all times.

E6.1.7 When permitted to work on Part B (Waverley & PTH100 intersection) the following closure signs will be permitted:

- (a) South of the Point West Way & Waverley (Tim Sale Drive) intersection will be closed to through traffic. The Contractor shall sign the street "Road Closed Local Access Only" in accordance with the Manual of Temporary Traffic Control.
- (b) South of the last private approach on Waverley (North of PTH 100) will be closed to all traffic. The Contractor shall sign and barricade the street "Road Closed" in accordance with the Manual of Temporary Traffic Control.
- (c) Private approach access shall be maintained at all times.

E7. PEDESTRIAN SAFETY

E7.1 During the project, a temporary snow fence shall be installed at open excavations. The Contractor shall be responsible for maintaining the snow fence in a proper working condition. No measurement for payment shall be made for this work.

E8. WATER OBTAINED FROM THE CITY

E8.1 Further to clause 3.7 of CW 1120, the Contractor shall pay for all costs, including sewer charges, associated with obtaining water from the City in accordance with the Waterworks and Sewer By-laws.

E9. SURFACE RESTORATIONS

E9.1 Further to clause 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.

E10. DAMAGE TO EXISTING STRUCTURES AND PROPERTY

E10.1 Further to Section 3.13 of CW 1130 of the General Requirements, special care shall be taken to avoid damage to existing adjacent structures and properties during the course of the Work.

E10.2 Any damage caused by the Contractor or his Subcontractors to the adjacent structures or properties shall be promptly repaired by the Contractor at his own expense to the satisfaction of the Contract Administrator.

E11. ENVIRONMENTAL PROTECTION PLAN

E11.1 The Contractor will plan and implement the Work of this Contract strictly in accordance with the requirements of the Federal Environmental Assessment (CEAR # 10-01-59643) and this Environmental Protection Plan as herein specified.

E11.2 The Contractor is advised that at a minimum the following Acts, Regulations and By-laws apply to the Work and are available for viewing on line at the applicable websites (www.canlii.ca and/or <http://www.winnipeg.ca/CLKDMIS/>) or at the office of the Contract Administrator.

E11.3 Federal

- (a) Canadian Environmental Assessment Act (CEAA), 1992 c.37 (repealed);

- (b) Canadian Environmental Protection Act;
- (c) Fisheries Act, 1985 c. F-14;
- (d) Transportation of Dangerous Goods Act and Regulations, c. 34;
- (e) Migratory Birds Convention Act and Regulations, c. 22;
- (f) Species at Risk Act, c. 29;
- (g) And any other applicable Acts, Regulations and By-laws;
- (h) Fisheries and Oceans Measures to Avoid Causing Harm to Fish and Fish Habitat, available at <http://www.dfo-mpo.gc.ca/pnw-ppe/measure-mesures/index-eng.html>
- (i) The Department of Fisheries and Oceans Freshwater Intake End-of-Pipe Fish Screen Guidelines, DFO 1995;
- (j) Federal Policy on Wetland Conservation 1991;
- (k) Transportation Association of Canada's Transportation Association of Canada National Guide to Erosion and Sediment Control on Roadway Projects, 2005.

E11.4 Provincial

- (a) The Dangerous Goods Handling and Transportation Act, D12;
- (b) The Endangered Species and Ecosystems Act, c. E111;
- (c) The Heritage Resources Act, c. H39.1;
- (d) The Noxious Weeds Act, c. N110;
- (e) The Nuisance Act, c. N120;
- (f) The Pesticides Regulation, M.R. 94/88R
- (g) The Public Health Act, c. P210;
- (h) The Water Protection Act, c. W65;
- (i) Workplace Safety and Health Act, c. W210;
- (j) And current applicable associated regulations;
- (k) And any other applicable Acts, Regulations, and By-laws;
- (l) The Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat, Manitoba Natural Resources and DFO, 1996.

E11.5 Municipal

- (a) The City of Winnipeg Neighbourhood Liveability By-law No. 1/2008;
- (b) The City of Winnipeg Traffic By-law No. 1573/77 and all amendments up to and including 55/2011;
- (c) And any other applicable Acts, Regulations and By-laws;
- (d) City of Winnipeg Best Management Practices Handbook for Activities In and Around the City's Waterways and Watercourses, City of Winnipeg, 2005;
- (e) City of Winnipeg Motor Vehicle Noise Policies and Guidelines.

E11.6 The Contractor is advised that the Fisheries and Oceans Canada (DFO) Letters of Advice are applicable to all Works. The materials submitted for review and Letters of Advice received are in Appendix D. A copy of the material submitted to DFO and the DFO Letter of Advice must be on Site at all times. All dates stated within the DFO submission and responses are valid.

E11.7 The Contractor is advised that the project has been determined to not likely to cause significant environmental effects) under the *Canadian Environmental Assessment Act, 1992*.

E11.8 The Contractor is advised that the Waverley West Arterial Roads Project Environmental Assessment Screening Report, dated June 2011, applies to the Work and is available for

viewing at the office of the Contract Administrator. An Environmental Effects Analysis Summary is available in Appendix E.

E11.9 The Contractor is advised that both the mitigation measures contained in the Waverley West Arterial Roads Project Environmental Assessment Screening Report, dated June 2011 as well as the following environmental protection measures apply to the Work.

(a) Materials Handling and Storage

- (i) Storage of construction materials and equipment will be confined within a fenced area or at a location approved by the Engineer or Contract Administrator with environmental protection (e.g. silt fence) as appropriate.
- (ii) Construction materials will not be deposited or stored on or near watercourses unless written acceptance from the Contract Administrator is received in advance.
- (iii) Construction materials and debris will be tied down or secured if severe weather and high wind velocities are forecasted. Work shall be suspended during extreme high wind conditions.
- (iv) Construction materials and debris will be prevented from entering watercourses. In the event that materials and/or debris inadvertently enter the land drainage system, the Contractor will be required to remove the material to an appropriate landfill or storage facility and restore the watercourse to its original condition.

(b) Fuel Handling and Storage

- (i) The Contractor will obtain all necessary permits from Manitoba Conservation and Water Stewardship for the handling and storage of fuel products and shall provide copies to the Contract Administrator.
- (ii) All fuel handling and storage facilities will comply with The Dangerous Goods and Transportation Act Storage and Handling of Petroleum Products Regulation and any local land use permits.
- (iii) Fuels, lubricants and other potentially hazardous materials as defined in The Dangerous Goods and Transportation Act will be stored and handled within approved storage areas.
- (iv) The Contractor will ensure that any temporary fuel storage areas established for construction of the project are contained by an impermeable dyke and are located a minimum distance of 100 m away from ditches, agricultural drains, Beaujolais Coulee and any other watercourse. Dykes will be designed, constructed, and maintained to retain not less than 100% of the capacity of the total number of containers or 110% of the largest container, whichever is greatest. The dykes will be constructed of clay or similar impervious material. If this type of material is not available, the dyke will be constructed of locally available material and lined with high-density polyethylene (HDPE). Furthermore, the fuel storage area(s) will be secured by a barrier such as a high fence and gate to prevent vandalism.
- (v) The Contractor will ensure that all fuel storage containers are inspected daily for leaks and spillage.
- (vi) Products transferred from the fuel storage area(s) to specific Work sites will not exceed the daily usage requirement.
- (vii) When servicing requires the drainage or pumping of fuels, lubricating oils or other fluids from equipment, a groundsheet of suitable material (such as HDPE) and size will be spread on the ground to catch the fluid in the event of a leak or spill.
- (viii) Wash, refuel and service machinery and store fuel and other materials for the machinery 100 m away from watercourses to prevent deleterious substances from entering the water.
- (ix) The area around storage sites and fuel lines will be distinctly marked and kept clear of snow and debris to allow for routine inspection and leak detection.
- (x) The deposit of deleterious substances into water frequented by fish is prohibited under the Fisheries Act, 1985. The Contractor will take appropriate precautions to ensure that potentially deleterious substances (such as fuel, hydraulic fluids, oil, sediment, etc.) do not enter any water body.

- (xi) Machinery is to arrive on Site in a clean condition and is to be maintained free of fluid leaks.
 - (xii) A sufficient supply of materials, such as absorbent material and plastic oil booms, to clean up minor spills will be stored nearby on Site. The Contractor will ensure that additional material can be made available on short notice. Additionally, appropriate staff on site will be trained in proper handling of deleterious liquids (i.e. fueling) and trained on how to prevent and clean-up minor spills.
- (c) Waste Handling and Disposal
- (i) The construction area will be kept clean and orderly at all times and at the completion of construction.
 - (ii) At no time during construction will personnel or construction waste be permitted to accumulate for more than one day at any location on the construction Site, other than at a dedicated storage area as may be approved by the Contract Administrator.
 - (iii) The Contractor will, during and at the completion of construction, clean up the construction area and all resulting debris shall be deposited at a Waste Disposal Ground operating under the authority of Waste Disposal Grounds Regulation, Manitoba Regulation 150/91. Exceptions are liquid industrial and hazardous wastes which require special disposal methods.
 - (iv) On Site volumes of sewage and/or septage will be removed on a weekly basis.
 - (v) The Contractor will ensure sewage, septage and other liquid wastes generated on Site are handled and disposed of by a certified disposal contractor.
 - (vi) Indiscriminate dumping, littering, or abandonment will not take place.
 - (vii) No burning of waste or other materials is permitted.
 - (viii) Clearing debris will be disposed of by chipping and/or mulching with the material being used by the City of Winnipeg for future uses.
 - (ix) The Contractor will use structurally suitable Site excavation material as fill within the project. Should excavated material exceed fill needs, the remainder would be stockpiled for use on other local projects.
 - (x) Structurally unsuitable site excavation material will be removed by the Contractor.
 - (xi) Waste storage areas will not be located so as to block natural drainage.
 - (xii) Runoff from a waste storage area will not be allowed to cause siltation of a watercourse.
 - (xiii) Waste storage areas will be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.
 - (xiv) Equipment will not be cleaned near watercourses; contaminated water from onshore cleaning operations will not be permitted to enter watercourses.
 - (xv) The Contractor will notify and receive written approval from the Contract Administrator prior to discharge from any dewatered areas. The discharge will be released into a well-vegetated area, filter bag, settling basin, or storm sewer system to remove suspended material and other deleterious substances from the discharge before it finds its way into any watercourse. Discharge from dewatering areas may require approved disposal via the sanitary sewer system or disposal truck in accordance with Construction Specifications, at the request of the Contract Administrator.
 - (xvi) Flows will be dissipated so that dewatering discharges minimize erosion at the discharge point.
- (d) Dangerous Goods/Hazardous Waste Handling and Disposal
- (i) Dangerous goods/hazardous waste are identified by, and will be handled according to, The Dangerous Goods Handling and Transportation Act and Regulations.
 - (ii) The Contractor will be familiar with The Dangerous Goods Handling and Transportation Act and Regulations.

- (iii) The Contractor will have on Site staff that is trained and certified in the handling of the dangerous/hazardous goods, when said dangerous/hazardous goods are being utilized on Site for the performance of the Work.
 - (iv) Different waste streams will not be mixed.
 - (v) Disposal of dangerous goods/hazardous wastes will be at approved hazardous waste facilities.
 - (vi) Liquid hydrocarbons will not be stored or disposed of in earthen pits on Site.
 - (vii) Used oils will be stored in appropriate drums, or tankage until shipment to waste oil recycling centres, incinerators, or secure disposal facilities approved for such wastes.
 - (viii) Used oil filters will be drained, placed in suitable storage containers, and buried or incinerated at approved hazardous waste treatment and disposal facilities.
 - (ix) Dangerous goods/hazardous waste storage areas will be located at least 100 m away from the high water line and be dyked.
 - (x) Dangerous goods/hazardous waste storage areas will not be located so as to block natural drainage.
 - (xi) Runoff from a dangerous goods/hazardous waste storage area will not be allowed to cause siltation of a watercourse.
 - (xii) Dangerous goods/hazardous waste storage areas will be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.
- (e) Emergency Response
- (i) The Contractor will ensure that due care and caution is taken to prevent spills.
 - (ii) The Contractor will report all major spills of petroleum products or other hazardous substances with significant impact on the environment and threat to human health and safety (as defined in Table 1 below) to Manitoba Conservation and Water Stewardship, immediately after occurrence of the environmental accident, by calling the 24-hour emergency phone number (204) 945-4888.
 - (iii) The Contractor will designate a qualified supervisor as the on Site emergency response coordinator for the project. The emergency response coordinator will have the authority to redirect manpower in order to respond in the event of a spill.
 - (iv) The following actions will be taken by the person in charge of the spilled material or the first person(s) arriving at the scene of a hazardous material accident or the on Site emergency response coordinator.
 - (i) Notify emergency-response coordinator of the accident:
 - ◆ Identify exact location and time of the accident.
 - ◆ Indicate injuries, if any.
 - ◆ Request assistance as required by magnitude of accident [Manitoba Conservation and Water Stewardship 24-hour Spill Response Line (204) 945-4888, Police, Fire Department, Ambulance, company backup].
 - (ii) Attend to public safety:
 - ◆ Stop traffic, roadblock/cordon off the immediate danger area.
 - ◆ Eliminate ignition sources.
 - ◆ Initiate evacuation procedures if necessary.
 - (iii) Assess situation and gather information on the status of the situation, noting:
 - ◆ Personnel on Site.
 - ◆ Cause and effect of spill.
 - ◆ Estimated extent of damage.
 - ◆ Amount and type of material involved.
 - ◆ Proximity to waterways, sewers and manholes.
 - (iv) If safe to do so, try to stop the dispersion or flow of spill material:

- ◆ Approach from upwind.
 - ◆ Stop or reduce leak if safe to do so.
 - ◆ Dyke spill material with dry, inert absorbent material or dry clay soil or sand.
 - ◆ Prevent spill material from entering waterways and utilities by dyking.
 - ◆ Prevent spill material from entering manholes and other openings by covering with rubber spill mats or dyking.
- (v) Resume any effective action to contain, clean up, or stop the flow of the spilled product.
- (vi) The emergency response coordinator will ensure that all environmental accidents involving contaminants shall be documented and reported to Manitoba Conservation and Water Stewardship according to The Dangerous Goods Handling and Transportation Act Environmental Accident Reports Regulation 439/87.
- (vii) When dangerous goods are used on Site, materials for containment and cleanup of spill material (e.g., absorbent materials, plastic oil booms, and oversized recovery drums) shall be available on Site.
- (viii) Minor spills of such substances that may be contained on land with no significant impact on the environment may be responded to with in-house resources without formal notification to Manitoba Conservation and Water Stewardship.
- (ix) City emergency response, 9-1-1, shall be used if other means are not available.

Table 1 - Environmental Accident Reporting Reportable Quantities of Spills that must be Reported to Manitoba Conservation and Water Stewardship [(204) 944-4888]		
Classification	Hazard	Reportable Quantity or Level
1	Explosives	All
2.1	Compressed Gas (Flammable)	100 L*
2.2	Compressed Gas	100 L*
2.3	Compressed Gas (Toxic)	All
2.4	Compressed Gas (Corrosive)	All
3	Flammable Liquids	100 L
4	Flammable Solids	1 Kg
5.1 Packing Groups I and II	Oxidizer	1 Kg or 50 L
Packing Group III	Oxidizer	5 Kg or 50 L
5.2	Organic Peroxide	1 Kg or 1 L
6.1 Packing Group I	Acute Toxic	1 Kg or 1 L
Packing Groups II and III	Acute Toxic	5 Kg or 5 L
6.2	Infectious	All
7	Radioactive	Any discharge or level exceeding 10 m Sv/h at the package surface and 200 uSv/h at 1 m from the package surface
8	Corrosive	5 Kg or 5 L
9.1	Miscellaneous (except PCB Mixtures)	50 Kg
9.1	PCB Mixtures	500 grams
9.2	Aquatic Toxic	1 Kg or 1 L
9.3	Wastes (Chronic Toxic)	5 Kg or 5 L

* Container Capacity (refers to container water capacity)

Source: *Environmental Accident Reporting Regulation M.R. 439/87*

(f) Noise and Vibration

- (i) The Contractor will adhere to all Noise and Vibration mitigation outlined in the Waverley West Arterial Roads Project Environmental Assessment Screening Report, dated June 2011

- (ii) Noise generating activities will be limited to the hours indicated in the City of Winnipeg Neighbourhood Liveability By-law No. 1/2008. The activities will generally be restricted to 7:00 a.m. to 7:00 p.m. weekdays with written permission of the Contract Administrator and the City of Winnipeg for any after-hours or weekend work required for special cases. No extended or alternative working hours/dates will be permitted for pile driving activities.
 - (iii) The Contractor will be responsible for scheduling Work to avoid potential noise problems and/or employ noise reduction measures to reduce noise to acceptable limits. The Contractor will also demonstrate to the Contract Administrator that Works to be performed during the night-time period, on Sundays, and Holidays will not exceed the approved limit.
 - (iv) The Contractor will locate stationary noise generating equipment (e.g., generators) away from sensitive receptors and wildlife areas.
 - (v) Construction vehicles and equipment will adhere to posted speed limits.
- (g) Dust and Emissions
- (i) Construction vehicles and machinery will be kept in good working order by the Contractor through the use of inspection and maintenance.
 - (ii) The Contractor will minimize construction equipment idling times and turn off machinery, when feasible.
 - (iii) Dust control practices implemented by the Contractor during construction will include regular street cleaning and dampening of construction access roads and Works areas with water or approved chemicals at an adequate frequency to prevent the creation of dust.
 - (iv) Only water or chemicals approved by the Contract Administrator will be used for dust control. The use of waste petroleum or petroleum by-products is not permitted.
 - (v) The Contractor will ensure that trucks which are used to haul excavated material and backfill material to and from the Work site utilize tarpaulin covers during transport to prevent material from falling onto the street and creating dust.
 - (vi) Stockpiled soils will be wetted down or covered with tarpaulin covers to prevent the creation of dust, when appropriate.
- (h) Erosion Control
- (i) The Contractor will develop a sediment control plan prior to beginning construction in adherence with the Transportation Association of Canada National Guide to Erosion and Sediment Control on Roadway Projects, 2005 and to the satisfaction of the Contract Administrator.
 - (ii) Sediment control will be applied to all inwater works to prevent the release or re-suspension of sediments to the watercourse. A turbidity curtain will be used to contain sediments from coffer dam construction/removal and riprap placement, if warranted. This turbidity curtain should isolate as small an area as possible to complete the works, and should be completely removed once turbidity within the isolated area has returned to background levels.
 - (iii) The Contractor will inspect all sediment control structures daily during heavy construction activity in the areas of the structures and after a heavy rainfall to ensure their continued integrity.
 - (iv) Exposure of soils along drain slopes will be kept to the minimum practical amount, acceptable to the Contract Administrator.
 - (v) Effective sediment and erosion control measures (e.g., straw mulch, erosion control blankets, interceptor ditches) will be used both during construction and until vegetation is re-established to prevent sediment-laden runoff from entering ditches, agricultural drains, Beaujolais Coulee, wetlands and other watercourses.
 - (vi) All areas disturbed during construction will be landscaped and revegetated with native and/or introduced plant species in order to restore and enhance the Site and protect against soil erosion unless otherwise indicated.

- (vii) The disturbed surface will be revegetated as soon as possible and done so as to create a dense root system in order to defend against soil erosion on the right-of-way and any other disturbed areas susceptible to erosion.
 - (viii) The loss of topsoil and the creation of excessive dust by wind during construction will be prevented by the addition of temporary cover crop, water or tackifier, if conditions so warrant.
 - (ix) The Contractor will routinely inspect all erosion and sediment control structures and immediately carry out any necessary maintenance. Several inspections will be performed during rainy days.
 - (x) Construction activities will be avoided during periods of high winds to prevent erosion and the creation of dust.
- (i) **Runoff Control**
- (i) Measures will be undertaken to ensure that runoff containing suspended soil particles is minimized from entering the land drainage system to the extent possible to the satisfaction of the Contract Administrator.
 - (ii) Areas that are heavily disturbed and vulnerable to erosion or gulying will be dyked to redirect surface runoff around the area prior to spring runoff.
 - (iii) Construction activities on erodible slopes will be avoided during spring runoff and heavy rain falls.
 - (iv) Soil and fill will not be stockpiled on immediate watercourse bank areas.
- (j) **Fish**
- (i) The Contractor will adhere to all of the protection measures below and the measures included in the DFO Measures to Avoid Causing Harm to Fish and Fish Habitat, available online at <http://www.dfo-mpo.gc.ca/pnw-ppe/measure-mesures/index-eng.html>.
 - (ii) Due to the presence of spawning fish species no culvert replacement works will occur between April 1 and June 15 of any given year.
 - (iii) If possible, culvert replacement works will be constructed during periods of no flow or very low flow. Flowing water should be diverted around the construction area using a dam and bypass pump or temporary flume (culvert). Water will be diverted in a manner that avoids sediment generation to downstream areas and does not alter the volume of flow in the watercourse. Use coffer dams made of non-earthen material such as aquadams, sand bags, sheet pile or clean granular material wrapped in poly-plastic or other suitable isolation materials. Ensure any pump inlets are appropriately screened following the DFO Freshwater Intake End-of-Pipe Fish Screen Guidelines. Ensure all isolation materials are completely removed from the watercourse once construction is complete.
 - (iv) Any fish trapped within the isolated area will be captured and returned to the watercourse unharmed. Fish includes fin fish, crayfish and mussels (clams).
 - (v) All culvert replacement works will be limited to within road's right-of-way.
 - (vi) A buffer of vegetation will be maintained when working along waterways, where possible.
 - (vii) Culverts will be installed according to the Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (Manitoba Natural Resources and DFO, 1996). The culverts will be embedded a minimum of 0.3 m or 10% of culvert vertical diameter, whichever is greater to maintain connectivity during lower flows in this forage fish stream.
 - (viii) The duration of work and amount of disturbance to the bed and banks of the water body will be minimized.
 - (ix) Use only clean rock for armouring the inlets and outlets of the culvert, and haul it in from an appropriate land-based source. Avoid using poor quality limestone that breaks down quickly when exposed to the elements or acid generating rocks typical from metal mines. All rock will be clean and free of fine materials and of appropriate size to resist displacement during high flow events.

- (x) The rock is placed such that it does not constrict the channel or change the hydraulics in a way that might damage the bed and/or banks of the watercourse or interfere with fish passage.
 - (xi) Where grading of stream banks is required they are sloped by pulling material back from the water's edge. Stabilize any waste materials removed from the work site, above the ordinary high water mark, to prevent them from entering any water body. Spoil piles could be contained with silt fence, flattened, covered with biodegradable mats or tarps, and/or planted with preferably native grass or shrubs.
 - (xii) Excavation of the water body bed will be limited to within the road right of way and is the minimum required for the proper placement of the culvert crossing.
 - (xiii) Shoreline vegetation will be retained to the greatest extent possible to maximize the stability of the banks.
 - (xiv) Operate machinery from outside of the water and in a manner that minimizes disturbance to the banks of the water body.
 - (xv) The intake of any pumps used in surface waters will be screened to meet the Department of Fisheries and Oceans' Freshwater Intake End-of-Pipe Fish Screening Guidelines (1995) and water withdrawal rates will not exceed 10% of the instantaneous stream flow at the time.
- (k) Wildlife
- (i) No clearing of trees, shrubs or vegetation is permitted between May 1 and July 31st of any year to protect nesting and breeding season for migratory birds and other wildlife, unless otherwise identified by a Project Biologist.
 - (ii) No one will disturb, move or destroy migratory birds' nests.
 - (iii) If a nest is encountered, work will cease in the immediate area and the Contract Administrator will be contacted for further direction.
 - (iv) In the event that species at risk are encountered during the project construction, all work will cease in the immediate area, the site will be made safe and the Contract Administrator will be contacted.
- (l) Wetlands
- (i) The Contractor will implement the following environmental protection measures to prevent the new loss of wetland functions, in accordance with the Federal Policy on Wetland Conservation:
 - (i) The Contractor will clearly mark wetland limits near the construction footprint prior to commencement of the Work and will remain marked throughout the construction period.
 - (ii) Wetlands will not be disturbed without written permission from the Contract Administrator.
 - (iii) Should additional wetlands be encountered during construction, construction in that area will halt until the area is properly marked.
 - (iv) Construction equipment will avoid the marked wetland areas as much as possible, where feasible.
 - (v) The Contractor will not discharge water into adjacent wetlands without written permission from the Contract Administrator, having confirmed the quality of the water to be discharged and the capacity of the receiving wetland.
 - (vi) Any fish located within the wetlands to be disturbed by the project will be captured and returned to a nearby watercourse unharmed.
- (m) Vegetation
- (i) The Contractor will clearly mark the disturbance limit prior to commencement of the Work and will remain marked throughout the construction period.
 - (ii) Vegetation will not be disturbed without written permission from the Contract Administrator.
 - (iii) The Contractor will limit the removal of trees and snags (standing dead trees); surface disturbance and vegetation clearing.

- (iv) Herbicides and pesticide will not be used adjacent to any surface watercourse.
 - (v) Trees or shrubs will not be felled into watercourses.
 - (vi) Areas where vegetation is removed during clearing, construction decommissioning activities, will be revegetated as soon as possible in accordance with the landscaping plans forming part of the Contract, or as directed by the Contract Administrator.
 - (vii) Trees damaged during construction activities will be examined by bonded tree care professionals. Viable trees damaged during construction activities will be pruned according to good practices by bonded tree care professionals.
- (n) Landscaping
- (i) Construction waste (excluding common construction gravel, sand, etc.) will be removed to a minimum depth of 600mm below final grade in all areas that are to be backfilled with suitable material and revegetated in accordance with the City of Winnipeg Standard Construction Specifications.
 - (ii) Topsoil will be stripped prior to construction and salvaged for use during landscaping. Surplus topsoil will be properly stockpiled for use in other projects.
 - (iii) The Contractor will adhere to the landscaping plan for the maintenance of initial stages and development stages of the plant community.
- (o) Heritage Resources
- (i) If heritage material is located during the construction and soil removal process, all Work will cease and the Contractor will immediately contact the Contract Administrator. The Historic Resource Branch, Manitoba Culture, Heritage, Tourism and Sport or the Project Archaeologist, will be contacted by the Contract Administrator to determine the nature and extent of the archaeological material and to arrange for its recovery. The archaeological remains will be recovered by salvage excavation upon authorization by the Contract Administrator, having consulted with the Historic Resources Branch, Manitoba Culture, Heritage, Tourism and Sport.
 - (ii) The Contractor will be prepared to continue his Work elsewhere on the project while the Archaeologist investigates the find and determines its heritage value.
 - (iii) The Contractor is advised that he may be denied access to such areas of the project until such time as a thorough archaeological investigation is conducted or the find is deemed to have no heritage value.
 - (iv) Construction and excavation work will not resume until the Contract Administrator, having consulted with the Historic Resources Branch, Manitoba Culture, Heritage, Tourism and Sport, or the Project Archaeologist, authorizes a resumption of Work.
 - (v) If human remains are uncovered during the construction and soil removal process, all Work will cease and the Heritage Resources Branch, Manitoba Culture, Heritage, Tourism and Sport will be contacted by the Contract Administrator. The Historic Resources Branch will contact the City of Winnipeg Police.
 - (vi) If the human remains are not considered forensic, (i.e., no foul play suspected), they will be removed by the Historic Resources Branch, Manitoba, Culture, Heritage, Tourism and Sport or the Project Archaeologist and turned over to the Province.
 - (vii) If the human remains are considered forensic, the City of Winnipeg Police will be responsible for their removal.
 - (viii) Additional information may be obtained by contacting: Archaeological Assessment Services, Historic Resources Branch.
- (p) Construction Traffic
- (i) Workforce parking will be limited to the areas designated for such as detailed in the Contract Documents, or as otherwise may be directed by the Contract Administrator.
 - (ii) Large equipment will be equipped with flashing beacons and/or an audible “back up” warning device that is audible when the transmission is in reverse.
 - (iii) The Contractor will adhere to the Standard Provisions of the Standard Construction Specifications, and of the Manual of Temporary Traffic Control in Work Areas on

City Streets of the City of Winnipeg Public Works Department or The Manitoba Infrastructure and Transportation Work Zone Traffic Control Manual as applicable.

- (iv) The Contractor's laydown area, construction Site and access road will be fenced and gated to secure the Site and materials and to discourage pedestrian entrance to construction areas and to control any potential hazard to the public, particularly children.
 - (v) The Contractor shall use only the service roads and the existing Kenaston Boulevards (just north of station 1+450) to access the Site. The Contractor at any time is not allowed to use PTH 100 as a means to transport or store materials.
 - (vi) For circumstances where the Contract Administrator has accepted Site access of special equipment or material, the Contractor will provide adequate flagmen for traffic control in the vicinity of any public buildings.
- (q) Access
- (i) The Contractor will maintain access to affected residential properties.
 - (ii) The Contractor will provide or maintain general and off-street access to any affected business during construction.

E11.10 MEASUREMENT AND PAYMENT

E11.10.1 The Environmental Protection Plan will be considered incidental to the Work and as such no measurement or payment will be made for this item.

E12. EXCAVATION

E12.1 DESCRIPTION

- (a) Further to CW 3110 and CW 3170, this specification covers stripping and stockpiling of topsoil, common excavation - suitable site material, fill material, boulevard grading, ditch grading, and excavation.

E12.2 MATERIALS

E12.2.1 Topsoil Excavation

- (a) Construction methods for Stripping and Stockpiling Topsoil shall be as per Specification CW 3170, Clause 9.2a)

E12.2.2 Common Excavation – Suitable Site Material

- (a) As per Specification CW 3170, Clause 9.2(b), Common Excavation – Suitable Site Material shall consist of any excavation (including ditch excavation and boulevard excavation) which yields suitable site material, as determined by the Contract Administrator. This shall include any suitable site material that is excavated and placed within the Work Site; this shall include any excavation to be hauled between Part A and Part B of the job description as determined by the Contract Administrator.
- (b) If necessary suitable site material shall be stockpiled on site until a location has been prepared for placement.

E12.2.3 Excavation

- (a) As per Specification CW 3110, Clause 3.2, Excavation shall consist of any excavation (including ditch excavation and boulevard excavation) which yields surplus suitable site material and/or unsuitable site material, as determined by the Contract Administrator.
- (b) As per Specification CW 3110, Clause 3.2.3, dispose of surplus suitable and/or unsuitable site material in accordance with Specification CW 1130, Clause 3.4.

E12.2.4 Fill Material – Placing Suitable Site Material

- (a) Placing of suitable site material shall include the hauling and placing of suitable site material within the limits of work.

- (b) Hauling and placing of suitable site material includes placement of stockpiled suitable site material and/or placement of material hauled directly from common excavation - suitable site material operations.
- (c) Prior to any placement of any suitable site material the existing ground surface will be prepared as per Specification 3170, Clause 9.5.
- (d) Construction methods for placing suitable site material shall be as per Specification CW 3170, Clauses 9.6 and 9.7.

E12.2.5 Grading of Boulevards

- (a) Grading of Boulevards shall be done in accordance with Specification CW 3110.
- (b) Further to Specification CW 3110, Clause 3.8.4 and Clause 3.8.5, excavate and/or place and compact fill to a depth up to 150 millimetres to meet the final grade 100 millimetres below finished boulevard grade.
- (c) Excavation in excess of 150 millimetres shall be treated as Common Excavation.
- (d) Placement of backfill material over 150 millimetres in depth required to complete boulevard grading will be treated as Fill Material - Placing of Suitable Site Material.

E12.2.6 Grading of Ditches

- (a) Grading of Ditches shall be done in accordance with Specification CW 3110.
- (b) Further to Specification CW 3110, Clause 3.9.3 and Clause 3.9.4, excavate and/or place and compact fill to a depth up to 300 millimetres to meet the final ditch grade requirements. If seeding of ditches is required, excavate and/or place and compact fill to a depth up to 300 millimetres to meet the final grade 100 millimetres below finished ditch grade.
- (c) Excavation in excess of 300 millimetres shall be treated as Common Excavation.
- (d) Placement of backfill material over 300 millimetres in depth required to complete ditch grading will be treated as Fill Material - Placing of Suitable Site Material.

E12.3 MEASUREMENT AND PAYMENT

E12.3.1 Topsoil Excavation

- (a) Topsoil Excavation will be measured on a volume basis and paid at the Contract Unit Price per cubic metre for "Topsoil Excavation" as per Specification CW 3170, Clause 13.1.

E12.3.2 Common Excavation – Suitable Site Material

- (a) As per Specification CW 3170, Clause 12.1, Common Excavation – Suitable Site Material will be measured on a volume basis. The volume shall be based on the total number of cubic metres excavated from its original position and determined by the method of Average End Areas. The excavated material must be deemed suitable site material in accordance with Specification CW 3170 and accepted by the Contract Administrator.
- (b) As per Specification CW 3170, Clause 13.2, Common Excavation - Suitable Site Material will be paid at the Contract Unit Price per cubic metre for "Common Excavation – Suitable Site Material".

E12.3.3 Excavation

- (a) As per Specification 3110, Clause 4.3, Excavation will be measured on a volume basis and paid for at the Contract Unit Price per cubic metre for "Excavation". The volume to be paid for will be the total number of cubic metres of surplus suitable site or unsuitable site material excavated in its original position and determined by the method of Average End Areas.
- (b) As per Specification CW 3110, Clause 4.3.4, disposal of surplus suitable and/or unsuitable site material in accordance with Specification CW 1130, Clause 3.4, will be included in the payment for "Excavation". No separate payment will be made for

material hauled from a suitable site material or unsuitable site material stockpile rather than directly from an excavation.

E12.3.4 Fill Material – Placing of Suitable Site

- (a) As per Specification CW 3170, Clause 12.2(a), Fill Material - Placing Suitable Site Material will be measured on a volume basis. The volume shall be based on the total number of cubic metres compacted in place in accordance with Specification CW 3170 and accepted by the Contract Administrator, as determined by the method of Average End Areas.
- (b) Loading, hauling, placing and compaction of suitable site material will be paid at the Contract Unit Price per cubic metre for "Fill Material – Placing of Suitable Site Material". The volume to be paid for will be the total number of cubic metres loaded, hauled, placed and compacted in place. No separate payment will be made for material hauled from a suitable site material stockpile rather than directly from an excavation.
- (c) The preparation of the existing ground surface prior to placement of suitable site material shall be considered incidental to Placing Suitable Site Material, as per (b).

E12.3.5 Grading of Boulevards

- (a) As per Specification CW 3110, Clause 4.8, the grading of boulevards will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Grading of Boulevards". The area to be paid for will be the total number of square metres of boulevards graded in accordance with Specification CW 3110, accepted and measured by the Contract Administrator.

E12.3.6 Ditch Grading

- (a) As per Specification CW 3110, Clause 4.9, ditch grading will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Ditch Grading". The area to be paid for will be the total number of square metres of ditch graded in accordance with Specification CW 3110, accepted and measured by the Contract Administrator.

E13. SALT TOLERANT GRASS SEEDING

E13.1 DESCRIPTION

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

E13.2 MATERIALS

E13.2.1 Salt Tolerant Grass Seed

- (a) Salt Tolerant Grass Seed for regional and collector boulevards, medians and interchange areas shall be a mixture composed of:
 - (i) Seventy percent (70%) Fults or Nuttals Alkaligrass (*Puccinellia* spp.), twenty percent (20%) Audubon or Aberdeen Creeping Red Fescue and ten percent (10%) Perennial Ryegrass.

E13.3 EQUIPMENT

- E13.3.1 Scarification equipment shall be suitable for the area being scarified, shall be capable of scarifying the sub-grade to the specified depth and shall be accepted by the Contract Administrator. For confined areas a toothed bucket may be acceptable. For larger areas tilling equipment may be required.

E13.4 CONSTRUCTION METHODS

E13.4.1 Preparation of Existing Grade

- (a) Prior to placing topsoil, in areas to be seeded greater in width than 600mm, prepare the existing sub-grade by scarifying to a minimum depth of 75mm and to a maximum depth of 100mm to the satisfaction of the Contract Administrator.
- (b) Scarification shall consist of breaking up and loosening the sub-grade. No scarification shall occur within the edge of a tree canopy (or drip line).

E13.4.2 Salt Tolerant Grass Seeding

- (a) Salt Tolerant Grass Seed shall be sown at a rate of 2.2 kilograms per 100 square meters.

E13.5 MEASUREMENT AND PAYMENT

- (a) Supply, placement and maintenance of Salt Tolerant Grass Seed will be paid for at the Contract Unit Price per square metre for "Salt Tolerant Grass Seeding", measured as specified herein, which price shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the work included in this Specification. Payment for Salt Tolerant Grass Seeding shall be in accordance with the following:
 - (i) Sixty five (65%) percent of quantity following supply and placement.
 - (ii) Remaining thirty five (35%) percent of quantity following termination of the Maintenance Period.

E14. INSTALLATION OF STRAW WATTLES

E14.1 DESCRIPTION

- (a) Straw wattles are required to be installed as erosion control measures to mitigate any deleterious materials from entering the Land Drainage System. At a minimum these locations will include the perimeter of all riprap located at: ditch catch basins, and ditch bottom pads.

E14.2 MATERIALS

- (a) The straw wattles shall be Stenlog or other biodegradable straw wattles.

E14.3 CONSTRUCTION METHODS

- (a) Install 300mm Stenlog or other straw wattle sediment control material in accordance with the manufacturer's specifications around all riprap areas related to drainage inlets and outlets, and catch basins within seeded areas.
- (b) Install straw wattles so that no gaps exist between the soil and the bottom of the wattle, and the ends of adjacent wattles are overlapped 150mm minimum to prevent water and sediment passing. Achieve a tight seal between the wattle segments.
- (c) Dogleg terminal ends of straw wattle up the slope to prevent channelling of sedimentation.
- (d) Use 300mm wooden stakes to fasten straw wattle to the soil. Place stakes on each side of the straw wattle, lying across the natural fibre twine, spaced 1200mm on centre. Leave 30 to 50mm of wood stake exposed above the wattle.
- (e) Avoid damage to wattles. Damaged areas of wattles should be cut and tied off, then treated as terminal ends.
- (f) At the direction of the Contract Administrator, the Straw Wattle shall be removed after seeding has established and before the end of the Warranty Period.

E14.4 MEASUREMENT AND PAYMENT

- (a) Installation of straw wattles will be considered incidental to the Contract and no separate measurement for payment will be made.

E15. SOFT EXCAVATION TO EXPOSE UNDERGROUND UTILITIES

E15.1 DESCRIPTION

- (a) This specification covers the soft excavation to expose underground utilities to determine the depth of the underground utility and whether it will interfere with the installation of proposed Works on site.

E15.2 METHOD

- (a) Prior to commencement of any construction works adjacent to underground utilities, the Contractor shall use soft digging or hand excavation to expose the underground utilities.

E15.3 MEASUREMENT AND PAYMENT

- (a) No separate measurement or payment will be made for any soft excavation operations or any items incidental to those operations.

E16. DITCH INLET GRATE

E16.1 DESCRIPTION

- (a) This specification covers the supply and installation of ditch inlet grates, typically used in open swales or ditches as an alternative to City of Winnipeg Approved Product grated manhole cover AP-006.

E16.2 MATERIALS AND EQUIPMENT

- (a) As per Contract Drawings.
- (b) All steel shall be supplied in accordance with details on the Contract Drawings. All steel shall be hot dip galvanized after fabrication and all hardware shall be stainless steel.
- (c) Cover to be Shopost Iron Works MK-A1 or approved equal in accordance with B7

E16.3 CONSTRUCTION METHODS

- E16.3.1 Contractor to securely affix ditch inlet grates to manhole reducer or riser utilizing stainless steel hardware.
- E16.3.2 Any galvanized surfaces that are damaged shall be coated with a galvanizing compound approved by the Contract Administrator

E16.4 MEASUREMENT AND PAYMENT

- (a) Ditch Inlet Grates will be measured on a unit basis and paid for at the Contract Unit Price per cover as "Ditch Inlet Grate". The number to be paid for will be the total number of Ditch Inlet Grates supplied & installed in accordance with this specification and accepted by the Contract Administrator.

E17. CORRUGATED METAL PIPE (CMP)

E17.1 DESCRIPTION

- (a) This description shall amend and supplement Standard Specification CW 2130 and CW3610.

E17.2 MATERIALS

E17.2.1 Corrugated Metal Pipe

- (a) Corrugated Metal Pipe shall conform to the dimensions detailed in the drawings and specifications.
- (b) End Sections shall pre-fabricated with mitered ends (slope as per drawings), and all edges shall be grinded to minimize sharp edges and burrs.

- (c) All CMP ends are to be marked with a culvert marker which shall be considered incidental to the culvert installation.

E17.2.2 Bedding and Backfill

- (a) Bedding and initial backfill material shall consist of 20mm down limestone, as specified in Clause 2.1 of CW 2030, placed on a prepared subgrade and compacted to the thickness and density as specified.

E17.2.3 Galvanized Primer

- (a) Galvanized primer for repair of coating shall be zinc rich, ready mix to CGSB-1-GP-181M.

E17.3 CONSTRUCTION METHODS

E17.3.1 Bedding and Backfill

- (a) The bedding and backfilling for corrugated metal pipe installed in (landscaped) boulevard areas shall be Class 4 as specified in CW 2030, Clause 3.8 except as noted below.
- (b) The bedding and backfilling for corrugated steel pipe installed under existing or proposed pavement, driveways, or sidewalks shall be Class 2 as specified in CW 2030, Clause 3.8 except as noted below.
- (c) The following revisions for bedding and initial backfill apply to Class 4 and Class 2 backfill:
 - (i) Limestone base material as previously specified shall be used for bedding and initial backfill.
 - (ii) A minimum thickness of 100 mm of compacted 20 mm limestone bedding shall be placed on the prepared subgrade. A 75 mm blanket of loose uniform bedding material shall then be placed on the compacted bedding to provide fill for the corrugations in the invert.
 - (iii) Manual placing and compaction of material shall be used to build up the backfill to encompass the lower part of the pipe. Backfill material shall be placed under the haunches by shovel and compacted firmly by power compaction (“jumping jack”) equipment. Valleys of the corrugations and the area immediately next to the pipe must be compacted by hand operated methods. At no time shall heavy compaction equipment be brought closer than 1 m from the CMP.
 - (iv) Backfill shall be so placed and mechanically compacted that the fill rises equally and simultaneously on both sides, including handwork next to the pipe. Layers shall be placed with equipment running parallel to the structure.
 - (v) Initial backfill around pipe shall be placed in 150 mm lifts (maximum), alternatively on either side of the pipe until a height of 200 mm above CMP has been achieved.
 - (vi) When the fill on both sides of the pipe approaches the crown of the pipe, the same techniques of spreading shallow layers and compacting thoroughly shall be followed as the backfill covers the pipe. Light tamping equipment shall be used for the initial layers over the pipe.
 - (vii) No distortion of the structure greater than 2% of the span or rise shall be allowed.
 - (viii) The backfill material shall be placed in layers not exceeding 300 mm. Backfilling shall be carried out in such a manner as to obtain uniform compaction without soft spots. Compaction shall be 95% of the Standard Proctor Density.
 - (ix) No traffic of any sort shall be permitted over the structure until cover of a minimum depth of 600 mm is properly compacted in place.
 - (x) All compaction equipment used shall be subject to the approval of the Contract Administrator.

E17.3.2 Remove Existing Culverts

- (a) The excavation for the removal of existing culverts outside of proposed roadway pavement shall be backfilled to Class 4 standards. The excavation for removal of existing culverts under existing driveways or sidewalks shall be backfilled to Class 2 standards.
- (b) The culverts shall be removed so as not to damage the pipe sections. Where culverts are coupled, the sections shall be separated prior to removal.
- (c) Culverts that are deemed unsalvageable by the Contract Administrator shall be removed and disposed of off-site. Removal of culverts off site shall be considered incidental to the "Removal of Existing Culverts" and no further payment shall be made.
- (d) The Contract Administrator shall specify which culverts are to be reused and the new line and grade for the reinstalled culverts.

E17.3.3 Culverts supplied by the City of Winnipeg

- (a) All materials herein described to be permanently incorporated into the structure or otherwise required for the work shall be furnished by the City of Winnipeg to the Contractor.
- (b) The Contractor shall not haul the culverts until approval from the Contract Administrator has been received.
- (c) The Contractor shall be responsible to verify and confirm the correct quantities and types of materials that have been received by the Contractor. The Contractor shall be responsible in confirming this by means of written documentation, copies which shall be provided to the Contract Administrator within 12 hours of receipt of material.
- (d) The Contractor shall be responsible for the security of material and replacement of lost, stolen or misplaced material once the Contractor has received the material from the following location:
 - (i) Borland Construction Inc.'s Yard located at 751 Ladimodiere Boulevard:
 - (i) 2 of 13m x 600mm diameter x 2.8 gauge;
 - (ii) 2 of 9m x 600mm diameter x 2.8 gauge;
 - (iii) 2 of 8m x 600mm diameter x 2.8 gauge; and
 - (iv) 5 of 600mm diameter couplers.
 - (ii) Contact Lionel Lau 204-255-6444 for arrangement of pickup.
- (e) The Contractor shall make use of the culverts supplied by the City of Winnipeg prior to any purchase/ supply of 600mm culverts.
- (f) If any of the culverts go unused in this Contract the Contractor shall deliver the unused culverts to the Public Works Department at the following location:
 - (i) City of Winnipeg Public Works Department
421 Osborne Street
Winnipeg, MB R3L 2A2

E17.3.4 Clean Existing CMP

- (a) All existing culverts will be cleaned by the Contractor in order for the Contract Administrator to make a proper assessment for the use of them. This is suggested to be completed very early in the construction stage.

E17.3.5 Connect to Existing CMP

- (a) Upon cleaning the existing culverts the Contractor shall request the Contract Administrator, with notice of 48 hours, to inspect the ends of each culvert to determine if they are capable of accepting the coupling as is or if they need work.
- (b) The culvert assessment performed for each of the existing culverts by the Contract Administrator shall fall under one (1) of the following categories.

- (i) The culvert is completely unsalvageable it shall be abandoned and filled with Mortar. The measurement and payment will be covered in the “Provisional Items” list.
 - (ii) The culvert is acceptable however will require work. This shall include cutting the existing CMP to a location in order to make the end compatible and able to accept the new coupling as described in Standard Specification CW 2130.
 - (iii) The culvert requires no additional work, where it shall be placed with a new coupling and connected to the newly installed CMP. This is the method assumed by the Contract Administrator for quantity purposes.
- (c) Once the culverts have been cleaned the Contractor is responsible for keeping the culverts clean, free of mud and debris during construction and shall remain clean up until the end of construction.

E17.4 MEASUREMENT AND PAYMENT

E17.4.1 Removal of Existing Culverts

- (a) The removal of existing culverts will be measured on a linear metre basis. The number to be paid for shall be the total length of culverts removed in accordance with this Specification and accepted by the Contract Administrator.
- (b) Removal of existing culverts will be paid for at the Contract Unit Price per unit for “Removal of Existing Culverts”, which price shall be payment in full for the supply of all materials and for performing all operations required to complete the Work as specified.

E17.4.2 Culverts supplied by the City of Winnipeg

- (a) The culverts supplied by the City of Winnipeg will be measured on a lump sum basis.
- (b) Culverts supplied by the City of Winnipeg will be paid for at the Contract Lump Sum Price for “Culverts supplied by the City”, which shall include all hauling from the point of pickup to the point of delivery.

E17.4.3 Clean Existing CMP

- (a) The cleaning of existing CMP will be measured on a lineal metre basis. The number to be paid for shall be the total length of culverts cleaned in accordance with this Specification and accepted by the Contract Administrator.
- (b) Cleaning the existing CMP will be paid for at the Contract Unit Price per metre for “Clean Existing CMP”, which price shall be payment in full for cleaning, hauling away any debris material and for performing all operations required to complete the Work as specified.

E17.4.4 Connect to Existing CMP

- (a) The connections to existing CMP will be measured on a unit basis. The number to be paid for shall be the total number of couplings installed in order to connect the existing CMP to the new CMP as in accordance with this Specification and accepted by the Contract Administrator.
- (b) Connecting to existing CMP will be paid for at the Contract Unit Price per unit for “Connections to Existing Culverts”, which price shall be payment in full for the supply and installation of all materials and for performing all operations required to complete the Work as specified.

E18. SUPPLY AND INSTALL CULVERT MARKERS

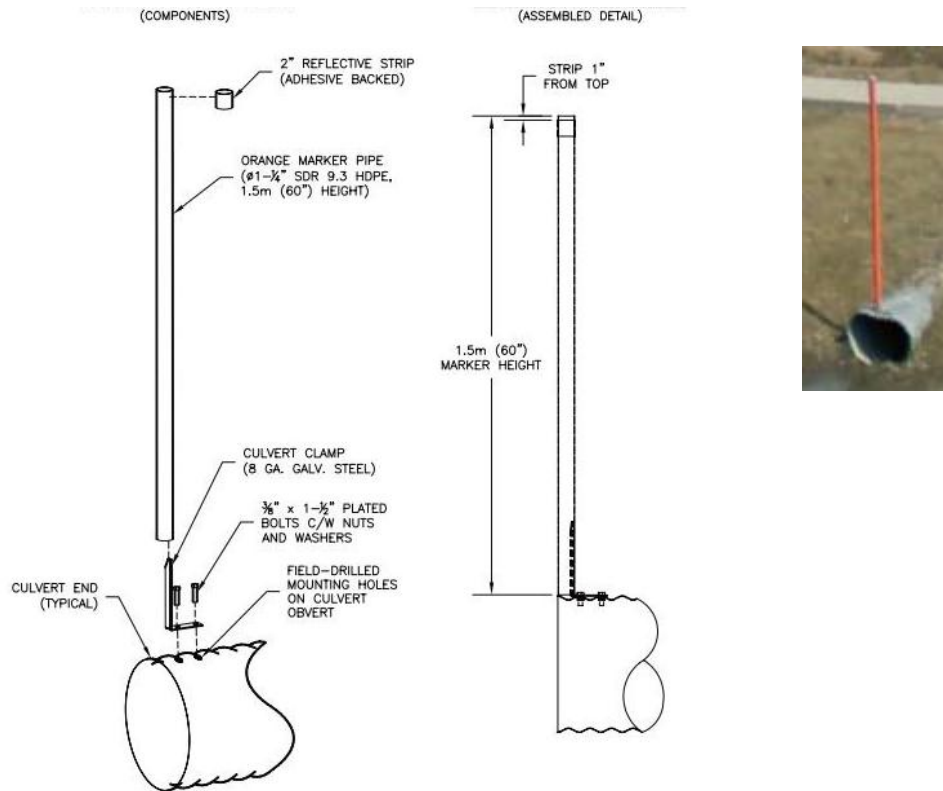
E18.1 DESCRIPTION

- (a) This specification covers the supply and installation of culvert end markers on each of the newly installed CSP culverts.

E18.2 MATERIALS

E18.2.1 Culvert End Markers

- (a) Supply and install units similar to that shown in the images below.



E18.3 CONSTRUCTION METHODS

- (a) Culvert end markers are to be installed at each end of every new culvert within this project. Affix using industry standard hardware.

E18.4 MEASUREMENT AND PAYMENT

- (a) Installation of Culvert Markers will be considered incidental to the Contract and no separate measurement for payment will be made.

E19. RECLAIMED ASPHALT

E19.1 DESCRIPTION

- (a) This specification covers the supply and installation of cold mix reclaimed asphalt.

E19.2 MATERIALS

- (a) This shall include the asphalt material recovered from planning or full depth removal. The reclaimed asphalt pavement material shall consist of sound durable particles produced by crushing and screening. It shall be cold asphalt material with no added oils.

E19.3 CONSTRUCTION METHODS

- (a) The reclaimed asphalt shall be spread at the desired location and raked into place to create a fairly even and smooth surface. The reclaimed asphalt shall be applied with a depth of approximately 100mm. It does not require any compaction or surface preparation.

E19.4 MEASUREMENT AND PAYMENT

- (a) Reclaimed Asphalt will be measured on a volume basis and paid for at the Contract Unit Price per cover as "Reclaimed Asphalt". The number to be paid for will be the total volume

of metric tonne supplied & installed in accordance with this specification and accepted by the Contract Administrator.

E20. FRENCH DRAINS

E20.1 DESCRIPTION

- (a) This specification pertains to the construction of French Drains adjacent to the road structure as shown on the Contract Drawings. French Drains shall only be used in the rural sections.

E20.2 MATERIALS AND EQUIPMENT

E20.2.1 Drainage material will consist of natural gravel, crushed stone or other materials of similar characteristics having clean, hard, strong, durable, uncoated particles free from injurious amounts of soft, friable, thin, elongated or laminated pieces, alkali, organic or other deleterious matter.

- (a) Drainage material will meet the follow requirements:

Drainage Material Grading Requirements

CANADIAN METRIC SIEVE SIZE	PERCENT OF TOTAL DRY WEIGHT PASSING EACH SIEVE
40 000	100%
25 000	50% - 80%
20 000	5% - 20%
12 500	0% - 5%
80	0% - 3%

- (b) Soundness – Drainage material when subject to five cycles of soundness test will have a weighted loss of not more than 13% in accordance with ASTM Standard C88, test for soundness of Aggregates by Use of Magnesium Sulphate.
- (c) Abrasion – Drainage material when subject to abrasion test will have a loss of not more than 30% when tested in accordance with grading A of ASTM C131, Test for Resistance to Degradation of Small-Size Aggregate by Abrasion and Impact in the Los Angeles Machine.

E20.2.2 Drainage Fabric will be non-woven and meet or exceed the requirements of Separation Geotextile Fabric in Clause 2.5 of CW 3130

E20.3 CONSTRUCTION METHODS

E20.3.1 Installation of the French Drains shall not take place until installation of the sub-base materials is complete and the ditch slopes have been backfilled and compacted adjacent to the road structure.

E20.3.2 Excavate a 600mm wide trench to the grade and dimensions shown on the Drawings or as directed by the Contract Administrator. Excavate into the road structure as shown to ensure a physical connection between the sub-grade and the French drain.

E20.3.3 Dispose of trench excavation material in accordance with Section 3.4 of CW 1130 or as directed by the Contract Administrator.

E20.3.4 Repair any non-conforming trenches as directed by the Contract Administrator.

E20.3.5 Compact sub-grade in the base of the trench to a minimum standard proctor of 90%.

E20.3.6 Place separation geotextile fabric such that it overlaps above the geotextile fabric in the road structure a minimum of 300 millimetres. Ensure adequate geotextile fabric is placed

to allow for wrapping the drainage material, including overlap joints above and at the ends of the French Drain.

E20.3.7 Overlap joints in the geotextile fabric a minimum of 500 millimetres.

E20.3.8 Backfill the trench with the drainage material in 300 millimetre lifts and compact to the satisfaction of the Contract Administrator. Place drainage material to the grade and dimensions shown on the Drawings or as directed by the Contract Administrator

E20.3.9 Place drainage material to ensure no damage occurs to the separation geotextile fabric.

(a) Backfill above the French Drain with suitable Site material and compact to a standard proctor of 90% to the grade and dimensions shown on the Drawings or as directed by the Contract Administrator.

E20.4 MEASUREMENT AND PAYMENT

(a) French Drains will be measured on a unit basis and paid for at the Contract Unit Price as “French Drain”, measured as specified herein, which price shall be payment in full for excavation, supplying and installing all geotextile fabric, drainage stone, mud backfill and for completing all operations herein described and all other items incidental to the work included in this Specification. The number to be paid for will be the total number of French Drains installed in accordance with this specification and accepted by the Contract Administrator.

E21. SAWCUTTING PAVEMENT

E21.1 DESCRIPTION

(a) At the limits of excavation as directed by the Contract Administrator, the Contractor shall saw cut the existing pavement to produce a clean straight edge when excavated. The edge must be clean and straight prior to pouring new pavement.

E21.2 MEASUREMENT AND PAYMENT

(a) For asphalt pavements, the cost of saw cutting and disposal of surplus material shall be included in the unit price bid for “Pavement Removal – Asphalt Pavement” no separate measurement for payment will be made.

E22. PROVISIONAL ITEMS

E22.1 The Provisional Items listed in the Schedule of Prices are a part of the Contract.

E22.2 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.

E22.3 Notwithstanding GC: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.

E23. EROSION CONTROL BLANKET

E23.1 DESCRIPTION

(a) This Specification covers the supply, installation, and maintenance of erosion control blanket to be installed around the perimeter of grouted stone rip rap as shown on the drawing and as directed by the Contract Administrator.

E23.2 MATERIALS AND EQUIPMENT

E23.2.1 Erosion Control Blanket(ECB)

- (a) Erosion Control Blanket shall be a machine-produced mat of 70% agricultural straw and 30% coconut blanket with a functional longevity of up to 24 months. Suitable products include SC 150 Extended Term manufactured by North American Green, or approved equivalent.
- (b) The blanket shall be of consistent thickness with the straw and coconut evenly distributed over the entire area of the mat. The blanket shall be covered on the topside with heavyweight photodegradable polypropylene netting having ultraviolet additives to delay breakdown and a maximum 159mm x 159mm mesh and on the bottom side with a lightweight photodegradable polypropylene netting with a maximum 127mm x 127mm mesh. The blanket shall be sewn together on 381mm centres (maximum) with degradable thread
- (c) ECB shall have the following properties:
 - (i) Matrix 70% Straw Fibre (0.19kg/m²) and 30% Coconut Fibre (0.08kg/ m²).
 - (ii) Netting top side heavyweight photodegradable with UV additives (1.47kg/100 m²).
 - (iii) Bottom side lightweight photodegradable minimum netting weight (0.73 kg/100 m²).
 - (iv) Degradable thread.

E23.3 SUBMITTALS

- (a) The Contractor shall submit all manufacturers' product specifications and recommended installation methods for the proposed erosion control blankets and associated materials to the Contract Administrator a minimum of 14 days before construction.

E23.4 CONSTRUCTION METHODS

- (a) The Contractor shall supply all ECB materials required and store them on-site. The installation and maintenance of all ECB will be as directed by the Contract Administrator.
- (b) Actual alignment and location of the ECB may be adjusted in the field by the Contract Administrator.

E23.4.1 Erosion Control Blanket – Drainage Channel Installation

- (a) Excavation a trench 150 mm deep by 150 mm wide along the perimeter of the grouted stone rip rap. Place the ECB such that 300 mm of the blanket overlaps the grouted stone rip rap. Anchor blanket with 200 mm long staples in the trench a maximum of 300 mm apart. Backfill trench with soil and compact. Apply seed according to E13 to compacted soil and fold remaining portion of the blanket over seeded soil and secure with 200 mm long staples a maximum of 300 mm apart. Securely fasten blanket against soil surface with 200 mm long staples with a minimum of 4 staples per square metre.
- (b) Transverse joints and end seams in the ECB shall have a minimum overlap of 150 mm and secured with 200 mm staples a maximum of 300 mm apart.

E23.5 MAINTENANCE

- (a) The areas covered with ECB shall be regularly inspected especially after severe rainfall or storm events, to check for blanket separation or breakage.
- (b) Any damaged or poorly performing areas as the result of storm events shall be replaced/repared immediately. Re-grading of the slope by hand methods may be required in the event of rill or gully erosion.
- (c) Should the Contract Administrator determine that the Contractor has not maintained the erosion control blankets properly or has damaged the blankets from construction activities resulting in sediment releases beyond the Work area; the Contractor shall retrieve all sediment that has left the construction area, to the fullest extent possible, at his own cost. As a minimum, the Contractor shall remove all deltas and sediment deposited in drainage ways and re-grade and/or reseed the areas where sediment removal results in exposed soil. The removal and restoration shall take place within 5 working days of discovery unless

precluded by legal, regulatory, or physical access restraints. If precluded, removal and restoration must take place within 5 working days of obtaining access. The Contractor is responsible for contacting all local, regional, provincial, and federal authorities before working in surface waters and for obtaining applicable permits. The Contractor's restoration Work to restore property outside of the designated Work area shall be at his own cost.

E23.6 MEASUREMENT AND PAYMENT

- (a) Supplying and placing Erosion Control Blanket will be measured on a square metre basis. The area to be measured shall be the total number of square metres of Erosion Control Blanket supplied and placed in accordance with this Specification, acceptable to the Contract Administrator, as computed from the Drawing dimensions. This item of Work will be paid for at the Contract Unit Price per square metre for "Supply and Install Erosion Control Blanket" performed in accordance with this Specification and accepted by the Contract Administrator.

E24. HYDRO POLE RELOCATION & LAMP STANDARD RELOCATION

- E24.1 Hydro Pole Relocation and Lamp Standard Relocation will not be included within this Scope of Work. These relocations are to be completed within a separate Contract. The Contractor is expected to coordinate with Manitoba Hydro to facilitate construction.

E25. TRAFFIC SIGNAL INSTALLATION

E25.1 DESCRIPTION

- (a) This Specification covers the supply and installation of traffic signals, including conduit, signals pits and boxes. The signals to be installed at the Part A intersection (Kenaston & PTH 100) shall be completed by one (1) of two (2) certified & qualified Contractors as determined by Manitoba Infrastructure and Transportation in D13.

E25.2 MATERIALS

- (a) Specifications regarding Traffic Signal materials are included in Appendix C.

E25.3 CONSTRUCTION METHODS

E25.3.1 Part A

- (a) This includes the traffic signal installation at the Kenaston Boulevard and PTH 100 intersection.
- (b) Specifications regarding Traffic Signal installation methods are included in Appendix C.
- (c) The Contractor is responsible for the installation of bases, poles, signs, conduit, wiring, etc. for the two (2) advance flasher signs at the locations indicated on the traffic signal design plans. Supply and installation of the flashing lights and the lighting fixtures attached to the advance signs will be completed by Manitoba Infrastructure and Transportation.
- (b) As per D13.2 herein, all traffic signal installations shall be carried out by a Contractor who is pre-qualified for these works by Manitoba Infrastructure and Transportation.
- (c) As per Appendix C herein, all traffic signal equipment shall be adhered to.
- (d) As per D18 herein, the Contractor is expected to coordinate with Manitoba Hydro and Manitoba Infrastructure and Transportation to facilitate construction.

E25.4 MEASUREMENT AND PAYMENT

E25.4.1 Part A

- (a) Traffic Signal installation will be measured on a lump sum basis and paid for at the Contract Lump Sum Price for "Traffic Signal Installation". The percentage paid will be in full upon completion of the supply & installation in accordance with this Specification and

accepted by the Contract Administrator. For pricing purposes, a Bill of Materials is included in Appendix C.

E26. CRACK SEALING INTERFACE OF CURB AND GUTTER/ASPHALT PAVEMENT

E26.1 DESCRIPTION

- (a) The Contractor shall crack seal the interface of the curb and gutter/asphalt pavement one year after the construction of the asphalt pavement and curb and gutter is completed.

E26.2 MATERIALS

- (a) Joint sealant shall be supplied as per CW 3250.

E26.3 CONTRACUTION METHODS

- (a) Crack sealing of the interface shall be completed in accordance with Clause 3 of CW 3250.

E26.4 MEASUREMENT AND PAYMENT

- (a) Crack sealing the interface of Curb and Gutter/Asphalt Pavement will be measured on a length basis and paid for at the Contract Unit Price for the "Crack Sealing" regardless of the width of the crack. The length to be paid for will be the total number of meters of cracks routed and/or cleaned and sealed in accordance with this Specification, accepted and measured by the Contract Administrator.