



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 678-2014

**STREETSCAPE FOR CENTREPOINT - DONALD STREET NORTH OF PORTAGE,
DONALD STREET SOUTH OF GRAHAM AND HARGRAVE STREET NORTH OF
PORTAGE**

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

- B1.1 STREETScape FOR CENTREPOINT - DONALD STREET NORTH OF PORTAGE, DONALD STREET SOUTH OF GRAHAM AND HARGRAVE STREET NORTH OF PORTAGE

B2. SUBMISSION DEADLINE

- B2.1 The Submission Deadline is 12:00 noon Winnipeg time, July 25, 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 is advised that the building hording on site will not be removed and they are to contact the building contractor if they need access to the site.

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.
- 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, and in accordance with B8.6 deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B16.1(a).

B8. BID COMPONENTS

- B8.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
 - (b) Form B: Prices;
 - (c) Bid Security
 - (i) Form G1: Bid Bond and Agreement to Bond, or
Form G2: Irrevocable Standby Letter of Credit and Undertaking, or
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.
- B8.5 Bidders are advised not to include any information/literature except as requested in accordance with B8.1.
- 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, should 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.
- B10.2 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 copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
- (b) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
- (c) 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 there from (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.

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 subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Construction*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

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

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of the construction of streetscape and related road works including street furniture and street tree planting.

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

- (a) Removal of existing paving;
- (b) Reconstruction of roadway;
- (c) Mill and fill roadway;
- (d) Construction of sidewalk with unit paver insert;
- (e) Construction of concrete approaches with unit paver insert;
- (f) Construction of concrete bases for lights and bollards;
- (g) Construction of tree vaults;
- (h) Supply and installation of site furniture;
- (i) Supply and installation of trees;

D3. DEFINITIONS

D3.1 When used in this Bid Opportunity:

- (a) "**Part A**" means Donald Street, North of Portage Avenue associated works;
- (b) "**Part B**" means Hargrave Street South of Ellice Avenue to "Part C" associated works;
- (c) "**Part C**" means Hargrave Avenue adjacent to "Glass House" (Apartment Building), South of "Part B, North of Back Lane, associated works;
- (d) "**Part D**" means Donald Street St Mary Avenue to Graham Avenue associated works.

D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is McGowan Russell Group Inc., represented by:

Ms. Jackie Wilkie

Vice President

McGowan Russell Group

825 St. Joseph Street

Winnipeg, Manitoba

Telephone No. 204 956-0396

Facsimile No. 204 956-1265

D4.2 At the pre-construction meeting Ms. Russell 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.

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.

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, D7.4 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 Notwithstanding C21, all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:

The City of Winnipeg
Chief Financial Officer

Facsimile No.: 204 949-1174

D7.4 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 should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>

D11. INSURANCE

D11.1 The Contractor shall provide and maintain the following insurance coverage:

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

D11.2 Deductibles shall be borne by the Contractor.

D11.3 The Contractor shall provide the City Solicitor with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in C4.1 for the return of the executed Contract.

D11.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

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 but in no event later than the date specified in 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 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.

SCHEDULE OF WORK

D14. COMMENCEMENT

D14.1 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.

D14.2 The Contractor shall not commence any Work on the Site until:

- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D9;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the Safe Work Plan specified in D10;
 - (iv) evidence of the insurance specified in D11;
 - (v) the performance security specified in D12; and
 - (vi) the Subcontractor list specified in D13.
- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.

D14.3 The Contractor shall not commence the Work on the Site before September 2, 2014..

D14.4 The City intends to award this Contract by August 22, 2014.

D14.4.1 If the actual date of award is later than the intended date, the dates specified for Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D15. SUBSTANTIAL PERFORMANCE

D15.1 The Contractor shall achieve Substantial Performance by October 10, 2014.

D15.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for

purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.

D15.3 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.

D16. TOTAL PERFORMANCE

D16.1 The Contractor shall achieve Total Performance by October 24, 2014.

D16.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.

D16.3 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.

D17. LIQUIDATED DAMAGES

D17.1 If the Contractor fails to achieve Total Performance in accordance with the Contract by the day fixed herein for Total Performance, the Contractor shall pay the City ^ dollars (\$) per Working Day for each and every Working Day following the day fixed herein for Total Performance during which such failure continues.

D17.2 The amount specified for liquidated damages in D17.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Total Performance by the day fixed herein for same.

D17.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D18. SCHEDULED MAINTENANCE

D18.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

(a) Tree maintenance as specified in E33.

D18.2 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

D19. JOB MEETINGS

D19.1 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.

D19.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

D20. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

D20.1 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).

D21. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

D21.1 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.

MEASUREMENT AND PAYMENT

D22. PAYMENT

D22.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

WARRANTY

D23. WARRANTY

D23.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total 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.

D23.2 Notwithstanding C13.2 or D23.1, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if:

- (a) a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.

D23.2.1 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. 678-2014

STREETScape FOR CENTREPOINT - DONALD STREET NORTH OF PORTAGE, DONALD STREET SOUTH OF GRAHAM AND HARGRAVE STREET NORTH OF PORTAGE

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

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

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

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

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

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

_____ day of _____, 20____ .

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

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

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)

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>
C-101	Civil
C-102	Civil
C-201	Civil
C-202	Civil
C-203	Civil
L1.1	Removals Plan
L1.2	Removals Plan
L1.3	Removals Plan
L2.1	Layout Plan
L2.2	Layout Plan
L2.3	Layout Plan
L2.4	Layout Plan
L4.1	Details
L4.2	Details

GENERAL REQUIREMENTS

E2. CO-ORDINATION WITH OTHERS

- E2.1 The Contractor is to ensure that all bases are installed as required for the installation of light poles as supplied and installed under separate contract. This is to include, but is not limited to, conduit installation, wiring for tree vaults, wiring for street lights pedestrian lights and icon.
- E2.2 The Contractor is to ensure that all bases for signals are coordinated with the City of Winnipeg. This is to include, but is not limited to, locating signal bases and surface repair.

E3. TRUCK WEIGHT LIMITS

- E3.1 The City shall not pay for any portion of Material which results in the vehicle exceeding the maximum gross vehicle weight allowed under *The City of Winnipeg Traffic By-Law*, unless such vehicle is operating under special permit.

E4. PRE-CONSTRUCTION MEETING

E4.1 The Contractor shall not begin the Work under this Contract until a pre-construction meeting has been held between representatives of the Contractor, the Owner, the City of Winnipeg and the Contract Administrator.

E5. SAFETY PRECAUTIONS

E5.1 Further to Section C6.3 of the General Conditions, the Contractor shall provide adequate safety protection for pedestrians and vehicular traffic exposed to the Work environment under this Contract.

E5.2 The Contractor must maintain safe pedestrian access to the Site at all times during construction.

E5.3 The Contractor must restrict vehicular access to the access lanes indicated on the plans and as directed on Site by the Contact Administrator.

E6. SITE CONDITIONS

E6.1 The Contractor and all Subcontractors shall examine the Site and make themselves familiar with the existing conditions (both above and below grade) and nature of Work to be done.

E6.2 Surface and sub-surface conditions shown on the Drawings and included herein are provided for general information and variations there from shall not affect the terms of the Contract.

E6.3 The Contractor shall set all necessary control lines, benchmarks, survey, elevation stakes and layout in accordance with the individual Site conditions and in consultation with the Contract Administrator.

E7. EXISTING UNDERGROUND STRUCTURES

E7.1 The Contractor's attention is drawn to the existing underground lines or services that may be located in the area of the Work.

E7.2 The Contractor shall take all necessary precautions when performing the Work to ensure that no damage is done to these existing services.

E7.3 No responsibility will be assumed by the City for correctness or completeness of the Drawings, when provided, with respect to the existing utilities, pipes or other objects either underground or on the surface; the City shall not be liable for the incorrectness and inadequacy thereof. It shall be the responsibility of the Contractor to determine the location of all such utilities, pipes and other objects and to make good any damage done to them.

E7.4 All costs in connection with this item including location of the existing service, repairs to any existing services damaged by the construction operation, etc. shall be included in the unit prices bid for supply and installation of the items included under this Contract.

E7.5 The Contractor will be required to make his own arrangements in connection with the temporary use of lighting, power, gas, sewer, water or other utilities, and pay all costs in connection therewith.

E7.6 All necessary permits, fees and other like expenses as well as the cost of temporary connections to existing facilities shall be arranged and paid for by the Contractor.

E8. DAMAGE TO STREETS AND STRUCTURES

E8.1 The Contractor's attention is drawn to the following existing Site features to be retained and protected to the City of Winnipeg Standards:

- | | | |
|------------------|-------------------|--|
| a) trees, shrubs | e) light standard | i) hydro towers and poles |
| b) curbs | f) fire hydrants | j) catch basins |
| c) sidewalk | g) street signs | k) curb inlets |
| d) sod | h) signal poles | m) underground services including
land drainage sewer |

E9. PERMITS, NOTICES, LICENCES, CERTIFICATIONS, LAWS AND RULES

- E9.1 The Contractor shall give all necessary notices, obtain all necessary permits and pay all fees in order that the Work may be carried out. The Contractor shall submit all plans required by any inspection authority and obtain approval of same before proceeding with the Work, and pay any cost attached to the inspection of such plans.
- E9.2 The Contractor shall comply with all laws, ordinances, rules, and regulations that would relate to the Works.

E10. ADJUSTMENT OF PAVEMENT AND BOULEVARD STRUCTURES

- E10.1 Further to CW 3210 all existing surface utilities within the area of new sidewalk, interlocking paving and full depth patching of existing pavement are to be adjusted to meet finish grades.
- E10.2 Adjustment of pavement and boulevard structures is incidental to the Work with the exception of manholes, catch basins and curb and gutter inlets noted on the drawings as requiring significant adjustment. The adjustment of these structures is to be measured and paid for at the contract unit price per unit adjusted in accordance with CW 3210 including replace, remove or add precast concrete riser sections and compacted granular backfill as required.
- E10.3 All surface utilities are to be provided with cast in place concrete isolation collars as per standard City of Winnipeg details and as per the Drawings. Collar dimensions and forms are to be confirmed on Site by Contract Administrator prior to construction. Installation of new and renewal of existing isolation collars are incidental to the Work.

E11. PROTECTION OF EXISTING TREES

- E11.1 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:
- The Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.
 - 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.
 - 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.
 - 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.
 - 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.
- E11.2 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 designate.

E11.3 No separate measurement or payment will be made for the protection of trees.

E11.4 Except as required in clause (c) and (e), Elm trees shall not be pruned at any time between April 1 and July 31.

E12. TRAFFIC CONTROL

E12.1 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.

E13. TRAFFIC MANAGEMENT

E13.1 Further to clause 3.7 of CW 1130:

E13.1.1 Maintain a minimum of one lane of southbound traffic during construction.

E13.1.2 Intersecting street and private approach access shall be maintained at all times.

E13.1.3 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.

E13.1.4 Pedestrian and ambulance/emergency vehicle access must be maintained at all times.

E14. PEDESTRIAN SAFETY

E14.1 During the project, temporary snow fencing shall be installed where open excavation for underground and road works is not monitored by the Contractor after working hours. 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.

E15. WATER OBTAINED FROM THE CITY

E15.1 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.

E16. SURFACE RESTORATIONS

E16.1 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.

E17. INFRASTRUCTURE SIGNS

E17.1 The Contractor shall obtain infrastructure signs from the Traffic Services Sign Shop at 421 Osborne Street. The Contractor shall mount each sign securely to a rigid backing material approved by the Contract Administrator. The Contractor shall fasten each sign to a suitable support and erect and maintain one sign at each street as directed by the Contract Administrator. When the Contract Administrator considers the Work on the street complete, the Contractor shall remove and dispose of the signs and supports. No measurement for payment will be made for performing all operations herein described and all other items incidental to the work described

E18. SAWCUTTING PAVEMENT

E18.1 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 concrete pavement.

MEASUREMENT AND PAYMENT

E18.1.1 Sawcutting pavement and disposal of surplus material will be considered incidental to Clause 4.1 of CW 3110 "Miscellaneous Concrete Slab Removal." No measurement and payment will be made within this section.

E19. PROVISIONAL ITEMS

E19.1 The Provisional Items listed in the Schedule of Prices are a part of the Contract.

E19.2 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.

E19.3 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

E20. SCHEDULED MAINTENANCE

E20.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

- (a) Reflective Crack Maintenance as specified in CW 3250 – Joint and Crack Maintenance of the City of Winnipeg Standard Construction Specifications.
- (b) Two (2) year tree and shrub maintenance as specified in E31 – Extended Maintenance of this Bid Opportunity.

E20.2 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.

E21. SOFT EXCAVATION TO EXPOSE UNDERGROUND UTILITIES

DESCRIPTION

E21.1 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.

E21.2 These underground utilities include, **but are not limited to**, Manitoba Hydro cables, MTS cables, CPR, existing sewers, and existing watermains.

MATERIALS

E21.3 Backfill Material

- (a) Backfill material for backfill of shafts after hydro-excavation has been completed shall consist of sand as per City of Winnipeg Standard Construction Specification CW 2030.

CONSTRUCTION METHODS

E21.4 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.

E21.5 Once the elevation of the top of the pipe or duct has been determined the resulting excavation shall be backfilled with bedding sand to the elevation of the existing ground.

MEASUREMENT AND PAYMENT

E21.6 Soft excavation to expose underground utilities will be considered incidental to the Work. No measurement and payment will be made within this section.

E22. REMOVALS

E22.1 Further to Specification CW 3110 and due to the extent and nature of underground services in the street right-of-way, the Contractor shall be permitted to use only backhoe type equipment when excavating sub-grade material.

E22.2 Further to Specifications CW 3230 and CW 3235, the Contractor shall sawcut and remove existing concrete sidewalk paving as shown on the Drawings and as directed by the Contract Administrator. The removal shall include all existing concrete and base course where applicable.

DESCRIPTION

E22.3 This Specification shall cover the removal and/or relocation of existing:

- (a) Concrete sidewalk;
- (b) Unit pavers;
- (c) Concrete curb;
- (d) Concrete planters;
- (e) Lights;
- (f) Site furniture;
- (g) Signs;
- (h) Asphalt roadway.

E22.4 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work hereinafter specified.

EQUIPMENT

E22.5 All equipment shall be of a type approved by the Contract Administrator and shall be kept in good working order.

CONSTRUCTION METHODS

- E22.6 The Contractor shall restrict his activities strictly to within the limits of the Works, unless receiving prior written approval from the Contract Administrator.
- E22.7 The Contractor shall sawcut and remove existing concrete sidewalk paving. Sawcuts shall be straight and clean to be used as new edge of construction.
- E22.8 The Contractor shall remove and dispose unit pavers where shown on the Drawings. Disposal of sand setting bed and base as required for new construction is incidental to the Work.
- E22.9 The Contractor shall remove, stockpile and reinstall pavers where shown on the Drawings including supply and installation of new sand setting bed. Contractor to pallet, wrap and deliver to City of Winnipeg Stores all pavers not required for reinstallation and that are in good condition. Confirm pavers to be delivered on site with Contract Administrator.
- E22.10 The Contractor shall breakout and remove existing concrete curb and gutter, including sawcutting existing roadway as required.
- E22.11 Contractor to relocate or remove existing information signs, waste receptacles and benches as shown on the drawings. Store in safe location during construction. Where directed on site furniture is to be delivered to City of Winnipeg storage facilities or disposed of.
- E22.12 The Contractor shall ensure that upon completion of the removal operations, the Site shall be left free of any hazardous depressions and in a neat condition.
- E22.13 If required and at locations directed by the Contract Administrator, the Contractor shall excavate and remove unsuitable subgrade material and replace it with compacted granular material in accordance with Specification CW3110.

MEASUREMENT AND PAYMENT

- E22.14 Removal of concrete sidewalk paving will be measured and paid for at the contract square metre price for "Remove and dispose of concrete sidewalk and unit pavers", measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this Specification.
- E22.15 Removal of concrete approach will be measured and paid for at the contract square metre price for "Pavement Removal – Concrete Pavement", measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this Specification.
- E22.16 Removal of existing street signs will be measured and paid for at the contract lump sum price for "Remove and deliver existing street signs", measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this Specification.
- E22.17 Removal of asphalt will be measured and paid for at the contract square metre price for "Planing of Pavement", measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this Specification.
- E22.18 Removal of concrete curbs will be measured and paid for at the contract metre price for "Concrete Curb Removal", measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations, herein described and all other items incidental to the Work included in this Specification.
- E22.19 Removal and stockpile of existing unit pavers will be measured and paid for at the contract square metre price for "Remove and stockpile existing unit pavers", measured as specified herein, which price shall be payment in full for supplying all materials and performing all

operations, herein described and all other items incidental to the Work included in this Specification.

E23. REMOVAL OF CONCRETE FOUNDATIONS

DESCRIPTION

E23.1 General

- (a) This specification applies to the removal of existing concrete foundations as identified on the Drawings.

CONSTRUCTION METHODS

E23.2 Removal of Concrete Foundations

- (a) Remove any signs metal fixtures, flag poles, lights or attachments from the concrete foundation and store on site in a clean, dry, safe and secure manor or dispose of if directed by the Contract Administrator.
- (b) Disconnect and make safe electrical power supply if necessary.
- (c) After structure removed, Contractor to remove or demolish concrete foundation, including steel reinforcement to a minimum of 300mm below the elevation of the surface of the adjacent sidewalk or paving stones

MEASUREMENT AND PAYMENT

E23.3 Removal of Concrete Foundation

- (a) Removal of concrete foundations will be measured on a per item basis and paid for at the Contract Unit Price per item for the "Items of Work" listed below. The amount to be paid for will be the total number of each item removed in accordance with this specification and accepted by the Contract Administrator.
 - (i) Items of Work:
 - Removal of Concrete Foundations:
 - ◆ Remove and dispose of concrete kiosk sign base
 - ◆ Remove existing parking kiosk and base

E24. TERASPAN

DESCRIPTION

- E24.1 There is a TeraSpan emergency services communication cable installed in the Donald Street right-of-way (crossing Graham Ave) and in the Balmoral St right-of-way at Portage Ave. TeraSpan is potentially expanded their network along Portage Ave in 2010. It is the responsibility of the Contractor to obtain utility locates and mark out the exact location of the TeraSpan communication cable at the location given and at all other locations of construction. When reconstruction is in the vicinity of the TeraSpan cable, the cable must be extricated from the existing sidewalk, paving stones, or roadway and buried in the underlying base course prior to placement of new sidewalk or concrete pavement.
- E24.2 The cable cannot be taken out of service and shall not be damaged.
- E24.3 TeraSpan representative shall be on site during to concrete removal. Contractor shall notify TeraSpan two (2) weeks prior to concrete removal.
- E24.4 Contact information:
TeraSpan
Darryl Stotski
Tel: 204-783-2050
Cell: 204-999-3657

CONSTRUCTION METHODS

- E24.5 Where the cable is in a paving stone field, remove the adjacent paving stones by hand prior to removing the concrete. Sawcut the existing sidewalk/pavement 150mm on either side of the cable. Break and remove concrete outside of the sawcuts as per CW 3110.
- E24.6 Concrete in between the sawcuts shall be hand removed, ensuring no damage occurs to the cable.
- E24.7 Construct 100 mm wide by 100 mm deep trench in existing base course. Construct trench along same alignment as original install.
- E24.8 Place 50 mm of base course material in the trench. Install cable including tracer wire.
- E24.9 Cover remainder of trench with base course material and tamp with hand tools. Do not mechanically compact.
- E24.10 If any cable is exposed overnight or when Contractor is not onsite, the area shall be barricaded.
- E24.11 Contractor to protect newly buried cable until sidewalk and pavement is restored.

MEASUREMENT AND PAYMENT

- E24.12 No measurement or payment will be made for this item.

E25. CAST-IN-PLACE CONCRETE FOUNDATIONS

DESCRIPTION

- E25.1 The Work covered under this Item shall include all concreting operations related to construction of cast-in-place concrete foundations in accordance with this Specification and as shown on the Drawings.
- E25.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as hereinafter specified.

MATERIALS

- E25.3 General
 - E25.3.1 The Contractor shall be responsible for the supply, safe storage, and handling of all materials set forth in this Specification.
- E25.4 Handling and Storage of Materials
 - E25.4.1 All materials shall be handled and stored in a careful and workmanlike manner, to the satisfaction of the Contract Administrator. Storage of materials shall be in accordance with CSA Standard A23.1-04.
- E25.5 Testing and Approval
 - E25.5.1 All materials supplied under this Specification shall be subject to inspection and testing by the Contract Administrator or by the Testing Laboratory designated by the Contract Administrator. There shall be no charge to the City for any materials taken by the Contract Administrator for testing purposes.
 - E25.5.2 All materials shall be approved by the Contract Administrator at least seven (7) days before any construction is undertaken. If, in the opinion of the Contract Administrator, such materials in whole or in part, do not conform to the Specifications detailed herein or are found to be defective in manufacture or have become damaged in transit, storage, or

handling operations, then such materials shall be rejected by the Contract Administrator and replaced by the Contractor at his own expense.

E25.6 Patching Mortar

E25.6.1 The patching mortar shall be made of the same cementitious material and of approximately the same proportions as used for the concrete, except that the coarse aggregate shall be omitted and the mortar shall consist of not more than 1 part cement to 2 parts sand by damp loose volume. White Portland Cement shall be substituted for a part of the grey Portland Cement on exposed concrete in order to produce a colour matching the colour of the surrounding concrete, as determined by a trial patch. The quantity of mixing water shall be no more than necessary for handling and placing.

E25.7 Cement

E25.7.1 Cement shall be Type HS or HSb, high-sulphate-resistant hydraulic cement, conforming to the requirements of CSA Standard A23.1-04

E25.8 Concrete

E25.8.1 General

(a) Concrete repair material shall be compatible with the concrete substrate.

E25.8.2 The Contractor shall be responsible for the design and performance of all concrete mixes supplied under this specification. Either ready mix concrete or proprietary repair mortars, where applicable, may be used having the following minimum properties in accordance with CSA A23.1-04:

(a) Class of Exposure: S-1

(b) Compressive Strength @ 56 days = 35 MPa

(c) Water / Cementing Materials Ratio = 0.4

(d) Air Content: Category 2 per Table 4 of CSA A23.1-04 (4-7%)

(e) Cement – shall be as specified in E25.7

E25.8.3 Mix design for ready mix concrete shall be submitted to Contract Administrator at least two weeks prior to concrete placing operations.

E25.8.4 The workability of each concrete mix shall be consistent with the Contractor's placement operations. Self compacting concrete may be used for the foundations.

E25.8.5 Any proposed proprietary repair mortar shall be subject to the approval of the Contract Administrator and must meet or exceed the properties of the ready mix concrete.

E25.8.6 The temperature of all types of concrete shall be between 15°C and 25°C at discharge. Temperature requirements for concrete containing silica fume shall be between 10°C and 18°C at discharge unless otherwise approved by the Contract Administrator.

E25.8.7 Concrete materials susceptible to frost damage shall be protected from freezing

E25.9 Aggregate

E25.9.1 The Contractor shall be responsible for testing the fine and coarse aggregates to establish conformance to these specifications, and the results of these tests shall be provided to the Contract Administrator if requested. All aggregates shall comply with CSA A23.1.

E25.9.2 Coarse Aggregate

(a) The maximum nominal size of coarse aggregate shall be sized to suit the Contractor's mix design. Gradation shall be in accordance with CSA A23.1, Table 11, Group 1. The coarse aggregate shall satisfy the Standard Requirements specified in CSA A23.1, Table 12, "Concrete Exposed to Freezing and Thawing".

(b) Coarse aggregate shall consist of crushed stone or gravel or a combination thereof, having hard, strong, durable particles free from elongation, dust, shale, earth,

vegetable matter or other injurious substances. Coarse aggregate shall be clean and free from alkali, organic or other deleterious matter; and shall have an absorption not exceeding 2.25%.

- (c) The aggregate retained on the 5 mm sieve shall consist of clean, hard, tough, durable, angular particles with a rough surface texture, and shall be free from organic material, adherent coatings of clay, clay balls, and excess of thin particles or any other extraneous material.
- (d) Coarse aggregate when tested for abrasion in accordance with ASTM C131 shall not have a loss greater than 30%.
- (e) Tests of the coarse aggregate shall not exceed the limits for standard for requirements prescribed in CSA A23.1, Table 12, for concrete exposed to freezing and thawing.

E25.9.3 Fine Aggregate

- (a) Fine aggregate shall meet the grading requirements of CSA A23.1, Table 10, Gradation FA1.
- (b) Fine aggregate shall consist of sand, stone, screenings, other inert materials with similar characteristics or a combination thereof, having clean, hard, strong, durable, uncoated grains free from injurious amounts of dust, lumps, shale, alkali, organic matter, loam, or other deleterious substances.
- (c) Tests of the fine aggregate shall not exceed the limits for standard requirements prescribed in CSA A23.1, Table 12

E25.10 Cementing Materials

E25.10.1 Cementing materials shall conform to the requirements of CSA A3001.

E25.10.2 Silica Fume

- (a) Should the Contractor choose to include silica fume in the concrete mix design, it shall not exceed 8% by mass of cement.

E25.10.3 Fly Ash

- (a) Fly ash shall be Type C1 or Type F and shall not exceed 25% by mass of cement.

E25.10.4 Cementitious materials shall be stored in a suitable weather-tight building that shall protect these materials from dampness and other destructive agents. Cementitious materials that have been stored for a length of time resulting in the hardening or formation of lumps shall not be used in the Work.

E25.11 Admixtures

E25.11.1 Air entraining admixtures shall conform to the requirements of ASTM C260.

E25.11.2 Chemical admixtures shall conform to the requirements of ASTM C494 or C1017 for flowing concrete.

E25.11.3 All admixtures shall be compatible with all other constituents. The addition of calcium chloride, accelerators, and air-reducing agents will not be permitted, unless otherwise approved by the Contract Administrator.

E25.11.4 Appropriate low range water reducing and/or superplasticizing admixtures shall be used in concrete containing silica fume. Approved retarders or set controlling admixtures may be used for concrete containing silica fume.

E25.11.5 An aminocarboxylate based migrating corrosion inhibitor admixture shall be used in concrete that will be used as a repair material that will either be in contact with or adjacent to reinforcing steel in existing concrete. Proposed admixtures shall be subject to the approval of the Contract Administrator.

E25.12 Water

E25.12.1 Water used for mixing concrete shall be clean and free from injurious amounts of oil, acid, alkali, organic matter, or other deleterious substances. It shall be equal to potable water in physical and chemical properties.

E25.13 Concrete Supply

E25.13.1 Concrete shall be proportioned, mixed, and delivered in accordance with the requirements of CSA A23.1, except that the transporting of ready mixed concrete in non-agitating equipment will not be permitted unless prior written approval is received from the Contract Administrator.

E25.13.2 Unless otherwise directed by the Contract Administrator, the discharge of ready mixed concrete shall be completed within 120 minutes after the introduction of the mixing water to the cementing materials and aggregates.

E25.13.3 The Contractor shall maintain all equipment used for handling and transporting the concrete in a clean condition and proper working order.

E25.13.4 Reinforcing Steel

E25.13.5 Reinforcing steel shall be deemed to include all reinforcing bars, tie-bars, and dowels.

E25.13.6 All reinforcing steel shall conform to the requirements of CSA Standard G30.18, Grade 400 W, Billet-Steel Bars for Concrete Reinforcement. All reinforcing steel shall be new deformed billet steel bars. All bars, including ties, shall be hot-dip galvanized in accordance with CSA Standard G164 for a minimum net retention of 600 g/m². Reinforcing steel supply and installation will be incidental to construction of concrete foundation and no separate payment will be made.

E25.14 Anchor Bolts, Nuts, and Washers

E25.14.1 Anchor bolts, nuts and washers shall be specified by the pole, icon or sign manufacturer and supplied, and installed, by the Contractor.

E25.15 Anchor Bolt Templates

E25.15.1 Anchor bolt templates shall be supplied by the pole and icon manufacturer.

E25.15.2 Contractor to use the existing metal base for the bus stop flag as the template for the bus stop flag foundation.

E25.15.3 Anchor bolt templates will be incidental to construction of new concrete foundation and no separate payment will be made.

E25.16 Fibre Joint Filler

E25.16.1 Fibre joint filler shall be rot-proof and of the preformed, non-extruding, resilient-type, made with a bituminous fibre such as "Flexcell," and shall conform to the requirements of ASTM Standard D1751, or approved equal in accordance with B7.

E25.17 Anti-Graffiti Coating

E25.17.1 Anti-graffiti coating shall be "Professional Water Sealant & Anti-Graffiti System" or approved equivalent by Contract Administrator in accordance with B7.

E25.18 Waterproofing Membrane

E25.18.1 Waterproofing membrane shall be "Sonoshield HLM 5000 R" or approved equivalent by the Contract Administrator in accordance with B7.

E25.19 Miscellaneous Materials

E25.19.1 Miscellaneous materials shall be of the type specified on the Drawings or approved by the Contract Administrator.

CONSTRUCTION METHODS

E25.20 Location and Alignment of Foundations

- E25.20.1 Foundation construction shall not commence until the Contractor has obtained clearance from the appropriate Utility Authorities.
- E25.20.2 Foundations shall be placed in the positions shown on the Drawings and as directed by the Contract Administrator in the field.
- E25.20.3 The deviation of the axis of any finished foundation shall not differ by more than 1 percent from the vertical.

E25.21 Buried Utilities

- E25.21.1 The Contractor shall exercise extreme caution when constructing the foundations in the vicinity of existing buried utilities and buildings. The Drawings show the approximate locations of existing buried utilities. The Contractor shall be responsible for obtaining the exact location of the buried utilities from the appropriate Utility Authorities prior to installing the foundations.
- E25.21.2 The proposed locations of the foundations may be changed by the Contract Administrator if they interfere with the buried utilities.
- E25.21.3 The Contractor shall be responsible for all costs that may be incurred for repair/rectification of any damage caused to the existing buried utilities as a result of the Contractor's operations in constructing cast-in-place concrete foundations, as determined by the Contract Administrator.

E25.22 Excavation

- E25.22.1 The Contractor is responsible for determining the excavation method at each foundation location.
- E25.22.2 Excavations for foundations shall be made with equipment designed to remove a core of the diameter shown on the Drawings, or hydro-jet excavation to a depth to bypass and/or expose adjacent utilities.
- E25.22.3 Upon reaching the required elevation, the bottom of the excavation shall be cleaned as directed by the Contract Administrator in the field.
- E25.22.4 All excavated material from the foundations shall be promptly hauled away from the Site to an approved disposal area as located by the Contractor.
- E25.22.5 Upon completion of the cleaning out of the bottom to the satisfaction of the Contract Administrator, the reinforcement and anchor bolts shall be set in place and the concrete poured immediately. Under no circumstances shall a hole be left to stand open after boring has been complete.

E25.23 Sleeving

- E25.23.1 Timber or steel sleeving shall be used to temporarily line the bore to prevent bulging or caving of the walls and to protect men at work in the bore.
- E25.23.2 The sleeving shall be designed by the Contractor and constructed to resist all forces that may tend to distort it.
- E25.23.3 The sleeving shall be withdrawn as the concrete is placed in the bore. The sleeving shall extend at least 1 m below the top of the freshly deposited concrete at all times.
- E25.23.4 The clearance between the face of the bore hole and the sleeving shall not exceed 75 mm.

E25.24 Inspection of Bores

- E25.24.1 Concrete shall not be placed in a bore until the bore has been inspected and approved by the Contract Administrator.

- E25.24.2 The Contractor shall have available suitable light for the inspection of each bore throughout its entire length.
- E25.24.3 All improperly set sleeving, bore, or bottom shall be corrected to the satisfaction of the Contract Administrator.
- E25.24.4 Placing Reinforcing Steel
- E25.24.5 Reinforcement shall be:
- (a) placed in accordance with the details shown on the Drawings
 - (b) rigidly fastened together, and
 - (c) lowered into the bore intact before concrete is placed.
- E25.24.6 Spacers shall be utilized to properly locate the reinforcing steel cage in the bore.
- E25.25 Placing Anchor Bolts
- E25.25.1 The anchor bolts shall be aligned with a steel template supplied by the Contract Administrator matching the bolt holes in the sign structure base plate. **Extreme care shall be used in this operation to ensure bolts are aligned properly.** Placement of anchor bolts without the steel template will not be permitted.
- E25.25.2 The threaded portion of the anchor bolts projecting above the top surface of foundation shall be coated with oil, before the concrete is poured, to minimize the fouling of threads splattered by concrete residue
- E25.26 Placing Metal Bases
- E25.26.1 Contractor to install metal bases as supplied by the Contract Administrator following curing of concrete foundations.
- E25.26.2 Metal bases are to be installed plumb, level, and flush to the concrete foundation. Contractor to use stainless steel washers to level bases as required.
- E25.27 Forms
- E25.27.1 Forms for exposed surfaces that require an "ordinary surface finish" shall be made of good quality plywood, or an approved equivalent, or uniform thickness, with or without a form liner.
- E25.27.2 Architectural concrete form liner shall be as specified on the Plans or equivalent as approved by the Engineer.
- E25.27.3 Permeable formwork liner shall be Drainoform, Zemdrail II, or equivalent as approved by the Engineer.
- E25.27.4 Formwork materials shall conform to CSA Standard CAN/CSA-A23.1, and American Concrete Publication SP:4, "Formwork for Concrete".
- E25.27.5 No "stay-in-place" formwork or falsework is permitted.
- E25.27.6 Form sheeting plywood to be covered with form liner or to be directly in contact with soil shall be exterior Douglas Fir, concrete form grade, conforming to CSA Standard O121-M1978, a minimum of 20 mm thick.
- E25.27.7 Where form liner is not being used, form sheeting shall be Douglas Fir, overlay form liner type conforming to CSA Standard O121-M1978. Approved manufacturers are "Evans" and "C-Z".
- E25.27.8 Boards used for formwork shall be fully seasoned and free from defects such as knots, warps, cracks, etc., which may mark the concrete surface.
- E25.27.9 No formwork accessories will be allowed to be left in place within 50 mm of the surface following form removal. Items to be left in place, must be made from a non-rusting material

or galvanized steel; and they shall not stain, blemish, or spall the concrete surface for the life of the concrete.

- E25.27.10 Forms for exposed concrete surfaces that do not require a form liner may be either new plywood or steel as authorized by the Contract Administrator.
- E25.27.11 Studding shall be spruce or pine and shall have such dimensions and spacing that they shall withstand distortion from all the forces to which the forms will be subjected. Minimum dimensions shall be 50 mm x 150 mm.
- E25.27.12 Walers shall be spruce or pine, with minimum dimensions of 100 mm x 150 mm.
- E25.27.13 All forms are incidental to these Works and must be removed by the Contractor once adequate strength and curing of the concrete has been achieved.
- E25.27.14 The forms shall be sufficiently rigid to prevent lateral or vertical distortions from the loading environment to which they shall be subjected. Forms shall be set to the design grades, lines, and dimensions, as shown on the Drawings.

E25.28 Placing Concrete

- E25.28.1 Care shall be taken to ensure that anchor bolts are vertically aligned and that anchor bolts and conduits are properly positioned prior to placement of concrete.
- E25.28.2 Concrete shall not have a free fall of more than 2.0 m and shall be placed so that the aggregates will not separate or segregate. The slump of the concrete shall not exceed 110 mm. The concrete shall be vibrated throughout the entire length of the foundation.
- E25.28.3 Concrete shall be placed to the elevations as shown on the Drawings. The top surface of the foundation shall be finished smooth and even with a hand float.
- E25.28.4 The shaft shall be free of water prior to placing of concrete. Concrete shall not be placed in or through water unless authorized by the Contract Administrator.

E25.29 Protection of Newly Placed Concrete

- E25.29.1 Newly laid concrete threatened with damage by rain, snow, fog, or mist shall be protected with a tarpaulin or other approved means..

E25.30 Construction Joints

- E25.30.1 Construction joints shall be located only where shown on the Drawings or as otherwise approved in writing by the Contract Administrator. Construction joints shall be at right angles to the direction of the main reinforcing steel. All reinforcing steel shall be continuous across the joints. Bevelled shear keys, as shown on the Drawings or approved by the Contract Administrator, shall be provided at all joints.
- E25.30.2 In lieu of shear keys, the Contractor may roughen the surface as follows. The surface shall be rough, with a minimum amplitude of 6 mm. Acceptable procedures to obtain this rough surface are as follows:
- (a) By removing the mortar from between the larger aggregate particles with a water jet and soft brush when the concrete is in a semi-hardened state (green-cut).
 - (b) By first applying a chemical retarder to the surface and then removing the mortar from the larger aggregate particles with a water jet and brush.
- E25.30.3 The face of joints shall be cleaned of all laitance and dirt, after which the cementitious grout or an approved bonding agent shall be applied. Forms shall be retightened, and all reinforcing steel shall be thoroughly cleaned at the joint prior to concreting.

E25.31 Curing Concrete

- E25.31.1 The top of the freshly finished concrete foundations shall be covered and kept moist by means of wet polyester blankets immediately following finishing operations and shall be maintained at above 10°C for at least seven (7) consecutive days thereafter.

E25.31.2 After the finishing is completed, the surface shall be promptly covered with a minimum of a single layer of clean, damp polyester blanket.

E25.31.3 Concrete shall be protected from the harmful effects of sunshine, drying winds, surface dripping or running water, vibration, and mechanical shock. Concrete shall be protected from freezing until at least twenty-four hours after the end of the curing period.

E25.31.4 Changes in temperature of the concrete shall be uniform and gradual and shall not exceed 3° in one hour or 20° in twenty-four hours.

E25.32 Form Removal

E25.32.1 Forms shall not be removed for a period of at least 24 hours after the concrete has been placed. Removal of forms shall be done in a manner to avoid damage to, or spalling of, the concrete.

E25.32.2 The minimum strength of concrete in place for safe removal of forms shall be 20 MPa.

E25.32.3 Field-cured test specimens, representative of the in-place concrete being stripped, will be tested to verify the concrete strength.

E25.33 Patching of Formed Surfaces

E25.33.1 Immediately after forms around top of foundation have been removed, but before any repairing or surface finishing is started, the concrete surface shall be inspected by the Contract Administrator. Any repair of surface finishing started before this inspection may be rejected and required to be removed.

E25.33.2 All formed concrete surfaces shall have bolts, ties, struts, and all other timber or metal parts not specifically required for construction purposes cut back fifty (50) mm from the surface before patching.

E25.33.3 Minor surface defects caused by honeycomb, air pockets greater than 5 mm in diameter, and voids left by strutting, and tie holes shall be repaired by removing the defective concrete to sound concrete, dampening the area to be patched and then applying patching mortar. A slurry grout consisting of water and cement, shall be well-brushed onto the area to be patched. When the slurry grout begins to lose the water sheen, the patching mortar shall be applied. It shall be struck-off slightly higher than the surface and left for one hour before final finishing to permit initial shrinkage of the patching mortar and it shall be touched up until it is satisfactory to the Contract Administrator. The patch shall be cured as specified in this Specification, and the final colour shall match the surrounding concrete.

E25.34 Cold Weather Concreting

E25.34.1 Protection of concrete shall be considered incidental to its placement. The temperature of the concrete shall be maintained at or above 10°C for a minimum of three (3) days or till the concrete has reached a minimum compressive strength of 20 MPa, by whatever means are necessary. Concrete damaged as a result of inadequate protection against weather conditions shall be removed and replaced by the Contractor at his own expense. Also, concrete allowed to freeze prior to the three (3) days will not be accepted for payment.

E25.35 Anti-Graffiti Coating

E25.35.1 Anti-graffiti coating shall be applied to all raised planter walls shown on the drawings or identified by the Contract Administrator.

E25.35.2 The anti-graffiti coating shall be applied according to manufactures specifications.

E25.35.3 Maintain anti-graffiti coating on all vertical concrete surfaces for a period of two (2) years.

E25.36 Waterproofing

E25.36.1 Waterproofing membrane shall be applied to all new concrete raised planter interior walls and existing concrete columns within the planters which will come into contact with planting

soil, as identified on the drawings or by the Contract Administrator. The waterproofing membrane shall be roller applied according to manufactures specifications.

E25.37 Quality Control

E25.37.1 All workmanship and all materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Contract Administrator, including all operations from the selection and production of materials, through to final acceptance of the Work. The Contractor shall be wholly responsible for the control of all operations incidental thereto notwithstanding any inspection or approval that may have been previously given. The Contract Administrator reserves the right to reject any materials or Works that are not in accordance with the requirements of this Specification.

E25.37.2 The Contractor shall be responsible for making a thorough inspection of materials to be supplied under this Contract. All material shall be free of surface imperfections and other defects.

MEASUREMENT AND PAYMENT

E25.38 Construction of cast-in-place concrete foundations will be measured on a unit basis and will be paid for at the Contract unit price per foundation for the "Items of Work" listed here below for concrete foundations constructed in accordance with this Specification and accepted by the Contract Administrator.

(a) Items of Work:

- (i) Concrete pile and pile cap for SHED Light Standard
- (ii) Concrete base for SHED pedestrian light
- (iii) Concrete base for SHED light bollard

E26. SIDEWALK CONSTRUCTION

DESCRIPTION

E26.1 This specification will cover this installation of concrete sidewalk as identified on the drawings, including areas under paving patterns and fields.

MATERIALS

E26.2 Concrete mix design shall comply with Clause 6.2a) of CW 3310

E26.3 All other materials as per Clause 5 of CW 3310.

CONSTRUCTION METHODS

E26.4 Construction as per Contract Drawings and as per CW 3310 and CW3325.

E26.5 Blockouts for all paving patterns and paving fields in sidewalk to be constructed as per the Drawings. All forming is incidental to the unit price Bid for this specification.

E26.6 Thickened edge of sidewalk will be incidental to the unit price Bid for the concrete sidewalk.

MEASUREMENT AND PAYMENT

E26.7 Supply and Installation of concrete sidewalk will be measured on an area basis and paid for at the Contract Unit Price for "Supply and install concrete sidewalk with blockout". The area to be paid for shall be the total number of square metres supplied and placed in accordance with this Specification and as measured and accepted by the Contract Administrator.

E27. PAVING STONES

DESCRIPTION

E27.1 General

- (a) Further to CW 3335 this Specification shall cover the:
 - (i) supply and installation of interlocking paving stones (unit pavers);
 - (ii) supply and installation of sand setting bed;
 - (iii) supply and installation of grout.
- (b) The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary or and incidental to the satisfactory performance and completion of all Work as hereinafter specified.
- (c) Graham Transit Mall has a substantial area of 60mm and 80mm paving stones to be salvaged and reused after the underlying concrete has been rehabilitated. New 60mm and 80mm paving stones are to supplement only when existing paving stones cannot be reused.

E27.2 Referenced Standard Construction Specifications

- (a) CW 3130 – Supply and Installation of Geotextile Fabrics
- (b) CW 3330 – Installation of Interlocking Paving Stones
- (c) CW 3335 – Installation of Interlocking Paving Stones on a Lean Concrete Base

MATERIALS

- E27.3 Clay interlocking paving stones (unit pavers) shall be 4"x8"x2 1/4" (104x203x57mm) Manganese Ironspot Endicott Paver, supplied by Alsip Brick, (contact Ralph Kendall, phone 667-3330), as shown on the Drawings.
- E27.4 Concrete interlocking paving stones (unit pavers) shall be 8 1/4"x4 1/8"x2 3/8" (210x105x60mm) Ebony Holland Paver, supplied by Barkman Concreet, (contact August Weins, phone 204-667-3310), as shown on the Drawings.
- E27.5 Sand:
 - (a) Clean brick sand as joint filler;
 - (b) Clean brick sand as minimum 13mm maximum 15mm depth setting bed.
- E27.6 Grout:
 - (a) Grout as specified hereinafter shall be used for grouting paving stone under 50mm x 50mm in size. The grout shall have a compressive strength of 25 MPA at 28 days, determined on 50 mm cubes stored and tested in accordance with ASTM C109, and shall consist of normal Portland cement, sand and water;
 - (b) The water-cement ratio shall be kept in the range of 0.45 to 0.55;
 - (c) The grout shall have between 3% and 5% entrained air;
 - (d) Acryl-Stik or approved equal, to be used in grout at approximately 4 litres Acryl-Stik to 3 litres water;
 - (e) Admixtures to be used in the grout shall be supplied in accordance with the requirements of the City of Winnipeg Standard CW 3310;
 - (f) The grout shall be of a consistency suitable for the application intended as approved by the Contract Administrator;
 - (g) The Contractor shall provide the Contract Administrator with a mix design statement certifying the constituent materials and mix proportions that will be used in the grout for approval prior to construction.
- E27.7 Geotextile Fabric:
 - (a) Separation (drainage) geotextile fabric as per CW 3130.

CONSTRUCTION METHODS

- E27.8 Contractor to verify the exact dimensions of pavers prior to construction of block outs in concrete sidewalk.
- E27.9 Remove, Salvage and Store Paving Stones as directed by the Contract Administrator.
- E27.10 Where specified on Contract drawings or by the Contract Administrator, reconstruct underlying and adjacent concrete roadway or sidewalk.
- E27.11 Install concrete sidewalk and concrete topping in roadway complete with blockouts for paving stones as specified on Drawings.
- E27.12 Drill drain holes through concrete as shown on Drawings in all paving stone crosswalks.
- E27.13 Install separation geotextile fabric on the concrete surface of the paving stone crosswalks prior to placing sand setting bed.
- E27.14 Install sand bed to minimum 13 mm and maximum 15mm depth as specified on Drawings.
- E27.15 Do not compact setting bed prior to installation of pavers.
- E27.16 Spread only sufficient area which can be covered with pavers same day.
- E27.17 Lay salvaged and new paving stones on sand bed hand tight, matching existing paving stone pattern. Where salvaged paving stones are broken or chipped they shall be replaced by new paving stones of identical size and color as approved by the Contract Administrator.
- E27.18 Reinstall salvaged paving stones randomly with new stones.
- E27.19 In areas where pavers are to be grouted in place, clean existing concrete, install grout bed and then place pavers on grout.
- E27.20 Grout between pavers as required ensuring stability.
- E27.21 Grout between all concrete pavers in concrete crosswalks ensuring stability.
- E27.22 Remove adjacent pavers in patterns as required to ensure that bricks do not require cutting to fit existing paving pattern.
- E27.23 Where paving pattern is interrupted by vertical structural elements, pavers must be sawcut and fit true and hand tight.
- E27.24 Commence installation of pavers against edge to obtain straightest possible course for installation.
- E27.25 Pavers shall be cut with a saw only, to obtain true even undamaged edges. Chipped pavers are unacceptable.
- E27.26 Crews shall Work on installed pavers, not on sand layer.
- E27.27 Spread and fine grade brick sand over paving surface and sweep into joints, in several directions. Sand is incidental to the price for supply and installation of pavers.
- E27.28 Compact pavers with vibratory plate compactor having mass of at least 113kg. Compaction is incidental to the price for supply and installation of paving stone.
- E27.29 Sweep remaining sand over all paving areas and remove from Site.
- E27.30 Remove cracked, chipped, broken or otherwise damaged paving materials from Site immediately.

E27.31 Upon completion, clean in accordance with manufacturer's recommendations.

E27.32 If cutting of existing concrete sidewalk is required, this shall be incidental to the pay item described in this specification.

MEASUREMENT AND PAYMENT

E27.33 Interlocking paving stones work will be measured on an area basis and will be paid for at the Contract Unit Price per square metre for "Supply and install manganese brick paver in sidewalk", measured as specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the Work included in this Specification.

E27.34 In Interlocking paving stones work will be measured on an area basis and will be paid for at the Contract Unit Price per square metre for "Supply and install ebony concrete paver in concrete crosswalk", measured as specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the Work included in this Specification.

E28. SUPPLY AND INSTALL DETECTABLE WARNING SURFACE TILES

DESCRIPTION

E28.1 This specification covers the supply and installation of detectable warning surface tiles in sidewalk ramps and multi-use path ramps.

SPECIFICATIONS AND DRAWINGS

E28.2 Referenced Standard Construction Specifications and Standard Details

- (a) CW 3235 - Renewal of Existing Miscellaneous Concrete Slabs
- (b) CW 3240 - Renewal of Existing Curbs
- (c) CW 3310 - Portland Cement Concrete Pavement Works
- (d) CW 3325 - Portland Cement Concrete Sidewalk
- (e) SD-229C - Curb Ramp for Concrete Pavement
- (f) SD-229D - Curb Ramp for Asphalt Overlay

E28.3 Attached; SDE Drawings and Installation Manual

- (g) SDE-229A - Curb Ramp Layout for Intersections
- (h) SDE-229AA - Detectable Warning Surface in Curb Ramps for Intersections
- (i) SDE-229AB - Curb Ramp Layout for Offset Intersections
- (j) SDE-229BB - Detectable Warning Surface in Curb Ramps for Medians
- (k) SDE-229E - Curb Ramp Depressed Curb
- (l) Manufacturer's Installation Manual – Armor-Tile Cast in Place Inline Dome Detectable/Tactile Warning Surface Tile.

MATERIALS

E28.4 Acceptable Detectable Warning Surface Tile product is:

2'x 4' (610 x 1220mm) Armor-Tile Cast in Place (yellow).

Available from:

Alsip's Building Products
1 Cole Avenue
Winnipeg, Manitoba

Attention: Jason Alsip
Ph. 204-667-3330

- (a) Detectable warning surface tiles shall be Highway Yellow (USA) or Safety Yellow (Canada).
- (b) Detectable warning surface tiles shall be cast in place type.
- (c) Truncated domes on detectable warning surface tiles shall be in accordance with ADA Accessibility Guidelines (ADAAG).

CONSTRUCTION METHODS

E28.5 General

- (m) Construct curb ramps, sidewalk ramps and multi-use path in accordance with referenced Standard Construction Specifications, Standard Details, and SDE drawings (attached).
- (n) Construct the lip of the depressed curb in accordance with SDE-229E.
- (o) Construct sidewalk ramp grades in accordance with SD-229C and SD-229D.
- (p) Install the detectable warning surface tile in accordance with the amended Manufacturer's Installation Manual (attached). Drill additional 6mm air vent holes in ribs under the tile as required and use vibration to help seat the tile, to facilitate the installation process.
- (q) Trim the corner of the tile at radii in accordance with SDE-229A, SDE-229AA and SDE-228AB
- (r) Install and orient the detectable warning surface tiles as shown on the referenced drawings or as directed by the Contract Administrator.

E28.6 Paving Stones

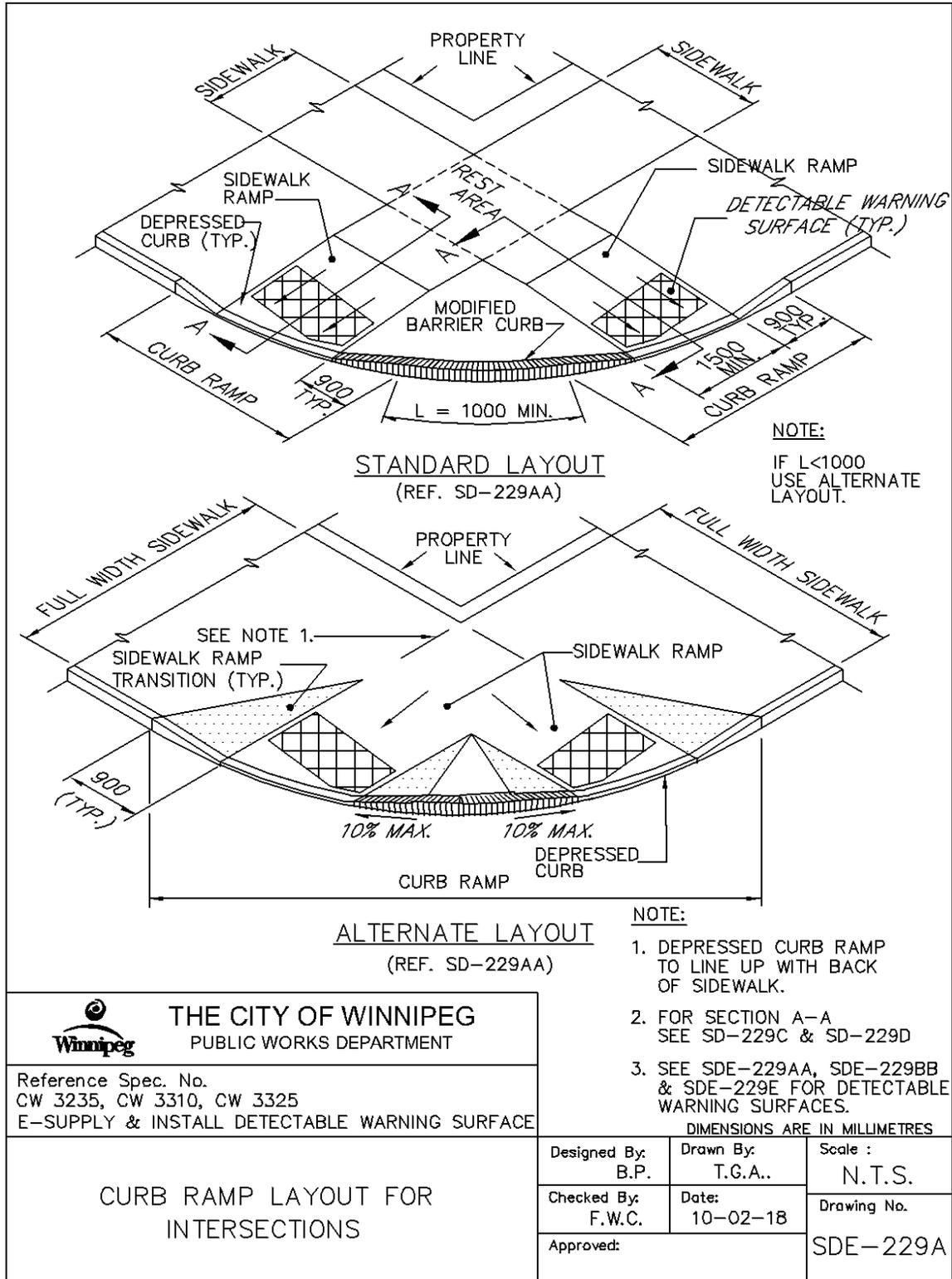
- (s) Where the Detectable Warning Surface Tile is being installed in place of existing paving stones. The existing paving stones shall be removed and replaced with concrete sidewalk as shown on the Contract Drawings.

MEASUREMENT AND PAYMENT

E28.7 Supply and installation of detectable warning surface tiles will be measured on a unit basis and paid for at the Contract Unit Price for "Supply and install detectable panels in ramps". The number of units to be paid for will be the total number of full or trimmed tiles supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

- 1.s.i.1 The area under the detectable warning surface tile is part of the concrete sidewalk ramp and will be paid in accordance with CW 3235 and CW 3325.
- 1.s.i.2 The concrete sidewalk ramp and the concrete ramp for multi-use paths will be paid as 100mm sidewalk in accordance with CW 3235 or CW 3325.
- 1.s.i.3 Curb ramp will be paid in accordance with CW 3240 or CW 3310.

DRAWINGS AND INSTALLATION MANUAL

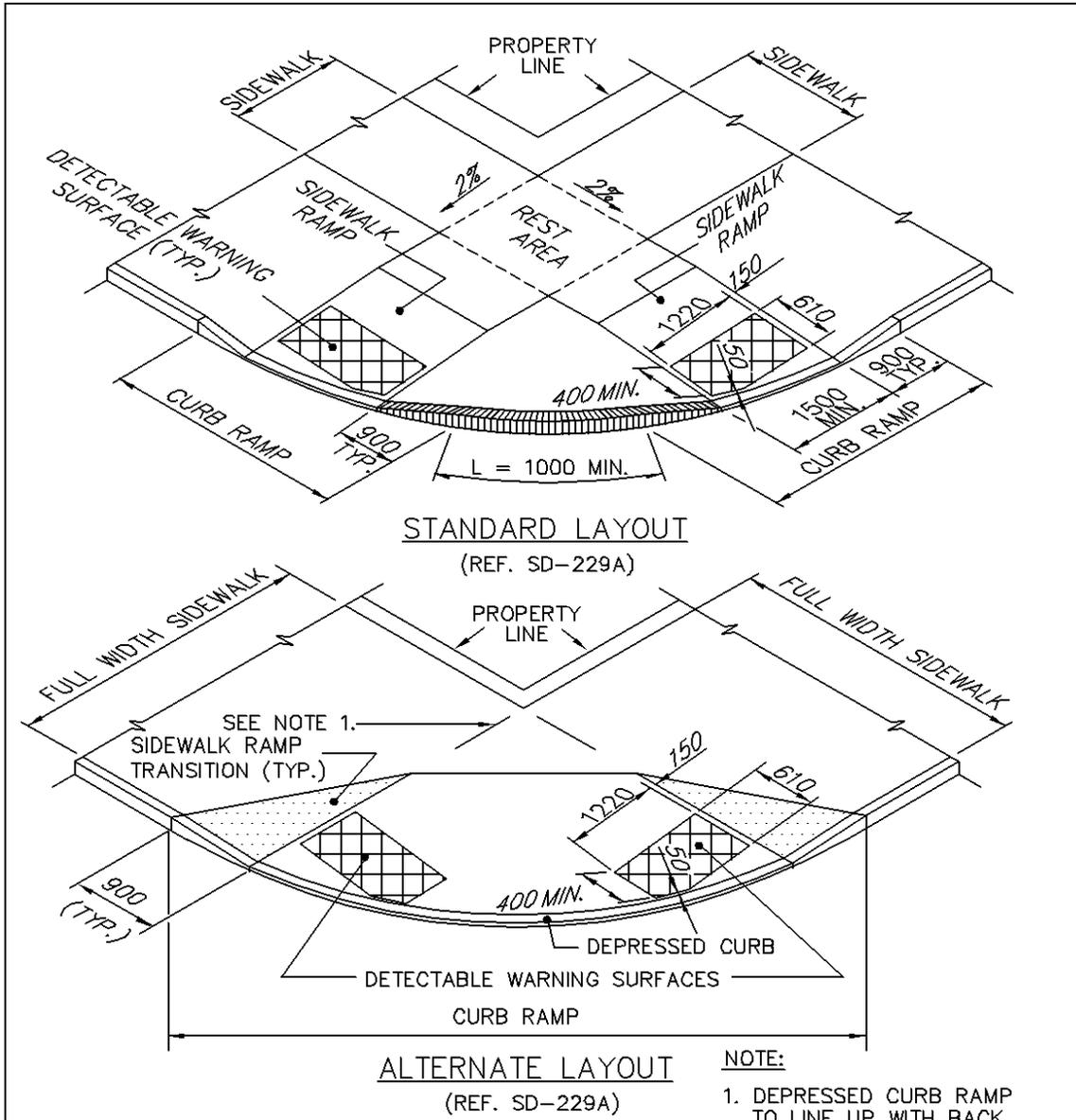


 **THE CITY OF WINNIPEG**
 PUBLIC WORKS DEPARTMENT

Reference Spec. No.
 CW 3235, CW 3310, CW 3325
 E-SUPPLY & INSTALL DETECTABLE WARNING SURFACE

CURB RAMP LAYOUT FOR INTERSECTIONS

Designed By: B.P.	Drawn By: T.G.A..	Scale : N.T.S.
Checked By: F.W.C.	Date: 10-02-18	Drawing No.
Approved:		SDE-229A

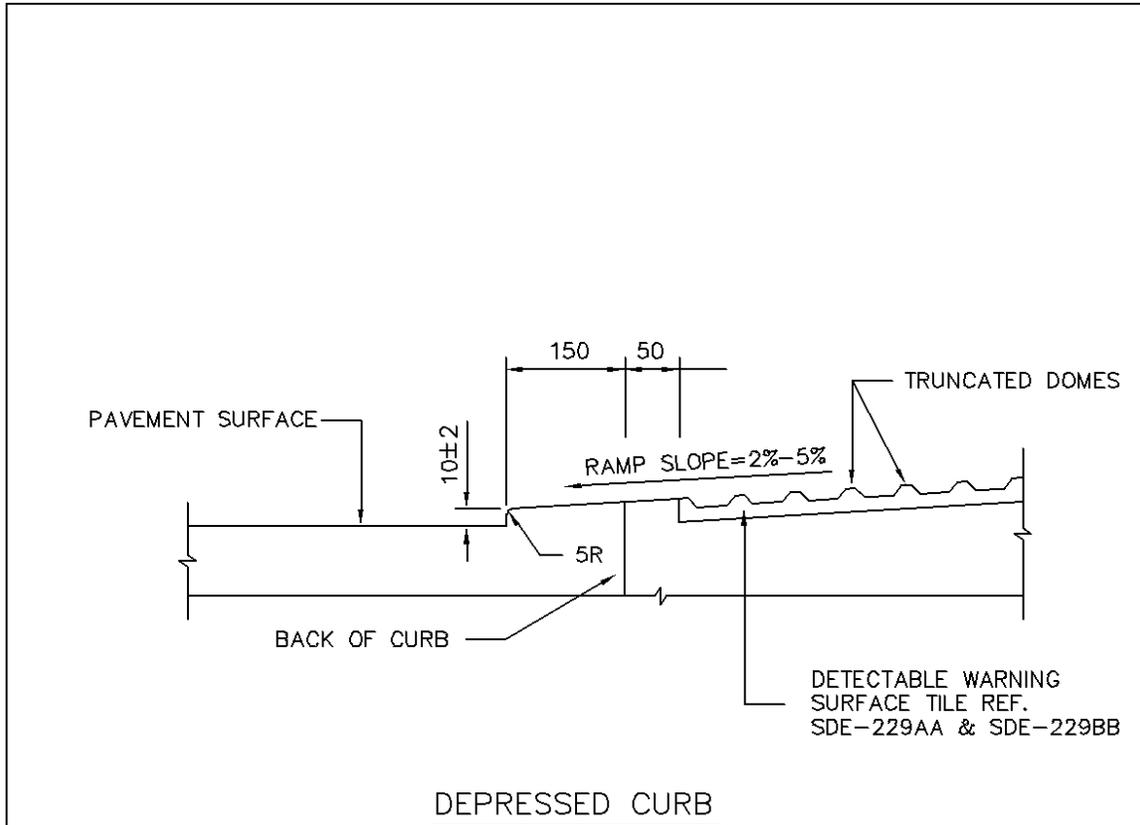


- NOTE:**
1. DEPRESSED CURB RAMP TO LINE UP WITH BACK OF SIDEWALK.
 2. FOR A 1.83m WIDE SIDEWALK USE A DETECTABLE WARNING SURFACE MEASURING 610 X 1520

DIMENSIONS ARE IN MILLIMETRES

 <p>THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT</p>	Reference Spec. No. CW 3235, CW 3310, CW 3325 E-SUPPLY & INSTALL DETECTABLE WARNING SURFACE	
	<p>DETECTABLE WARNING SURFACE IN CURB RAMPS FOR INTERSECTIONS</p>	

Designed By: B.P.	Drawn By: T.G.A.	Scale: N.T.S.
Checked By: F.W.C.	Date: 10-02-18	Drawing No.
Approved:		SDE-229AA



NOTES:

- 1) SIDEWALK RAMP SURFACE SHALL BE GIVEN A PARALLEL TEXTURED BROOM FINISH.
- 2) INSTALL DETECTABLE WARNING SURFACE SO THAT THE TOP OF THE TRUNCATED DOMES ARE FLUSH WITH THE SURFACE FO THE ADJACENT SIDEWALK.

 <p>THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT</p>	DIMENSIONS ARE IN MILLIMETRES		
Reference Spec. No. CW 3235, CW 3310, CW 3325 E-SUPPLY & INSTALL DETECTABLE WARNING SURFACE	Designed By: B.P.	Drawn By: T.G.A.	Scale : N.T.S.
CURB RAMP DEPRESSED CURB	Checked By: F.W.C.	Date: 10-02-18	Drawing No. SDE-229E
	Approved:		

Manufacturer's Installation Manual Armor-Tile Cast In Place

Inline Dome Detectable/Tactile Warning Surface Tile

- A. During Cast In Place Detectable/Tactile Warning Surface Tile installation procedures, ensure adequate safety guidelines are in place and that they are in accordance with the applicable industry and government standards.
- B. The specifications of the structural embedment flange system and related materials shall be in strict accordance with the contract documents and the guidelines set by their respective manufacturers. Not recommended for asphalt applications.
- C. The physical characteristics of the concrete shall be consistent with the contract specifications while maintaining a slump range of 4 – 7 to permit solid placement of the Cast In Place Detectable/Tactile Warning Surface Tile system. An overly wet mix will cause the tile to float. Under these conditions, suitable weights such as 2 concrete blocks or sandbags (25 lb) shall be placed on each tile.
- D. Prior to placement of the Cast In Place Detectable/Tactile Warning Surface Tile system, the contract drawings shall be reviewed.
- E. The concrete pouring and finishing operations require typical mason's tools, however, a 4' long level with electronic slope readout, 25 lb. weights, and a large non-marring rubber mallet are specific to the installation of the Cast In Place Detectable/Tactile Warning Surface Tile system. A vibrating mechanism such as that manufactured by Vibco can be employed, if desired. The vibrating unit should be fixed to a soft base such as wood, at least 1 foot square.
- F. The factory-installed plastic sheeting must remain in place during the entire installation process to prevent the splashing of concrete onto the finished surface of the tile.
- G. When preparing to set the tile, it is important that NO concrete be removed in the area to accept the tile. It is imperative that the installation technique eliminates any air voids under the tile. Holes in the tile perimeter allow air to escape during the installation process. Concrete will flow through the large holes in each embedment flange on the underside of the tile. This will lock the tile solidly into the cured concrete.
- H. The concrete shall be poured and finished true and smooth to the required dimensions and slope prior to the tile placement. Immediately after finishing concrete, the electronic level should be used to check that the required slope is achieved. The tile shall be placed in accordance with the contract drawings. The Cast In Place Detectable/Tactile Warning Surface Tiles shall be tamped (or vibrated) into the fresh concrete to ensure that the field level of the tile is flush to the adjacent concrete surface. The embedment process should not be accomplished by stepping on the tile as this may cause uneven setting which can result in air voids under the tile surface. ~~The contract drawings indicate that the tile field level (base of truncated dome) is flush to adjacent surfaces to permit proper water drainage and eliminate tripping hazards between adjacent finishes.~~
- I. In cold weather climates it is recommended that the Cast In Place Detectable/Tactile Warning Surface Tiles be set deeper such that the top of domes are level to the adjacent concrete on the top and sides of ramp and that the base of domes to allow water drainage. This installation will reduce the possibility of damage due to snow clearing operations.
- J. Immediately after placement, the tile elevation is to be checked to adjacent concrete. The elevation and slope should be set consistent with contract drawings to permit water drainage to curb as the design dictates.
- K. While concrete is workable, a 3/8" radius edging tool shall be used to create a finished edge of concrete, then a steel trowel shall be used to finish the concrete around the tile's perimeter, flush to the field level of the tile.
- L. During and after the tile installation and the concrete curing stage, it is imperative that there is no walking, leaning or external force placed on the tile that may rock the tile causing a void between the underside of tile and concrete.
- M. Following tile placement, review installation tolerances to contract drawings and adjust tile before the concrete sets. Two suitable weights of 25 lb each shall be placed on each tile as necessary to ensure solid contact of the underside of tile to concrete.
- N. Following the concrete curing stage, protective plastic wrap is to be removed from the tile surface by cutting the plastic with a sharp knife, tight to the concrete/tile interface. If concrete bled under the plastic, a soft brass wire brush will clean the residue without damage to the tile surface.
- O. If desired, individual tiles can be bolted together using ¼ inch or equivalent hardware. This can help to ensure that adjacent tiles are flush to each other during the installation process. Tape or caulking can be placed on the underside of the bolted butt joint to ensure that concrete does not rise up between the tiles during installation. Any protective plastic wrap which was peeled back to facilitate bolting or cutting, should be replaced and taped to ensure that the tile surface remains free of concrete during the installation process.
- P. Tiles can be cut to custom sizes, or to make a radius, using a continuous rim diamond blade in a circular saw or mini-grinder. Use of a straightedge to guide the cut is advisable where appropriate.
- Q. ~~Any sound-amplifying plates on the underside of the tile, which are dislodged during handling or cutting, should be replaced and secured with construction adhesive. The air gap created between these plates and the bottom of the tile is important in preserving the detectability properties of the Armor-Tile system as required in various jurisdictions.~~

E29. TREE VAULTS

DESCRIPTION

- E29.1 This Specification covers the installation of cast-in-place concrete tree vaults with tree grates with electrical bollards, sidewalk panels and related excavation, tree vault sub drainage, geotextile, planting medium and mulch.
- E29.2 The construction of tree wells (thickened concrete sidewalk slab used to support precast concrete tree covers and sidewalk panels) is not included and is specified under E25.

MATERIALS

- E29.3 Granular drainage material in accordance with Specification CW 3120 - Installation of Sub Drains.
- E29.4 To Specification CW 3120 - Installation of Sub Drains.
- E29.5 Geotextile in accordance with CW 3120.
- E29.6 Tree cover to be two-piece precast concrete tree cover with 500mm square opening in centre.
- E29.7 Sidewalk panel to be min. 150mm thick reinforced precast concrete panel to accommodate AASHTO HS-20 loading. Manufacturer to supply shop drawings stamped by a structural Engineer.
- E29.8 Precast concrete tree covers and sidewalk panels supplied by Barkman Concrete Ltd., 909 Gateway Road, Winnipeg, MB , Phone: 667-3310, or approved equal.
- E29.9 Planting Medium to be in accordance with Plant Material.
- E29.10 Tree Guard to be two piece stainless steel tree guard as shown on the drawings as supplied by Urban Park. 49 Life Sciences Parkway, Steinbach, MB 1-800-775-0018. Contact Myron Krentz.

SUBMITTALS

- E29.11 Prior to installation, submit to the Contract Administrator samples of the following materials:
- (a) Geotextile: 1 sq.m
 - (b) Root barrier: 1 panel
- E29.12 Prior to installation, arrange for inspection and approval of the following materials:
- (a) Tree cover: 1 panel
 - (b) Sidewalk panel: 1 panel

CONSTRUCTION METHODS

- E29.13 The Contractor must ensure that all buried utilities and services are located and if necessary, protected and exposed prior to any excavation in accordance with Specification CW 1120.
- E29.14 Excavate the tree vault to the dimensions and depth shown on the Drawings. Hydro-excavation/day lighting process to be used in area of existing underground utilities. Ensure base of tree pit slopes to drain toward roadway drainage system (min 2% slope).
- E29.15 Remove roadway base and sub base where required to achieve tree pit width indicated on the Drawings. Do not remove any base or sub-base material within 450mm of back of curb.

- E29.16 Clear excavation of all construction debris, trash, rubble and any foreign material. Excavate and remove oil spills and other soil contamination sufficiently to remove the harmful material. Fill over excavations with approved fill and compact to the required subgrade compaction.
- E29.17 All excavated material shall be disposed of off site.
- E29.18 Backfill between roadway base gravel and tree vault edge with compacted granular where required.
- E29.19 Supply and place 150 mm depth granite drainage course with perforated pipe in accordance with Specification CW 3120 – Installation of Sub Drains and as shown on the Drawings. Ensure pipe has minimum 25mm cover of drainage course above and below.
- E29.20 Construct cast-in-place concrete tree well in accordance with Concrete Foundations and the Drawings.
- E29.21 Cover drainage course and sides of tree pit with geotextile in accordance with Specification CW 3120 – Installation of Sub Drains and as shown on the Drawings.
- E29.22 Remove and dispose of all construction related debris from tree vault prior to placing planting medium.
- E29.23 Backfill with street tree planting medium compacting sufficiently to provide good soil consistency for tree planting and to minimize settlement.
- E29.24 Plant trees in locations as per the Drawings. Ensure tree trunk is centred on opening of tree covers.
- E29.25 After tree planting, ensure that the finished soil level is 100 mm below bottom edge of tree cover and 25mm below bottom edge of sidewalk panel.
- E29.26 Install sidewalk panels and tree covers ensuring edges are supported by tree well.
- E29.27 Where indicated on the Drawings, install tree guard.
- E29.28 Supply and install tree guard on tree cover as per manufacturer's specifications.

MEASUREMENT AND PAYMENT

- E29.29 Tree vault construction will be measured and paid on an area basis at the Contract unit price per square metre for “Tree Vault” which price shall be payment in full for supply of all materials and performing all operations herein described and for all other items incidental to the Work included in this Specification. The area to be paid for shall be the total number of square metres constructed in accordance with this Specification acceptable to the Contract Administrator, as computed from measurements made by the Contract Administrator.
- E29.30 No separate measurement or payment will be made for drainage course, drain lines, geotextile and soil. All work is incidental to tree vault construction.
- E29.31 Tree grates will be measured and paid on a per unit basis at the Contract unit price per item for “Supply and install tree grate with bollard (pair)” which price shall be payment in full for supply of all materials and performing all operations herein described and for all other items incidental to the Work included in this Specification. The number to be paid for shall be the total number installed in accordance with this Specification acceptable to the Contract Administrator, as computed from measurements made by the Contract Administrator.
- E29.32 Sidewalk panels will be measured and paid on a per unit basis at the Contract unit price per item for “Supply and install sidewalk panels” which price shall be payment in full for supply of all materials and performing all operations herein described and for all other items incidental to the Work included in this Specification. The number to be paid for shall be the total number installed

in accordance with this Specification acceptable to the Contract Administrator, as computed from measurements made by the Contract Administrator.

E30. PLANT MATERIAL

DESCRIPTION

- E30.1 The following list generally describes the scope of this section:
- (a) Supply and planting of trees;
 - (b) Maintenance to date of total performance.
- E30.2 Obtain approval of plant material at source.
- E30.3 Notify Contract Administrator of source of material at least 7 days in advance of shipment. No Work under this Section is to proceed without approval.
- E30.4 Acceptance of plant material at source does not prevent rejection at Site prior to or after planting operations.
- E30.5 Source of all plant material to be from an area within the same hardiness zone and soil conditions as Winnipeg.

SHIPMENT AND PRE-PLANTING CARE

- E30.6 Co-ordinate shipping of plants and excavation of holes to ensure minimum time lapse between digging and planting. Tie branches of trees and shrubs securely and protect plant material against abrasion, exposure and extreme temperature change during transit. Avoid binding of planting stock with rope or wire which would damage bark, break branches or destroy natural shape of plant. Give full support to root ball of large trees during lifting.
- E30.7 Cover plant foliage with tarpaulin, and protect bare roots by means of dampened straw, peatmoss, sawdust or other acceptable material to prevent loss of moisture during transit and storage.
- E30.8 Remove broken and damaged roots with sharp pruning shears. Make clean cut and cover cuts over 50 mm diameter with wound dressing.
- E30.9 Keep roots moist and protected from sun and wind.

MATERIALS

- E30.10 Water should be potable and free of minerals, which may be detrimental to plant growth.
- E30.11 Stakes to be galvanized t-rails with rubber hose and wire ties as per the Drawings.
- E30.12 Anti-desiccant should be wax-like emulsion to provide film over plant surface reducing evaporation but permeable enough to permit transpiration.
- E30.13 Wound dressing should be horticulturally accepted non-toxic, non-hardening emulsion.
- E30.14 Plant Material
- (a) Quality and Source: Comply with City of Winnipeg tree planting guidelines, referring to size and development of plant material and root ball. All plant material to be approved by City and Contract Administrator at source.
 - (b) Measure plants when branches are in their natural position. Height and spread dimensions refer to main body of plant and not from branch tip to branch tip. Use trees of No. 1 grade.
 - (c) Additional plant material qualifications:
 - (i) Use shrubs and vines with strong fibrous root system free of disease, insects, defects or injuries and structurally sound.

- (ii) Trees must have been root pruned regularly, but not later than one growing season prior to arrival on Site.
- (d) Approval required for plant material, which has been held in cold storage.
- (e) Acceptable if containers large enough for root development. Shrubs must have grown in container for minimum of one growing season but not longer than two. Root system must be able to "hold" soil when removed from container. Plants that have become root bound are not acceptable. Container stock must have been fertilized with slow releasing fertilizer.
- (f) Substitutions to plant material as indicated on plantings plan are not permitted unless written approval has been obtained as to type, variety and size prior to award of Contract. Plant substitutions must be similar species and of equal size to those originally specified.

E30.15 Root balls

- (a) Deciduous trees in excess of 3 m height must have been dug with large firm ball. Root balls must include 75% of fibrous and feeder root system. This excludes use of native trees grown in light sandy or rocky soil. Lift root ball from hole, place in wire basket designed for purpose and line with burlap. Secure root balls with burlap, heavy twine and wire basket. Protect root balls against sudden changes in temperature and exposure to heavy rainfall. Take care not to injure trunk of tree with wire basket ties or rope.
- (b) Tree spade material shall not be accepted. Unless dug in field and secured as above.

CONSTRUCTION METHODS

E30.16 Stake out location of trees and shrubs as per the Construction Drawings. Obtain approval by City and Contract Administrator prior to excavating.

E30.17 Apply anti-desiccant in accordance with material manufacturer's instructions only as required.

E30.18 Co-ordinate operations. Keep Site clean and planting holes drained. Immediately remove soil or debris spilled onto pavement.

E30.19 Planting Time

E30.19.1 Plant deciduous plant material during dormant period, before buds have broken. Plant material noted for spring planting only, must be planted in dormant period.

E30.19.2 When permission has been obtained to plant materials after buds have broken, spray plants with anti-desiccant to slow down transpiration prior to transplanting.

E30.19.3 When permission has been obtained, shrubs and perennials growing in containers may be planted throughout growing season.

E30.19.4 Plant only under conditions that are conducive to health and physical conditions of plants.

E30.19.5 Provide planting schedule. Executing planting operations over long period using limited crew will not be accepted.

E30.20 Excavations

E30.20.1 Prepare planters as shown on the Drawings and as specified.

E30.20.2 Protect bottom of excavations against freezing.

E30.20.3 Remove water, which enters excavations prior to planting. Ensure source of water is not ground water.

E30.21 Planting

E30.21.1 Plant trees and shrubs vertically with roots placed straight out in hole. Orient plant material to give best appearance in relation to structure, roads and walks.

E30.21.2 Place plant material to depth equal to depth they were originally growing in nursery. Allow for soil settlement in planting.

- E30.21.3 With balled and burlapped roots balls, loosen burlap and cut away minimum top 1/2 without disturbing root ball. Cut vertical slits in remaining burlap around root ball at 250mm intervals. Remove all rope, string, or other ties from around trunk. Do not pull burlap or rope from under root ball. With container stock, remove entire container without disturbing root ball. Non bio-degradable wrappings must be removed, wire baskets to be cut vertically and the top rings bent over below grade.
- E30.21.4 Tamp planting soil around root system in layers of 150mm eliminating air voids. Frozen or saturated planting soil is unacceptable. When 2/3 of planting soil has been placed, fill hole with water. After water has completely penetrated into soil, complete backfilling.
- E30.21.5 Build 100 mm deep saucer around outer edge of hole to assist with maintenance watering. Install 100mm depth wood chip mulch in saucer as shown on drawings.
- E30.21.6 When planting is completed, give surface of planting saucer dressing of organic 10-6-4 fertilizer at rate of 12 kg/100 m for shrub beds or 40 to 50 g/mm of calliper for trees. Mix fertilizer thoroughly with top layer of planting soil and water in well.
- E30.21.7 Prune trees and shrubs after planting only as required to remove broken diseased or dead branches. Employ clean sharp tools and make cuts flush with main branch, smooth and sloping as to prevent accumulation of water.
- E30.21.8 Stake and guy trees as required in planters as per the Drawings.

E30.22 Maintenance

- E30.22.1 After completion of planting operation to the satisfaction of the Contract Administrator and City of Winnipeg, the Contractor shall be responsible for the maintenance of the plant material until date of Total Performance and commencement of two year warranty.
- E30.22.2 Replace any dead or damaged plant material during the maintenance period, including replacement of vandalized material.
- E30.22.3 Water sufficiently to maintain optimum growing conditions. Ensure adequate moisture in root zone at freeze-up.
- E30.22.4 The Contractor shall provide all necessary equipment, including: tractors, mowers, hand mowers, trimmers, fertilizer spreaders, pruning tools, hoses, water meters, and any other items necessary for the maintenance of the plant material indicated in this Specification.
- E30.22.5 Remove all weeds and debris from planters on a weekly basis.
- E30.22.6 Turn and top up mulch in planters prior to start of extended maintenance.
- E30.22.7 Personnel
- (a) The Contractor shall provide all necessary personnel for the ongoing maintenance operations.
 - (b) Personnel should have at least one year of experience in landscape maintenance and should be under the direction of a foreman, in all cases, with not less than five years of experience with similar maintenance operations.

MAINTENANCE METHODS

E30.23 Watering

- E30.23.1 Plants shall be watered twice weekly, or during the summer, if temperatures are fairly high and there has been no rainfall, water approximately once a week.
- E30.23.2 To determine the need for watering, make a soil test weekly with a one-inch auger. Take a test sample from both the planting soil and from the root ball by drilling to a minimum depth of 600 mm. The soil shall contain enough moisture to hold together when compressed in the hand, but not be muddy.

E30.24 Fertilizing

E30.24.1 Because of the specialized nature of such operations, fertilizing is to be done by a qualified local arborist.

E30.24.2 Fertilize in the fall over the surface of the ground surrounding the plants, then soak the area thoroughly, use 10-6-4 analysis fertilizer spreading a maximum of 0.13 kg per square metre.

E30.25 Spraying

E30.25.1 Spray plants to control insect pests and diseases. Use horticulturally recommended compounds specific for the problem to be contained.

E30.26 Insects and Diseases

E30.26.1 Spray plants to combat pests and diseases. Do not use DDT or sprays prohibited by Agriculture Canada.

MEASUREMENT AND PAYMENT

E30.27 Supply and installation of plant material will be measured on a unit basis and will be paid for at the Contract Unit Price per unit for "Supply and install Brandon Ascending Elm", measured as specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the Work included in this Specification.

E31. EXTENDED MAINTENANCE OF PLANT MATERIAL

DESCRIPTION

E31.1 This Specification shall deal with the maintenance of the trees and shrubs for two (2) calendar years after the date of the Total Performance.

MATERIALS

E31.2 The Contractor shall provide all necessary equipment, including: tractors, trimmers, fertilizer spreaders, pruning tools, water trucks, hoses, water meters, and any other items necessary for the maintenance of the area indicated in this Specification.

E31.3 The Contractor shall provide all necessary personnel for the ongoing maintenance operations.

CONSTRUCTION METHODS

E31.4 The following areas shall be part of the maintenance jurisdiction:

- (a) The trees as indicated on the Drawings;
- (b) Mulch in planters as indicated on the Drawings.

MAINTENANCE OF TREES

E31.5 Watering

- (a) All plant material shall be watered bi-weekly, or during the summer, if temperatures are fairly high and there has been no rainfall, water approximately once a week. Where irrigation is not available this should be executed by leaving a hose, with a gentle rate of flow, running into the saucer of the root ball for about one hour.
- (b) To determine the need for watering, make a soil test weekly with a one-inch auger. Take a test sample from both the planting soil and from the root ball by drilling to a minimum depth of 600 mm. The soil shall contain enough moisture to hold together when compressed in the hand, but shall not be muddy.

E31.6 Fertilizing and pest control

- (a) Fertilizing, Pruning and Spraying Deciduous Trees and Shrubs. Because of the specialized nature of such operations, this should be done by a qualified local arborist.

- (b) Fertilize in the fall over the surface of the ground surrounding the plants, then soak the area thoroughly. Use 10-6-4 analysis fertilizer spreading a maximum of 0.13 kg per square metre.
- (c) Spray to control insect pests and diseases. Use horticulturally recommended compounds specific for the problem to be contained.

E31.7 Weeding

- (a) Remove all weeds in planters by hand on a weekly basis. Do not use chemical weed killer.
- (b) Remove all debris from beds, including weeds, and dispose of off Site in a legal manor.

E31.8 Other Maintenance

- (a) Tighten, or remove, turnbuckles or guy wires for trees as required or directed by the Contract Administrator.
- (b) Straighten trees as required and directed by the Contract Administrator.
- (c) Remove stakes and guys prior to end of maintenance.

E31.9 Replacements

- (a) The Contractor shall agree and guarantee to replace and replant any nursery stock found dead or in poor condition during and at the completion of the maintenance period.
- (b) All plant material to be replaced and maintained for a minimum of 30 days prior to end of maintenance period.
- (c) Replaced plant material to be maintained for two (2) years following date of replacement and is subject to the same conditions for warranty and maintenance as original planting. Where a tree has died in the same location a second time the tree hole is to be filled, the surface repaired to match surrounding area and a new location for the replacement tree determined by the Contract Administrator.
- (d) "Poor Condition" shall be interpreted as meaning nursery stock in which branches are dead or dying, or have not shown satisfactory growth of leaves.
- (e) All replacements shall be of same size and species, as specified.

E31.10 Quality Assurance

- (a) Upon the end of the required maintenance period, a Site inspection shall be held. If at this time, all material and Works is satisfactory the Contract for maintenance and warranty shall be terminated. If materials and Works are found unacceptable the warranty shall be extended by 30 days for a follow up inspection. Extension of warranty will continue in 30 day increments for inspection until all Work and material are satisfactory.

MEASUREMENT AND PAYMENT

- E31.11 Extended Maintenance will be measured on a per year lump sum basis and paid for at the per year Contract Lump Sum Price "Extended Maintenance on trees", in accordance with this Specification and accepted by the Contract Administrator.

E32. SITE FURNITURE

DESCRIPTION

- E32.1 This specification covers the supply and installation of planters.
- E32.2 Store units in a protected location, immediately upon arrival on the Site.
- E32.3 Remove from Site any units which have been damaged during transportation and replace.

PRODUCTS

- E32.4 Benches to be Customized Length Landscape Forms Rest Benches.
Annette Baubie
Ph: 1-416-659-6386
Fax: 1-269-337-1395
- E32.5 Bicycle loops to be U stainless steel bicycle rack as supplied by:

Urban Park,
49 Life Sciences Parkway
Steinbach, Manitoba, R5G 2G7
Ph: 1-800-775-0018
Attn. Myron Krentz
- E32.6 Decorative Stainless steel bollards and Decorative guard rail as supplied by:

W.S. Steel,
49 Life Sciences Parkway
Steinbach, Manitoba, R5G 2G7
Ph: 1-800-326-5444
Attn. Myron Krentz

INSTALLATION

- E32.7 Install surface mount benches, bicycle racks, bollards, and guard rail on concrete paving as shown on the drawings.
- E32.8 Drill holes and install stainless steel threaded insert to fit bolts. Epoxy in place.
- E32.9 Set site furniture level and plumb. Dry fit bench with bolts.
- E32.10 All other site furniture to be installed as per manufacturers details.

MEASUREMENT AND PAYMENT

- E32.11 Site furniture shall be measured and paid on a per unit basis for each item under "Supply and install site furniture". The number to be paid shall be the total number of units installed in accordance with the Drawings and Specifications and as measure and accepted by the Contract Administrator.
- (a) Supply and install site furniture:
- (i) Supply and install 'Rest' Bench,
 - (ii) Supply and install Bicycle Rack
 - (iii) Supply and install Decorative Guard Rail
 - (iv) Supply and install Decorative Bollard