



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 452-2005

WESTMINSTER AVENUE / WOLSELEY AVENUE STREETScape IMPROVEMENTS

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PART B - BIDDING PROCEDURES

B1. PROJECT TITLE

B1.1 WESTMINSTER AVENUE / WOLSELEY AVENUE STREETScape IMPROVEMENTS

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, Tuesday, September 1, 2005.

B2.2 Bid Submissions 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 GC:3.1, the Bidder may view the Site without making an appointment.

B4. ENQUIRIES

B4.1 All enquiries shall be directed to the Contract Administrator identified in D3.1.

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. ADDENDA

B5.1 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.

B5.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.

B5.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

B5.2.2 The Bidder is responsible for ensuring that he has received all addenda and is advised to check the Materials Management Branch internet site for addenda shortly before submitting his Bid.

B5.3 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.

B6. SUBSTITUTES

B6.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.

B6.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.

B6.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.

B6.4 The Bidder shall ensure that any and all requests for approval of a substitute:

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

B6.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his sole discretion grant approval for the use of a substitute as an "approved equal" or as an "approved alternative", or may refuse to grant approval of the substitute.

B6.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, only to the Bidder who requested approval of the substitute.

B6.6.1 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 wishes to inform.

B6.7 If the Contract Administrator approves a substitute as an "approved equal", any Bidder may use the approved equal in place of the specified item.

B6.8 If the Contract Administrator approves a substitute as an "approved alternative", any Bidder bidding that approved alternative shall base his 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 B15.

B6.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B7. BID SUBMISSION

B7.1 The Bid Submission consists of the following components:

- (a) Form A: Bid;
- (b) Form B: Prices;
- (c) Form G1: Bid Bond and Agreement to Bond, or
Form G2: Irrevocable Standby Letter of Credit and Undertaking, or
a certified cheque or draft;

B7.2 All components of the Bid Submission 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 in ink, to constitute a responsive Bid.

B7.3 The Bid Submission shall be submitted enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address.

B7.3.1 Samples or other components of the Bid Submission 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 Submission.

B7.4 Bid Submissions submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.

B7.5 Bid Submissions shall be submitted to:

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

B8. BID

B8.1 The Bidder shall complete Form A: Bid, making all required entries.

B8.2 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 own name, his 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 own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

B8.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B8.2.

B8.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.

- B8.4 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 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 own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.
- B8.4.1 The name and official capacity of all individuals signing Form A: Bid shall be printed below such signatures.
- B8.4.2 All signatures shall be original and shall be witnessed except where a corporate seal has been affixed.
- B8.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid Submission and the Contract, when awarded, shall be both joint and several.

B9. PRICES

- B9.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.
- B9.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.
- B9.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.

B10. QUALIFICATION

- B10.1 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;
 - (b) be responsible and not be suspended, debarred or in default of any obligation to the City;
 - (c) be financially capable of carrying out the terms of the Contract;
 - (d) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract;
 - (e) have successfully carried out work, similar in nature, scope and value to the Work;
 - (f) employ only Subcontractors who:
 - (i) are responsible and not suspended, debarred or in default of any obligation 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 Branch internet site at <http://www.winnipeg.ca/matmgt>); and

- (ii) have successfully carried out work similar in nature, scope and value to the portion of the Work proposed to be subcontracted to them, and are fully capable of performing the Work required to be done in accordance with the terms of the Contract;
 - (g) have a written workplace safety and health program in accordance with The Workplace Safety and Health Act (Manitoba);
- B10.2 Further to B10.1(g), the Bidder shall, within three (3) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:
 - (a) a valid COR certification number under the Certificate of Recognition (COR) Program - Option 1 administered by the Manitoba Heavy Construction Association's Safety, Health and Environment Program; or
 - (b) a valid COR certification number under the Certificate of Recognition (COR) Program administered by the Manitoba Construction Safety Association; 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 Branch internet site at <http://www.winnipeg.ca/matmgt>.)
- B10.3 The Bidder shall be prepared to 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.
- B10.4 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.

B11. BID SECURITY

- B11.1 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.
- B11.1.1 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.
- B11.2 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.

- B11.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B11.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.
- B11.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.
- B11.3 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.

B12. OPENING OF BIDS AND RELEASE OF INFORMATION

- B12.1 Bid Submissions will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Branch, or in such other office as may be designated by the Manager of Materials.
- B12.1.1 Bidders or their representatives may attend.
- B12.1.2 Bid Submissions determined by the Manager of Materials, or his designate, to not include the bid security specified in B11 will not be read out.
- B12.2 After the public opening, the names of the Bidders and their Total Bid Prices as read out (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 Branch internet site at <http://www.winnipeg.ca/matmgt>.
- B12.3 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 Branch internet site at <http://www.winnipeg.ca/matmgt>.
- B12.4 The Bidder is advised that any information contained in any Bid Submission 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.

B13. IRREVOCABLE BID

- B13.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.
- B13.2 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.

B14. WITHDRAWAL OF BIDS

- B14.1 A Bidder may withdraw his Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.
- B14.1.1 Notwithstanding GC:23.3, 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.

- B14.1.2 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.
- B14.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials shall:
- (a) retain the Bid Submission until after the Submission Deadline has elapsed;
 - (b) open the Bid Submission 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 B14.1.3(b), declare the Bid withdrawn.
- B14.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B13.2 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.

B15. EVALUATION OF BIDS

- B15.1 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 (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B10 (pass/fail);
 - (c) Total Bid Price;
 - (d) economic analysis of any approved alternative pursuant to B6.
- B15.2 Further to B15.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid Submission 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 if the interests of the City so require.
- B15.3 Further to B15.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his Bid Submission or in other information required to be submitted, that he is responsible and qualified.
- B15.4 Further to B15.1(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.
- B15.4.1 If there is any discrepancy between the Total Bid Price written in figures, the Total Bid Price written in words and the sum of the quantities multiplied by the unit prices for each item, the sum of the quantities multiplied by the unit prices for each item shall take precedence.

B16. AWARD OF CONTRACT

- B16.1 The City will give notice of the award of the Contract by way of a letter of intent, or will give notice that no award will be made.
- B16.2 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.

- B16.2.1 Without limiting the generality of B16.2, 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.
- B16.3 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.

PART C - GENERAL CONDITIONS

C1. GENERAL CONDITIONS

C1.1 The *General Conditions for Construction Contracts* (Revision 2000 11 09) are applicable to the Work of the Contract.

C1.1.2 The *General Conditions for Construction Contracts* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

- D1.1 In addition to the *General Conditions for Construction Contracts*, these Supplemental Conditions are applicable to the Work of the Contract.
- D1.2 The General Conditions are amended by striking out “The City of Winnipeg Act” wherever it appears in the General Conditions and substituting “The City of Winnipeg Charter”.
- D1.3 The General Conditions are amended by striking out “Tender Package” wherever it appears in the General Conditions and substituting “Bid Opportunity”.
- D1.4 The General Conditions are amended by striking out “Tender Submission” wherever it appears in the General Conditions and substituting “Bid Submission”.
- D1.5 The General Conditions are amended by deleting GC:6.16 and GC:6.17. The City of Winnipeg is now within the jurisdiction of the Manitoba Ombudsman pursuant to The Ombudsman Act.

D2. SCOPE OF WORK

- D2.1 The Work to be done under the Contract shall consist of streetscaping in the following areas:
- (a) Northeast corner of Westminster Avenue and Chestnut Street
 - (b) Northwest corner of Westminster Avenue and Home Street
 - (c) Northwest corner of Westminster Avenue and Arlington Street
 - (d) Southwest corner of Westminster Avenue and Home Street
 - (e) Northeast corner of Westminster Avenue and Evanson Street
 - (f) Southeast corner of Westminster Avenue and Evanson Street
 - (g) Northwest corner of Westminster Avenue and Evanson Street
 - (h) Southwest corner of Westminster Avenue and Evanson Street
 - (i) Southeast corner of Westminster Avenue and Ruby Street
 - (j) Northwest corner of Westminster Avenue and Lipton Street
 - (k) Southwest corner of Westminster Avenue and Lipton Street
 - (l) Northeast corner of Wolseley Avenue and Ruby Street
- D2.2 The major components of the Work are as follows:
- (a) Demolition and reconstruction of selected sidewalks and boulevards with clay pavers and concrete;
 - (b) Installation of concrete crosswalks within the roadway;
 - (c) Decorative sandblasting on sidewalks and crosswalks;
 - (d) Supply and installation of site furnishings;
 - (e) Supply only of banners, banner arms, and birdhouses;
 - (f) Supply and installation of custom street sign blades and ornamental fittings;
 - (g) Planting and landscape maintenance.

D3. CONTRACT ADMINISTRATOR

D3.1 The Contract Administrator is Hilderman Thomas Frank Cram, represented by:

Glen Manning
Principal
500 - 115 Bannatyne Avenue East
Winnipeg, MB R3B 0R3

Telephone No. (204) 944-9907
Facsimile No. (204) 957-1467

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

D4. CONTRACTOR'S SUPERVISOR

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

D4.2 At least two (2) business days prior to the commencement of any Work on the site, the Contractor shall provide the Contract Administrator with a phone number where the supervisor identified in D4.1 or an alternate can be contacted 24 hours a day to respond to an emergency.

D5. NOTICES

D5.1 Except as provided for in GC:23.2.2, 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.

D5.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D5.3, D5.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the address or facsimile number identified in D3.1.

D5.3 All notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following address or facsimile number:

The City of Winnipeg
Chief Administrative Officer Secretariat
Administration Building, 3rd Floor
510 Main Street
Winnipeg, MB R3B 1B9

Facsimile No.: (204) 949-1174

D5.4 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 address or facsimile number:

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

Facsimile No.: (204) 947-9155

D6. FURNISHING OF DOCUMENTS

- D6.1 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 at cost.

SUBMISSIONS

D7. SAFE WORK PLAN

- D7.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site, but in no event later than the date specified in GC:4.1 for the return of the executed Contract.
- D7.2 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 Branch internet site at <http://www.winnipeg.ca/matmgt>.

D8. INSURANCE

- D8.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) all inclusive, with The City of Winnipeg being added as an additional insured, with a cross-liability clause, such liability policy to also contain a contractual liability, an unlicensed motor vehicle liability and a products and completed operations endorsement to remain in place at all times during the performance of the Work and throughout the warranty period;
 - (b) automobile liability insurance for owned and non-owned automobiles used for or in connection with the Work in the amount of at least two million dollars (\$2,000,000.00) at all times during the performance of the Work and until the date of Total Performance;
 - (c) all risks course of construction insurance in the amount of one hundred percent (100%) of the total Contract Price, written in the name of the Contractor and The City of Winnipeg, at all times during the performance of the Work and until the date of Total Performance.
- D8.2 Deductibles shall be borne by the Contractor.
- D8.3 The Contractor shall provide the City Solicitor with a certificate of insurance of each policy, in a form satisfactory to the City Solicitor, 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 GC:4.1 for the return of the executed Contract.

D9. PERFORMANCE SECURITY

- D9.1 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.

D9.2 If the bid security provided in his Bid Submission was not a certified cheque or draft pursuant to B11.1(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 GC:4.1 for the return of the executed Contract.

D10. SUBCONTRACTOR LIST

D10.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at 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 GC:4.1 for the return of the executed Contract.

D11. DETAILED WORK SCHEDULE

D11.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in GC:4.1 for the return of the executed Contract.

SCHEDULE OF WORK

D12. COMMENCEMENT

D12.1 The Contractor shall not commence any Work until he is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.

D12.2 The Contractor shall not commence any Work on the Site until:

- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence that the Contractor is 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;
 - (ii) evidence of the workers compensation coverage specified in GC:6.14;
 - (iii) the Safe Work Plan specified in D7;
 - (iv) evidence of the insurance specified in D8;
 - (v) the performance security specified in D9;
 - (vi) the Subcontractor list specified in D10;
 - (vii) the detailed work schedule specified in D11; and
- (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.

D12.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the letter of intent.

D13. WORKING DAYS

- D13.1 Further to GC:1.1(gg), the Contract Administrator's determination of whether or not atmospheric and Site conditions are such that a Working Day is deemed to have elapsed may be based at one time on one type of work while at another time a Working Day may be based on another type of work. When more than one type of major work is involved, the quantity of equipment that must be able to work in order to meet the requirements of a Working Day may vary considerably from that specified in the General Conditions.
- D13.2 In the event that incidental work is behind schedule which, in the opinion of the Contract Administrator, should have been or could have been carried out by the Contractor in conjunction with or immediately following work of a major type, the City hereby reserves the right to charge Working Days on the incidental work until such time as it is up to schedule.
- D13.3 When the major type of work involves restoration of the Site to the condition it was prior to rainfall, Working Days shall not be charged.
- D13.4 The Contract Administrator will furnish the Contractor with a daily record for each major type of work showing various information concerning the equipment, the time it worked, could have worked and Working Days charged. This report is to be signed each day by an authorized representative of the Contractor.

D14. RESTRICTED WORK HOURS

- D14.1 Further to clause 3.10 of CW 1130, the Contractor shall require written permission 48 hours in advance from the Contract Administrator for any work to be performed between 2000 hours and 0700 hours, or on Saturdays, Sundays, Statutory Holidays and/or Civic Holidays.

D15. WORK BY OTHERS

- D15.1 Further to GC 6.25 and GC 8:
- (a) "other Contractors" includes utilities, commercial tenants and other agencies.
- D15.2 Work by others on or near the Site will include but not necessarily be limited to:
- (a) Manitoba Hydro – installation of birdhouses and banners on wooden hydro poles.
 - (b) City of Winnipeg Geomatics Branch – various works on survey monuments.
 - (c) City of Winnipeg Traffic Services – various works on signs.
 - (d) City of Winnipeg Signals Systems Branch – removal and restoration of signals at Westminster and Arlington.
 - (e) Shepherd and Stevens Land Surveyors (phone number 956-2356) – restoration of survey monuments.
 - (f) Commercial tenants – removal of some plant material and portable site furnishings.
- D15.3 The Contract Administrator will attempt to arrange and co-ordinate work to be performed by others so that such work does not interfere with the Work and Schedule of the Contractor. Where work by others interferes, as determined by the Contract Administrator, with the Contractor's planned work, the Contractor shall modify his plans. Unless the Contract Administrator determines that there was no opportunity for the Contractor to do a similar amount of work, no consideration will be made to extend the Contract time.

D16. SEQUENCE OF WORK

D16.1 Further to GC 6.1, the sequence of work shall be managed to minimize disruption to businesses and traffic through the course of construction. No more than two blocks are to be under construction at one time, unless an alternate staging plan is approved by the Contract Administrator.

D17. SUBSTANTIAL PERFORMANCE

D17.1 The Contractor shall achieve Substantial Performance within fifty (50) consecutive Working Days of the commencement of the Work as specified in D12.

D17.2 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.

D17.3 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.

D18. TOTAL PERFORMANCE

D18.1 The Contractor shall achieve Total Performance within one hundred (100) consecutive Working Days of the commencement of the Work as specified in D12.

D18.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.

D18.3 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.

D19. LIQUIDATED DAMAGES

D19.1 If the Contractor fails to achieve Substantial Performance in accordance with the Contract by the day fixed herein for Substantial Performance, the Contractor shall pay the City one thousand dollars (\$1000) per Working Day for each and every Working Day following the day fixed herein for Substantial Performance during which such failure continues.

D19.2 The amount specified for liquidated damages in D19.1 is based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve Substantial Performance by the day fixed herein for same.

D19.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D20. SCHEDULED MAINTENANCE

- D20.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:
- (a) Maintenance of sod until acceptance as specified in CW 3510 – R7;
 - (b) Maintenance of trees, shrubs and perennials as specified in E15;
- D20.2 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

D21. JOB MEETINGS

- D21.1 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.
- D21.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he deems it necessary.

D22. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

- D22.1 Further to GC:6.26, 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).

WARRANTY

D23. WARRANTY

- D23.1 Notwithstanding GC:13.2, the warranty period shall begin on the date of Total Performance and shall expire two (2) years thereafter unless extended pursuant to GC:13.2.1 or GC:13.2.2, in which case it shall expire when provided for thereunder.
- D23.2 Notwithstanding GC:13.2 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; or
 - (b) the portion or portions of the Work involve the supply and installation of plant material, which have separate warranty requirements as specified in E13.4.
- 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 GC:13.2 for the warranty period to begin.

FORM H1: PERFORMANCE BOND
(See D9)

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 dated the

_____ day of _____, 20____, for:

BID OPPORTUNITY NO. 452-2005

WESTMINSTER AVENUE / WOLSELEY AVENUE STREETScape IMPROVEMENTS

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

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

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

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

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

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

_____ day of _____, 20____.

SIGNED AND SEALED
in the presence of:

(Witness)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

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

**FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT
(PERFORMANCE SECURITY)
(See D9)**

(Date)

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

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 452-2005

WESTMINSTER AVENUE / WOLSELEY AVENUE STREETSCAPE IMPROVEMENTS

Pursuant to the request of and for the account of our customer,

(Name of Contractor)

(Address of Contractor)

WE HEREBY ESTABLISH in your favour our irrevocable Standby Letter of Credit for a sum not exceeding in the aggregate

Canadian dollars.

This Standby Letter of Credit may be drawn on by you at any time and from time to time upon written demand for payment made upon us by you. It is understood that we are obligated under this Standby Letter of Credit for the payment of monies only and we hereby agree that we shall honour your demand for payment without inquiring whether you have a right as between yourself and our customer to make such demand and without recognizing any claim of our customer or objection by the customer to payment by us.

The amount of this Standby Letter of Credit may be reduced from time to time only by amounts drawn upon it by you or by formal notice in writing given to us by you if you desire such reduction or are willing that it be made.

Partial drawings are permitted.

We engage with you that all demands for payment made within the terms and currency of this Standby Letter of Credit will be duly honoured if presented to us at:

(Address)

and we confirm and hereby undertake to ensure that all demands for payment will be duly honoured by us.

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 (1993 Revision), International Chamber of Commerce Publication Number 500.

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

FORM L: DETAILED WORK SCHEDULE
 (See D11)

WESTMINSTER AVENUE / WOLSELEY AVENUE STREETScape IMPROVEMENTS

For each item of Work, indicate the cumulative percentage proposed to be completed by the end of each time period until 100% completion is achieved.						
Items of Work	Time Period in Working Days					
	0	10	20	30	40	50
Paving at Westminster Ave. and Chestnut St.						
Paving at Westminster Ave. and Home St.						
Paving at Westminster Ave. and Arlington St.						
Paving at Westminster Ave. and Evanson St.						
Paving at Westminster Ave. and Ruby St.						
Paving at Westminster Ave. and Lipton St.						
Paving at Wolseley Ave. and Ruby St.						
Planting and sod repair						
Supply only of banners, banner arms, and birdhouses						
Supply and installation of site furnishings						
Supply and installation of custom street sign blades and ornamental fittings						

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS, STANDARD DETAILS AND DRAWINGS

- E1.1 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.1.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.
- E1.1.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.1.3 Further to GC:2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.2 The following Drawings are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing Size</u>
	Cover Sheet	11 x 17
L01	Demolition Plan Westminster at Lipton St.	11 x 17
L02	Demolition Plan Westminster at Ruby St.	11 x 17
L03	Demolition Plan Wolseley at Ruby St.	11 x 17
L04	Demolition Plan Westminster at Evanson St.	11 x 17
L05	Demolition Plan Westminster at Evanson /Arlington St.	11 x 17
L06	Demolition Plan Westminster at Home St.	11 x 17
L07	Demolition Plan Westminster at Chestnut St.	11 x 17
L08	Layout Plan Westminster at Lipton St.	11 x 17
L09	Layout Plan Westminster at Ruby St.	11 x 17
L10	Layout Plan Wolseley at Ruby St.	11 x 17
L11	Layout Plan Westminster at Evanson St.	11 x 17
L12	Layout Plan Westminster at Evanson St. /Arlington St.	11 x 17
L13	Layout Plan Westminster at Home St.	11 x 17
L14	Layout Plan Westminster at Chestnut St.	11 x 17
L15	Banner and Birdhouse and Street Name Sign Layout Plan	11 x 17
L16	Site Furniture Layout Plan Westminster at Lipton St.	11 x 17
L17	Site Furniture Layout Plan Westminster at Ruby St.	11 x 17
L18	Site Furniture Layout Plan Wolseley at Ruby St.	11 x 17
L19	Site Furniture Layout Plan Westminster at Evanson St.	11 x 17
L20	Site Furniture Layout Plan Westminster at Evanson /Arlington St.	11 x 17
L21	Site Furniture Layout Plan Westminster at Home St.	11 x 17
L22	Site Furniture Layout Plan Westminster at Chestnut St.	11 x 17
L23	Details	11 x 17
L24	Details	11 x 17
L25	Site Furnishing Details	11 x 17
L26	Planting Details & Specifications List	11 x 17
L27	Perennial Planting Layout	11 x 17
L28	Details for Private Spaces	11 x 17

E2. LOCATION OF WORK

- E2.1 Work is located along Westminster Avenue between Chestnut Street and Lipton Street, and at the northeast corner of Wolseley Avenue and Ruby Street. Refer to the Cover Sheet for more detail on the location of Work.

E3. LAYOUT OF WORK

- E3.1 Further to CW 1130-R1, Paragraph 3.15, Stakes and Marks, the Contractor shall set all necessary control lines, benchmarks, survey elevation stakes and layout in consultation with the Contract Administrator as required.

SPECIFICATIONS

E4. PEDESTRIAN AND TRAFFIC CONTROL

E4.1 General Description

- E4.1.1 This Specification shall supplement Specification CW 1130-R1 and shall cover the supply, installation, maintenance, and removal of temporary traffic and pedestrian control.
- E4.1.2 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 Work as hereinafter specified.

E4.2 Materials

E4.2.1 General

- .1 All barricades, signs, flashers, and other equipment shall be in accordance with the "Manual of Temporary Control in Work Areas on City Streets."

E4.2.2 Snow Fence

- .1 Plastic netting, UV stabilized, high density polyethylene, international orange colour, 1.22 m height, complete with steel stakes to suit size.

E4.3 Construction Methods

E4.3.1 General

- .1 Traffic control shall be provided and staged in accordance with the "Manual of Temporary Traffic control and Work Areas on City Streets" and this Specification. No more than two (2) blocks are to be under construction at one time, unless otherwise approved by the Contract Administrator.
- .2 The Contractor shall maintain safe pedestrian access to buildings within the area under construction at all times.
- .3 The Contractor will be responsible for the placement of all required signing and barricades, for traffic control in the construction area.

E4.3.2 Snow Fencing

- .1 Erect snow fencing surrounding the areas under construction and any excavations deeper than 500 mm.
- .2 Snow fencing shall be placed so as to present no hazard to vehicles or pedestrians and shall be kept securely fastened and neat in appearance at all times.

E4.3.3 Temporary Ramps

- .1 Where any aspect of the Work impedes access to buildings, temporary plywood or asphalt ramps shall be erected and the Work shall be staged in such a manner that access is maintained. Notify the affected building owner of the estimated duration of temporary ramping prior to commencing this Work.

E4.4 Quality Control

- E4.4.1 All workmanship and all materials furnished and supplied under this Specification are subject to the 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 which are not in accordance with the requirements of this Specification. The Contractor shall maintain all traffic control as specified herein.
- E4.4.2 If, in the opinion of the Contract Administrator, the traffic control is not in accordance with this Specification, the Work in the affected area shall be stopped and shall not resume until such time as the traffic control deficiencies are corrected to the satisfaction of the Contract Administrator. No contract time extensions will be granted as a result of lost time due to work stoppages because of inadequate traffic control by Contractor.

E4.5 Method of Measurement

- E4.5.1 The supply, erection and maintenance of all pedestrian and traffic control, including ramps, snow fencing, and signs, shall be included in the cost of the Work. No measurement or payment will be made for this Work.

E5. TREE PROTECTION

E5.1 Description

- E5.1.1 This Specification shall cover the protection of existing trees within the limits of Work as indicated on the Drawings.
- E5.1.2 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 other things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified and in accordance and E6: Sitework, Demolition and Removals.

E5.2 Materials

- E5.2.1 In accordance with the Drawings.

E5.3 Construction Methods

- E5.3.1 The Contractor shall protect existing trees in areas where excavation work is being done and at all locations where damage might occur as a result of construction operations.
- E5.3.2 The Contractor shall not stockpile materials and soil or store equipment on boulevards within 2 m of trees. Under no circumstances are vehicles to be parked on the boulevard.
- E5.3.3 Mature tree trunks within the limits of construction or otherwise identified to be at risk by the Contract Administrator shall be strapped with 25 x 150 x 2400 mm (1" x 6" x 8") wood planks. Smaller trees shall be similarly protected using appropriately sized wood planks.
- E5.3.4 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.
- E5.3.5 Hand excavate or hydro-excavate within the root zone unless otherwise directed by the Contract Administrator.**

- E5.3.6 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.
- E5.3.7 Work on Site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to tree branches does occur, the Contractor shall engage a tree care professional with a Manitoba Arborists Certificate to prune the damaged branch.
- E5.3.8 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City of Winnipeg's Forester or his designate.
- E5.3.9 Elm trees cannot be trimmed between April 1 and July 31, inclusive.
- E5.4 Method of Measurement
- E5.4.1 No separate measurement or payment will be made for the protection of trees.

E6. SITEWORK DEMOLITION AND REMOVALS

- E6.1 General Description
- E6.1.1 This Specification shall supplement CW 3010-R4, CW 3110-R7, CW 3235-R5, and CW 3240-R5 and shall cover the requirements for demolition, salvage, removal and disposal wholly or in part of various items designated to be removed or partially removed and for backfilling resulting trenches, holes and pits.
- E6.1.2 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 Work as hereinafter specified.
- E6.2 Equipment
- E6.2.1 All equipment shall be of a type approved by the Contract Administrator and shall be kept in good working order.
- E6.2.2 The size, weight, and destructive capabilities of the equipment shall be matched to the type of removal to be done.
- E6.3 Construction Methods
- E6.3.1 Scope of Work
- .1 The Work under this Specification shall include the following items as shown within the limit of Work on the Drawings or otherwise directed by the Contract Administrator:
- (a) Removal and disposal of full depth roadway pavement (asphalt over concrete) at crosswalks (granular base to remain);
 - (b) Removal and disposal of sections of existing concrete sidewalk and curb (granular base to remain);
 - (c) Removal and disposal of turf, stone mulch, and planting beds.
 - (d) Miscellaneous removals, including removal and disposal of light strings from trees, removal and disposal of whiskey barrel planters, and removal and disposal of timber edging.

- E6.3.2 Fees and Permits
- .1 The Contractor shall obtain and pay for all licenses and permits necessary for the demolition work.
 - .2 The Contractor shall comply with all Municipal, Provincial, and Federal Government regulations relating to the demolition of structures.
- E6.3.3 Safety Precautions
- .1 The Contractor shall provide flagmen, barricades, railings, and whenever necessary, warning signs at excavation holes, plywood access ramps and /or other construction necessary to secure the safety of workers, the public, and personnel alike and shall comply with all Provincial Statutes applicable to the Work of this nature. The Contractor shall provide all other protective measures as may be required by any law in force in Manitoba.
- E6.3.4 Protection of Existing Structures
- .1 Protect existing items designated to remain and materials designated for salvage. In event of damage to such items, immediately replace or make repairs to approval of the City and at no cost to the City.
- E6.3.5 Preparation of Site
- .1 Inspect Site and verify with Contract Administrator items designated for removal, disposal, salvage and items to remain.
 - .2 Locate and protect utility lines. Preserve in operating condition active utilities traversing site.
 - .3 **Notify utility companies before starting demolition. Utilities to provide clearance before any excavation is done.**
 - .4 **Notify Geomatics Service Branch at 986-4826 to obtain clearance and mark survey infrastructure minimum of 72 hours before any excavation.**
- E6.3.6 Removals by Others
- .1 The Contractor shall note that the removal of some existing site furnishings, plant material and topsoil may be undertaken by others during the Contract period and shall coordinate his efforts with the authorities responsible for such removals.
- E6.3.7 Removals
- .1 Remove items as indicated on the Drawings and as directed by the Contract Administrator. Do not disturb adjacent items designated to remain in place.
 - .2 In removal of pavements:
 - (a) sidewalk designated for replacement shall be removed to the nearest control or construction joint;
 - (b) square up adjacent surface to remain in place by saw-cutting or other method approved by Contract Administrator;
 - (c) protect adjacent joints and load transfer devices; and
 - (d) protect underlying granular materials.
 - .3 Miscellaneous removals:
 - (a) protect tree branches from damage during removal of light strings in accordance with E5.
 - (b) keep excavation to a minimum during removal of planting beds, turf and edging in the tree root zone.
- E6.3.8 Salvage of Materials
- .1 Materials designated to be salvaged, refurbished and re-installed shall be dismantled and removed and stored off-Site as directed by Contract Administrator.

- E6.3.9 Disposal of Materials
- .1 The Contractor shall promptly dispose of materials not designated for salvage or re-use in Work, off-site.
 - .2 Trim disposal areas to approval of Contract Administrator.
- E6.3.10 Backfill
- .1 Backfill in areas as indicated in accordance with Excavation Bedding and Backfill - CW 2030-R6.
- E6.3.11 Restoration
- .1 Restore areas and existing works outside areas of demolition to match condition of adjacent undisturbed areas.
- E6.3.12 Site Cleanup
- .1 Upon completion of Work, remove debris, trim surfaces and leave Work Site clean.
- E6.4 Method of Measurement
- E6.4.13 Removal and Disposal of Roadway Pavement
- .1 The removal and disposal of existing roadway pavement, including concrete and asphalt pavement, shall be measured on a surface area basis. The surface area to be paid for shall be the number of square metres removed in accordance with this Specification, and accepted by the Contract Administrator, as calculated by measurements made by the Contract Administrator.
- E6.4.14 Removal and Disposal of Concrete Sidewalk
- .1 The removal and disposal of existing concrete sidewalk shall be measured on a surface area basis. The surface area to be paid for shall be the number of square metres removed in accordance with this Specification, and accepted by the Contract Administrator, as calculated by measurements made by the Contract Administrator.
- E6.4.15 Removal and Disposal of Concrete Curb
- .1 The removal and disposal of existing concrete curb shall be measured on a length basis. The length to be paid for shall be the number of linear metres removed in accordance with this Specification, and accepted by the Contract Administrator, as calculated by measurements made by the Contract Administrator.
- E6.4.16 Removal and Disposal of Mulches, Turf, Planting Beds and Edging
- .1 The removal and disposal of existing stone mulch, woodchip mulch, planting beds, timber edging, and turf shall be measured on a surface area basis. The surface area to be paid for shall be the number of square metres removed in accordance with this Specification, and accepted by the Contract Administrator, as calculated by measurements made by the Contract Administrator.
- E6.4.17 Removal and Disposal of Light Strings
- .1 The removal and disposal of light strings shall be paid for on a unit basis per tree. The number to be paid for shall be the number of **trees** from which light strings were removed in accordance with this Specification and accepted by the Contract Administrator, as computed from measurements made by the Contract Administrator.
- E6.4.18 Removal and Disposal of Site Furnishings
- .1 The removal and disposal of designated site furnishings shall be paid for on a lump area basis. No measurement will be made for this Work.

E6.5 Basis of Payment

E6.5.19 Removal and Disposal of Roadway Pavement

- .1 The removal and disposal of existing roadway pavement shall be paid for at the Contract Unit Price per square metre for "Removal of Roadway Pavement," 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.

E6.5.20 Removal and Disposal of Concrete Sidewalk

- .1 The removal and disposal of existing concrete sidewalk shall be paid for at the Contract Unit Price per square metre for "Removal of Concrete Sidewalks," 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.

E6.5.21 Removal and Disposal of Concrete Curb

- .1 The removal and disposal of existing concrete curbs shall be paid for at the Contract Unit Price per square metre for "Removal of Concrete Curbs," 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.

E6.5.22 Removal and Disposal of Mulches, Turf, Planting Beds and Edging

- .1 The removal and disposal of existing stone mulch, woodchip mulch, planting beds, , turf and timber edging shall be paid for at the Contract Unit Price per square metre for "Removal of Miscellaneous Mulches, Turf, Planting Beds and Edging," 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.

E6.5.23 Removal and Disposal of Light Strings

- .1 The removal and disposal of light strings shall be paid for at the Contract Unit Price per tree for "Removal of Light Strings," 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.

E6.5.24 Removal and Disposal of Site Furnishings

- .1 The removal and disposal of designated site furnishings shall be paid for at the lump sum price for "Removal of Site Furnishings," 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.

E7. CLAY BRICK PAVING

E7.1 Description

E7.1.25 This Specification shall cover the preparation of sub-grade and the supply and installation of clay brick paving, sand and crushed limestone as indicated on the Drawings.

E7.1.26 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 Work as hereinafter specified.

E7.2 Materials

E7.2.1 General

- .1 The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification.

E7.2.2 Clay Brick Pavers

- .1 Clay brick pavers as manufactured by Endicott Clay Products Company and supplied by Alsip Industrial Products Ltd., Winnipeg, MB, (204) 667-3330. Pavers shall conform to ASTM C902. Type 1, dimensional tolerance: 1/8", wire cut face, 102 mm x 204 mm x 60 mm depth, solid (not cored). Colour: dark ironspot.

E7.2.3 Crushed Limestone

- .1 Crushed limestone shall conform to the requirements of Specification CW 3330-R3.

E7.2.4 Bedding Sand

- .1 Bedding sand shall conform to the requirements of Specification CW 3330-R3.

E7.2.5 Joint Sand

- .1 Joint sand shall conform to the requirements of Specification CW 3330-R3.

E7.3 Construction Method

E7.3.6 Preparation of Sub-grade, Sub-base and Sand base

- .1 Sub-grade, sub-base and sand base shall be installed in accordance with the requirements of Specification CW 3330-R3, except the sub-grade shall not be machine compacted but hand tamped to remove ruts, clods and other surface irregularities, and the depth of sub-base shall be approximately 100 mm.

Note: The Contractor shall protect tree roots from machinery compaction, cutting, and abrasion during all construction operations.

E7.3.7 Installation of Clay Brick Pavers

- .1 Clay brick pavers shall be installed in accordance with the requirements of Specification CW 3330-R3, set in locations and patterns as shown on the Drawings. Spaces between joints shall not exceed 3 mm, and shall be uniform and consistent while maintaining true patterns as indicated on the Drawings.
- .2 If cutting of pavers is required, the sawn edges shall be true, even and undamaged. Cuts shall occur at the end of rows and intersections of lines of paving only.
- .4 Clay brick pavers shall be compacted into the bedding sand layer using approved vibratory compactors until they are at the proper grade, uniformly level and free of any movement. Joint sand shall be swept into the joints until full.
- .5 Supply and placing of bedding and joint sand shall be incidental to the installation of the paving stones.

E7.4 Quality Control

- E7.4.8 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 of 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.

E7.5 Method of Measurement

E7.5.9 Crushed Limestone

- .1 The supply and installation of crushed limestone for clay paving shall be measured on a volume basis, and shall be paid under CW 3110-R7, Sub-Grade, Sub-Base and Base Course Construction: "Supply and place base course material for clay pavers." No other measurement or payment will be made for this Work.

E7.5.10 Clay Brick Pavers

- .1 The supply and installation of Clay Brick Pavers shall be measured on a surface area basis. The surface area to be paid for shall be the number square metres constructed in accordance with this Specification and accepted by the Contract Administrator, as computed from measurements made by the Contract Administrator.

E7.6 Basis of Payment

E7.6.11 Clay Brick Pavers

- .1 The supply and installation of clay brick pavers shall be paid for at the Contract Unit Price per square metre for "Clay Brick 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.

E8. DECORATIVE SANDBLASTING

E8.1 Description

- E8.1.1 This Specification shall cover the sandblasted exposed aggregate edge strips on new and existing concrete, and the application of sandblasted medallions on new and existing concrete pavement as shown on the Drawings.

E8.2 Materials

- E8.2.1 Stencil: Self-adhesive vinyl plastic or latex rubber core stencil material manufactured specifically for sandblasting industry or approved alternate.
- E8.2.2 Alcohol: Isopropyl alcohol.
- E8.2.3 Blasting Aggregate: #90 grit size, approved aggregate.
- E8.2.4 Supplementary Adhesive: Water soluble, approved adhesive, compatible with stencil material, conforming with the safety and environmental protection requirements of the National Building Code (NBC) 1995; Manitoba Occupational Health and Safety Act; and the Workers Compensation Act.
- E8.2.5 Masking Material: The Contractor shall obtain approval of the method used to mask off edge strips. Both disposable and reusable masks will be considered provided they result in crisp, straight edges in keeping with the patterns shown on the Drawings.

E8.3 Samples

E8.3.1 General

- .1 The Contractor shall furnish a 1m x 1m sample panel for approval by the Contract Administrator prior to construction of the designated areas. The panel shall include a sandblasted edge strip treatment, including the towelled joint between finishes, and a portion of the medallion pattern to allow the Contract Administrator to assess depth, clarity, and consistency. If the sample is rejected, additional sample panels shall be made until approval is obtained. The approved sample panel will be kept at the jobsite, and will become the quality standard for on-Site blasting.

E8.4 Construction Methods

E8.4.2 General

.1 Regulations

The Contractor shall comply with all Municipal, Provincial, and Federal Government regulations relating to on-Sites and blasting.

.2 Safety Precautions

The Contractor shall provide guards, barricades, dust screens, and/or other construction necessary to secure the safety of workers, the public, and personnel alike and shall comply with all Provincial Statues applicable to the work of their nature. Protective clothing and equipment shall be worn at all times during sandblasting operations. The Contractor shall provide all other protective measures as may be required by any law in force in Manitoba.

.3 Site Conditions

Application of sandblasted patterns only to be done under conditions conducive to a clean and accurate work.

.4 Protection of Existing Structures

Protect existing structures. In event of damage to such items, immediately replace or make repairs to approval of the City and at no cost to the City.

.5 Timing

New concrete must be allowed to cure at least 28 days prior to sandblasting.

E8.4.3 Sandblasted Edge Strips

.1 Layout

Obtain approval of layout prior to commencing masking or blasting operations.

.2 Surface Preparation

Sweep concrete surface to be sandblasted clean of any sand, dirt or other debris.

.3 Masking

Mask adjacent concrete with approved method to facilitate a clearly discernible, straight edge between sandblasted finish and broom finish concrete surfaces.

.4 Sandblasting

Mask or otherwise protect area around stencil from overspray. Ensure necessary safety precautions and dust control measures are in place prior to commencing any sandblasting. Blast with nozzle perpendicular to concrete - do not blast at an angle. Adjust blast pressure and nozzle distance to ensure blast is uniform in depth and no more than 2 mm in depth. The use of a recovery head and vacuum equipment to intercept dust as it is created is strongly recommended.

E8.4.4 Sandblasted Medallions

.1 Stencil Manufacture

Prepare stencils from patterns provided by Contract Administrator in digital (.dxf or .dwg) format. Obtain approval of stencil prior to application.

.2 Surface Preparation

Follow manufacturer's written directions for surface preparation of concrete. If no directions are provided, sweep entire concrete surface clean of any sand, dirt or other debris. Using respirator and all other required and appropriate safety equipment, wipe immediate Work area with heavy amount of alcohol and allow to evaporate. If interrupted, wipe area with alcohol again just prior to application of stencil.

.3 Application of Stencil

Obtain Contract Administrator's approval of location and orientation of stencils prior to application. Apply in accordance with manufacturer's written instructions, using approved supplementary adhesive in cases of heavy humidity or cool temperatures. Use care to accurately place stencil, since repositioning will weaken the bond. Roll or

tamp the stencil in place as directed by the manufacturer. Avoid damaging or dislodging stencil edges when weeding out pattern. Apply heat or pressure as directed by the manufacturer to re-adhere any portions of the stencil not firmly fixed to the pavement.

.4 Sandblasting

Mask or otherwise protect area around stencil from overspray. Ensure necessary safety precautions and dust control measures are in place prior to commencing any sandblasting. Blast with nozzle perpendicular to stencil - do not blast at an angle. Adjust blast pressure and nozzle distance to suit pattern and detail. Blast depth shall not exceed 3 mm. The use of a recovery head and vacuum equipment to intercept dust as it is created is strongly recommended.

E8.4.5 Restoration and Site Cleanup

- .1 Restore sandblasted areas and any adjacent areas affected by the Work to match condition of adjacent undisturbed areas.
- .2 Upon completion of Work, fully remove all residual adhesive, blasting aggregate, and other debris, to leave Work Site clean.

E8.5 Quality Control

E8.5.1 Only qualified sandblasting operators will be accepted.

E8.5.2 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.

E8.6 Method of Measurement

E8.6.1 Sandblasted Medallions

- .1 Sandblasted medallion patterns will be measured on a unit basis. The number of medallions to be paid for shall be the number applied in accordance with this Specification and accepted by the Contract Administrator, as computed from measurements made by the Contract Administrator.

E8.6.2 Edge Strip Sandblasting

- .1 Edge strip sandblasting will be measured on a length basis. The number of linear metres to be paid for shall be the number applied in accordance with this Specification and accepted by the Contract Administrator, as computed from measurements made by the Contract Administrator.

E8.7 Basis of Payment

E8.7.1 Sandblasted Medallion Patterns

- .1 The application of sandblasted medallion patterns shall be paid for at the Contract Unit Price per unit for the "Items of Work" listed below, measured as specified herein, which price shall be payment in full for supplying or supplying and installing all materials and performing all operations herein described and all other items included in the Work of this Specification.

E8.7.2 Items of Work:

- (ii) Sandblasted Medallion – 1100 mm ø;
- (iii) Sandblasted Medallion – 910 mm ø;

E8.7.3 Edge Strip Sandblasting

- .1 Edge strip sandblasting will be paid for at the Contract Unit Price per linear metre for "Edge Strip Sandblasting" measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations described herein and all other items included in the Work of this Specification.

E9. SITE FURNISHINGS AND CUSTOM FABRICATIONS

E9.1 Description

E9.1.1 This Specification shall cover the supply and installation of benches, custom granite furnishings, bicycle racks, planter baskets, waste receptacles and ornamental fence; the fabrication and installation of a custom notice board; and the supply only of birdhouses, banners, and banner arms and as indicated on the Drawings. The birdhouses and banners will be installed by others.

E9.1.2 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 Work as specified herein.

E9.2 Materials

E9.2.1 Benches

- .1 Victoria Series 60" Seat, model 9875, manufactured by *Recycle Design*, supplied by Sudden Fun Recreation Equipment Ltd. Box 48298 Midlake R.P.O. Calgary, Alberta T2X 3C7, Phone (403) 254-0500. "Durawood" slats, colour: "weathered," with black powder-coated aluminum frame.
- .2 Approved tamperproof stainless steel mounting hardware.

E9.2.2 Granite Furnishings

- .1 Custom-cut granite bench, stool and table, sizes and configurations as indicated on the Drawings, as supplied by Elemental Stonework, 2E, SW19 Altona, Manitoba, or approved equal. Contact Todd Braun, (204) 423-1534. Seat and table surfaces to be sawn and honed. Granite colour to be grey. Obtain approval of stone prior to manufacture.

E9.2.3 Bicycle Racks

- .1 Custom bicycle rack, part no. 12730gb – "custom", manufactured and supplied by Cycle-Safe, Inc. Grand Rapids, MI, phone 888-950-6531, complete with custom inlay lasercut from 6mm steel plate. Pattern, as shown on the Drawings, will be provided to the manufacturer by the Contract Administrator. PolyArmor coating to be semi-gloss black. In-ground mount. Provide sample for approval.

E9.2.4 Waste Receptacles and Hardware

- .1 Victor Stanley Inc. ES-242, 136 litre capacity waste receptacle, complete with ribbed and moulded plastic liner, standard tapered form lid (colour-VS Gloss black) as distributed by Victor Stanley Inc. P.O. Drawer 330-Dunkirk, MD 20754 USA, phone (301) 855-8300.
- .2 Approved tamperproof stainless steel mounting hardware.

E9.2.5 Planter Baskets and Mounts

- .1 Woven metal planter baskets, black and rust series, sizes: 600 mm diameter (cylindrical) and 750 x 600 mm (oval) complete with mounting tabs and clear coat finish suitable for exterior application, as manufactured and supplied by Recycled Garbage Art, Bellingham, Washington, USA. Contact Arunas Oslapas: email address: arunas.oslapas@wwu.edu / phone: (360) 738-8186.

- .2 Removable anchor bolts: approved stainless steel fastener, min. 8 mm (5/16") diameter with concrete embedded sleeve or wedge to allow seasonal removal of planter baskets – refer to Detail Drawings.

E9.2.6 Ornamental Fence

- .1 Commercial grade aluminum ornamental fence, 1524 mm (5') height, Iron Eagle "Canadian Eagle Aluminum" by Iron Eagle Industries Inc., supplied by Wallace and Wallace, 90 Lowson Crescent, Winnipeg MB, R3P 2H8, (204) 452-2700 or approved equal. Direct bury. Ball caps on posts. Colour black.

E9.2.7 Banner Arms

- .1 Bannerflex banner arms, 812 mm (32") length, complete with stainless steel mounting lag bolts, as supplied by West Four Decor Ltd., #4-1873 Parkview Crescent, Kelowna, BC, V1X 7G7, (250) 763-1519, or approved equal. Provide sample for approval. Colour: black, including arms.
- .2 Modified arms (for birdhouse/butterfly house mounting): Bannerflex banner arm assembly complete with stainless steel mounting hardware, with custom aluminum rod and mounting plate substituted for fibreglass arm. As supplied by West Four Decor Ltd., #4-1873 Parkview Crescent, Kelowna, BC, V1X 7G7, (250) 763-1519, or approved equal. Provide sample for approval. Aluminum scroll available from the Lawler Foundry, Catalogue no. 66, as distributed by Geo Bezdan Sales Ltd., 4040 Graveley Street, Burnaby, British Columbia V5C 3T6. Phone: 1-800-663-6356. All components black anodised.

E9.2.8 Birdhouses

- .1 Wren house, free of poisonous materials and finishes, complete with ventilation slots and hinged to allow cleanout. Acceptable products: Victorian birdhouse, Item CB-102, Beaks Cottage, Item CB-103, or Birdie Church, Item CB-105, all manufactured by Chez Birdie, P.O. Box 2591, Daytona Beach, FL, phone (386) 295-8014, or approved equal. Provide sample for approval.

E9.2.9 Butterfly House

- .1 Butterfly hibernation box, free of poisonous materials and finishes, complete with ventilation slots and hinged to allow cleanout. Acceptable products: Heartwood Large Butterfly House, supplied by GREENCulture, Inc., 32 Rancho Circle, Lake Forest, CA 92630, Phone: 1-877-20-GREEN (1-877-204-7336) or approved equal. Colour: yellow.

E9.2.10 Custom Notice Board Aluminum Components

- .1 Aluminum, plate and angle shall conform to ASTM B221-M-83 Alloy 5083, ASTM B209M-83 Alloy 6061-T6 or Alloy 6351-T6. Decorative patterns to be cut by qualified water cutter or plasma cutter. Welding to be done in accordance with CSA Standard W59.2-M1991, Welded Aluminum Construction, by welders certified in accordance with CSA Standard W47.2-M1987.

E9.2.11 Notice Board Surfacing

- .1 Recycled rubber matting, 10 mm thick, colour black, as supplied by Tire Recycling Corp., P.O. Box 899 Winkler, Manitoba R6W 4A9, (204) 325-8489, or approved equal.

E9.2.12 Notice Board Mounting Hardware

- .1 Stainless steel fasteners suitable for attachment to masonry surfaces, as Hilti or approved equal.

E9.2.13 Rubber Matting Adhesive

- .1 ChemRex CX-22 or approved alternate exterior grade adhesive suitable to affix rubber to aluminum.

E9.3 Construction Methods

- E9.3.1 All Work is to be located and installed in accordance with the Drawings using approved stainless steel, vandal resistant fasteners to ensure solid, durable, finished Work suitable for the purpose intended.
- E9.3.2 Site furnishings with in-ground mounts, such as the bicycle racks, shall be set into concrete as indicated on the Drawings. Unit pavers shall be cut to fit snugly around all embedded furnishings.
- E9.3.3 Site furnishings with surface mounts, such as benches, shall be installed in accordance with the details.
- E9.3.4 All furnishings and fixtures to be installed plumb and true to correct elevations and location, as directed by the Contract Administrator. The Contractor shall confirm proposed locations of all site furnishings with Contract Administrator prior to installation.
- E9.3.5 All furnishings and fixtures to be carefully handled so that no parts will be bent, broken, or otherwise damaged. Hammering, which will injure or distort fixture, is prohibited.
- E9.3.6 Install as per manufacturers' instructions.
- E9.3.7 Notify the Contract Administrator when all banner arms arrive from the supplier. The Contractor shall fasten the birdhouses to the modified banner arms with approved stainless steel hardware. Installation of all banner arms and all birdhouse / banner arm assemblies to poles will be by Manitoba Hydro. The Contract Administrator shall coordinate delivery of banner arms and birdhouse / banner arm assemblies to the installer.

E9.4 Method of Measurement

- E9.4.1 The supply or supply and installation of Site Furnishings shall be measured on a Unit Basis. The number of site furnishings to be paid for shall be the total number that are supplied or supplied and installed in accordance with this Specification and accepted by the Contract Administrator, as calculated from measurements made by the Contract Administrator.

E9.5 Basis of Payment

- E9.5.1 The supply or supply and installation of Site Furnishings shall be paid for at the Contract Unit Price per unit for the "Items of Work" listed below, measured as specified herein, which price shall be payment in full for supplying or supplying and installing all materials and performing all operations herein described and all other items incidental to the Work included in this Specification.

E9.5.2 Items of Work:

- (i) Benches;
- (ii) Granite Bench;
- (iii) Granite Table;
- (iv) Granite Stool;
- (v) Bicycle Racks;
- (vi) 600 mm Planter Basket;
- (vii) 750 x 600 mm Planter Basket;
- (viii) Waste Receptacles;
- (ix) Banner Arms (supply only);
- (x) Birdhouse /Banner Arm Assemblies (supply only); and
- (xi) Butterfly House /Banner Arm Assemblies (supply only); and
- (xii) Custom Notice Board.

E10. RETROREFLECTIVE SIGNS

E10.1 Description

E10.1.1 This Specification shall cover the supply and installation of custom street name signs and decorative fittings.

E10.1.2 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 Work as hereinafter specified.

E10.2 Materials

E10.2.1 Street Sign Blades

- .1 Standard City of Winnipeg aluminum street sign blade blank with thickened top and bottom edge, height 159 mm (6.25"), length to suit street name. Surface shall be etched and dried to accept reflective sheeting. Remove all burrs and sharp edges. Provide mounting holes in locations indicated on the Drawings.

E10.2.2 Street Sign Blade Mounting Brackets and Finials

- .1 Standard post top street sign blade mounting brackets, cross pieces and decorative caps as supplied by Airmaster Sales Ltd., Winnipeg, MB, phone (204) 944-7446. Size and configuration to suit existing street sign poles and custom street sign blades. Provide samples to Contract Administrator for approval.

E10.2.3 Reflective Sheeting

- .1 3M Brand Scotchlite Series 3200 Engineering grade Reflective Sheeting, or equivalent, complete with permanent pressure sensitive adhesive backing (Sheeting colour - 3290 White). Sheeting to comply with ASTM D4956-90.

E10.2.4 Printing Inks

- .1 Digital or silkscreen printing are acceptable. Inks to be matched UV stable, waterproof transparent inks, 3M Scotchlite 700 Series enamel-based ink system or approved equal. Inks shall be compatible to comply with reflective sheeting manufacturer's warranty requirements.

E10.2.5 Artwork

- .1 Artwork to be provided in digital (EPS) format by the Contract Administrator. A full colour hard copy of the artwork will be provided on award of Contract.
- .2 This artwork shall not be reproduced in any other form or in excess of the amount contracted for, except by written approval of the Contract Administrator.

E10.3 Construction Methods

E10.3.1 Workmanship

- .1 Printing and application of sheeting shall be performed by trained and qualified workers with a minimum of 5 years experience, under controlled conditions.
- .2 In accordance with ASTM D4956-90, ink transparency and retroreflectivity shall be such that signs appear at night as they appear in daylight.

E10.3.2 Colour Matching

- .1 Ink colours applied to a reflective surface shall match the samples provided by the Contract Administrator to the satisfaction of the Contract Administrator.

E10.3.3 Colour Schedule

- .1 Contractor shall submit colour samples on reflective sheeting for approval prior to commencing screen printing.

E10.3.4 Registration

- .1 The Contractor shall note that **transparent inks** are specified for this Work, and therefore accurate trapping settings and registration of all colours are critical to the appearance of the signs. Acceptable tolerances shall be to the highest standards of the silkscreen printing industry. **Any sign in which the registration is shifted by more than 2mm or which shows gaps between colour areas will be rejected.**

E10.3.5 Surface Preparation

- .1 Ensure sign blades have been properly deburred, degreased, etched and all edges have been eased to accept reflective sheeting decals in accordance with decal manufacturer's recommendations.

E10.3.6 Application of Sheeting

- .1 Apply sheeting in accordance with manufacturer's written specifications. Decals shall be centred precisely on base plate. Trim sheeting to form clean, smooth edge along perimeter of base plates.

E10.3.7 Sample

- .1 The Contractor shall provide one full scale colour sample of the custom street sign blade to the Contract Administrator to ensure compliance with the Specifications and Drawings, and shall obtain written approval from the Contract Administrator prior to manufacture of full order. Sample must use specified inks and be printed on specified retroreflective sheeting.
- .2 Alternate proofing methods may be proposed by the Contractor, subject to approval by the Contract Administrator.

E10.3.8 Installation

- .1 New street sign blades will be installed in the same locations as existing street sign blades. No relocation will be permitted without the approval of the Contract Administrator. Old sign blades shall be made available to Traffic Services Department.
- .2 The Contractor shall re-use existing mounting brackets, hardware and poles that are in good condition. Notify the Contract Administrator of any poles that are bent or mis-aligned and require replacement. Re-use of existing hardware and poles shall be included in the cost of the Work.
- .3 Sign blade installation shall be completed in accordance with Traffic Services requirements and to their satisfaction.

E10.4 Method of Measurement

E10.4.1 Custom Street Name Signs

- .1 The supply and installation of custom street sign blades shall be paid for on a unit basis. The number of supplied and installed in accordance with this Specification and as accepted by the Contract Administrator.

E10.4.2 Brackets and Finials

- .1 The supply and installation of brackets and finials shall be paid for on a unit basis. The number of supplied and installed in accordance with this Specification and as accepted by the Contract Administrator.

E10.5 Basis of Payment

E10.5.1 Retroreflective signs shall be paid for at the Contract Unit Price for the following items of Work, listed below, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this Specification.

Items of Work:

- (i) Supply and Installation of Custom Street Name Signs
 - Westminster Avenue
 - Lipton Street
 - Ruby Street
 - Lenora Street
 - Evanson Street
 - Arlington Street
 - Home Street
 - Ethelbert Street
 - Canora Street
 - Chestnut Street
 - Walnut Street
- (ii) Supply and Installation of Sign Blade Finials
- (iv) Supply and Installation of Sign Blade Mounting Brackets

E11. BANNERS

E11.1 Description

E11.1.2 This Specification shall cover the supply of Wolseley emblem banners, screened both sides, as shown on the Drawings.

E11.1.3 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified.

E11.2 Materials

E11.2.4 Banner Fabric

- .1 All banner fabric shall be Ferrari 24 ounce double-sided vinyl banner stock, as available through Light Visions, 1-675 Berry St., Winnipeg, phone 944-1199, or approved equal. Fabric colour shall be white.

E11.2.5 Banner Size

- .1 Finished size, excluding sleeves, shall be 720 x 1170 mm (approx. 28" x 46")

E11.2.6 Banner Sleeves

- .1 Sleeves for banner arms shall be precision welded, not sewn.

E11.2.7 Digital Inks

- .1 High durability solvent based inks, UV stable, suitable for outdoor applications.

E11.2.8 Grommets

- .1 Grommets shall be 9 mm (3/8") diameter, stainless steel.

E11.2.9 Artwork

- .1 Artwork to be provided in digital format by the Contract Administrator.
- .2 This artwork shall not be reproduced in any other form or in excess of the amount contracted for, except by written approval of the Contract Administrator.

E11.3 Construction Methods

E11.3.10 Workmanship

- .1 Digital printing and manufacture of banners shall be performed by qualified and skilled workers under controlled conditions.
- .2 Both sides of the banner fabric shall be printed according to the best practices of the trade.

E11.3.11 Registration

- .1 Registration between colours shall be kept to a minimum overlap.

E11.3.12 Banner Construction

- .1 Provide sleeves for banners arms as indicated on the Drawings. Locate welds in discrete locations. Welds to be clean and precisely aligned.
- .2 Grommets are to be installed as shown on the Drawings.

E11.3.13 Sample

- .1 The Contractor shall provide one sample banner for approval prior to fabrication of the complete order.
- .2 Submit sample with reasonable promptness so as to cause no delay in the Work.

E11.3.14 Delivery and Installation

- .1 All banners will be installed by others.
- .2 Notify the Contract Administrator when banners arrive from the printer. The Contract Administrator shall coordinate delivery of banners and standby materials to the installer and the City.

E11.4 Method of Measurement

E11.4.15 General

- .1 Banners shall be paid for on a unit basis. The number of banners to be paid for shall be the total number supplied in accordance with this Specification and accepted by the Contract Administrator.

E11.5 Basis of Payment

E11.5.16 General

- .1 The supply of banners shall be paid for at the Contract Unit Price for the following items of Work, listed below, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this Specification.

Items of Work:

- (i) Wolseley Emblem Banners
- (ii) Standby Wolseley Emblem Banners

E12. TOPSOIL AND FINISH GRADING

E12.1 General Description

E12.1.1 This Specification shall cover the supply and installation of topsoil in planting beds and planter baskets. Note that topsoil and finish grading for turf areas is covered under Specification CW 3540 – R4, and that payment for topsoil and finish grading for turf areas is to be included in the price of sodding.

E12.1.2 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 other things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified.

E12.2 Protection

E12.2.1 Protect elements surrounding the Work of this section from damage or disfiguration.

E12.2.2 Protect landscaping and other features remaining as final Work.

E12.3 Source Quality Control

E12.3.1 Inform Contract Administrator of proposed source of topsoil to be supplied and provide sample for review by Contract Administrator prior to installation.

E12.3.2 Test topsoil for clay, sand and silt, NPK, Mg, soluble salt content, pH value, growth inhibitors and soil sterilants.

E12.4 Submittals

E12.4.1 Submit 0.5 kg sample of topsoil to National Testing Laboratory or approved alternate and indicate present use and intended use. Prepare and ship sample in accordance with provincial regulations and testing laboratory requirements.

E12.4.2 Submit two (2) copies of soil analysis and recommendations for corrections to Contract Administrator.

E12.5 Delivery and Storage

E12.5.1 Deliver and store fertilizer in waterproof bags accompanied in writing by weight, analysis and name of manufacturer.

E12.6 Materials

E12.6.1 Topsoil: In accordance with CW 3540-R4.

E12.6.2 Fertilizer: synthetic slow release starter fertilizer with a N-P-K analysis of 12:36:15 ratio at a rate of 4 kg/100 m² (8 lb./100 sq.ft.).

E12.6.3 Peatmoss: derived from partially decomposed fibrous or cellular stems and leaves of species of sphagnum mosses. Elastic and homogeneous, brown in colour. Free of wood and deleterious material that could prohibit growth. Shredded particle minimum size: 5 mm.

E12.6.4 Sand: clean, hard, fine sand, well washed and free of impurities, chemical or organic matter.

E12.7 Construction Method

E12.7.1 Excavation

- .1 Excavate tree pits and groundcover holes by hand unless otherwise directed by the Contract Administrator, at locations indicated on the Drawings. Dispose of all rock, clay soils and other deleterious materials off site.

- .2 Protect bottom of excavations against freezing.
- .3 Remove water which enters excavations prior to planting. Ensure source of water is not ground water or from a broken water pipe.

E12.7.2 Soil Placement

- .1 Place soil in uniform layers over approved, unfrozen sub-grade, to the depth indicated on the Drawings.
- .2 Eliminate rough spots and low areas. Prepare a loose, friable bed, boot firm and level.
- .3 Place soil in planter baskets in 150 mm (6") lifts.

E12.7.3 Soil Amendments

- .1 Apply lime, sulphur or other soil amendment at rate determined and recommended from soil sample test.
- .2 Mix soil amendment well into full depth of topsoil prior to application of fertilizer.

E12.7.4 Finish Grading

- .1 Fine grade entire topsoiled area to contours and elevations as indicated on the Drawings. Eliminate rough spots and low areas and prepare a loose, friable bed, with a smooth, uniform surface, firm against deep foot printing, and a fine loose texture.

E12.7.5 Surplus Material

- .1 Dispose of surplus topsoil not required off site.

E12.7.6 Site Cleanup

- .1 All sidewalks, streets, approaches, driveways and properties near the Work Site shall be kept clean at all times by the Contractor.
- .2 Upon completion of the project, the Contractor shall immediately remove all excess material and debris from the Work Site.

E12.8 Method of Measurement

- E12.8.1** Supply and placement and topsoil in planting beds and planter baskets will be measured on an volume basis. The volume to be paid for shall be the number of cubic metres placed in accordance with this Specification and accepted by the Contract Administrator, as calculated from measurements made by the Contract Administrator.

E12.9 Basis of Payment

- E12.9.2** Supply and placement of topsoil in beds and baskets will be paid for at the Contract Unit Price per square metre for the Items of Work listed below, measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this Specification.

Items of Work:

- (i) Topsoil in Planting Beds
- (ii) Topsoil in Planting Baskets

E13. TREES AND PERENNIALS

E13.1 Description

- E13.1.1** This Specification shall cover the supply and installation of plant material as specified herein and as indicated on the Drawings, and shall supplement the "Guidelines for the Planting of Boulevard Trees - Schedule D", latest edition, available from the City of Winnipeg Forestry Branch. Where these two documents differ, this Specification shall take precedence.

E13.1.2 The Work to be done by the Contactor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all other things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified.

E13.2 Source Quality Control

E13.2.1 Obtain Approval of plant material at source.

E13.2.2 Notify Contract Administrator of source of material at least seven (7) days in advance of shipment. No Work under this section is to proceed without approval.

E13.2.3 Acceptance of plant material at its source does not prevent rejection on Site prior to or after planting operations.

E13.2.4 Trees are to be grown in nurseries under proper horticultural practices as recommended by the Canadian Nursery Trades Association.

E13.2.5 Only those trees will be accepted which have been grown for at least the last four (4) previous years in nurseries located in an Agriculture Canada Plant Hardiness Zone designation of 2 (a or b) or 3 (a or b). Trees that have grown in Plant Hardiness Zone 4 or greater will be rejected.

E13.3 Shipment and Pre-Planting Care

E13.3.1 Coordinate shipping of plants and excavation of holes to ensure minimum time lapse between digging and planting.

E13.3.2 Tie branches of trees securely and protect plant material against abrasion, exposure and extreme temperature change during transit. Avoid binding of planting stock with rope or wire that damage bark, break branches or destroy natural shape of plant. Give full support to rootball of large trees during lifting.

E13.3.3 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.

E13.3.4 Remove broken and damaged roots with sharp pruning shears. Make clean cuts and cover cuts over 10 mm diameter with wound dressing.

E13.3.5 Keep roots moist and protected from sun and wind. Heel-in trees that cannot be planted immediately in shaded areas and water well.

E13.4 Warranty

E13.4.1 Further to GC 13, the Contractor agrees to replace and replant any nursery stock found dead or in poor condition throughout the warranty period as defined in E15, without cost to the Owner. "Poor Condition" shall be interpreted as meaning nursery stock on which branches are dead or dying, or have not shown satisfactory growth in leaves. Exempted is nursery stock damaged by accidental causes or vandalism, which stock shall be replaced at the cost of the Owner.

E13.4.2 All required replacements shall be by plants of at least the same size and species as specified, and shall be supplied and planted in accordance with the original Drawings and Specifications, and the replaced plant material shall carry an additional two (2) years guarantee. Should the replaced plant material not survive, the Contractor will be responsible to replace it a third time and guarantee it for an additional two (2) years unless it is determined that unique Site conditions or inadequate maintenance causes the death of plants.

E13.4.3 An end-of-warranty inspection will be conducted.

E13.4.4 Contract Administrator reserves the right to extend Contractor's warranty responsibilities for an additional one (1) year if, at the end of warranty period, leaf development and growth is not sufficient to ensure future survival.

E13.5 Replacements

E13.5.1 During warranty period, remove from Site any plant material that has died or failed to grow satisfactorily as determined by Contract Administrator.

E13.5.2 Replace plant material as soon as possible and as directed by the Contract Administrator.

E13.6 Materials

E13.6.1 Topsoil: E10: Topsoil and Finish Grading.

E13.6.2 Peat: E10: Topsoil and Finish Grading.

E13.6.3 Water: Potable and free of minerals which may be detrimental to plant growth

E13.6.4 Tree Rings: fabricated from 3 mm galvanized wire encased in two-ply reinforced 12 mm diameter rubber garden hose or equivalent.

E13.6.5 Stakes: T-Bar steel stakes 38 mm x 38 mm x 5 mm x 2500 mm.

E13.6.6 Guy Wires and Accessories: Steel wire strand to CSA G4-M1977 3 mm diameter. Horticultural guy wire tightener.

E13.6.7 Trunk Collar: 150 mm diameter corrugated plastic pipe, 300 mm height.

E13.6.8 Rootball Burlap: Biodegradable 150 g Hessian burlap.

E13.6.9 Anti-Desiccant: Wax-like emulsion to provide film over plant surfaces reducing evaporation but permeable enough to permit transpiration.

E13.6.10 Wound Dressing: Horticulturally accepted non-toxic, non-hardening emulsion.

E13.6.11 Fertilizer: Slow release formulation of low nitrogen, high phosphorous (e.g., 10-50-12). Apply at rate in accordance with manufacturers written instructions.

E13.6.12 Woodchip Mulch: Woodchips from hardwood trees, free of bark, branches, and leaves varying in size from 1/4" to 3/4" (6-20 mm) thick.

E13.6.13 Horticultural Bonemeal: Raw bonemeal finely ground with minimum analysis of 3% nitrogen and 10% phosphoric acid.

E13.7 Plant Material

E13.7.1 Quality and Source: Comply with Guide Specification for Nursery Stock, latest edition, of Canadian Nursery Trades Association (CNTA) referring to size and development of plant material and rootball. Height and spread dimensions refer to main body of plant and not from branch tip to branch tip. Use trees of No. 1 grade.

E13.7.2 Nomenclature of specified trees is to conform to the International Code of Nomenclature for Cultivated Plants and is to be accordance with the approved scientific names given in the latest edition of "Standardized Plant Names".

E13.7.3 Trees are to be characteristically developed for their species and structurally sound, well branched, healthy and vigorous and densely foliated when in leaf. Each tree is to have a healthy, well developed, fibrous root system, which may be verified through a testing procedure that destructively samples one, or more randomly selected rootballs.

E13.7.4 Trees are to have been root pruned regularly, but not later than one growing season prior to arrival on site. Trees in excess of 75 mm calliper are to have been half root pruned during each of two successive growing season, the latter at least, one growing season prior to arrival on site.

- E13.7.5 All parts of plant material are to be moist and show live, green cambium tissue when cut.
- E13.7.6 Trees and shrubs are to be free of disease, insect infestation, rodent damage, sun scald, frost cracks, abrasions, unhealed scars, scars exceeding 5 cm in diameter, major forks or crooks in the trunk, broken branches, or angled leaders. Trees having the above defects will not be accepted by the Contract Administrator.
- E13.7.7 Trees having a leader that has developed at a sharp angle to the trunk as a result of pruning or trunk damage will not be accepted.
- E13.7.8 Tree Spade Dug Material: Dig plant material with mechanized digging equipment of hydraulic spade or clamshell type. Rootballs to satisfy CNTA standards. Lift rootball from hole, place in wire basket designed for purpose and lined with burlap. Tie burlap around rootball and tie basket to ball with heavy rope. Take care not to injure trunk of tree with wire basket ties or rope.
- E13.7.9 Container Grown Stock: Acceptable if container is large enough for root development. Trees and shrubs must have grown in container for minimum of one growing season but no 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.
- E13.7.10 Deciduous trees in excess of 3 m height must have been dug with large firm ball. Rootballs must include seventy-five percent (75%) of fibrous and feeder root system. This excludes the use of native trees grown in light sandy or rocky soil. Secure rootballs with burlap, heavy twine and rope. For large trees wrap ball in double layer of burlap and drum lace with minimum 10 mm diameter rope. Protect rootballs against sudden changes in temperature and exposure to heavy rainfall.
- E13.7.11 Collected or Native Plant Material: Any nursery stock dug from native stands, wood lots, orchards or neglected nurseries shall be designated as "collected plants". The use of "collected plants" will not be permitted unless approved by Contract Administrator.
- E13.7.12 Cold Storage: approval required for plant material that has been held in cold storage.
- E13.7.13 Substitutions to plant material as indicated on planting plan are not permitted unless written approval has been obtained as to type, variety and size. Plant substitutions must be of similar species and of equal size as those originally specified.
- E13.8 Plant Specification List
- E13.8.1 Refer to the Drawings for Plant Specification List.
- E13.9 Equipment
- E13.9.1 All equipment shall be of a type approved by the Contract Administrator and shall be kept in good working order.
- E13.10 Construction Methods
- E13.10.1 General
- .1 Stake out location of trees and groundcovers as per Drawings. Obtain Contract Administrator's acceptance prior to excavating.
 - .2 Apply anti-desiccant in accordance with material manufacturer's instructions, as required.
 - .3 Coordinate operations. Keep Site clean and planting holes drained. Immediately remove soil of debris spilled onto street pavement, grass or sidewalk.
- E13.10.2 Planting Time
- .1 Plant only under conditions that are conducive to health and physical conditions of plants.

- .2 Provide planting schedule. Extending planting operations over long period using limited crew will not be accepted.
- .3 Install trees and groundcovers within 48 hours of removal from the nursery.

E13.10.3 Excavation

- .1 Excavate tree pits and groundcover holes as indicated on Detail on Drawings. Distribute excavated topsoil on site. Dispose of excavated clay soils off site.
- .2 Protect bottom of excavations against freezing.
- .3 Remove water which enters excavations prior to planting. Ensure source of water is not ground water or from a broken water pipe.

E13.10.4 Planting

- .1 Loosen sides of planting holes to a depth of 100 to 150 mm as indicated on Detail on Drawing. Cover bottom of each excavation with bonemeal in amount recommended by manufacturer.
- .2 Plant trees vertically with roots placed straight out in hole. Orient plant material to give best appearance in relation to structure, roads, and walks.
- .3 Place plant material to equal depth they were originally growing in nursery.
- .4 With balled and burlapped rootballs, loosen burlap and remove maximum of 1/3 of the top burlap from rootball without disturbing the rootball. Do not pull burlap or rope from under rootball. With container stock, remove entire container without disturbing rootball. Non-biodegradable wrappings must be removed.
- .5 Tree Spade Excavated Material: dig tree hole with same mechanical equipment as used to dig plant material. Ensure hole dug is upright as possible.
- .6 Tamp planting soil around root system in layers of 150 mm, 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.
- .7 Each tree is to have an earth saucer at its base having a diameter as large as the excavation with a 100 mm lip formed at the perimeter of the saucer to retain water.

E13.10.5 Fertilizing

- .1 When planting is completed, give surface of planting saucer dressing of fertilizer meeting the requirements of E12. Mix fertilizer thoroughly with top layer of planting soil and water in well.

E13.10.6 Tree Support

- .1 Tree support is shown on Planting Details on Drawings.
- .2 Staking for deciduous trees up to 10' (3 m) and coniferous trees up to 6.5' (2 m) in height: backfill planting hole 2/3, drive T-rail stake 2' (900 mm) into bottom of pit, taking care not to damage main roots. Place stake or anchor 6" (150 mm) away from trunk on side of prevailing wind. Fasten trunk to stake or anchor with tree ring. Different methods of fastening tree trunk to stake or anchor are acceptable if no damage to bark of tree will occur. Obtain approval prior to using other methods.
- .3 Guy Wires for Trees up to 6" (140 mm) Calliper:
 - .1 For deciduous trees taller than 10' (3 m) and evergreen taller than 6.5' (2 m), fasten three wires to tree where a branch will prevent slipping down. Use tree rings to prevent abrasion of bark.
 - .2 Fasten wires to anchors at distance from tree base equal to height of where wire is attached to trunk. Install wire tighteners and tighten slightly.
 - .3 Where guy wires are used close to pedestrian traffic ways, fasten metal flags to wires to make them clearly visible.

E13.10.7 Pruning

- .1 Prune trees after planting, to compensate for loss of roots suffered during transplanting. Postpone pruning, of those trees where heavy bleeding may occur, until in full leaf. Employ clean sharp tools and make cuts flush with main branch, smooth and sloping as to prevent accumulation of water. Remove projecting stumps on trunks or main branches. Remove dead and injured branches that rub causing damage to bark. Trim out crown of trees and shrubs without changing twigs along main branches. Treat cuts in excess of 20 mm diameter and damaged parts with application of wound dressing.

E13.10.8 Mulching

- .1 Obtain approval of planting before mulching material is applied. Loosen soil in planting beds and pits and remove debris and weeds. Spread mulch to minimum thickness of 75 mm (3") or as indicated on drawing. Mulch material susceptible to blowing must be moistened and mixed with topsoil before applying. When mulching is placed in fall, place immediately after planting. When mulch is placed in spring, wait until soil has warmed.

E13.10.9 Maintenance

- .1 Ensure all plant material is watered in immediately after installation. Maintain all planted areas from time of installation to the time they are accepted to start warranty (min. 30 days) as part of the installation contract.

E13.11 Method of Measurement

- E13.11.1 The supply and installation of trees and groundcovers will be measured on a Unit Basis. The number of plants to be paid for shall be the total number of trees and groundcovers supplied and installed in accordance with this Specification and accepted by the Contract Administrator. Excavation, topsoil and fertilizer required for planting will not be measured and shall be considered incidental to the supply and installation of plant material.

E13.12 Basis of Payment

- E13.12.1 Plant material will be paid for at the Contract Unit Price per each tree and groundcover as itemized in Plant Specification List, E13.8, counted as specified herein. Price shall be payment in full for supplying all materials and performing all operations herein described and all other items of Work incidental to the Work included in this Specification.

E14. SOD REPAIR

E14.1 General Description

- E14.1.1 This Specification shall cover the supply and installation of sod in areas disturbed by construction as indicated on the Drawings and in accordance with CW 3510-R7.
- E14.1.2 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 other things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified and in accordance with CW 3510-R7.

E14.2 Materials

- E14.2.1 Nursery sod for general park areas, boulevards, medians and interchange areas. Sod shall contain:
 - .1 100% Canada No. 1 Kentucky Bluegrass or a mixture containing not less than 60% Canada No. 1 Kentucky Bluegrass with the remaining 40% Creeping Red Fescue.

E14.3 Construction Method

- E14.3.1 Construction method shall conform to CW 3510-R7.

E14.4 Method of Measurement

E14.4.1 Supply and placement of sod will be measured on an area basis. The area to be paid for shall be the total number of square metres placed in accordance with this Specification and accepted by the Contract Administrator, as calculated from measurements made by the Contract Administrator.

E14.5 Basis of Payment

E14.5.1 Sodding will be paid for at the Contract Unit Price per square metre for "Sod repair" 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.

E15. LANDSCAPE MAINTENANCE

E15.1 General Description

E15.1.2 This Specification shall cover the maintenance of trees, shrubs, and perennials following acceptance of the plant material to start warranty.

E15.1.3 Contractor shall maintain all landscape areas in accordance with these Specifications from date of installation up to the date they are accepted to start warranty as part of the installation contract.

E15.1.4 In general, the Work shall include:

- .1 Fertilizing
- .2 Watering
- .3 Weed Control
- .4 Pest and Disease Control
- .5 Mowing
- .6 Mulching
- .7 Tree Support
- .8 Winter Preparation

E15.1.5 Maintenance shall be performed on an as required basis.

E15.2 Maintenance and Warranty Period

E15.2.1 Maintenance shall occur between the date of installation and up to a period of two (2) years from date landscaped areas are accepted to start warranty. The warranty period for plant materials will be coincidental to the maintenance period.

E15.2.2 Thirty days after the planting installation has been completed, the Contract Administrator shall perform an inspection of the plant material to determine if the plant material is acceptable to start warranty.

E15.3 Materials and Equipment

E15.3.1 Materials shall conform to the requirements of related Specification sections.

E15.3.2 Provide all equipment to properly execute Work. Maintain such equipment in a workable, safe condition while in use during this project.

E15.3.3 Contract Administrator shall review equipment to be used to execute Work prior to execution.

E15.4 Construction Method

E15.4.1 General

- .1 Provide watering service within 24 hours, weeding services within 48 hours of the request by the Contract Administrator. Monitor the Site and advise the Contract Administrator of conditions that might void the Contractor's warranty responsibilities.
- .2 The Contractor shall maintain a log noting times, dates, equipment used, and quantity of materials used and areas treated for each maintenance application. Forms shall be provided by Contract Administrator. Submit log to Contract Administrator upon request. Contractor shall notify Contract Administrator of the exact time Contractor proposes to commence each application.
- .3 Schedule operations in accordance with growth, health, weather conditions, and use of site.
- .4 Perform each operation continuously and completely within a reasonable time period.
- .5 Store equipment and materials off site.
- .6 Collect and dispose of debris or excess material on the day the maintenance is undertaken.

E15.4.2 Maintenance of Trees

- .1 Fertilizing

Apply fertilizer only at frequency, ratio and rates as recommended by manufacturer. Water immediately after fertilizing.

Apply fertilizer no later than May 30th of each maintenance year.
- .2 Watering

Apply water as required to supplement rainfall and to maintain optimum growing conditions. In general, water once a week to achieve rates as indicated. Allow soil to adequately dry between watering to prevent over saturation without creating water stress.

Subject to the above-noted requirements, the Contractor must water at least once a week between May 1st and October 15th inclusive. A complete record is to be kept of each series of waterings for all planted trees noting location and date of watering. This record is to be given to the Contract Administrator when requested.

Apply 40 litres of water per 25 mm calliper per application using a deep root feeder or low pressure open flow nozzle and hose. The water stream must not gouge the soil and mulch.
- .3 Weed Control

Inspect and undertake weed control weekly during the first year of maintenance and monthly during the second year.

By hand, remove all weeds with their roots from tree pits and tree beds and dispose of off site. When weeding operation is complete, replace and rake displaced mulch to its original condition.
- .4 Pests and Diseases

Obtain written approval of Contract Administrator prior to using any pesticide.

Control pests and disease through pruning or application of pesticides. Use species specific pesticides where possible. Use only pesticides of low mammalian toxicity. Strictly follow manufacturer's written instructions.
- .5 Pruning

The Contractor shall provide a person with a Manitoba Arborists Certificate for each work crew or Work site.

Prune trees as required to remove dead, broken or damaged limbs. Prune back to healthy growth while maintaining balanced crown shape.

Employ clean sharp tools. Make cuts smooth and flush with outer edge of branch collar near the main stem or branch. Cuts must be smooth and sloping to prevent accumulation of water on cut. Do not leave little stumps ("horns") on trunks or main branches.

Prune trees according to accepted horticultural practices as outline in "The Pruning Manual", Publication No. 1505-1977 by Agriculture Canada.

.6 Mulching

Add mulch as required to maintain original thickness.

Contractor is to provide replacement mulch material.

.7 Tree Supports and Tie Adjustments

Maintain tree supports and ties in proper repair.

Remove supports and ties at end of maintenance period unless otherwise directed by Contract Administrator.

.8 Winter Preparation

Ensure adequate moisture in tree root zones prior to freeze-up.

Apply anti-desiccant to evergreen trees susceptible to winter desiccation.

E15.4.3 Maintenance of Perennials and Groundcovers

.1 Watering

Apply water as required to supplement rainfall and to maintain optimum growing conditions. In general, water once a week to achieve rates as indicated. Allow soil to adequately dry between watering to prevent over saturation without creating water stress.

Subject to the above-noted requirements the Contractor must water at least once a week between May 1st and October 15th inclusive. A complete record is to be kept of each series of waterings for all shrubs and perennials in planters, noting location and date of watering. This record is to be given to the Contract Administrator when requested.

Water as required to achieve field capacity of soil to 300 mm depth. Water stream must not gouge the soil and mulch.

.2 Weed Control

Inspect and undertake weed control weekly during the first year of maintenance and monthly during the second year.

By hand, remove all weeds with their roots from planters and dispose of off site.

When weeding operation is complete, replace and rake displaced mulch to its original condition.

E15.5 Method of Measurement

E15.5.1 Landscape maintenance shall be paid for on an annual Lump Sum basis. No measurement shall be made for this Work.

E15.6 Basis of Payment

E15.6.2 Landscape maintenance shall be paid for at the Contract Lump Sum Price for the Items of Work listed below, measured as specified herein, which price shall be payment in full for supplying all material and performing all operations herein described and all other items incidental to the Work included in this Specification.

Items of Work:

- (i) Landscape Maintenance Year 1
- (ii) Landscape Maintenance Year 2