



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 444-2006

BUS STOP UPGRADE PROGRAM – PHASE 1

TABLE OF CONTENTS

PART A - BID SUBMISSION

Form A: Bid	1
Form B: Prices	4
Form G1: Bid Bond and Agreement to Bond	7
Form G2: Irrevocable Standby Letter of Credit and Undertaking	9

PART B - BIDDING PROCEDURES

B1. Project Title	1
B2. Submission Deadline	1
B3. Site Investigation	1
B4. Enquiries	1
B5. Addenda	1
B6. Substitutes	2
B7. Bid Submission	3
B8. Bid	3
B9. Prices	4
B10. Qualification	4
B11. Bid Security	5
B12. Opening of Bids and Release of Information	6
B13. Irrevocable Bid	6
B14. Withdrawal of Bids	6
B15. Evaluation of Bids	7
B16. Award of Contract	8

PART C - GENERAL CONDITIONS

C1. General Conditions	1
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PART D - SUPPLEMENTAL CONDITIONS

General

D1. General Conditions	1
D2. Scope of Work	1
D3. Contract Administrator	1
D4. Contractor's Supervisor	2
D5. Notices	2
D6. Furnishing of Documents	2

Submissions

D7. Safe Work Plan	2
D8. Insurance	3
D9. Performance Security	3
D10. Subcontractor List	4

Schedule of Work

D11. Commencement	4
D12. Substantial Performance	4
D13. Total Performance	4
D14. Liquidated Damages	5
D15. Scheduled Maintenance	5

Control of Work

D16. Job Meetings	5
D17. Prime Contractor – The Workplace Safety and Health Act (Manitoba)	5

Warranty

D18. Warranty	6
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Template Version: C120060615

Form H1: Performance Bond	7
Form H2: Irrevocable Standby Letter of Credit	9
Form J: Subcontractor List	11

PART E - SPECIFICATIONS

General

E1. Applicable Specifications, Standard Details and Drawings	1
--	---

General Requirements

E2. Truck Weight Limits	1
E3. Pre-Construction Meeting	1
E4. Access	1
E5. Safety Precautions	2
E6. Site Conditions	2
E7. Existing Underground Structures	2
E8. Product Approvals	3
E9. Damage to Streets and Structures	3
E10. Permits, Notices, Licences, Certifications, Laws and Rules	3
E11. Sign Support Clamps	4
E12. Adjustment of Pavement and Boulevard Structures	4
E13. Removals	4
E14. Excavation and Site Grading	8
E15. Concrete Curb Renewal	9
E16. Cast-In-Place Concrete	10
E17. Asphalt Paving	15
E18. Concrete Sidewalk	16
E19. Interlocking Paving Stones	17
E20. Precast Concrete Shelter Bases	19
E21. Fencing	20
E22. Planting and Mulch Bed Preparation	20
E23. Plant Material	22
E24. Extended Maintenance	26

PART B - BIDDING PROCEDURES

B1. PROJECT TITLE

B1.1 BUS STOP UPGRADE PROGRAM – PHASE 1

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, July 28, 2006.

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.

B3.2 The Bidder is advised that all sites are within no stopping zones. The Contractor is to ensure that he does not block any bus stops or traffic.

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 regularly and shortly before the Submission Deadline, as may be amended by addendum.

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.

B15.5 Further to B15.1(c) the Total Bid Price shall be the total Bid Price shown on Form B: Prices adjusted, if necessary as follows:

- (a) if the lowest evaluated responsive Bid submitted by a responsible and qualified Bidder is within the budgetary provisions for the work, no adjustment will be made to the total bid price; or
- (b) if the lowest evaluated responsive Bid submitted by a responsible and qualified Bidder exceeds the budgetary provision for the Work, the Total Bid Prices of all responsive Bids submitted by responsible and qualified Bidders will be adjusted by deleting all work associated with stop numbers 10070, 10076, 60153, 60127, 60118, 60034, 61104, 60565, and 60069. Which will reduce the following items by the quantities shown:

<u>Item</u>	<u>Qty</u>
A3	6 s.m
A4	30 s.m

A9 a.	5 ea
A9 b.	7 ea
A10 a.	6 ea
A18	15 m
A21	1 ea
A23	300 s.m
A25 b.	6 s.m
A27	7 ea.
A31	5 s.m

on Form B: Prices and the award will be based on the adjusted Total Bid Price.

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.

C1.1.1 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 redevelopment of existing bus stops including construction of concrete bases, asphalt paving, curb and sidewalk and supply and installation of site furniture and plant material.
- D2.2 The major components of the Work are as follows:
- (a) Supply and install concrete bases for shelters;
 - (b) Supply and install concrete piles and pile caps for illuminated signs;
 - (c) Supply and install concrete sidewalk with unit paver insert;
 - (d) Concrete curb renewal;
 - (e) Supply and install reinforced concrete pad
 - (f) Supply and install asphalt paving
 - (g) Supply and install pinned concrete curb;
 - (h) Supply and install benches;
 - (i) Relocate existing site furniture;
 - (j) Supply and install plant material;
 - (k) Supply and install sod.

D3. CONTRACT ADMINISTRATOR

- D3.1 The Contract Administrator is McGowan Russell Group Inc., represented by:
- Ms. Jackie Wilkie
Senior Landscape Architect
200-120 Fort St. Winnipeg, R3C 1C7
Telephone No. (204) 956-0396
Facsimile No. (204) 956-1265

D3.2 At the pre-construction meeting, Ms. Wilkie 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.

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;

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.

D8.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least fifteen (15) Calendar Days prior written notice to the Contract Administrator.

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.

D9.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.

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 the General Conditions for the return of the executed Contract.

SCHEDULE OF WORK

D11. COMMENCEMENT

D11.1 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.

D11.2 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; 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.

D11.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the letter of intent.

D12. SUBSTANTIAL PERFORMANCE

D12.1 The Contractor shall achieve Substantial Performance within Thirty Five (35) consecutive Working Days of the commencement of the Work as specified in D11.

D12.2 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.

D12.3 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.

D13. TOTAL PERFORMANCE

D13.1 The Contractor shall achieve Total Performance within Forty (40) consecutive Working Days of the commencement of the Work as specified in D11.

D13.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract

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

- D13.3 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.

D14. LIQUIDATED DAMAGES

- D14.1 If the Contractor fails to achieve Total Performance in accordance with the Contract by the day fixed herein for Total Performance, the Contractor shall pay the City Five Hundred dollars (\$500.00) per Working Day for each and every Working Day following the day fixed herein for Total Performance during which such failure continues.
- D14.2 The amount specified for liquidated damages in D14.1 is based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve Total Performance by the day fixed herein for same.
- D14.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D15. SCHEDULED MAINTENANCE

- D15.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:
- (a) Plant Material Maintenance as specified in E22 and E24;
 - (b) Sod Maintenance as specified in CW3510 and E24;
- D15.2 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

D16. JOB MEETINGS

- D16.1 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.
- D16.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he deems it necessary.

D17. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

- D17.1 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

D18. WARRANTY

- D18.1 Notwithstanding GC:13.2, 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
- D18.1.1 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. 444-2006

BUS STOP UPGRADE PROGRAM – PHASE 1

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. 444-2006
BUS STOP UPGRADE PROGRAM – PHASE 1

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)

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>
	Cover Sheet
L1.1	Layout Plans 1 of 4
L1.2	Layout Plans 2 of 4
L1.3	Layout Plans 2 of 4
L1.4	Layout Plans 4 of 4
L2.1	Details
L2.2	Details

GENERAL REQUIREMENTS

E2. TRUCK WEIGHT LIMITS

- E2.1 The City shall not pay for any portion of Material which results in the vehicle exceeding the maximum gross vehicle weight allowed under *The City of Winnipeg Traffic By-Law*, unless such vehicle is operating under special permit.

E3. PRE-CONSTRUCTION MEETING

- E3.1 The Contractor shall not begin the Work under this Contract until a pre-construction meeting has been held between representatives of the Contractor, the City of Winnipeg and the Contract Administrator.

E4. ACCESS

- E4.1 Further to GC5.02 of the General Conditions, the Contractor shall provide adequate safety protection for pedestrians and vehicular traffic exposed to the Work environment under this Contract.
- E4.2 All access is to be on City Streets and as directed by Contract Administrator.
- E4.3 Access to the Site as required by the Contractor shall be provided, maintained and restored (to as good as or better than existing condition) by the Contractor at his own expense and approved by the Contract Administrator.

E4.4 The Contractor's operations shall be limited to the minimum area necessary for undertaking the Work and he shall be responsible for all damage resulting from his work on private property. The Contractor shall take such measures as are necessary to ensure safe and convenient pedestrian ingress and egress is maintained to private properties while he is working near them. Any damage caused by the negligence of the Contractor or his Subcontractors to the adjacent works or properties, shall be promptly repaired by him at his own expense, to the satisfaction of the Contract Administrator.

E4.5 All necessary precautions shall be exercised by the Contractor so as not to remove, disturb, or damage any existing trees, shrubs, sod, pavements, streets, roads, boulevards, poles, hydrants, water pipes, gas pipes, electrical wires, cables, conduits, sewers or other existing facilities and equipment at the Site of the Work. For all damage incurred in the performance of the Work (either directly or indirectly), the Contractor shall either replace and repair such damage, whichever may be deemed necessary in the opinion of, and acceptable to, the City and the owners, and the cost of which shall be borne entirely by the Contractor. The Contractor shall also indemnify and save harmless the City from all claims made directly or indirectly against it in respect to any such damage.

E5. SAFETY PRECAUTIONS

E5.1 Further to Section GC 5.02 of the General Conditions, the Contractor shall provide adequate safety protection for pedestrians and vehicular traffic exposed to the Work environment under this Contract.

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

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

E6. SITE CONDITIONS

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

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

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

E7. EXISTING UNDERGROUND STRUCTURES

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

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

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

- E7.4 All costs in connection with this item including location of the existing service, repairs to any existing services damaged by the construction operation, etc. shall be included in the unit prices bid for supply and installation of the items included under this Contract.
- E7.5 The Contractor will be required to make his own arrangements in connection with the temporary use of lighting, power, gas, sewer, water or other utilities, and pay all costs in connection therewith.
- E7.6 All necessary permits, fees and other like expenses as well as the cost of temporary connections to existing facilities shall be arranged and paid for by the Contractor.

E8. PRODUCT APPROVALS

- E8.1 The Contractor shall, following award, prepare a complete list of all material to be used on the project and submit the list to the Contract Administrator 72 hours prior to start of construction.
- E8.2 The Contractor shall only use material which has been approved by Specification CW3710-R1 or by the Contract Administrator. The list shall give the product, the manufacturer and the supplier.
- E8.3 Other than required to be done by the Contractor under the Work of this contract, all necessary precautions shall be exercised by the Contractor so as not to remove, disturb, or damage any existing plant material, pavements, streets, roads, boulevard, poles, hydrants, water pipes, gas pipes, electrical wires, cables, conduits, sewers or other existing facilities and equipment at the Site of the Work. For all damage incurred thereto in the performance of the Work, the Contractor shall upon instructions from the Contractor Administrator and to the satisfaction of the City and the owners thereof, either replace and repair such damage, whichever may be deemed necessary in the opinion of, and acceptable to, the City and the owners thereof and the costs of which shall be borne entirely by the Contractor. The Contractor shall also indemnify and save harmless the City from all claims made directly or indirectly against it in respect to any such damage.
- E8.4 All workmanship and materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Contract Administrator. The Contract Administrator reserves the right to reject any materials or Works which are not in accordance with the requirements of the Specifications.
- E8.5 The Contractor shall wholly be responsible for the supply, safe storage, and handling of all materials set forth in this specification, and the control of all operations incidental thereto notwithstanding any inspection or approval that may have been previously given.

E9. DAMAGE TO STREETS AND STRUCTURES

- E9.1 The Contractor's attention is drawn to the following existing Site features to be retained and protected to the City of Winnipeg Standards:
- | | | |
|------------------|-------------------|---|
| a) trees, shrubs | e) light standard | i) hydro towers and poles |
| b) curbs | f) fire hydrants | j) catch basins |
| c) sidewalk | g) street signs | k) curb inlets |
| d) sod | h) signal poles | m) underground services including land drainage sewer |

E10. PERMITS, NOTICES, LICENCES, CERTIFICATIONS, LAWS AND RULES

- E10.1 The Contractor shall give all necessary notices, obtain all necessary permits and pay all fees in order that the Work may be carried out. The Contractor shall submit all plans required by any

inspection authority and obtain approval of same before proceeding with the Work, and pay any cost attached to the inspection of such plans.

E10.2 The Contractor shall comply with all laws, ordinances, rules, and regulations that would relate to the Works.

E11. SIGN SUPPORT CLAMPS

E11.1 The Contractor shall install all new sign support clamps at the locations as shown on the Drawings or as directed by the Contract Administrator. The City shall supply all sign support clamps.

E11.2 All existing sign support clamps removed during construction are to be replaced or returned to the City if not required.

E11.3 All costs in connection with the installation of sign support clamps are incidental to the unit prices bid.

E12. ADJUSTMENT OF PAVEMENT AND BOULEVARD STRUCTURES

E12.1 Further to CW 3210 all existing surface utilities within the area of new sidewalk, interlocking paving and full depth patching of existing pavement are to be adjusted to meet finish grades.

E12.2 Adjustment of pavement and boulevard structures is incidental to the Work with the exception of manholes, catch basins and curb and gutter inlets noted on the drawings as requiring significant adjustment. The adjustment of these structures is to be measured and paid for at the contract unit price per unit adjusted in accordance with CW 3210 including replace, remove or add precast concrete riser sections and compacted granular backfill as required.

E12.3 All surface utilities are to be provided with cast in place concrete isolation collars as per standard City of Winnipeg details and as per the Drawings. Collar dimensions and forms are to be confirmed on Site by Contract Administrator prior to construction. Installation of new and renewal of existing isolation collars are incidental to the Work.

E13. REMOVALS

E13.1 Further to Specification CW 3110 and due to the extent and nature of underground services in the street right-of-way, the Contractor shall be permitted to use only backhoe type equipment when excavating sub-grade material.

E13.2 Further to Specifications CW 3230 and CW 3235, the Contractor shall sawcut and remove existing concrete sidewalk paving as shown on the Drawings and as directed by the Contract Administrator. The removal shall include all existing concrete and base course where applicable.

Description

E13.3 This Specification shall cover the removal and/or relocation of existing:

- (a) Asphalt paving;
- (b) Concrete curb;
- (c) Concrete sidewalk;
- (d) Patio slabs;
- (e) Unit paving;
- (f) Shelter bases;
- (g) Pile cap;

- (h) Site furniture;
- (i) Fencing;
- (j) Shrubs and shrub beds;
- (k) Prune existing trees and remove weeds;
- (l) Removal of unsuitable subgrade and replacement with compacted limestone base.

E13.4 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work hereinafter specified.

Equipment

E13.5 All equipment shall be of a type approved by the Contract Administrator and shall be kept in good working order.

Construction Methods

E13.6 The Contractor shall restrict his activities strictly to within the limits of the Works, unless receiving prior written approval from the Contract Administrator.

E13.7 The Contractor shall sawcut, remove and dispose of existing asphalt, curb and concrete sidewalk as indicated on the drawings.

E13.8 The Contractor shall remove and dispose of existing unit pavers and patio slabs. Disposal of sand setting bed and base as required for new construction is incidental to the Work.

E13.9 The Contractor shall breakout, remove and dispose of existing C.I.P. shelter bases as indicated on the drawings. Contractor shall repair surface as indicated on the drawings.

E13.10 The Contractor shall disconnect power to, breakout, remove and dispose of existing illuminated sign pile cap to 600mm below finish grade and repair surface with topsoil to fill hole and sod.

E13.11 Contractor to relocate or remove and deliver from Site all Benchmark benches as indicated on the drawings. Contractor to coordinate with Benchmark prior to removal. Benches to be delivered as directed by Benchmark Advertising. Store benches to be relocated on Site in safe location during construction.

E13.12 Contractor to relocate existing waste receptacles as shown on the drawings. Store on Site in safe location during construction.

E13.13 Contractor to relocate the existing Salvation Army Drop Box at Windermere as shown on the drawings. Store on Site in safe location during construction.

E13.14 Contractor to relocate the existing Cash Stop sign at Killarney as shown on the plans, including all electrical connections and concrete base requirements. Store on Site in safe location during construction.

E13.15 The Contractor shall remove and dispose of existing chain link fence and bases as shown on the drawings.

E13.16 The Contractor shall remove existing shrubs and shrub beds as indicated on the plans, including, mulch, fabric, soil and roots as required for new construction.

E13.17 The Contractor shall prune the existing trees as noted on the drawings and remove all weeds and suckers from around the base of the trees. All pruning to be done by qualified arborist.

- E13.18 The Contractor shall load and haul all removed material from the Site and dispose of these materials at a dump located by the Contractor and approved by the Contract Administrator. Any materials dropped or spilled on any streets during the hauling operations shall be promptly cleaned up at the expense of the Contractor, to the satisfaction of the Contract Administrator.
- E13.19 The Contractor shall ensure that upon completion of the removal operations, the Site shall be left free of any hazardous depressions and in a neat condition.
- E13.20 If required and at locations directed by the Contract Administrator, the Contractor shall excavate and remove unsuitable subgrade material and replace it with compacted granular material in accordance with Specification CW3110. Only areas beyond required excavation for pathway and sod will be measured and paid.

Method of Measurement

- E13.21 Removal of asphalt paving will be measured on an area basis for Work completed in accordance with this Specification as determined by the Contract Administrator.
- E13.22 Removal of concrete curb will be measured on a length basis for Work completed in accordance with this Specification as determined by the Contract Administrator.
- E13.23 Removal of concrete sidewalk paving will be measured on an area basis for Work completed in accordance with this Specification as determined by the Contract Administrator.
- E13.24 Removal of existing patio slabs will be measured on an area basis for Work completed in accordance with this Specification as determined by the Contract Administrator.
- E13.25 Removal of existing unit paver will be measured on an area basis for Work completed in accordance with this Specification as determined by the Contract Administrator.
- E13.26 Removal of existing shelter bases will be measured on an area basis for Work completed in accordance with this Specification as determined by the Contract Administrator.
- E13.27 Removal of existing pile cap will be measured on a per unit basis for Work completed in accordance with this Specification as determined by the Contract Administrator.
- E13.28 Removal of existing site furniture will be measured on a per unit basis for Work completed in accordance with this Specification as determined by the Contract Administrator.
- E13.29 Relocation of existing site furniture will be measured on a per unit basis for Work completed in accordance with this Specification as determined by the Contract Administrator.
- E13.30 Removal of existing fence will be measured on a length basis for Work completed in accordance with this Specification as determined by the Contract Administrator.
- E13.31 Pruning of existing trees and removal of existing weeds will be measured on an area basis for Work completed in accordance with this Specification as determined by the Contract Administrator.
- E13.32 Removal of unsuitable subgrade and replacement with compacted granular base will be measured on a volume basis. The total number of cubic metres to be paid for shall be the total number removed and replaced in accordance with this Specification as computed from measurements made by the Contract Administrator.

Basis of Payment

- E13.33 Removal of asphalt paving will be paid for at the contract square metre price for "Sawcut, remove and dispose of asphalt paving", 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.

- E13.34 Removal of concrete curb will be paid for at the contract lineal metre price for “Sawcut, remove and dispose of concrete curb”, 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.
- E13.35 Removal of concrete sidewalk paving will be paid for at the contract square metre price for “Sawcut, remove and dispose of concrete sidewalk”, 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.
- E13.36 Removal of shrub bed will be paid for at the contract square metre price for “Excavate and remove existing shrub bed”, 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.
- E13.37 Removal of patio slabs will be paid for at the contract square metre price for “Remove and dispose of patio slabs”, 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.
- E13.38 Removal of existing unit paver will be paid for at the contract per square metre price for “Remove and dispose of unit paver”, 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.
- E13.39 Removal of existing shelter bases will be paid for at the contract per square metre price for “Remove and dispose of reinforced concrete shelter bases”, 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.
- E13.40 Removal of existing pile cap will be paid for at the contract unit price for “Remove and dispose of existing illuminated sign pile cap”, 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.
- E13.41 Relocation of existing site furniture will be paid for at the contract unit price for “Relocate existing site furniture”, 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.
- E13.42 Removal of existing site furniture will be paid for at the contract unit price for “Remove and deliver existing site furniture”, 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.
- E13.43 Removal of existing fence will be paid for at the contract lineal metre price for “Remove and dispose of chain link fence”, 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.
- E13.44 Removal of existing shrub bed will be paid for at the contract per square metre price for “Excavate and remove existing shrub bed”, 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.

- E13.45 Pruning of existing trees and weeding will be paid for at the contract unit price for "Prune existing trees and remove weeds", 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.
- E13.46 Removal of unsuitable subgrade and replacement with compacted granular base will be paid for at the contract unit price per cubic meter for "Remove existing unsuitable subgrade and replace with compacted granular base" as specified herein, which price shall be payment in full for performing all operations herein described (including salvaging mesh for reinstallation where noted) and all other items incidental to the Work included in this Specification.

E14. EXCAVATION AND SITE GRADING

General

- E14.1 The "General Conditions and Supplemental Conditions" of this Specification and all documents listed in the Tender shall apply to and govern all phases of the Work hereinafter specified and/or shown on the Drawings.

Scope of Work

Work Included

- E14.2 The Work of this section comprises the furnishing of all labour, equipment and materials required to complete the Site grading and related Work including, but not necessarily confined to, the following:
- (a) Excavation and Grading of the existing Site to the design requirements noted on the Drawings, approved on Site by the Contract Administrator, less the appropriate surface finish allowance.

Work Not Included

- a) Excavation for Electrical Installation.

Protection

- E14.3 Prevent damage to surface or underground utility lines, sods, existing trees to remain, etc. which are to remain. The Contractor shall take special care to protect the existing trees, including root systems and trunks. Make good any damage.

Removals

- E14.4 The Contractor shall restrict his activities strictly to within the limits of the Works, unless receiving prior written approval from the Contract Administrator. The Contractor shall take all precautions to prevent damage to traffic structures, pole lines, adjacent property and he shall be liable for any damages occurring in the performance of this Work.
- E14.5 The Contractor shall load and haul all rubbish and all other surface litter from the Site and dispose of these materials at dumps located by the Contractor and approved by the Contract Administrator. Any materials dropped or spilled on any streets during the hauling operations shall be promptly cleaned up by and at the expense of the Contractor, to the satisfaction of the Contract Administrator.
- E14.6 The Contractor shall ensure that upon completion of the removal operations, the Site is left in a neat condition free from debris, etc.

Materials

E14.7 Excavated or graded material to be approved before use as fill for grading work. Protect such approved material from contamination.

Earthwork and Grading

E14.8 The Contractor shall construct the Site within the limits indicated to the design elevations and gradients noted on the Drawings, less the appropriate surface treatment depths specified and shall excavate, remove and dispose of all unsuitable materials of whatever nature encountered.

E14.9 The Contractor shall construct all subgrades in accordance with Specification CW 3110-R5. This shall include the use of sheep's foot or other suitable compaction equipment as approved by the Contract Administrator to achieve a minimum compaction of 98% Standard Proctor Density below concrete sidewalk, and 95% Standard Proctor Density in all other areas disturbed under this Contract.

E14.10 The Contractor is advised that there may be a surplus of fill on the Site after the design subgrade level has been achieved. All surplus material will be disposed of as previously stated. No direct payment will be made for disposing of surplus fill as all costs for this Work shall be included in the lump sum price for Excavation and Grading.

E14.11 Following earth moving, rough grading and compaction, the Work areas shall be fine graded to provide a maximum deviation of 50mm in 10m from the design grade with no low areas that hold water. The finished surface of all disturbed areas shall be dragged and smoothed in such a manner that there are no loose soil particles greater than 50mm in maximum dimensions.

E14.12 The Contractor shall construct the subgrade surface to the following depths below the design grades shown on the Drawings for each area:

1.	Shrub bed	550mm
2.	Mulch bed	100mm
3.	Sod	100mm
4.	Concrete Sidewalk	150mm
5.	C.I.P. Transit Shelter Base	300mm-450mm(perimeter)
6.	Concrete Sidewalk with Unit Paving	223mm
7.	Light Duty Asphalt	375mm
8.	Heavy Duty Asphalt	500mm
9.	Reinforced Concrete Paving	275mm

E14.13 The Contractor is advised that all Work under this section is incidental to the unit prices bid under this contract.

E15. CONCRETE CURB RENEWAL

E15.1 All work to be in accordance with CW 3240.

Measurement and Payment

E15.2 Further to CW 3240 item 4.3 Concrete Curb Renewal:

E15.2.1 Items of work:

E15.2.2 Concrete Curb Renewal

- (i) 150mm ht. Barrier Curb as per SD 206A
- (ii) Ramp curb as per SD 229E

E16. CAST-IN-PLACE CONCRETE

General

E16.1 The "General Conditions and Supplemental Conditions" of this Specification and all documents listed in the Quotation shall apply to and govern all phases of the Work hereinafter specified and/or shown on the Drawings.

Scope of Work

Work Included

E16.2 The Work of this section comprises the furnishing of all labour, equipment and materials required to complete the supply and installation of cast-in-place concrete slabs and footings as shown on the drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Excavation.
- (b) Granular Fill work as required.
- (c) Supply, erection and removal of all formwork as required.
- (d) Design of concrete mixes.
- (e) Supply, placing and curing of concrete for one Illuminated Signage Pile and Pile Cap as shown on the drawings. Co-ordinate manufacturer of sign structure as required.
- (f) Supply, placing and curing of concrete for one Transit Shelter Base as shown on the Drawings. Co-ordinate with shelter manufacturer as required.
- (g) Supply, placing and curing of reinforced concrete edger.
- (h) Supply, placing and curing of concrete base for power pedestal. Co-ordinate manufacturer of pedestal.
- (i) Supply, placing and curing of reinforced roadway concrete.
- (j) Supply and installation of pinned concrete curb.
- (k) Co-ordination of the installation of all electrical and other items to be installed in the concrete works by other trades.
- (l) Detailing, supply and placing of reinforcing.
- (m) Clean-up.

Work Not Included

E16.3 The following items of Work are specified under other sections of the specifications and are not included in this section:

- (a) Supply of miscellaneous metal anchors, bolts, inserts, etc.

Materials

E16.4 Concrete for cast-in-place power pedestal, shelter base and edger as follows:

Cement: Type 50
Max. Coarse Aggregate: 20mm
Min Compressive Strength at 28 days +35Mpa
Min. Cement Content: 310 kg/cu.m
Max. Water Cement Ratio: 0.45
Class of Exposure: C-2
Max. Slump: 90mm ± 20mm
Air Content: 5 to 8%
Flyash content: Max. 15% of Cementitious Material

E16.5 Concrete for cast-in-place friction pile as follows:

Cement: Type 50
Max. Coarse Aggregate: 40mm
Min Compressive Strength at 28 days = 30
Min. Cement Content: 310 kg/cu.m
Max. Water Cement Ratio: 0.45
Class of Exposure: S-2
Max. Slump: 90mm ± 20mm
Air Content: 4 to 7%
Flyash content: Max. 15% of Cementitious Material

E16.6 Concrete and reinforcing for concrete roadway paving to CW3310 for reinforced concrete pavement.

E16.7 Pinned concrete curb as per CW3310.

E16.8 Fine aggregate shall consist of natural sand or manufactured sand and shall conform to all requirements of CAN3.A23.1.

E16.9 Coarse aggregate shall consist of hard, strong, uncoated durable particles of crushed stone, gravel or approved combination thereof and shall be free from an excess of thin, elongated or soft pieces, frozen lumps, vegetable matter or other deleterious matter, and shall conform with all the requirements of CAN3-A23.1. Maximum size of coarse aggregate shall be 20 mm.

E16.10 Water for concrete shall be clean and free from injurious amounts of oil, acid, alkali, salts, silt, organic matter or other deleterious matter. The quality of the water shall be equal to or better than that of potable water.

E16.11 A non-detergent type of air-entraining admixture, supplied in liquid form, shall be metered into the mix. The total air in the placed concrete shall be 5% - 8%.

1. Reinforcing steel shall be grade 300 deformed bars. Detailing of reinforcing steel shall be in accordance with ACI 315. All bars, which require bending, shall be bent in shops.

E16.12 All reinforcing steel shall be straight, clean and free from paint oil, mill scale, excess rust and any injurious defects, which may affect its strength or bond.:

E16.13 Ends of reinforcing steel intended for bonding that are to be left exposed for some time shall be protected from injury, oils or moisture.

E16.14 The City may engage a fully qualified Inspecting Engineer and Testing Laboratory to:

- (a) Inspect the pile excavations to determine that they have been augured to the specified depth, are of the specified size, are clean and level, and meet the design criteria.
- (b) Take test cylinders during concrete placing and carry out compression tests to determine whether concrete produced complies with these Specifications.
- (c) Take compaction tests of compacted granular subbase and subgrade material.
- (d) Submit reports to the Contract Administrator of all materials, concrete, and caisson tests and inspections.

E16.15 Three concrete test cylinders to be taken for pile cast. One cylinder from each group shall be tested at 7 days, one at 14 days and the remainder at 28 days. Sampling and testing procedures shall be according to CAN3-A23.1 latest edition.

Excavation for Piling

- E16.16 Excavation for the pile shall be done by auguring to the sizes shown on the Drawings. Water jetting methods of excavation will not be permitted. The bearing surface shall be inspected and any loose material shall be cleaned out prior to casting concrete.
- E16.17 If, in the opinion of the Contract Administrator, casing is required to prevent the sides of the augured hole from sloughing in the casing shall be supplied and installed, at no cost to the City. Sleeving will not be allowed for piles less than 600 mm diameter. The diameter of casing supplied shall be equal to the specified diameter of the foundation being constructed. If required, overboring shall be carried out to allow the installation of the casing, if so approved by the Contract Administrator. No additional payment will be made for overboring. The casing shall be designed to withstand installation, withdrawal and earth pressure forces. The casing shall be withdrawn as the concrete is poured ensuring that the casing is at least 1 metre below the top of the freshly placed concrete until all concrete in the foundation is placed.
- E16.18 The pile excavation shall be kept dry at all times. The Contractor shall have on hand sufficient pumps to satisfy this requirement.
- E16.19 Rocks or boulders hindering the continuation of drilling shall be removed in whole or part, using approved methods.
- E16.20 If the excavation for the pile varies from the location shown on the drawing by more than 75 mm (3"), the excavation shall be enlarged so that the centreline of the reinforcing cage is within 75 mm (3") of its specified location and 75 mm (3") of concrete cover to the reinforcing steel is maintained.

Pile Concrete Work

- E16.21 The pile concrete shall be cast no later than 24 hours after the excavation has been completed.
- E16.22 The reinforcing cage shall be placed in the pile excavation prior to starting the concreting. Spacers shall be provided to keep the reinforcing cage in its correct location.
- E16.23 Reinforcement shall be clean, and free from all coatings, including ice, loose rust, dried concrete, which tend to reduce bond.
- E16.24 Reinforcement shall be formed accurately and secured in pile shaft and to required ties and spacers with annealed wire ties or suitable clips so that position and concrete cover, as called for on drawings is assured.
- E16.25 Vertical or bent bars shall extend above the top of pile shaft as shown to provide anchorage for the grade beam.
- E16.26 Reinforcing bars kinked, twisted, bent past a right angle, or reduced in cross section, will be rejected.
- E16.27 Concrete consistency shall be such that concrete works readily into corners and around reinforcement without segregation of materials or the collection of free water on the surface.
- E16.28 Do not place concrete until piles, shafts, and/or bells have been inspected.
- E16.29 Place concrete using "elephant trunk" or special chutes which will prevent segregation of materials, ensure a practically continuous flow of concrete at the delivery end, and limit the vertical height of free fall of the concrete to 3 metres.
- E16.30 Concrete placing shall be continuous from bottom to top of pile or caisson, and puddling or rodding carried on constantly to bring air bubbles to the surface and produce a uniform, homogeneous structure.

- E16.31 Mechanical vibration shall be carried out continuously during placing of concrete in piles.
- E16.32 Work concrete completely around reinforcement by rodding, spading and mechanical vibration. Vibrators shall vibrate at not less than 5000 impulses per minute and shall be operated by personnel experienced and qualified in their use.
- E16.33 Finish exposed pile tops smooth and level at elevations shown on Drawings. Form top of pile or shaft as required.
- E16.34 Concrete shall be kept moist for at least the first 7 days after placing and the temperature of the concrete maintained above 10°C during this time.
- E16.35 If upper soil stratum is dry and there is danger of the concrete losing moisture thereto, water shall be added to the soil by forming a depression around the pile top and ponding continuously for a period of 7 days.
- E16.36 Whenever the temperature of the surrounding air is below or is likely to fall below 5°C during the 4 day period immediately following concrete placing, artificial heating, housing and/or protective covering shall be provided for the pile tops to maintain concrete temperature at or above 10°C.
- E16.37 No dependence shall be placed on salt or other chemicals for the prevention of freezing.

Placing of Concrete for Slab

- E16.38 Placing of concrete shall be in accordance with CAN3-A23.1
- E16.39 No concrete shall be placed until formwork, insulation, reinforcing steel, sleeves, hangers, anchors, inserts, etc., required to be built into the concrete have been inspected by the Contract Administrator.
- E16.40 Before placing concrete on bearing strata, notify the Contract Administrator so that she may make an inspection of the exposed bearing surface.
- E16.41 No concrete shall be placed in water or upon frozen surfaces.
- E16.42 Before placing any concrete, all debris shall be removed, forms shall be thoroughly oiled except where form oil will be detrimental to the finished surface. Equipment shall be cleaned of hardened concrete and foreign material.
- E16.43 All concrete shall be thoroughly vibrated during pouring. Precautions shall be taken to prevent separation or loss of ingredients while transporting the concrete. At no time shall concrete be allowed to a free fall of more than 1.5 m.
- E16.44 Conveying equipment shall be on temporary runways built over the floor system and runway supports shall not bear upon the fresh concrete.
- E16.45 Placement of concrete shall be carried out as a continuous operation until the placing of an individual section is completed. Concrete shall be carefully worked around reinforcement and embedded fixtures, along surfaces and into corners of forms. Vibrators shall be used, and operated under experienced supervision; forms must be constructed to withstand their action.
- E16.46 The Contractor is advised that no joints will be allowed in the slab except as directed on Site in conjunction with the Contract Administrator.

Reinforced Concrete Paving

E16.47 All work to CW3310 for reinforced concrete pavement. All excavation, base material, reinforcing, dowels, tie bars, joint material, and finishing is incidental to the unit price bid for reinforced concrete paving.

Cold Weather Concreting

E16.48 The protection of concrete and concreting operations during cold weather shall be in accordance with CSA A23.1

E16.49 Equipment for heating concrete after placement must be in operation before pouring is commenced. Provide sufficient thermometers to be placed in accordance with the Contract Administrator's instructions. Tarpaulins shall not be placed directly on the surface of slabs. Indirect light units only shall be used.

Finishing of Slabs, Curb and Edger

E16.50 All slabs shall be finished by a speciality concrete finishing Contractor.

E16.51 The size of finishing crews shall be planned with due regard for the effects of concrete temperatures and atmospheric conditions on the rate of hardening of the concrete.

E16.52 The shelter floor slab shall be power floated. The elevation of the finished floor slab shall not vary more than 4mm +/- from the design elevation. The minimum amount of steel trowelling shall be done.

E16.53 The slab finish shall match concrete sidewalk finish as per CW 3325.

E16.54 Concrete edger and curb to finish as per CW3310.

Clean Up and Damage

E16.55 Immediately on completion of pile, shelter base, planter walls and slab, Contractor shall remove from Site all equipment, timbers, shores, excavated material, unused concrete, rubbish, etc., caused by his operations, and leave the Site clean.

E16.56 The Contractor shall be responsible for making good all areas damaged by his operations in connection with this Contract regardless of the limits of the Contract as shown on the Drawings.

Method of Measurement

Concrete Works

E16.57 The following items will be measured on a per item basis:

- (a) Supply and Installation of Illuminated Transit Signage Concrete Piles and Pile Caps.
- (b) Supply and Installation of C.I.P. Concrete Base for Power Pedestal

E16.58 The number of units to be paid for shall be the total number of units supplied in accordance with the Specifications and accepted by the Contract Administrator, as computed from measurements made by the Contract Administrator.

E16.59 No adjustments in price will be made should actual pile lengths in place be lesser or greater than anticipated by the Contractor or indicated on the Drawings.

E16.60 Supply and installation of reinforced concrete shelter base will be measured on an area basis.

E16.61 Supply and installation of reinforced concrete paving will be measured on an area basis.

E16.62 Supply and installation of C.I.P. concrete edger be measured on a lineal basis.

E16.63 Supply and installation of pinned concrete curb be measured on a lineal basis.

Basis of Payment

Concrete Works

- E16.64 Supply and Installation of C.I.P. concrete pile and pile cap will be paid for at the contract unit price per item for "Supply and install CIP concrete pile and pile cap for illuminated sign", 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.
- E16.65 Supply and Installation of C.I.P. concrete base for power pedestal will be paid for at the contract unit price per item for "Supply and install concrete base for power pedestal", 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
- E16.66 Supply and Installation of C.I.P. concrete shelter base will be paid for at the contract unit price per square meter for "Supply and install reinforced concrete base for shelter", 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.
- E16.67 Supply and Installation of reinforced concrete paving will be paid for at the contract unit price per square meter for "Supply and install reinforced concrete paving", 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.
- E16.68 Supply and Installation of C.I.P. concrete edger will be paid for at the contract unit price per meter for "Supply and install concrete edger", 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.
- E16.69 Supply and Installation of pinned concrete curb will be paid for at the contract unit price per meter for "Supply and install pinned concrete curb", 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.

E17. ASPHALT PAVING

Description

- E17.1 Further to CW 3410 and CW 3110 the work of this section comprises the furnishing of all labour, equipment and materials incidental and required to complete the construction of asphalt paving as shown on the drawings and as hereinafter specified, including but not necessarily confined to:
- (a) Construction of Asphalt Paving, including supply and installation of base courses, and asphalt paving as shown on the Drawings.
 - (b) Construction of Heavy Duty Asphalt Paving, including supply and installation of base courses, and asphalt paving as shown on the Drawings.
- E17.2 Materials
- (a) Sub-base as per CW 3110.
 - (b) Base course as per CW 3110

(c) Asphaltic Concrete Pavement to be Type 1A surface course asphalt as per CW 3410.

Construction Methods

Excavation and Compaction of Sub-Grade

E17.3 As per E13. Cost of excavation and compaction shall be incidental.

Base Course and Sub-base

E17.4 Contractor shall construct a compacted gravel base for asphalt pavement to depths as shown on the Construction Drawings in accordance with City of Winnipeg Specification CW 3110. Additional gravel shall be supplied and installed if necessary to attain proper sub-grade elevations. Cost of constructing compacted gravel base shall be incidental to cost of "Supply and Install Asphalt Paving".

Asphalt Surface

E17.5 Compacted asphaltic concrete surface shall be constructed in accordance with City of Winnipeg Specification CW 3410 and the Construction Drawings.

Acceptance

E17.6 Any work not satisfactory as specified herein and as determined by the Contract Administrator shall be rectified by the Contractor. This process of inspection and correction shall continue until the Contract Administrator is satisfied that the work is 100% complete and as per the construction drawings and specifications.

Method of Measurement

E17.7 Asphalt Paving shall be measured on an area basis for each type of paving. The area to be paid for shall be the total number of square metres of Asphalt Paving placed in accordance with this Specification and the Construction Drawings, as determined by the Contract Administrator.

Basis of Payment

E17.8 Asphalt Paving will be paid for at the contract unit price per square metre for "Supply and Install Asphalt Paving" for each type measured as specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the work included in this Specification

E18. CONCRETE SIDEWALK

Description

E18.1 All Work in this section shall be to City of Winnipeg Specification CW 3325 for Supply and Installation of Concrete Sidewalk.

E18.2 Blockouts for all paving bands in sidewalk to be constructed as per detail. All forming is incidental to the unit price bid for concrete sidewalk.

E18.3 Thickened edge of sidewalk will be incidental to the unit prices bid for concrete sidewalk.

Method of Measurement

E18.4 Supply and Installation of 100 mm Concrete Sidewalk will be measured on an area basis. The surface area to be paid for shall be the total number of square metres supplied in accordance with the specifications and accepted by the Contract Administrator, as computed from measurements made by the Contract Administrator.

Basis of Payment

E18.5 Supply and Installation of Concrete Sidewalk will be paid for at the contract square metre price for "Supply and Installation of Concrete Sidewalk", measured as specified herein, which price shall be payment in full for supplying all materials including compacted base course as required and performing all operations herein described and all other items incidental to the Work included in this specification.

E19. INTERLOCKING PAVING STONES

Description

E19.1 Further to CW 3335 this Specification shall cover the:

- (a) supply and installation of detectable paving stones,
- (b) supply and installation of paving stones.

E19.2 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 or and incidental to the satisfactory performance and completion of all Work as hereinafter specified.

Materials

E19.3 Interlocking paving stones shall be:

- (a) Blue Holland Stone 105x210x60mm as supplied by Barkman Concrete. Contact Wayne Wiebe, phone 667-3310.

E19.4 Detectable paving stones shall be:

- (a) Blue Holland Stone ADA detectable pavers 105x210x60mm as supplied by Barkman Concrete. Contact Wayne Wiebe, phone 667-3310.

E19.5 Sand:

- (a) Clean brick sand as joint filler.
- (b) Clean brick sand as minimum 13mm depth setting bed

E19.6 Grout:

- (a) Grout as specified hereinafter shall be used for grouting paving stone and brick in areas indicated on the drawings. The grout shall have a compressive strength of 25 MPA at 28 days, determined on 50 mm cubes stored and tested in accordance with ASTM C109, and shall consist of normal Portland cement, sand and water.
- (b) The water-cement ratio shall be kept in the range of 0.45 to 0.55.
- (c) The grout shall have between 3% and 5% entrained air.
- (d) Acryl-Stik or approved equal to be used in grout at approximately 4 litres Acryl-Stik to 3 litres water.
- (e) Admixtures to be used in the grout shall be supplied in accordance with the requirements of the City of Winnipeg Standard CW 3310.
- (f) The grout shall be of a consistency suitable for the application intended as approved by the Contract Administrator.
- (g) The Contractor shall provide the Contract Administrator with a mix design statement certifying the constituent materials and mix proportions that will be used in the grout for approval prior to construction.

Construction Methods

E19.7 Interlocking paving stones shall be installed in block out in concrete sidewalk.

Installation

E19.8 Contractor to verify the exact dimensions of pavers and panels prior to construction of block outs in concrete sidewalk.

- (a) Install concrete sidewalk as specified on Drawings.
- (b) Install sand bed to minimum 13mm depth as specified on Drawings. Adjust depth of pavers under areas to be relevelled to ensure surface of pavers is flush with adjacent paving.
- (c) Do not compact setting bed prior to installation of pavers.
- (d) Spread only sufficient area which can be covered with pavers same day.
- (e) Lay pavers on sand bed hand tight.
- (f) In areas where pavers are to be grouted in place clean existing concrete, install grout bed and then place pavers on grout.
- (g) Grout between pavers as required to ensure stability.
- (h) Remove adjacent pavers in bands as required to ensure that bricks do not require cutting on straight bands.
- (i) Where paving pattern is interrupted by vertical structural elements pavers must be sawcut and fit true and hand tight.
- (j) Commence installation of pavers against edge to obtain straightest possible course for installation.
- (k) Pavers shall be cut with a saw only, to obtain true even undamaged edges. Chipped pavers are unacceptable.
- (l) Crews shall Work on installed pavers, not on sand layer.
- (m) Spread and fine grade brick sand over paving surface and sweep into joints, in several directions. Sand is incidental to the price for supply and installation of pavers.
- (n) Compact pavers with vibratory plate compactor having mass of at least 113kg. Compaction is incidental to the price for supply and installation of paving stone.
- (o) Sweep remaining sand over all paving areas and remove from Site.
- (p) Replace at no extra cost all whole or cut stones marked as unacceptable.
- (q) Remove cracked, chipped, broken or otherwise damaged paving materials from Site immediately.
- (r) Upon completion, clean in accordance with manufacturer's recommendations.

Method of Measurement

E19.9 Supply and installation of detectable interlocking paving stones will be measured on a surface area basis. The surface area to be paid for shall be the total number of square metres installed in accordance with the Drawings and Specifications and accepted by the Contract Administrator, as computed from measurements made by the Contract Administrator.

E19.10 Supply and installation of interlocking paving stones will be measured on a surface area basis. The surface area to be paid for shall be the total number of square metres installed in accordance with the Drawings and Specifications and accepted by the Contract Administrator, as computed from measurements made by the Contract Administrator.

Basis of Payment

E19.11 Supply and installation of detectable interlocking paving stones will be paid for at the Contract Unit Price per square metre for "Supply and Install Detectable Interlocking Paving Stones" measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this Specification.

E19.12 Supply and installation of interlocking paving stones will be paid for at the Contract Unit Price per square metre for "Supply and Install Interlocking Paving Stones" 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.

E20. PRECAST CONCRETE SHELTER BASES

Description

E20.1 This specification covers the supply and installation of precast concrete shelter bases.

General

Delivery and Storage

E20.2 Store units in a protected location, immediately upon arrival on the Site.

E20.3 Remove from Site any units which have been damaged during transportation and replace.

Products

E20.4 Precast concrete shelter bases to be natural concrete smooth broom finish as supplied by:

Barkman Concrete Ltd.
909 Gateway Road
Winnipeg, Manitoba, R3K 3L1
Contact: Wayne Wiebe
T (204) 667-3310

Installation

E20.5 Excavate area for shelter base as per the drawings.

E20.6 Supply and install granular base. Granular base supply, installation and compaction is incidental to the unit price bid for precast concrete shelter base.

E20.7 Place shelter base on granular base. Ensure base is level.

Method of Measurement

E20.8 Precast concrete shelter bases will be measured on a unit basis. The number of each item to be paid for will be the total number placed in accordance with this Specification and accepted by the Contract Administrator, as computed by the Contract Administrator.

Basis of Payment

E20.9 Precast concrete shelter bases will be paid for at the Contract Unit Price for each item, which price shall be payment in full for supply of all materials and performing all operations herein described and for all other items incidental to the Work included in this Specification.

E21. FENCING

E21.1 Description

E21.1.1 Supply and Installation of Wood Bumper Fencing.

E21.2 Materials

- (a) 140mm x 140mm posts
- (b) 140mm x 38mm rails
- (c) Hardware as per details.

E21.3 Installation

E21.3.1 Measure length of fencing to be installed prior to construction. Install posts as per detail and space to provide consistent length between posts.

E21.3.2 Construct fence as per detail.

E30.1 Method of Measurement

E21.3.3 Wood Bumper Fencing shall be measured on a linear metre basis. The numbers to be paid shall be the total number of lineal metres constructed in accordance with the Drawings and Specifications and as measure and accepted by the Contract Administrator.

E21.4 Basis of Payment

E21.4.1 Supply and install wood bumper fence will be paid for at the contract unit price per lineal metre for "Supply and install 760mm height Wood Bumper Fence" measured as specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the work included in this Specification.

E22. PLANTING AND MULCH BED PREPARATION

Description

Scope of Work

E22.1 The following list generally describes the scope of this Section:

- (a) Cultivate subsoil in planting beds
- (b) Supply and install planting soil mixture in shrub beds
- (c) Supply and Install Filter Cloth
- (d) Supply and install Wood Chip Mulch
- (e) Supply and Install drainage course

Samples

E22.2 Submit to the Contract Administrator samples of the following materials:

- (a) Planting Soil Mixture: 1kg
- (b) Wood Chip Mulch: 400g
- (c) Filter Cloth: 1sq.m

Delivery and Storage

E22.3 Deliver and store fertilizer in waterproof bags showing weight, analysis and name of manufacturer.

Materials

- E22.4 Imported topsoil: natural, fertile, agricultural soil typical of locality, capable of sustaining vigorous plant growth, from well drained Site that is free of flooding, not in frozen or muddy condition, not less than 6% organic matter to a maximum 25% organic matter by volume, and pH value of 5.9 to 7.0. Free from subsoil, slag or clay, stones, lumps, live plants and their roots, sticks, crabgrass, couchgrass, noxious weeds and foreign matter.
- E22.5 Peatmoss: horticultural grade Class "A" decomposed plant material, fairly elastic and homogeneous. Free of decomposed colloidal residue, weed, sulphur and iron. To have pH value of 5.9 to 7.0, 60% organic matter by weight, moisture content not exceeding 15% and water absorption capacity of not less than 300% by weight on oven dry basis.
- E22.6 Sand: hard, granular natural beach sand, washed free of impurities, chemical or organic matter.
- E22.7 Fertilizer: commercial type with 50% of the elements derived from organic sources.
- E22.8 Bonemeal: shall be raw bonemeal, finely ground with a minimum analysis of 3% nitrogen and 20% phosphoric acid.
- E22.9 Planting Soil: For planting of shrubs and ground covers, mix topsoil with 20% peatmoss loose by volume.
- E22.10 Incorporate bonemeal into planting soil at rate of 5 lbs /cu.yd. of soil mixture.
- E22.11 Filter fabric to be UV resistant, black, woven cloth.
- E22.12 Wood Chip mulch to be local grade free of twigs, leaves and particles over 50mm in length.
- E22.13 Drainage Course to be 25mm clean washed rock.
- E22.14 Rock mulch to be 19mm clean washed rock mulch.

Construction Methods

Preparation

- E22.15 Grade subgrade, eliminating uneven areas and low spots, ensuring positive drainage with minimal disturbance of existing relocated trees. Remove debris, broken roots, branches, stones in excess of 50mm diameter and other deleterious materials. Remove subsoil that has been contaminated with oil, gasoline or calcium chloride. Dispose of removed materials as directed.
- E22.16 Cultivate entire area which is to receive topsoil or planting soil to depth of 100mm.
- E22.17 Excavate shrub beds to a depth of 550mm.
- E22.18 Remove existing weeds, suckers and debris from area of mulch bed.

Spreading Soil Mixture

- E22.19 Do not spread planting soil mixture until Contract Administrator has inspected subgrade.
- E22.20 Spread soil mixture with adequate moisture in uniform layers during dry weather over approved, dry, unfrozen subgrade, where planting is indicated.
- E22.21 Bring soil mixture up to 100 mm finished grade or as indicated on details.
- E22.22 Remove stones, roots, grass, weeds, construction materials, debris and foreign non-organic objects from soil mixture.

Application of Fertilizer

E22.23 Spread fertilizer at manufacturer's recommended rate of application.

E22.24 Mix fertilizer thoroughly into upper 50mm of planting soil.

Finish Grading

E22.25 Fine grade entire planting soil or mulch bed area to 100mm below level of concrete curb, sod or sidewalk. Eliminate rough spots.

E22.26 Compact planting soil to leave surface smooth, uniform, firm against deep foot printing, with a fine, loose texture.

E22.27 Tolerance: plus or minus 15mm of design grade.

E22.28 Supply and install filter fabric. Secure with staples every 600mm on centre.

E22.29 Supply and install 100mm fine grade bark mulch as supplied by Riemer Soils.

Method of Measurement

E22.30 Supply and Installation of Planting Bed will be measured on an area basis. The surface area to be paid for shall be the total number of square metres supplied in accordance with the specifications and accepted by the Contract Administrator, as computed from measurements made by the Contract Administrator.

E22.31 Supply and Installation of Mulch Bed will be measured on an area basis. The surface area to be paid for shall be the total number of square metres supplied in accordance with the specifications and accepted by the Contract Administrator, as computed from measurements made by the Contract Administrator.

Basis of Payment

E22.32 Supply and Installation of Planting Bed will be paid for at the contract square metre price for "Supply and install planting bed", measured as specified herein, which price shall be payment in full for supplying all materials including compacted base course as required and performing all operations herein described and all other items incidental to the Work included in this specification.

E22.33 Supply and Installation of Mulch Bed will be paid for at the contract square metre price for "Supply and install mulch bed", measured as specified herein, which price shall be payment in full for supplying all materials including compacted base course as required and performing all operations herein described and all other items incidental to the Work included in this specification.

E23. PLANT MATERIAL

Description

E23.1 The following list generally describes the scope of this section:

- (a) Supply and installation of trees including preparation, digging, transport and planting.
- (b) Maintenance to date of substantial performance.
- (c) Warranty for two full years.

General

E23.2 Obtain approval of plant material at source.

- E23.3 Notify Contract Administrator of source of material at least 7 days in advance of shipment. No Work under this Section is to proceed without approval.
- E23.4 Acceptance of plant material at source does not prevent rejection at Site prior to or after planting operations.
- E23.5 Source of all plant material to be from an area within the same hardiness zone and soil conditions as Winnipeg.

Shipment and Pre-Planting Care

- E23.6 Co-ordinate shipping of plants and excavation of holes to ensure minimum time lapse between digging and planting. Tie branches of trees and shrubs securely and protect plant material against abrasion, exposure and extreme temperature change during transit. Avoid binding of planting stock with rope or wire which would damage bark, break branches or destroy natural shape of plant. Give full support to root ball of large trees during lifting.
- E23.7 Cover plant foliage with tarpaulin, and protect bare roots by means of dampened straw, peatmoss, sawdust or other acceptable material to prevent loss of moisture during transit and storage.
- E23.8 Remove broken and damaged roots with sharp pruning shears. Make clean cut and cover cuts over 50 mm diameter with wound dressing.
- E23.9 Keep roots moist and protected from sun and wind. Heel-in shrubs, which cannot be planted immediately, in shaded areas, and water well.

Materials

Water

- E23.10 Water should be potable and free of minerals, which may be detrimental to plant growth.

Anti-Desiccant

- E23.11 Anti-desiccant should be wax-like emulsion to provide film over plant surface reducing evaporation but permeable enough to permit transpiration.

Wound Dressing

- E23.12 Wound dressing should be horticulturally accepted non-toxic, non-hardening emulsion.

Plant Material

- E23.13 Quality and Source: Comply with Guide Specification for Nursery Stock, 1982 Edition of Canadian Nursery Trades Association, referring to size and development of plant material and root ball. All plant material to be approved by City and Contract Administrator at source.
- E23.14 Measure plants when branches are in their natural position. Height and spread dimensions refer to main body of plant and not from branch tip to branch tip. Use trees of No. 1 grade.
- E23.15 Additional plant material qualifications:
- (a) Use perennials with strong fibrous root system free of disease, insects, defects or injuries and structurally sound. Plant must have been root pruned regularly, but not later than one growing season prior to arrival on Site.

Cold Storage

E23.16 Approval required for plant material, which has been held in cold storage.

Container – Grown Stock

E23.17 Acceptable if containers large enough for root development. Shrubs must have grown in container for minimum of one growing season but not longer than two. Root system must be able to "hold" soil when removed from container. Plants that have become root bound are not acceptable. Container stock must have been fertilized with slow releasing fertilizer.

Substitutions

E23.18 Substitutions to plant material as indicated on plantings plan are not permitted unless written approval has been obtained as to type, variety and size prior to award of Contract. Plant substitutions must be similar species and of equal size to those originally specified.

Root balls

E23.19 Deciduous trees in excess of 3 m height must have been dug with large firm ball. Root balls must include 75% of fibrous and feeder root system. This excludes use of native trees grown in light sandy or rocky soil. Secure root balls with burlap, heavy twine and wire basket. Protect root balls against sudden changes in temperature and exposure to heavy rainfall.

E23.20 Tree spade material shall not be accepted. Unless dug in field and secured as above.

E23.21 Lift root ball from hole, place in wire basket designed for purpose and line with burlap. Place root ball and tie basket to ball with heavy rope. Take care not to injure trunk of tree with wire basket ties or rope.

Construction Methods

Workmanship

E23.22 Stake out location of trees and shrubs as per the Construction Drawings. Obtain approval by City and Contract Administrator prior to excavating.

E23.23 Apply anti-desiccant in accordance with material manufacturer's instructions only as required.

E23.24 Co-ordinate operations. Keep Site clean and planting holes drained. Immediately remove soil or debris spilled onto pavement.

Planting Time

E23.25 Plant deciduous plant material during dormant period, before buds have broken. Plant material noted for spring planting only, must be planted in dormant period.

E23.26 When permission has been obtained to plant materials after buds have broken, spray plants with anti-desiccant to slow down transpiration prior to transplanting.

E23.27 When permission has been obtained, shrubs and perennials growing in containers may be planted throughout growing season.

E23.28 Plant only under conditions that are conducive to health and physical conditions of plants.

E23.29 Provide planting schedule. Executing planting operations over long period using limited crew will not be accepted.

Excavations

E23.30 Prepare planting pits to City of Winnipeg and Canadian Nursery Trades Association standards.

- E23.31 Provide drainage for planting holes in heavy soil if natural drainage does not exist. Have method approved.
- E23.32 Protect bottom of excavations against freezing.
- E23.33 Remove water, which enters excavations prior to planting. Ensure source of water is not ground water.

Planting

- E23.34 Loosen bottom of planting hole to depth of 150 to 200 mm. Cover bottom of each excavation with minimum of 150 mm of topsoil mixture.
- E23.35 Plant trees and perennials vertically with roots placed straight out in hole. Orient plant material to give best appearance in relation to structure, roads and walks.
- E23.36 Place plant material to depth equal to depth they were originally growing in nursery.
- E23.37 With balled and burlapped roots balls, loosen burlap and cut away minimum top 1/2 without disturbing root ball. Cut vertical slits in remaining burlap around root ball at 250mm intervals. Remove all rope, string, or other ties from around trunk. Do not pull burlap or rope from under root ball. With container stock, remove entire container without disturbing root ball. Non bio-degradable wrappings must be removed including wire baskets.
- E23.38 Tamp planting soil around root system in layers of 150mm eliminating air voids. Frozen or saturated planting soil is unacceptable. When 2/3 of planting soil has been placed, fill hole with water. After water has completely penetrated into soil, complete backfilling.
- E23.39 Build 100 mm deep saucer around outer edge of hole to assist with maintenance watering. Install 100mm depth wood chip mulch in saucer as shown on drawings.
- E23.40 When planting is completed, give surface of planting saucer dressing of organic 10-6-4 fertilizer at rate of 12 kg/100 m for shrub beds or 40 to 50 g/mm of calliper for trees. Mix fertilizer thoroughly with top layer of planting soil and water in well.

Pruning

- E23.41 Prune trees and shrubs after planting only as required to remove broken diseased or dead branches. Employ clean sharp tools and make cuts flush with main branch, smooth and sloping as to prevent accumulation of water.

Maintenance

- E23.42 After completion of planting operation to the satisfaction of the Contract Administrator and City of Winnipeg, the Contractor shall be responsible for the maintenance of the plant material until date of Substantial Performance and commencement of two year warranty.
- E23.43 Replace any dead or damaged plant material during the maintenance period, including replacement of vandalized material.
- E23.44 Water sufficiently to maintain optimum growing conditions. Ensure adequate moisture in root zone at freeze-up.
- E23.45 The Contractor shall provide all necessary equipment, including: tractors, mowers, hand mowers, trimmers, fertilizer spreaders, pruning tools, hoses, water meters, and any other items necessary for the maintenance of the plant material indicated in this Specification.
- E23.46 Remove all weeds and debris from mulch beds, planting beds and tree wells.

E23.47 Turn and top up mulch in beds and tree wells each spring.

Personnel

E23.48 The Contractor shall provide all necessary personnel for the ongoing maintenance operations.

E23.49 Personnel should have at least one year of experience in landscape maintenance and should be under the direction of a foreman, in all cases, with not less than five years of experience with similar maintenance operations.

Maintenance Methods

Watering

E23.50 Trees shall be watered twice weekly, or during the summer, if temperatures are fairly high and there has been no rainfall, water approximately once a week.

E23.51 To determine the need for watering, make a soil test weekly with a one-inch auger. Take a test sample from both the planting soil and from the root ball by drilling to a minimum depth of 600 mm. The soil shall contain enough moisture to hold together when compressed in the hand, but not be muddy.

Fertilizing

E23.52 Because of the specialized nature of such operations, fertilizing is to be done by a qualified local arborist.

E23.53 Fertilize in the fall over the surface of the ground surrounding the plants, then soak the area thoroughly, use 10-6-4 analysis fertilizer spreading a maximum of 0.13 kg per square metre.

Spraying

E23.54 Spray trees to control insect pests and diseases. Use horticulturally recommended compounds specific for the problem to be contained.

Insects and Diseases

E23.55 Spray plants to combat pests and diseases. Do not use DDT or sprays prohibited by Agriculture Canada.

Method of Measurement

E23.56 Supply and Installation of Plant Material will be measured on a unit basis. The number of units to be paid shall be the total number of each type and size of units supplied and installed in accordance with the Drawings and Specifications and as measured and accepted by the Contract Administrator.

Basis of Payment

E23.57 Supply and Installation of Plant Material will be paid for at the Contract Unit Price per unit type and size specified for "Supply and install plant material", measured as specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the Work included in this Specification.

E24. EXTENDED MAINTENANCE

Description

- E24.1 This Specification shall deal with the maintenance of the trees, mulch beds, and perennials for Two (2) calendar years after the date of the Substantial Performance

Materials and Personnel

- E24.2 The Contractor shall provide all necessary equipment, including: tractors, trimmers, fertilizer spreaders, pruning tools, water trucks, hoses, water meters, and any other items necessary for the maintenance of the area indicated in this Specification.
- E24.3 The Contractor shall provide all necessary personnel for the ongoing maintenance operations

Work Included

- E24.4 The following areas shall be part of the maintenance jurisdiction:
- (a) The trees and perennials as indicated on the Construction Drawings
 - (b) Mulch beds as indicated on the Construction Drawings.
 - (c) All sod indicated on the Construction Drawings

Maintenance of Trees, and Perennials

- E24.5 Watering
- (a) All plant material shall be watered bi-weekly, or during the summer, if temperatures are fairly high and there has been no rainfall, water approximately once a week. Where irrigation is not available this should be executed by leaving a hose, with a gentle rate of flow, running into the saucer of the root ball for about one hour
 - (b) To determine the need for watering, make a soil test weekly with a one-inch auger. Take a test sample from both the planting soil and from the root ball by drilling to a minimum depth of 600 mm. The soil shall contain enough moisture to hold together when compressed in the hand, but shall not be muddy.
- E24.6 Fertilizing and pest control
- (a) Fertilizing, Pruning and Spraying Deciduous Trees and Shrubs. Because of the specialized nature of such operations, this should be done by a qualified local arborist
 - (b) Fertilize in the fall over the surface of the ground surrounding the plants, then soak the area thoroughly. Use 10-6-4 analysis fertilizer spreading a maximum of 0.13 kg per square meter.
 - (c) Spray to control insect pests and diseases. Use horticulturally recommended compounds specific for the problem to be contained.
- E24.7 Weeding
- (a) Remove all weeds in tree wells planting beds and mulch beds by hand on a weekly basis. Do not use chemical weed killer.
 - (b) Remove all debris from beds, including weeds, and dispose of off Site in a legal manor.
- E24.8 Other Maintenance
- (a) Tighten, or remove, turnbuckles or guy wires for trees as required or directed by the Contract Administrator.
 - (b) Straighten trees as required and directed by the Contract Administrator.
- E24.9 The Contractor shall agree and guarantee to replace and replant any nursery stock found dead or in poor condition during and at the completion of the maintenance period. All plant material to be replaced and maintained for a minimum of 30 days prior to end of maintenance period.

"Poor Condition" shall be interpreted as meaning nursery stock in which branches are dead or dying, or have not shown satisfactory growth of leaves. All replacements shall be of same size and species, as specified.

- E24.10 Upon the end of the required maintenance period, a Site inspection shall be held. If at this time, all material and Works is satisfactory the Contract for maintenance and warranty shall be terminated. If materials and Works are found unacceptable the warranty shall be extended by 30 days for a follow up inspection. Extension of warranty will continue in 30 day increments for inspection until all work and material are satisfactory.

Maintenance of Sod

- E24.11 Sod maintenance as per CW 3510.

Method of Measurement

- E24.12 Extended Maintenance will be measured on a per year lump sum basis and paid for in accordance with this Specification and accepted by the Contract Administrator.

Basis of Payment

- E24.13 Extended Maintenance will be paid for each year at the Contract per Year Lump Sum Price for "Extended Two Year Maintenance"; which price shall be payment in full for supply of all materials and performing all operations herein described and for all other items incidental to the work included in this Specification.