



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 199-2005

OMAND PARK AND OMAND CREEK PARKWAY LANDSCAPING IMPROVEMENTS

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PART B

BIDDING PROCEDURES

PART B - BIDDING PROCEDURES

B1. PROJECT TITLE

B1.1 OMAND PARK AND OMAND CREEK PARKWAY LANDSCAPING IMPROVEMENTS

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, June 17, 2005.

B2.2 Bid Submissions determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.

B2.3 The Contract Administrator or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. SITE INVESTIGATION

B3.1 Further to GC:3.1, the Bidder may view the Site without making an appointment.

B3.2 The Bidder is advised that all sites are to be viewed prior to submitting a bid to familiarize the Bidder with the nature of the work areas and site access restrictions. The Bidder shall note that existing trees are to be protected, and proximity of trees to the construction areas may limit the type of construction equipment utilized. The Bidder is made aware the City Naturalist and Forestry Department will require financial compensation for trees or plant material damaged by the Contractor or his/her Subcontractors. Note that safe public use of the sites must be provided for by the Contractor.

B4. ENQUIRIES

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

B4.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.

B4.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.

B4.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator only to the Bidder who made the enquiry.

B4.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B4 unless that response or interpretation is provided by the Contract Administrator in writing.

B5. ADDENDA

B5.1 The Contract Administrator may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.

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

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

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

B5.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 8 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 B14.

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;

B7.2 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.

B7.2.1 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.

B7.3 Bid Submissions submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.

B7.4 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 10 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;
 - (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.

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 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.

B10.3 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. OPENING OF BIDS AND RELEASE OF INFORMATION

B11.1 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.

B11.1.1 Bidders or their representatives may attend.

B11.2 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>.

B11.3 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>.

B11.4 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.

B12. IRREVOCABLE BID

B12.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 9 of Form A: Bid.

B12.2 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 for the time period specified in Paragraph 9 of Form A: Bid.

B13. WITHDRAWAL OF BIDS

B13.1 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.

B13.1.1 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.

B13.1.2 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 10 of Form A: Bid, and only such person, has authority to give notice of withdrawal.

B13.1.3 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 10 of Form A: Bid; and
- (c) if the notice has been given by any one of the persons specified in B13.1.3(b), declare the Bid withdrawn.

B13.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B12.2 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.

B14. EVALUATION OF BIDS

B14.1 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.

B14.2 Further to B14.1(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.

B14.3 Further to B14.1(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.

B14.4 Further to B14.1(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. Prices adjusted, if necessary, as follows:

- (a) if the lowest evaluated responsive Bid submitted by a responsible and qualified Bidder is within the budgetary provision 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 deducting item 12.

B14.4.1 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. AWARD OF CONTRACT

B15.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

B15.2 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.

- B15.2.1 Without limiting the generality of B15.2, 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.
- B15.3** 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.
- B15.4** Notwithstanding GC:4, the City will issue a Purchase Order to the successful Bidder in lieu of the execution of a Contract.
- B15.5** The Contract, as defined in GC:1.1, in its entirety shall be deemed to be incorporated in and to form a part of the Purchase Order notwithstanding that it is not necessarily attached to or accompany said Purchase Order.

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 landscape improvements to Omand Park and to the Omand Creek Parkway between St. Matthews and Sargent Avenues.
- D2.2** The major components of the Work are as follows:
- (a) Tyndall stone benches
 - (b) Two types of custom metal fencing
 - (c) Lighting repairs
 - (d) Two new lights
 - (e) Installation of trees, shrubs and sod plus maintenance
 - (f) Installation of boulders
 - (g) Installation of picnic tables
 - (h) Concrete sidewalk
 - (i) Asphalt and limestone path repairs

D3. CONTRACT ADMINISTRATOR

- D3.1** The Contract Administrator is Cynthia Cohlmeier Landscape Architect, represented by:
- Cynthia Cohlmeier
Landscape Architect
359 McDermot Avenue, Winnipeg, Manitoba, R3A 0A6
Telephone No. (204) 943-1394
Facsimile No. (204) 942-4426
- D3.2** At the pre-construction meeting, Cynthia Cohlmeier will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D3.3 At the pre-construction meeting, the Contract Administrator 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

SUBMISSIONS

D6. INSURANCE

D6.1 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;

D6.2 Deductibles shall be borne by the Contractor.

D6.3 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 seven (7) Calendar Days from notification of the award of Contract.

D6.4 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.

D7. SUBCONTRACTOR LIST

D7.1 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 seven (7) Calendar Days from notification of the award of Contract.

SCHEDULE OF WORK

D8. COMMENCEMENT

D8.1 The Contractor shall not commence any Work until he is in receipt of a Purchase Order from the Award Authority authorizing the commencement of the Work.

D8.2 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) evidence of the insurance specified in D6; and
 - (iv) the Subcontractor list specified in D7.
- (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.

D8.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the Purchase Order.

D9. SUBSTANTIAL PERFORMANCE

D9.1 The Contractor shall achieve Substantial Performance of all work twenty five (25) consecutive Working Days of the commencement of the Work as specified in D8.

D9.2 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.

D9.3 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.

D10. TOTAL PERFORMANCE

D10.1 The Contractor shall achieve Total Performance of all work within thirty (30) consecutive Working Days of the commencement of the Work as specified in D8.

D10.2 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.

D10.3 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.

D11. LIQUIDATED DAMAGES

D11.1 If the Contractor fails to achieve Substantial Performance in accordance with the Contract by the day fixed herein for Substantial Performance, the Contractor shall pay the City four hundred dollars (\$400.00) per Working Day for each and every Working Day following the day fixed herein for Substantial Performance during which such failure continues.

D11.2 The amount specified for liquidated damages in D11.1 is based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve Substantial Performance by the day fixed herein for same.

D11.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D12. SCHEDULED MAINTENANCE

D12.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

- (a) Maintenance of trees and shrubs as specified in E:20.
- (b) Maintenance of sod as specified in CW3510-R8.

D12.2 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

D13. JOB MEETINGS

D13.1 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.

D13.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he deems it necessary.

D14. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

D14.1 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

D15. WARRANTY

D15.1 Notwithstanding GC:13.2, the warranty period shall begin on the date of Total Performance and shall expire two (2) years thereafter unless extended pursuant to GC:13.2.1 or GC:13.2.2, in which case it shall expire when provided for there under.

D15.2 Notwithstanding GC:13.2 or D15.1, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if:

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

D15.2.1 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in GC:13.2 for the warranty period to begin.

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS, STANDARD DETAILS AND DRAWINGS

E1.1 *The City of Winnipeg Works and Operations Division 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 in Adobe Acrobat (.pdf) format on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division 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 Works and Operations Division Standard Construction Specifications*.

E1.2 The following Drawings are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
L-1	Site Plans
L-2	Park Entry Layout & Fence Details
L-3	Fence, Trail & Bench Details
L-4	Plan Details & Planting Details

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. PROTECTION OF THE SURVEY INFRASTRUCTURE

E3.1 Notwithstanding Clause 4 "Protection of Survey bars" of the Standard Provisions:

Current legislation, The Surveys Act, places the onus on those undertaking construction to protect the Survey Infrastructure from damage as a result of their activity.

E3.2 Further to GC:6.28(g), at least 72 hours prior to the commencement of the On-Site work the Contractor shall contact the City of Winnipeg, Geomatics Services Branch at 986-4826 (8:00 a.m. to 4:00 p.m., Monday to Friday, excluding holidays) to obtain underground clearance. Geomatics Services will locate and mark all known outline survey monuments and geodetic control monuments and confirm the physical condition of those monuments upon completion of construction, at no cost to the Contractor.

E3.3 Where a survey post, bar or control monument lies in the line of the proposed work and must be disturbed, the Contractor shall provide the Contract Administrator with 48 hours notice to permit referencing for future replacement, at no cost to the Contractor. Failure to provide the specified notice shall result in the Contractor paying for all costs associated with replacing or relocating the disturbed outline survey monuments and geodetic control monuments.

E3.4 Outline survey monuments and geodetic control monuments at or adjacent to the Site not in the line of the proposed construction that are damaged or disturbed by the Contractor shall be replaced or relocated by the City or its agent and all associated costs shall be paid for by the Contractor. An approximate estimate of the costs involved to restore a legal survey monument is \$1,000 per bar and \$3,000 per control monument. Contractors must ensure their landscaping

and other subcontractors are aware of this clearance procedure and the potential restoration costs.

E3.5 Where possible, amounts owed to the City in accordance with the above will be deducted from any payments to be made by the City to the Contractor.

E4. EXISTING SURVEY INFORMATION

E4.1 The site plans are based on aerial photography supplied by the City of Winnipeg and additional field data added to the drawings by Cynthia Cohlmeier Landscape Architect.

E5. SITE ACCESS

E5.1 Access to the Work areas shall be:

E5.1.1 Omand Park: For all work to be completed inside the park, access is to be from the south loop of Empress Street, off Portage Avenue. The park entry gate is brown and directly west of the yellow Hydro gate.

For construction of the Entry Area only (fencing, concrete and removals), access is to be from Raglan Road.

E5.1.2 Omand Creek: Staging and storage is to take place on the parking lot opposite Westway Avenue. Work may be completed from the privately owned parking lots along the creek, but there must be no overnight storage there. Work is to cause as little disturbance as possible, and cause no danger to users of the parking lots, and to pedestrians using the park and the parkway paths.

E5.1.3 The Contractor may access the Site from other locations, only if authorized by the Contract Administrator.

E6. PROTECTION OF EXISTING TREES

E6.1 General

E6.1.1 Description

(a) This Specification covers the protection of all existing trees. The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work hereinafter specified.

E6.2 Execution

E6.2.1 Preservation

(a) Existing trees shall be protected and preserved as is

E6.2.2 Trunk Protection

(a) All trees will have a 1000mm (minimum) radius protective zone calculated from the circumference at the base of the trunk which will remain free of digging, trenching, grade changes, stock piling of materials and soil compaction throughout the duration of the Contract. Protective fencing around these areas is required. All trees within and immediately adjacent to, proposed construction areas will require 1 x 6 x 8" wood planks strapped to the tree trunk to completely protect the tree trunk from impact damage. (smaller trees will be similarly protected using proportionally sized weed planks).

E6.2.3 Overhead Branch and Limb Protection

- (a) Tree limbs and branches overhanging the construction area shall not be damaged. The Contractor shall be responsible for ensuring that the above ground portions of trees are not damaged during Work.

E6.2.4 Excavation

- (a) During all excavation a representative from the City of Winnipeg Forestry Branch shall be present at all times unless otherwise agreed upon by the Contract Administrator, Forestry Branch and Contractor prior to commencement of construction.

E6.2.5 Notification

- (a) The Contract Administrator is to be notified 48 hours in advance of any large equipment working in the vicinity of existing trees. The Contractor shall provide adequate personnel on foot to supervise equipment operators in the vicinity of the trees to ensure that no damage occurs.
- (b) Special care is required during excavation to ensure existing tree root structure is not damaged. Should root pruning be required the Contractor must ensure proper root pruning techniques are employed by a licensed arbourist.

E6.3 Method of Measurement

- (a) No measurement will be made for protection of existing trees.

E6.4 Basis for Payment

- (a) No separate payment will be made for protection of existing trees.

E7. LAYOUT OF WORK

E7.1 The Contractor shall set control lines and bench marks by means of stakes, buoys or marks and the Contractor shall make the completed works conform to the lines and marks thus indicated. The Contractor shall furnish all other lines and levels required. The Contractor shall be responsible for the careful preservation of all stakes and marks. Care must be taken that the Contract Administrator be notified immediately of the disturbance of any such stakes or marks; the cost of correcting any errors arising out of neglect of the Contractor or his agent or his employees, to so notify the Contract Administrator shall be borne entirely by the Contractor, as well as the cost of replacing any disturbed stakes or marks.

E7.2 All layout Work shall be inspected and approved by the Contract Administrator prior to construction.

E7.3 Before commencing Work the Contractor shall satisfy himself as to the meaning and correctness of all stakes and marks and no claims shall be entertained by the City of Winnipeg on account of any alleged inaccuracies. If any error is suspected in the plans, specifications or the directions of the Contract Administrator, Work shall be discontinued until the errors are rectified, but no claims shall be made on account of any delay occasioned thereby.

E7.4 All proposed tree planting locations shall be staked with minimum 610 mm height vertical markers, and be approved by the Contract Administrator prior to excavating the tree pit.

E7.5 The Contractor shall locate and protect all underground utilities prior to commencing construction.

E8. EXCAVATION AND REMOVALS

E8.1 Description

E8.1.1 This Specification shall cover the requirements for demolition, salvage, removal and disposal wholly or in part of various items designated to be removed or partially removed and for backfilling resulting trenches, holes and pits.

E8.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified.

E8.2 Equipment

E8.2.1 All equipment shall be of a type approved by the Contract Administrator and shall be kept in good working order.

E8.2.2 The size, weight, and destructive capabilities of the equipment shall be matched to the type of removal to be done.

E8.3 Construction Methods

E8.3.1 Scope of Work

The Work under this Specification shall include the following and as shown on the Drawings or otherwise directed by the Contract Administrator:

- (a) Removal and salvage of 2 picnic tables as indicated on Drawing L-1;
- (b) Removal and disposal off site of existing pipe fence, bumper guard and footings as indicated on Drawing L-2, Detail 1;
- (c) Removal and disposal off site of bollards, post in creek, 3 benches and footings, as indicated on Drawing L-1.

E8.3.2 Fees and Permits

The Contractor shall obtain and pay for all licenses and permits necessary for the demolition work.

The Contractor shall comply with all Municipal, Provincial, and Federal Government regulations relating to the demolition of structures.

E8.3.3 Explosives

The use of explosives is prohibited.

E8.3.4 Safety Precautions

The Contractor shall provide flagmen, guards, barricades, railings, and whenever necessary, warning signs and lights at the excavation holes, plywood access ramps and/or other construction necessary to secure the safety of workers, the public, and personnel alike and shall comply with all Provincial Statutes applicable to the work of this nature. The Contractor shall provide all other protective measures as may be required by any law in force in Manitoba.

E8.3.5 Protection of Existing Structures

Protect existing items designated to remain and materials designated for salvage. In event of damage to such items, immediately replace or make repairs to approval of the Contract Administrator and at no cost to the City.

E8.3.6 Preparation of Site

Inspect site and verify with Contract Administrator items designated for removal, disposal, salvage and items to remain.

Locate and protect utility lines. Preserve in operating condition active utilities traversing site.

Notify utility companies before starting demolition. Utilities to provide clearance before any excavation is done.

Notify Geomatics Service Branch at 986-4826 to obtain clearance and mark survey infrastructure before any excavation.

E8.3.7 Disposal of Materials

The Contractor shall promptly and legally dispose of materials not designated for salvage or re-use in Work, off-site.

The Contractor shall take all necessary precautions to ensure that demolished materials do not enter the surrounding residential and commercial areas during demolition and removal operations.

Clean disposal areas to approval of Contract Administrator.

E8.3.8 Backfill

Backfill in areas as indicated in accordance with Excavation and Backfill - CW 2030R6.

E8.3.9 Restoration

Restore areas and existing works outside areas of demolition to match condition of adjacent undisturbed areas.

E8.3.10 Site Cleanup

Upon completion of Work, remove debris, trim surfaces and leave work site clean.

E8.4 Method of Measurement

E8.4.1 Excavation and Removal

The removal and disposal of the existing bumper guard and pipe fencing, benches & footings, picnic tables, bollards and post will be paid for on a Lump Sum Basis, as accepted by the Contract Administrator. No measurement will be made for this work.

E8.5 Basis of Payment

E8.5.1 Excavation and Removal

Removal and disposal of the existing bumper guard and pipe fencing, benches & footings, picnic tables, bollards and post will be paid for at the Contract Lump Sum Price for "Demolition and Removal" 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.

E9. SOIL GULLY REPAIR

E9.1 Description

E9.1.1 This Specification shall cover the excavation and installation of fill for areas as indicated on L-1 and L-3.

E9.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all

other things necessary for and incidental to the satisfactory performance and completion of all Work as specified herein and in accordance with CW 3170-R3.

E9.2 Materials

- E9.2.1 Soil gully fill shall be mixture of 70% topsoil and 30% 25mm clean granite gravel by volume
- E9.2.2 Moisture content of fill and existing surface material shall be the same in order to facilitate proper bonding

E9.3 Equipment

- E9.3.1 All equipment to conform to CW 3170-R3.

E9.4 Construction Method

- E9.4.1 Scarify existing gullies to a minimum depth of 100mm below existing grade. Mix a 100mm lift of soil and gravel mixture with scarified soil and compact to 85% Standard Proctor Density to ASTM D698-78. Continue to fill in 150 mm lifts, compacting after each application.
- E9.4.2 Finished grades are to match surrounding (pre-rutted) grades.

E9.5 Method of Measurement

- E9.5.1 Soil gully repair will be measured on a Surface Area Basis. (The average depth of the gully surface area is 300mm.) The area to be paid for shall be the total number of square metres repaired in accordance with this Specification and accepted by Contract Administrator, as calculated by measurements made by the Contract Administrator.

E9.6 Basis for Payment

- E9.6.1 Soil gully repair will be paid for at the Contract Unit Price per square metre for "Gully Repair", and measured as specified herein which price shall be payment in full for supplying all materials and performing all operations herein describe and all items incidental to the Work included in this Specification.

E10. CRUSHED LIMESTONE TRAIL

E10.1 General Description

- E10.1.1 This Specification shall cover the construction of crushed limestone trail.
- E10.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all other things necessary for and incidental to the satisfactory performance and completion of all Work as specified herein and in accordance with CW 3110-R5.

E10.2 Materials

- E10.2.1 Excavation, sub-grade preparation and granular base materials shall conform to CW 3110-R5. Limestone dust topping shall conform to the requirements of the following graduation:

<u>Sieve Number</u>	<u>Percent Passing</u>
9.5 mm	100
4.75 mm	50 - 100
1.18 mm	20 - 55
0.30 mm	10 - 30
0.075 mm	0 - 12

E10.3 Construction Method

- E10.3.1 Construct one (1) metre wide path at location and to details as shown on the Drawings and as directed by the Contract Administrator. Construction to the requirements of CW 3110-R5.

E10.4 Method of Measurement

- E10.4.1 Crushed limestone trail will be measured on a Surface Area Basis. The surface area to be paid for shall be the number of square metres constructed in accordance with this Specification and accepted by the Contract Administrator, as computed by measurements made by the Contract Administrator.
- E10.4.2 Price for crushed limestone surfacing shall include all clearing, excavation, compaction, base construction and topping required for this item of work.

E10.5 Basis of Payment

- E10.5.1 The supply and installation of "Crushed Limestone Trail" will be paid for at the Contract Unit Price per square metre 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.

E11. PORTLAND CEMENT CONCRETE SIDEWALK

E11.1 General Description

- E11.1.1 This Specification shall cover the supply of material and construction of the Portland cement sidewalk shown on L-2, Detail 3.
- E11.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all other things necessary for and incidental to the satisfactory performance and completion of all Work as specified herein and in accordance with CW 3110-R9 and CW 2160-R4.

E11.2 Materials

- E11.2.1 The Contractor shall be responsible for the supply, safe storage and handling of all materials, testing and approvals in accordance with CW 3325-R2, Sections 5 and 7.

E11.3 Equipment

- E11.3.1 All equipment used by Contractor to be in accordance with CW 3325-R2, Section 9.

E11.4 Construction Method

- E11.4.1 Provide the Contract Administrator with 24 hours' notice before placing concrete
- E11.4.2 Construct Portland cement concrete works as shown on the Drawings and as directed by the Contract Administrator. Construct to the requirements of CW 3325-R2.
- E11.4.3 Sidewalk is to be 100 mm depth concrete over 150mm depth compacted base, level with the adjacent sidewalk. Tool edges and joints. Make saw cuts as shown on L-2, Detail 3. Finish with light broom

E11.5 Method of Measurement

- E11.5.1 Portland Cement Concrete Sidewalk
- E11.5.2 Construction of Portland cement sidewalk shall be measured on a Lump Sum Basis. Removal of grass and preparation of the base course are incidental to the work and are to be included in the Lump Sum.

E11.6 Basis of Payment

E11.6.1 Portland Cement Concrete Sidewalk

Construction of Portland cement Sidewalk will be paid for at the Contract Lump Sum Price for "Concrete Sidewalk" which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification.

E12. ASPHALT PATH REPAIR

E12.1 General

E12.1.1 This Specification shall cover the supply and installation of asphaltic concrete paving for the pathway shown on L-1. The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work specified and in accordance with CW 3410 R6.

E12.2 Construction Method

E12.2.1 Prepare the existing asphalt path surface for a tack coat, providing appropriate depth for a *minimum* application of 50mm asphaltic concrete.

E12.2.2 The asphalt repair must eliminate ponding on the path surface. Finished elevations of the repaired surface are to be flush with the ends of the bridge and to slope evenly to the end of the repaired surface, as indicated on L-1.

E12.3 Method of Measurement

E12.3.1 Asphalt path repair will be paid for on a Lump Sum Basis, as accepted by the Contract Administrator. No measurement will be made for this work

E12.4 Basis of Payment

E12.4.1 Asphalt path repair will be paid for at the Contract Lump Sum Price for "Asphalt path repair" 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.

E13. FENCING

E13.1 General

E13.1.1 This Specification shall cover the supply and installation of:

- (a) Aluminium tube and wood fencing, complete with notice board and integral bench
- (b) Steel pipe fencing

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

E13.2 Reference Standards

E13.2.1 CSA W59-03 Welded Steel Construction

E13.2.2 CSAW59.2-M1991(R2003) Welded Aluminum Construction

- E13.2.3 CAN/CSA16.1-01 Limit States Design of Steel Structures
- E13.2.4 ASTM B429-02 Standard Specification for Aluminum Alloy Extruded Structural Pipe and Tube
- E13.2.5 CAN/CSA G40.21-04 Structural Quality Steel
- E13.2.6 ASTM B209M-94 Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate
- E13.2.7 CAN/CSA G164-M92(R2003) Hot Dip Galvanizing of Irregularly Shaped Articles

E13.3 Shop Drawings

- E13.3.1 Submit four (4) of sets shop drawings. Clearly indicate materials, core thickness, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details and accessories.

E13.4 Materials

- E13.4.1 Aluminium tubing: to ASTM B429, sized as indicated, mill finish.
- E13.4.2 Aluminium plate: to ASTM B209, thickness as indicated, mill finish.
- E13.4.3 Fir rails: Softwood lumber to CSA O141 and NLGA requirements with maximum moisture content of 19%
 - (a) Kiln dried Douglas fir No. 2, sizes and profiles as shown on drawings.
- E13.4.4 Rubber mat: 9mm (3/8") thick, smooth one side recycled black rubber mat
 - (a) Available from:
TRC
675 Pembina Ave. East
P.O. Box 899
Winkler, MB R6W 4A9
Tel: (204)325-8489 Fax: (204)325-9979
- E13.4.5 Adhesives: waterproof, UV resistant, suitable for exterior use.
- E13.4.6 Steel pipe: to CSA G40.21-04, standard weight.
- E13.4.7 Steel plate: to CSA G40.21-04, grade 300W.
- E13.4.8 Bolts and anchor bolts: stainless steel.
- E13.4.9 Galvanizing: hot dipped galvanizing with minimum zinc coating of 600 g/m² to CSA G164.
- E13.4.10 Galvanized primer: zinc rich, ready mix to CGSB1.198-2001.
- E13.4.11 Welding materials: to CSA W59.

E13.5 Construction Methods

- E13.5.1 All Work is to be located and installed in accordance with the Drawings.
- E13.5.2 The Contractor shall confirm proposed location of fencing with Contract Administrator prior to fabrication.
- E13.5.3 All furnishings and fixtures to be installed plumb and true to correct elevations and location, as directed by the Contract Administrator.
- E13.5.4 Build work square, true and accurate to required size with joints closely fitted and properly secured.

- E13.5.5 Where possible, work to be fitted and shop assembled, ready for erection.
- E13.5.6 Exposed welds to be continuous for length of each joint. File or grind exposed welds smooth and flush. Fill as required and regrind smooth.
- E13.5.7 Grind all exposed edges smooth.

E13.6 Method of Measurement

- E13.6.1 The installation of aluminium tube and wood fencing, complete with notice board and integral bench, plus the steel pipe fencing shall be measured on a Lump Sum Basis.

E13.7 Basis of Payment

- E13.7.1 The installation of aluminium tube and wood fencing, complete with notice board and integral bench, plus the steel pipe fencing shall be paid for at the Contract Lump Sum Price for the "Two types of fencing, including notice board & integral bench", which price shall be payment in full for supplying all materials and performing all operation herein described and all other items incidental to the Work included in this Specification.

E14. SITE FURNISHINGS

E14.1 General Description

- E14.1.1 This Specification shall cover the supply and installation of, picnic tables, boulders, and Tyndall stone benches as indicated on the Drawings.
- E14.1.2 The work to be done by the Contractor under this specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all things necessary for and incidental to the satisfactory performance and completion of all Work as specified herein.

E14.2 Materials

- E14.2.1 Picnic Tables
 - (a) Metal Frame Picnic Table (SCD – 103) supplied in cedar by the City of Winnipeg.
 - (b) To order and arrange for pickup of this equipment contact Mr. Bill Dowbyhuz at 986-5505.
- E14.2.2 Duckbill Anchor System
 - (a) Duckbill Anchor System Model 68-AT1, manufactured by Foresight Products, LCC, Tel: 1-800-325-5360.
- E14.2.3 Boulders
 - (a) Boulders will provide casual seating and must be be smooth, hard granite without sharp edges. The minimum dimension of any boulder is to be 600mm. Seventy five percent (80%) of the boulders must have a diameter of 800 mm.
- E14.2.4 Tyndall Stone Benches
 - (a) All Tyndall stone used in the construction of benches shall be buff or grey coloured Manitoba Tyndall Limestone as quarried and supplied by Gillis Quarries Ltd. To ASTM C568-79 Category II, high density sound hard stone, free of clay pockets.
 - (b) All Tyndall stone benches shall be as shown on drawings and approved at the quarry by the Contract Administrator prior to delivery.
- E14.2.5 Granular base shall be supplied as per requirements specified in CW 3110-R7.

E14.2.6 Geotextile shall be supplied in accordance with CW 3130-R1.

E14.3 Construction Methods

E14.3.1 All Work is to be located and installed in accordance with the Drawings. .

E14.3.2 All furnishings and fixtures to be installed plumb and true to correct elevations and location, as directed by the Contract Administrator. The Contractor shall confirm proposed locations of all site furnishings with Contract Administrator prior to installation.

E14.3.3 All furnishings and fixtures to be carefully handled so that no parts will be bent, broken, or otherwise damaged.

E14.3.4 Picnic Tables

(a) Limestone surround to be constructed similar to the new limestone trail, Detail 7, L-3, and in accordance with E12

(b) Secure with anchor system as recommended by manufacturer.

E14.4 Method of Measurement

E14.4.1 The installation of picnic tables, boulders, and Tyndall stone benches, shall be measured on a Unit Basis. The number of picnic tables, limestone benches and Parkway bollards to be paid for shall be the total number of picnic tables, boulders, Tyndall stone benches and Parkway bollards that are installed in accordance with this Specification and accepted by the Contract Administrator.

E14.5 Basis of Payment

E14.5.1 The installation of picnic tables, boulders, and Tyndall stone benches shall be paid for at the Contract Unit Price per unit for the "Items of Work" listed below, measured as specified herein, which price shall be payment in full for supplying all materials and performing all operation herein described and all other items incidental to the Work included in this Specification.

E14.5.2 Items of Work:

(a) Site Furnishings:

(i) Picnic table, complete with limestone surround

(ii) Boulder

(iii) Tyndall stone bench

E15. LIGHTING

E15.1 General Description

E15.1.1 Of eight original free-standing lights in Omand Park, seven remain. Original fixtures were a Moldcast Pericline, Chesapeake model, mounted on a 127mm (5") steel pole and concrete pile. The missing light is to be replaced at the original location, with a new (non-matching) fixture and direct burial pole. A second fixture, which is damaged, is to be replaced similarly. The remaining six lights must be disassembled, cleaned, and re-lamped – i.e. put in working order. Parts from the damaged fixture are to be salvaged for spare parts.

E15.1.2 The work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour and materials, equipment, tools, supplies, and all other things necessary for and incidental to the satisfactory performance and completion of all work as hereinafter specified.

E15.2 Code Requirements

E15.2.1 Installation of lighting equipment to conform to Section 30, Canadian Electric Code, Part I (2002) and as amended or supplemented by Provincial or Municipal regulatory agencies.

E15.3 Operational Testing

E15.3.1 Test for short circuits and improper grounds.

E15.3.2 Test operation of fixtures and lamps following installation.

E15.4 Materials

E15.4.1 Replacement Light fixture: SDL8V80 8G complete with adapter to fit 127mm (5 inch) pole.

Further information is available at the following web site:

<http://www.sdllighting.com/a-12eVP806G.html>

E15.4.2 Light poles: Martec MRO5-2FT direct burial pole; 120mm (4 inch) tenon; black colour.

E15.4.3 New lamp/ballast for existing lights: PER-S-CY/150HPS (MOLDCAST).

E15.5 Construction Methods

E15.5.1 Install fixtures in accordance with the manufacturer's requirements and code requirements.

E15.5.2 Install poles under the electrical contract. Direct burial poles are to be installed with 1.52m below ground and 4.57m above ground. Install accessories as required.

E15.5.3 Be responsible for aiming all lights and re-aiming as required or as directed by the Contract Administrator. All poles and lights must be aligned and plumb.

E15.5.4 Confirm location of two new lights with General Contractor prior to installation.

E15.5.5 Completely disassemble and clean all lenses, lamps and hangers of existing lights. Reassemble and test lights.

E15.5.6 Any new fixture showing evidence of corrosion, rough handling or scratching is to be replaced at no additional cost.

E16. FINISH GRADE AND TOPSOIL

E16.1 General Description

E16.1.1 This Specification shall supplement CW 3540 and shall cover the supply and placing of topsoil under sodded areas and in tree pits, and planting areas as indicated on the Drawings.

E16.1.2 The work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all other things necessary for and incidental to the satisfactory performance and completion of all work as hereinafter specified and in accordance with CW 3540-R3.

E16.2 Materials

E16.2.1 Topsoil: Topsoil is to conform to the requirements of CW 3540-R3 and with a pH range of 6.0 to 8.0 and a salinity rating of less than 4 mmhos/cm.

E16.2.2 Soil Mixture: Topsoil as above.

- E16.2.3 Fertilizer: Complete commercial synthetic fertilizer with minimum 35% water soluble nitrogen. Formulation ratio: as recommended by approved soil test analysis. Obtain Contract Administrator's approval of proposed fertilizer prior to delivery to site.

E16.3 Construction Methods

E16.3.1 Placing and Spreading of Topsoil for Sodding

Place and spread topsoil for sodding in accordance with CW 3510-R8 "Sodding". Schedule placement of topsoil and finish grading to permit sodding operations under optimum conditions. Place topsoil after Contract Administrator has inspected and approved subgrade. Spread topsoil with adequate moisture in uniform layers over unfrozen subgrade free of standing water. Apply topsoil to 100 mm compacted depth for sod. Manually spread topsoil around obstacles.

E16.3.2 Placing and Spreading of Topsoil for Planting Beds

Scarify the bottom of the excavated bed. Mix the first 150 mm of existing soil with the Soil Mixture. Fill in 150 mm lifts, compacting lightly after each addition of soil. On completion, the bed surface is to be level with surrounding grade.

E16.3.3 Finish Grading

The area shall be fine graded and the topsoil loosened. Eliminate rough spots and low areas to ensure positive drainage. Prepare loose friable bed by means of cultivation and subsequent raking. Topsoil shall be rolled with 50 kg roller, minimum 900 mm wide, to consolidate it in areas to be sodded, leaving the surface smooth, uniform, firm against deep foot printing, and with a fine loose texture to the approval of the Contract Administrator.

E16.3.4 Site Clean-Up

The site shall be kept clean during operations and all excess material and debris shall be disposed of off site.

E16.4 Method of Measurement

E16.4.1 Supply and Installation of Topsoil for Sodding

There shall be no separate measurement for the work associated with supply and installation of topsoil for sodding. This work shall be incidental to Sodding (E:18). No separate measurement or payment will be made.

E16.4.2 Supply and Installation of Topsoil for Planting Beds.

Supply and Installation of Topsoil for planting beds will be measured on a Surface Area Basis. The area to be paid for shall be the total number of square meters placed in accordance with this specification and accepted by the Contract Administrator, as calculated from measurements made by the Contract Administrator.

E16.4.3 Supply and Installation of Topsoil in Tree and Shrub Planting

There shall be no separate measurement for the work associated with supply and installation of topsoil for tree and shrub planting. This work shall be incidental to Trees and Shrubs (E:19). No separate measurement or payment will be made.

E16.5 Basis of Payment

E16.5.1 Supply and Installation of Topsoil for Sodding

Supply and installation of topsoil for sodding is incidental to the supply and installation of sod, which price shall be included in the price for sodding. No separate payment for topsoil for sodding shall be made.

E16.5.2 Supply and Installation of Topsoil for Planting Beds

Supply and Installation of Topsoil for Planting Beds will be paid for at the Contract Unit Price per square meter for Supply and Installation of Planting Beds 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.

E16.5.3 Supply and Installation of Topsoil in Tree and Shrub Planting

Supply and installation of topsoil in tree and shrub planting is incidental to the supply and installation of trees and shrubs, which price shall be included in the price for trees and shrubs. No separate payment for topsoil in tree and shrub planting shall be made.

E17. SODDING

E17.1 General Description

E17.1.1 This Specification shall cover the supply and installation of cultivated mineral sod to complete gully repair, Detail 1, L-4, and in repairs contingent to construction of paths and sidewalks, and shall conform to CW 3510-R8.

E17.1.2 The work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all other things necessary for and incidental to the satisfactory performance and completion of all work as hereinafter specified and in accordance with CW 3540-R3.

E17.2 Materials

E17.2.1 Topsoil as specified E:17.

E17.2.2 Sod

The Contractor shall supply mineral based sod that has been sown and cultivated in nursery fields as a turf grass crop and in accordance with the following certified seed mixtures:

100% Canada No. 1 Kentucky Bluegrass or a mixture containing not less than 60% Canada No. 1 Kentucky Bluegrass with the 40% remaining proportion Creeping Red Fescue.

Nursery sod containing any other grass species, strains or cultivars than specified herein will not be accepted.

E17.3 Construction Method

E17.3.1 Construction method shall conform to CW 3510-R8.

E17.4 Method of Measurement

E17.4.1 Sodding will be measured on an Area Basis. The area to be paid for shall be the total number of square metres placed in accordance with this Specification and accepted by the Contract Administrator, as calculated from measurements made by the Contract Administrator.

E17.5 Basis of Payment

- E17.5.1 Sodding will be paid for at the Contract Unit Price per square metre for "Sod, c/w 30 day maintenance" 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.

E18. TREES AND SHRUBS

E18.1 Description

- E18.1.1 This Specification shall cover the supply and installation of plant material as specified herein and as indicated on the Drawings, and shall supplement the "Guidelines for the Planting of Boulevard Trees - Schedule D", latest edition, available from the City of Winnipeg Forestry Branch. Where these two documents differ, this Specification shall take precedence.
- E18.1.2 The work to be done by the Contactor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all other things necessary for and incidental to the satisfactory performance and completion of all work as hereinafter specified and in accordance with CW 3540-R3.

E18.2 Source Quality Control

- E18.2.1 Obtain Approval of plant material at source. Notify Contract Administrator of source of material at least seven (7) days in advance of shipment. No work under this section is to proceed without approval. Acceptance of plant material at its source does not prevent rejection on site prior to or after planting operations.
- E18.2.2 Trees and shrubs are to be grown in nurseries under proper horticultural practices as recommended by the Canadian Nursery Trades Association.
- E18.2.3 Only those trees and shrubs will be accepted which have been grown for at least the last four (4) previous years in nurseries located in an Agriculture Canada Plant Hardiness Zone designation of 2 (a or b) or 3 (a or b). Trees and shrubs that have grown in Plant Hardiness Zone 4 or greater will be rejected.

E18.3 Shipment and Pre-Planting Care

- E18.3.1 Coordinate shipping of plants and excavation of holes to ensure minimum time lapse between digging and planting.
- E18.3.2 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 damage bark, break branches or destroy natural shape of plant. Give full support to rootball of large trees and shrubs during lifting.
- E18.3.3 Cover plant foliage with tarpaulin and protect bare roots by means of dampened straw, peatmoss, sawdust or other acceptable material to prevent loss of moisture during transit and storage.
- E18.3.4 Remove broken and damaged roots with sharp pruning shears. Make clean cuts.
- E18.3.5 Keep roots moist and protected from sun and wind. Heel-in trees which cannot be planted immediately in shaded areas and water well.

E18.4 Warranty

- E18.4.1 Further to Article X of GC, the Contractor agrees and warrants to replace and replant any nursery stock found dead or in poor condition for a period of two (2) years from date of Certificate of Total Performance without cost to the City. "Poor Condition" shall be

interpreted as meaning nursery stock on which branches are dead or dying, or have not shown satisfactory growth in leaves. Exempted is nursery stock damaged by accidental causes or vandalism, which stock shall be replaced at the cost of the City.

E18.4.2 All required replacements shall be by plants of at least the same size and species as specified, and shall be supplied and planted in accordance with the original Drawings and Specifications, and the replaced plant material shall carry an additional two (2) year guarantee. Should the replaced plant material not survive, the Contractor will be responsible to replace it a third time and guarantee it for an additional two (2) years unless it is determined that unique site conditions or inadequate maintenance causes the death of plants.

E18.4.3 An end-of-warranty inspection will be conducted.

E18.4.4 Contract Administrator reserves the right to extend Contractor's warranty responsibilities for an additional two (2) years if, at the end of warranty period, leaf development and growth is not sufficient to ensure future survival.

E18.5 Replacements

E18.5.1 During guarantee period, remove from site any plant material that has died or failed to grow satisfactorily as determined by Contract Administrator.

E18.5.2 Replace plant material as soon as possible and as directed by the Contract Administrator.

E18.5.3 Extend guarantee on replacement plant material for a period equal to the original guarantee period.

E18.5.4 Continue such replacement guarantee until plant material is accepted.

E18.6 Materials

E18.6.1 Topsoil: E:17.2.1

E18.6.2 Water: Potable and free of minerals which may be detrimental to plant growth

E18.6.3 Tree Rings: fabricated from 3 mm galvanized wire encased in two-ply reinforced 12 mm diameter rubber garden hose or equivalent. Use only on advice by the City Forestry Branch.

E18.6.4 Stakes: T-Bar steel stakes 38 mm x 38 mm x 5 mm x 2500 mm. Paint with two (2) coats black zinc. Use only on advice by the City Forestry Branch.

E18.6.5 Guy Wires and Accessories: Steel wire strand to CSA G4-M1977 3 mm diameter. Horticultural guy wire tightener. Use only on advice by the City Forestry Branch.

E18.6.6 Trunk Collar: 150 mm diameter corrugated plastic pipe, 300 mm height.

E18.6.7 Rootball Burlap: Biodegradable 150 g Hessian burlap.

E18.6.8 Anti-Desiccant: Wax-like emulsion to provide film over plant surfaces reducing evaporation but permeable enough to permit transpiration. Use only on advice by the City Forestry Branch.

E18.6.9 Wound Dressing: Horticulturally accepted non-toxic, non-hardening emulsion. Use only on advice by the City Forestry Branch.

E18.6.10 Fertilizer: Slow release formulation of low nitrogen, high phosphorous (eg, 10-50-12). Apply at rate in accordance with manufacturers written instructions. Use only on advice by the City Forestry Branch.

E18.6.11 Woodchip Mulch: Woodchips from hardwood, trees, free of bark, branches, and leaves varying in size from 1/4" to 3/4" (6-20 mm) thick.

E18.6.12 Horticultural Bonemeal: Raw Bonemeal finely ground with minimum analysis of 3% nitrogen and 10% phosphoric acid.

E18.7 Plant Material

E18.7.1 Quality and Source: Comply with Guide Specification for Nursery Stock, latest edition, of Canadian Nursery Trades Association (CNTA) referring to size and development of plant material and rootball. Height and spread dimensions refer to main body of plant and not from branch tip to branch tip. Use trees of No. 1 grade.

E18.7.2 Nomenclature of specified trees is to conform to the International Code of Nomenclature for Cultivated Plants and is to be accordance with the approved scientific names given in the latest edition of "Standardized Plant Names".

E18.7.3 Trees are to be characteristically developed for their species and structurally sound, well branched, healthy and vigorous and densely foliated when in leaf. Each tree is to have a healthy, well developed, fibrous root system which may be verified through a testing procedure that destructively samples one or more randomly selected rootballs.

E18.7.4 Trees are to have been root pruned regularly, but not later than one growing season prior to arrival on site. Trees in excess of 75 mm calliper are to have been half root pruned during each of two successive growing season, the latter at least, one growing season prior to arrival on site.

E18.7.5 All parts of plant material are to be moist and show live, green cambium tissue when cut.

E18.7.6 Trees and shrubs are to be free of disease, insect infestation, rodent damage, sun scald, frost cracks, abrasions, unhealed scars, scars exceeding 5 cm in diameter, major forks or crooks in the trunk, broken branches, or angled leaders. Trees having the above defects will not be accepted by the Contract Administrator.

E18.7.7 Trees having a leader which has developed at a sharp angle to the trunk as a result of pruning or trunk damage will not be accepted.

E18.7.8 Tree Spade Dug Material: Dig plant material with mechanized digging equipment of hydraulic spade or clamshell type. Rootballs to satisfy CNTA standards. Lift rootball from hole, place in wire basket designed for purpose and lined with burlap. Tie burlap around rootball and tie basket to ball with heavy rope. Take care not to injure trunk of tree with wire basket ties or rope. Direct planting by hydraulic tree spade will not be accepted.

E18.7.9 Container Grown Stock: Acceptable if container is large enough for root development. Trees and shrubs must have grown in container for minimum of one growing season but no longer than two. Root system must be able to "hold" soil when removed from container. Plants that have become root bound are not acceptable.

E18.7.10 Deciduous trees in excess of 3 m height must have been dug with large firm ball. Rootballs must include seventy-five percent (75%) of fibrous and feeder root system. This excludes the use of native trees grown in light sandy or rocky soil. Secure rootballs with burlap, heavy twine and rope. For large trees wrap ball in double layer of burlap and drum lace with minimum 10 mm diameter rope. Protect rootballs against sudden changes in temperature and exposure to heavy rainfall.

E18.7.11 Collected or Native Plant Material: Any nursery stock dug from native stands, wood lots, orchards or neglected nurseries and which have not received proper Association, shall be designated as "collected plants". The use of "collected plants" will not be permitted unless approved by Contract Administrator.

E18.7.12 Cold Storage: approval required for plant material which has been held in cold storage.

E18.7.13 Substitutions to plant material as indicated on planting plan are not permitted unless written approval has been obtained as to type, variety and size. Plant substitutions must be of similar species and of equal size as those originally specified.

E18.8 Equipment

E18.8.1 All equipment shall be of a type approved by the Contract Administrator and shall be kept in good working order.

E18.9 Construction Methods

E18.9.1 General

Stake out location of trees and shrubs as per Drawings. Obtain Contract Administrator's acceptance prior to excavating. Coordinate operations. Do not leave excavated holes open over night. Keep site clean and planting holes drained. Immediately remove soil of debris spilled onto street pavement, grass or walks.

E18.9.2 Planting Time

Plant only under conditions that are conducive to health and physical conditions of plants. Provide planting schedule. Extending planting operations over long period using limited crew will not be accepted. Install trees and shrubs within 48 hours of removal from the nursery.

E18.9.3 Excavation

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

E18.9.4 Planting

- (a) Loosen sides of planting holes to a depth of 100 to 150 mm as indicated on Detail on Drawing L-4. Cover bottom of each excavation with bonemeal in amount recommended by manufacturer.
- (b) Plant trees vertically with roots placed straight out in hole. Orient plant material to give best appearance in relation to structure, roads, and walks.
- (c) Place plant material to equal depth they were originally growing in nursery.
- (d) With balled and burlapped rootballs, loosen burlap and remove maximum of 1/3 of the top burlap from rootball without disturbing the rootball. Do not pull burlap or rope from under rootball. With container stock, remove entire container without disturbing rootball. Non-biodegradable wrappings must be removed.
- (e) Tamp planting soil around root system in layers of 150 mm, eliminating air voids. Frozen or saturated planting soil is unacceptable. When 2/3 of planting soil has been placed, fill hole with water. After water has completely penetrated into soil, complete backfilling.
- (f) Each tree is to have an earth saucer at its base having a diameter as large as the excavation with a 100 mm lip formed at the perimeter of the saucer to retain water.

E18.9.5 Fertilizing

When planting is completed, give surface of planting saucer dressing of fertilizer meeting the requirements of E18.3.3. Mix fertilizer thoroughly with top layer of planting soil and water in well.

E18.9.6 Tree Support

Staking for Trees and Evergreens: Backfill planting hole 2/3, drive T-rail stake 2' (900 mm) into bottom of pit, taking care not to damage main roots. Place stake on side of prevailing wind. Fasten trunk to stake or anchor with tree ring. Different methods of fastening tree trunk to stake or anchor are acceptable if no damage to bark of tree will occur. Obtain approval prior to using other methods.

E18.9.7 Mulching

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

E18.9.8 Maintenance and Guarantee of Nursery Stock

- (a) The Contractor shall provide all watering, weeding, tightening and repairing tree stakes and rings, removal of dead material and all repairing tree stakes and rings, removal of dead material and all other maintenance operations required for two years after the date of the Certificate of Total Performance. See E19 for additional information.
- (b) The Contractor shall agree and guarantee to replace and replant any nursery stock found dead and/or in poor condition two years from the date of the Certificate of Total Performance, at his cost. "Poor condition" shall be interpreted as meaning nursery stock on which branches are dying, or have not shown satisfactory growth of leaves.
- (c) Exempted is nursery stock damaged by accidental causes or vandalism, which stock shall be replaced at the cost of the City.
- (d) If required replacements shall be by plants of at least the same size and species as specified, and shall be supplied and planted in accordance with the original drawings and Specifications, and the replaced material shall carry an additional two-year guarantee and maintenance period.

E18.10 Method of Measurement

E18.10.1 Trees and Shrubs

Plant Material will be measured on a unit basis. The number to be paid for shall be the total number of each type and size of tree supplied and installed in accordance with the Specification and accepted by the Contract Administration.

E18.11 Basis of Payment

- (a) The supply and installation of trees and shrubs will be paid for at the Contract unit price for each plant, measured as specified herein, which prices shall be payment in full including all costs for the plant, plant pit and topsoil backfill, tree stakes, rings, pruning, two year maintenance, and all other items incidental to the Work included in this Specification.
- (b) Twenty five (25) % of the value of all plant material, as itemized on the unit price forms, shall be held back to pay for the two year maintenance period. See E20.19 and D12.2 for payment during two year maintenance period.
- (c) Seventy five (75) % of the value of all plant material, as itemized on the unit price forms, will be paid for when the plant material complies with the supply and installation sections of the specification requirements.

E18.12 Plant Specification List

PLANT SPECIFICATION LIST

no.	name common / scientific	size	comments
trees:			
17	AMERICAN BASSWOOD <i>Tilia americana</i>	60-70mm cal 3500-4500 ht	Min11 major branches, 2.0 m above grade. B&B or tree mover, wire basket. Double stake.
5	AMERICAN ELM <i>Ulmus americana</i>	60-70mm cal 3500-4500 ht	Min11 major branches, 2.0 m above grade. B&B or tree mover, wire basket. Double stake.
shrubs:			
40	AMORPHA <i>Amorpha fruticosa</i>	1 gal container	Container grown. Min 3 canes.
10	ARROW WOOD <i>Viburnum rafinesquianum</i>	1 gal container	Container grown. Min 3 canes.
40	BUSH HONEYSUCKLE <i>Diervilla lonicera</i>	1 gal container	Container grown. Min 3 canes.
106	RED OSIER DOGWOOD <i>Cornus sericea</i>	2 gal container	Container grown. Min 3 canes of 700 ht.
60	SNOWBERRY <i>Symphoricarpos occidentalis</i>	1 gal container	Container grown. Min 3 canes.

E19. TREE AND SHRUB MAINTENANCE SCHEDULE

E19.1 Description

This specification shall cover the landscape maintenance requirements for all trees and shrubs and associated planting operations.

E19.2 Related Work

Plant material and planting pits are specified elsewhere in this Specification and form an integral part to all Work described herein.

E19.3 Maintenance Period

Undertake maintenance from the date of installation for a period of two years past the date of Total Performance.

E19.4 Description of Work

- (a) Maintain trees and shrubs shown on the drawings, to the satisfaction of the Contract Administrator

- (b) Work includes:
 - Fertilizing
 - Watering
 - Weed Control of tree pits, wood chip mulch areas
 - Pest and disease control
 - Pruning
 - Mulching
 - Tree support and tie adjustment
 - Winter protection

E19.5 Protection

Prevent damage to fencing, other trees, landscaping, bench marks, building, pavement, surface and underground utility facilities.

E19.6 Materials

Materials are to conform to the requirements of related specifications.

E19.7 Maintenance Requirements

E19.7.1 Condition of Equipment

Prior to the commencement of tree and shrub planting, the Contractor will be required to arrange to have the equipment to be supplied under this Contract inspected by the Contract Administrator to verify that the equipment is in good operating condition and meets the requirements of the Specifications.

E19.7.2 Replacement Equipment

The supply of replacement equipment of equal or larger size, if regular units are under repair, will be the responsibility of the Contractor.

E19.7.3 General Workmanship

Program timing of operations to growth, weather conditions and use of Site. Do each operation continuously and complete within reasonable time period. Store equipment and materials off-site. Collect and dispose of debris or excess material on daily basis.

E19.8 Fertilizing

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

E19.9 Watering

E19.9.1 The Contractor shall acquire and pay for all water.

E19.9.2 Apply water as required to supplement rainfall and to maintain optimum growing conditions. In general, water once a week to achieve rates as indicated below. Allow soil to dry adequately between watering to prevent over-saturation without creating water stress.

E19.9.3 Subject to the requirements above, the Contractor must water at least once a week inclusive between May 1st and October 30th. A complete record is to be kept of each series

of waterings for all planted and transplanted trees, noting: 1) location, and 2) date of watering. This record is to be given to the Contact Administrator when requested.

E19.9.4 Apply 40 litres of water per 25 mm caliper, per application using deep roof feeder or low pressure open flow nozzle and hose. The water stream must not gouge out a hole in the soil and mulch.

E19.9.5 Apply 4 litres of water per shrub per application.

E19.10 Weed Control

E19.10.1 Maintain surface of tree pit, shrub bed and mulched areas, free of weeds. Do not allow weeds to establish for a period longer than one (1) week.

E19.10.2 Do not use dicamba and picloram solutions near trees.

E19.11 Pests and Diseases

E19.11.1 Obtain written approval of Contract Administrator prior to using any pesticide.

E19.11.2 Control pests and disease through pruning or application of pesticides. Use species specific pesticides where possible. Use only pesticides of low mammalian toxicity. Strictly follow manufacturer's written instructions.

E19.12 Pruning

E19.12.1 The Contractor shall provide a person with a valid Manitoba tree Pruner's License for each work crew.

E19.12.2 Prune trees as required to remove dead, broken or damaged limbs. Prune back to healthy growth while maintaining balanced crown shape.

E19.12.3 Employ clean sharp tools. Make cuts coincident with the branch collar near the main stem or branch. Cuts must be smooth and sloping to prevent accumulation of water on cut. Do not leave little stumps ("horns") on trunks or main branches.

E19.12.4 Prune trees according to accepted horticultural practices as outlined in the Pruning Manual, Publication No. 1505 by Agriculture Canada.

E19.13 Mulching

E19.13.1 Add mulch as required to maintain 75 mm thickness

E19.14 Tree Supports and Tie Adjustments (if employed)

E19.14.1 Maintain tree supports and ties in proper repair.

E19.14.2 Remove supports and ties at end of two year maintenance period or earlier if directed by City.

E19.14.3 Straighten any tree which is leaning.

E19.15 Winter Protection

E19.15.1 Ensure adequate moisture in tree zones prior to freeze-up.

E19.15.2 Apply anti-desiccant to evergreen trees susceptible to winter desiccation as directed by Contract Administrator.

E19.15.3 Provide trunk protection from rodents, acceptable to the Contract Administrator.

E19.16 Maintenance Schedule

E19.16.1 The Contractor shall provide a complete written maintenance schedule to the Contract Administrator prior to the commencement of the two year maintenance period, and must provide weekly reports of all maintenance to the City of Winnipeg, Forestry Department, within one week of the maintenance being provided.

E19.17 Maintenance Period

- (a) The two year maintenance period shall be based on six month growing season per year. The two year maintenance program will consist of a total of 12 months of maintenance. In general the maintenance shall commence on May 1st and terminate on October 30th of each year.
- (b) In the event of an early spring, whereby the weather conditions are conducive to plant growth, the Contractor shall start the maintenance period at such time as he deems necessary. However, the City of Winnipeg, Forestry Branch, must be notified prior to commencing the maintenance period.
- (c) Where the maintenance Contract is started prior to May 1st, the actual number of days that the plant material is maintained prior to May 1st will be deducted from the October 30th completion period.

E19.18 Cost of Two Year Maintenance Period

E19.18.1 The cost for the Two Year Plant Maintenance Period will be twenty-five (25) % of the total cost of all the trees and shrubs, as shown in Form B: Prices, items one (1) to three (3) inclusive. The remaining seventy five (75) % value will be paid on a per unit basis, for each plant properly installed, and which plant complies with the specification requirements.

E19.18.2 Where the plant material has been replaced and is covered under the extended warranty period, a proportional amount of holdback will be further maintained, until the plant has survived for a full two years and is accepted.

E19.19 Payment of Two Year Maintenance Period

The basis of payment cost, will be based on a pro rated basis, based on each full month of maintenance, and the respective proportion of the total twelve (12) months. Progress payments will be made once a year at the end of each growing season.