



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 388-2005

HARRIS PARK PLAYGROUND DEVELOPMENT

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PART B

BIDDING PROCEDURES

PART B - BIDDING PROCEDURES

B1. PROJECT TITLE

B1.1 HARRIS PARK PLAYGROUND DEVELOPMENT

B2. SUBMISSION DEADLINE

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

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

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

B3. SITE INVESTIGATION

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

B4. ENQUIRIES

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

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

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

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

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

B5. ADDENDA

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

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

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

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

B5.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 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 in accordance with 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 B16.

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) Design Drawings (plan, perspective, and other submissions to illustrate the design intent);
- (d) Component Description and/or graphic or catalogue reference.

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.

B9.4 The Bidder shall state a separate price in Canadian funds for the following item of Work on Form B: Prices:

- (a) Separate Price – Item No. 1 shall be the amount to be deducted from the Total Bid Price if two (2) roofs are included with the playstructure rather than four (4).

B10. DESIGN DRAWINGS

B10.1 The Bidder shall submit drawings which illustrate the proposed design and play equipment, such as plan, perspective, and any other submissions to illustrate the design intent.

B11. COMPONENT DESCRIPTION

B11.1 The Bidder shall submit component description and / or graphic or catalogue reference outlining specifications and manufacturer's warranty of play equipment components.

B12. QUALIFICATION

B12.1 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);

B12.2 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.

B12.3 Drawings of the Sites are available on request in AutoCAD .dwg or Vectorworks format from the Contract Administrator for the purposes of the Bid Submission.

B12.4 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.

B13. OPENING OF BIDS AND RELEASE OF INFORMATION

B13.1 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.

B13.1.1 Bidders or their representatives may attend.

B13.2 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>.

B13.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract Amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

B13.4 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.

B14. IRREVOCABLE BID

B14.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 9 of Form A: Bid.

B14.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work for the time period specified in Paragraph 9 of Form A: Bid.

B15. WITHDRAWAL OF BIDS

- B15.1 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.
- B15.1.1 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.
- B15.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid, and only such person, has authority to give notice of withdrawal.
- B15.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials 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 B15.1.3(b), declare the Bid withdrawn.
- B15.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B14.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law.

B16. EVALUATION OF BIDS

- B16.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Bid Opportunity (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B12 (pass/fail);
 - (c) Bid Price (70 Points) pursuant to B16.4.2;
 - (d) Design Qualities (30 points) pursuant to B16.5;
 - (e) economic analysis of any approved alternative pursuant to B6.
- B16.2 Further to B16.1(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.
- B16.3 Further to B16.1(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.
- B16.4 Further to B16.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.
- (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 the

separate price in accordance with B9.4 until a Total Bid Price within the budgetary provision is achieved.

- B16.4.1 If there is any discrepancy between the Total Bid Price written in figures, the Total Bid Price written in words and the sum of the quantities multiplied by the unit prices for each item, the sum of the quantities multiplied by the unit prices for each item shall take precedence.
- B16.4.2 The Total Bid Price shall be evaluated with a weighting of 70 points out of a total of 100 possible points. As such, the lowest Bidder shall receive the full 70 points, and the second lowest Bidder and subsequent Bidders shall be pro-rated accordingly.
- B16.5 Further to B16.1(d), Design Qualities shall be evaluated with a weighting of 30 points out of a total of 100 possible points. Design Qualities will be evaluated considering the Bidder's Bid Submission or in other information requiring to be submitted.
- B16.5.1 Design Qualities shall be evaluated on the following criteria:
- (a) use of Fort theme;
 - (b) play value;
 - (i) variety of activities provided;
 - (ii) variety of access points;
 - (iii) innovation of design;
 - (iv) provides opportunities for social / interpersonal interaction and cooperative play;
 - (v) provides for fine and gross motor development;
 - (vi) fosters creative play;
 - (vii) designed for inclusive play (Universal Design principles);
 - (c) layout/circulation;
 - (i) efficient use of space within and between play elements;
 - (ii) good flow and relationship between play area activities;
 - (d) durability and maintenance;
 - (i) uses durable / tamper-resistant materials;
 - (ii) low maintenance finishes and connector systems;
 - (iii) ease of repair / replacement;
 - (iv) manufacturer's warranty.

B17. AWARD OF CONTRACT

- B17.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B17.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.
- B17.2.1 Without limiting the generality of B17.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Work;
 - (b) the prices are materially in excess of the prices received for similar work in the past;
 - (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;

- (d) only one Bid is received; or
- (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.

- B17.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid.
- B17.4 Notwithstanding GC:4, the City will issue a Purchase Order to the successful Bidder in lieu of the execution of a Contract.
- B17.5 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
- (a) Removing and disposing existing playsand under swingset, excavating the proposed area; installing the new playstructure and sand digger, as well as playstone and concrete curbing. Re-grade ridge area and repair sod and seeding in accordance with the requirements attached.

D3. CONTRACT ADMINISTRATOR

- D3.1 The Contract Administrator is:
- Donna Beaton
Landscape Architect
City of Winnipeg
Parks, Riverbanks and Community Initiatives Branch
Planning and Land Use Division
Planning, Property and Development Department
15-30 Fort St.
Winnipeg. MB R3C 4X5
Telephone No. (204) 986-7436
Facsimile No. (204) 986-7524
- D3.2 At the pre-construction meeting, the Contract Administrator will identify additional personnel representing the City of Winnipeg, Public Works Department 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 certified true copy or 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;
- (iv) the performance security specified in **Error! Reference source not found.**;
- (v) 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 within 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 re-inspected.

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 within thirty (30) consecutive Working Days of the commencement of the Work as specified in D8. An exception can be made to accommodate supply and installation of playstructures only if delivery of same cannot be made within the

timeframe. The Contractor must get approval on proposed completion date for these items with the Contract Administrator.

- 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 within ten (10) Working Days or as otherwise instructed by the Contract Administrator and the Contract Administrator notified so that the Work can be re-inspected.
- 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) 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.

CONTROL OF WORK

D12. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

- D12.1 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).

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> |
|--------------------|------------------------------------|
| H.34-A | Harris Park Existing Conditions |
| H.34-B | Harris Park Proposed Siteplan |
| SCDP-2 | Concrete Playsurface Edging Detail |
| SCD-120 | Tache Bench |
- E1.2.1 Above Drawings are available on request in AutoCAD .dwg format or Vectorworks format from the Contract Administrator.

E2. PLAY EQUIPMENT

- E2.1 General Conditions
- E2.1.1 The Contractor shall furnish all labour, materials, equipment and services necessary to complete the Work according to the drawings and specifications.
- E2.1.2 The Contractor shall obtain all approvals including the requisite Development Permit.
- E2.1.3 This specification shall cover the supply and installation of the Play Equipment specified herein and illustrated as an example on Drawing H.34-B. The playstructure as illustrated on the drawing is a sample only. Alternative suggestions are encouraged.
- E2.2 Playstructure
- E2.2.1 General Description
- This specification shall cover the supply and installation of the Playstructure as specified herein.
 - The theme for the playstructure shall be a Fort. As such, it shall incorporate theme-related items including, but not limited to, the following:
 - Fort flag(s)
 - Fort sign
 - bridge(s)
 - square configuration
 - enclosed or partially enclosed, with a defined entry point
 - The Playstructure shall be installed in the approximate location of the play area as shown on Drawing H.34-B or approved substitute in accordance with B6.

E2.2.2 Materials

(a) Posts / Caps

- (i) All posts shall be a minimum 5" O.D. round or 4" square tubing.
- (ii) All posts shall be fabricated from either aluminum (0.125" min. wall thickness) or galvanized steel (0.120" min. wall thickness) tubing. All fabrication cuts drill holes and weld joints shall be sprayed with a corrosion resistant coating. The bottom end of the posts is to be sealed with a moisture barrier.
- (iii) Top caps shall be made of steel construction and shall be factory installed and secured in place with tamper proof, self-sealing rivets. Plastic top caps will be accepted if made of solid construction.
- (iv) If painted colour is a feature of posts and top caps, it shall be a baked-on polyester powder coating. The powder coating finish shall meet or exceed ASTM standards for hardness, adhesion, impact and salt spray resistance.

(b) Decks

- (i) All decks shall be manufactured from vinyl-coated perforated steel. Deck heights may vary to a maximum height of 5'.

(c) Clamping System

- (i) All deck, rail and play component clamping systems shall be fabricated from zinc plated, and galvanized steel, stainless steel or aluminum, and baked-on polyester powdercoated to match post colour. Tamper proof, corrosion resistant fasteners shall be used to retain clamping systems.

(d) Handrails, Safety Rails and Handloops

- (i) All handrails, safety rails and handloops shall be fabricated using a minimum of 15/16" (24mm) O.D. with a .120" wall thickness steel tubing. After all fabrication activities have occurred including end cuts, drill holes, bends and weld joints, all components shall be hot dipped galvanized.
- (ii) Smooth all cut edges and weld joints prior to hot dip galvanizing and ensure that all tubing is free from burrs, cracks, defects and other imperfections.

(e) Hardware

- (i) All fasteners shall be socketed and tamper proof in design, and either carbon steel plated with zinc/nickel and iridescent chromate finish or stainless steel.

(f) Poly Components

- (i) Poly components such as slides and hoods shall be fabricated from U.V. stabilized, rotationally molded linear low-density polyethylene.
- (ii) Poly components such as play panels shall be fabricated from compression molded solid colour, U.V. stabilized, high-density polyethylene.

E2.2.3 Play Components

- (a) The following play components are to be included with the Playstructure as per the detailed list below (sample structure plan has been included on Drawing H.34-B for information only):

- (i) six (6) (minimum) platforms at different levels
- (ii) three (3) Bridges or Catwalks
- (iii) minimum two (2), ideally four (4) roofs
- (iv) one (1) min. Horizontal Overhead Ladder, fixed rung or trapeze
- (v) five (5) Climbing Access

- (vi) two (2) Slides, Stainless Steel preferred with north or east face orientation, including different heights and styles
 - (vii) one (1) Step Ladder or Easy Access Stairs – for adult access in case of emergency
 - (viii) one (1) Activity Panel such as Tic Tac Toe Panel, deck mounted or free standing
 - (ix) one (1) Egress such as a fire pole or spiral
 - (x) one (1) Balance Beam
 - (xi) two (2) Flags
 - (xii) one (1) Sign, free-standing or attached to structure
- (b) The playstructure shall have kick plates and hand loops as required to meet the most recent Canadian Standards Association Guidelines.

E2.2.4 Installation

- (a) Playstructures shall be installed as per manufacturers specifications and in accordance with the most recent Canadian Standards Association Guidelines.
- (b) All posts and other vertical items shall be plumb and true to vertical.
- (c) All decks shall be level.

E2.3 Accessible Sand Digger

E2.3.1 General Description

- (a) The Contractor shall furnish all labour, materials, equipment and services necessary to complete the Work according to the specifications.
- (b) This specification shall cover the supply and installation of one (1) “accessible sand digger” (similar to Landscape Structures ‘Wheelchair-Accessible Superscoop’) as specified herein:

E2.3.2 Materials

- (a) Scoop and Hand Control Assembly
 - (i) The Sand Digger shall be fabricated from cast aluminum, steel or black pipe. and coated with a baked-on polyester powder coating. The powder coating finish shall meet or exceed ASTM standards for hardness, adhesion, impact and salt spray resistance. All fabrication cuts, drill holes and weld joints shall be sprayed with a corrosion resistant coating prior to powder coating.
- (b) Base Assembly
 - (i) The Sand Digger shall be mounted on a ground pipe manufactured from zinc-plated black pipe and direct bury installed. Maximum rotation shall be 170 degrees.
- (c) Hardware
 - (i) All fasteners shall be tamper proof in design and requiring special tools. The hardware shall be either carbon steel plated with zinc/nickel and iridescent chromate finish or stainless steel. Bearings shall be oil impregnated.

E2.4 Maintenance Kits

- E2.4.1 All play equipment shall include the supply of maintenance kits. Maintenance kits shall include maintenance manuals, complete manufacturer's parts lists, touch-up paint, PVC

repair paint, 10% extra of each bolt, washer and any other hardware utilized on the play equipment, and all special tools necessary for assembly and maintenance

E2.5 Foundations

E2.5.1 General Description

- (a) All playground equipment posts, bases and anchors are to be set in concrete footings or piles to ensure stability and prevent frost heaving. The current Standard Construction Specifications of the City of Winnipeg, CW 2160-R4 - Concrete to be used in Underground Works, is to be utilized in the installation of the concrete works for all below ground components.
- (b) All posts and supports shall be centred in the concrete footing such that there is a complete collar of concrete around each post and support. Where posts are not perfectly centred there should be a minimum of 2" concrete at any point around the post.
- (c) All concrete footings for playstructures shall be a minimum of 3' depth, or in accordance with Manufacturer's specifications, whichever is greater.
- (d) The specific concrete requirements shall be:
 - (i) Sulfate resistant, Type 50 Cement
 - (ii) 28 day compressive strength of 30 Mpa
 - (iii) maximum aggregate size of 20mm, nominal
 - (iv) slump 80 +/- 20mm
 - (v) maximum water/cement ratio 0.49

E2.5.2 Method of Measurement and Basis of Payment

- (a) Foundations shall be considered incidental to and payment to be included with the prices for supply and installation of playstructure, sand digger and Tache bench.

E3. SITE DEVELOPMENT

E3.1 Excavation and Removals

E3.1.1 General Description

- (a) Areas of the site are to be excavated to the depths required to accept granular surfacing and a minimum 300mm depth of safety play stone (top of safety surfacing to be 75 mm below top of edging). The areas shall be within the approximate available area for new play equipment as shown on Drawing H.34-B, in accordance with Concrete Playsurface Edging Detail on Drawing SCDP-2. The area shall be adjusted as necessary to accommodate the proposed structure. The Bidder may adjust the configuration slightly so long as the same overall area and perimeter quantities are maintained.
- (b) All extraneous materials are to be removed from the site and disposed of in a safe and legal manner. This specification shall amend and supplement City of Winnipeg Standard Construction Specifications CW 3110-R7. The Work to be done by the Contractor under this specification shall include all labour, equipment and material necessary for and incidental to the satisfactory performance and completion of the Work herein specified.

E3.1.2 Materials

- (a) Excavation and removals includes the removal of items (i.e. existing sand under swingset) as indicated on the Drawings and as directed by the Contract Administrator. Work includes the stockpiling of suitable Site material, and the satisfactory disposal of unsuitable Site material such as clays susceptible to frost-heaving, silts, rock rubble rubbish and any surplus suitable Site material. Do not disturb adjacent items designated to remain in place.

E3.1.3 Construction Methods

- (a) Disposal of material shall be understood to mean the hauling of all unsuitable material from the Site and the unloading in a legal manner acceptable to the Contract Administrator. If arrangements are made in advance excavated material may be disposed of on Site at a location designated by the Contract Administrator.
- (b) Swings are to be made inaccessible to children during all construction in swings area, including excavation, disposal and installation of playstone and concrete edging.

E3.1.4 Method of Measurement and Basis of Payment

- (a) Excavation and removals shall be considered incidental to and payment to be included with the prices for protective surfacing and granular pathway construction. No payment will be made for material removed outside the limits of excavation.

E3.2 Concrete Edging

E3.2.1 General Description

- (a) The Contractor shall furnish all labour, materials, equipment and services necessary to complete the Work according to the drawings and specifications.
- (b) This specification shall cover the supply and installation of Concrete Edging to contain the safety surfacing for the playground area.

E3.2.2 Materials and Method

- (a) Layout shall be as shown on the attached drawings, or as approved, to adequately provide safety surfacing area based on the most recent CSA safety zone requirements.
- (b) Cement: Type 50
 - (i) Maximum Course Aggregate: 20mm
 - (ii) Minimum Compression Strength at 28 days: +35 Mpa
 - (iii) Minimum Cement Content: 310 kg/cu.m
 - (iv) Maximum Water Cement Ratio: 0.45
 - (v) Class of Exposure: C-2
 - (vi) Maximum Slump: 90mm +/- 20mm
 - (vii) Air Entrainment: 5 to 8%
 - (viii) Flyash Content: Max. 15% of Cementitious Material
- (c) Fine aggregate shall consist of natural sand or manufactured sand and shall conform to all requirements of CAN3.A23.1.
- (d) Course 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, organic matter or other deleterious matter, and shall conform with all the requirements of CAN3.A23.1. Maximum size of aggregate shall be 20mm.

- (e) 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.
- (f) 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%.
- (g) Reinforcing steel shall be grade 300 deformed bars or as noted on the drawings. Detailing of reinforcing steel shall be in accordance with ACI 315. All bars which require bending shall be bent in shops.
- (h) 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.
- (i) Ends of reinforcing steel intended for bonding that are to be left exposed for some time shall be protected from injury, oils or moisture.
- (j) Curing compound shall be Sternson Ritcure or approved equal in accordance with B6.
- (k) Bonding agent shall be Sternson ST 431 Epoxy Bonding Agent.
- (l) Form coating shall be Sternson's Formseal or approved equal in accordance with B6.
- (m) The City of Winnipeg may engage a fully qualified Inspecting Engineer and Testing Laboratory to:
 - (i) 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.
 - (ii) Take test cylinders during concrete placing and carry out compression tests to determine whether concrete produced complies with these specifications.
 - (iii) Take compaction tests of compacted granular sub-base and sub-grade material.
 - (iv) Submit reports to the Contract Administrator of all materials, concrete, and caisson tests and inspections.
 - (v) 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.
- (n) Concrete shall be installed as per Drawing SCDP-2.
- (o) Finished elevations shall ensure that all concrete is smooth and level. Turf shall be repaired as required around edging in accordance with City of Winnipeg Standard Specifications for Topsoil and Seeding.
- (p) The layout of the concrete edging shall be coordinated with the installation of the play equipment to ensure that the proper safety zones are created around the equipment.
- (q) The Contractor shall set the elevation of the top of the concrete edge which shall be inspected and approved by the Contract Administrator prior to concrete installation.

E3.2.3 Method and Measurement of Payment

- (a) Measurement
 - (i) Concrete Edging will be measured on a unit price basis per linear metre. .
- (b) Payment
 - (i) Concrete Edging will be paid for at the Contract Unit Prices for Supply and Install new Concrete Edging. The amount to be paid for shall be the total number of units installed. This price shall be full payment for supplying all labour, equipment and materials, and performing all operations herein

described and all other items incidental to the Work and as accepted by the Contract Administrator.

E3.3 Protective Surfacing

E3.3.1 Description

- (a) This specification shall cover the supply and installation of Safety Stone Surfacing within the play structure/swing areas.

E3.3.2 Materials

- (a) Safety Stone shall be 6.0mm Playground Stone, composition shall be Typical Birds Hill glacial till material, 100% clean river-washed granite.
 - 100% passing 10mm
 - 15% passing 5mm
 - 10% passing 2.5mm
 - 4% passing 1.25mm
 - 1% passing 0.8mm sieve

E3.3.3 Construction Method

- (a) Safety Stone shall be installed within all the play areas, as defined by the concrete edging, to a minimum depth of 30 cm.
- (b) The installation of the Safety Stone shall be done immediately after the playstructure has been installed.
- (c) Installation shall be done by equipment sized to suit the Work being done and the Stone shall be spread by hand as necessary in the immediate vicinity of the playstructures so as not to damage same. The playstructures shall be swept clean to the satisfaction of the Contract Administrator after installation of the Stone.

E3.3.4 Method and Measurement of Payment

- (a) Play Stone surfacing will be measured on a unit price basis per cubic metre.
- (b) Play Stone surfacing will be paid for at the Contract Unit Prices. The amount to be paid for shall be the total number of units, as indicated on Form B;Prices. This price shall be full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work and as accepted by the Contract Administrator.

E3.4 Limestone Pathway

E3.4.1 Description

- (a) This Specification shall amend and supplement the City of Winnipeg Specification CW 3110-R7. The Work to be done by the Contractor under this Specification shall cover all phases of supply and placement of crushed limestone surfacing materials necessary to install a Limestone Pathway as per detail on Drawing H.34-B.

E3.4.2 Materials

- (a) New Limestone Pathway shall consist of a 100 mm compacted base coarse depth of 38 mm diameter compacted crushed limestone down, with a 50 mm depth of 6 mm diameter compacted limestone down capping.

E3.4.3 Construction Method

- (a) The Contractor shall survey and stake out pathway prior to the start of construction as shown on Drawing H.34-B. Layout and grades of pathway shall be checked and confirmed with Contract Administrator prior to construction.
- (b) All granular base coarse shall be placed and compacted to the finished thickness as specified on the drawings.
- (c) Base Coarse and Capping Course shall be compacted to a minimum of Hundred (100%) of Standard Proctor Density.

E3.4.4 Method and Measurement of Payment

- (a) Limestone Path will be paid for on a square metre basis for the items listed below. Price shall be payment in full for supplying materials and for performing all operations.
 - (i) Supply and install new limestone path.

E3.5 Site Grading

E3.5.1 Description

- (a) This Specification shall amend and supplement the City of Winnipeg Specifications CW 3170-R3 and CW 3540-R2. The Work to be done by the Contractor under this Specification shall cover all phases rough and finish grading for the elevated ridge areas as shown on Drawing H.34-B.

E3.5.2 Method

- (a) The Contractor shall survey and stake out the existing ridge area prior to the start of construction as shown on Drawing H.34-B. Layout and grades of ridge area shall be checked and confirmed with Contract Administrator prior to construction.
- (b) Excess material from Area A as shown on Drawing H.34-B shall be moved to Area B and graded so there is a smooth transition to grade, to the satisfaction of the Contract Administrator. Final grades in Areas A and B shall be such to accommodate either topsoil and sod or topsoil and seed in accordance with E3.6.
- (c) Area A shall be finish graded so that it is at the same approximate level as adjacent existing grade.

E3.5.3 Method and Measurement of Payment

- (a) Site Grading will be paid for on a square metre basis. Price shall be payment in full for supplying materials and for performing all operations.

E3.6 Sodding and Seeding

E3.6.1 Description

- (a) This Specification shall amend and supplement the City of Winnipeg Specifications CW 3510-R8 and CW 3520-R5. The Contractor shall install mineral sod or seed and a minimum 75mm (for sod) or 100mm (for seed) compacted thickness of topsoil, as required.

E3.6.2 Method

- (a) Excavated ridge area (Area A): The Contractor shall install mineral sod and topsoil in Area A as shown on Drawing H.34-B following finish grading of same.
- (b) Area B: The Contractor shall install seed and topsoil in Area B as shown on Drawing H.34-B following finish grading of same.

- (c) Playstructure and Swings areas: The Contractor shall install seed and topsoil in playstructure and swings area as shown on Drawing H.34-B a distance of a minimum of 500mm from the concrete edging as per detail on Drawing SCDP-2.
- (d) Damaged areas: The Contractor shall install seed and topsoil in any additional areas requiring repair as a result of damage from the Work.

E3.6.3 Method and Measurement of Payment

- (a) Sodding and Seeding will be paid for on a per square metre basis. Price shall be payment in full for supplying materials and for performing all operations.

E3.7 Tache Benches

E3.7.1 Description

- (a) This specification shall cover the supply and installation of Two (2) Tache Benches routed to accommodate Dedication plaques. The Contractor shall furnish all labour, materials, equipment and services necessary to complete the Work as shown on the drawings and specified herein.

E3.7.2 Materials

(a) General

- (i) Benches shall be "Tache Park Bench", 6' long, with back, as per SCD 120, Product #52501068. Dedication plaques shall be ordered by the Contract Administrator and applied to the benches prior to pick-up and installation or following installation on site, by others.

(b) Contact

Bill Dowbyhuz
Supervisor of Central Repair/Manufacturing Facility
City of Winnipeg
Fleet Management Agency Division
Public Works Department
215 Tecumseh St
Winnipeg, MB R3E 3S4
Telephone No. (204) 986-5505
Facsimile No. (204) 986-1248

E3.7.3 Construction Methods

- (a) Fit and ship assemble in largest practical section, for delivery to Site.
- (b) Installation shall be in accordance with Drawing SCD-120.
- (c) All exposed welds shall be ground smooth and flush with adjacent finished surfaces.
- (d) Benches shall be set into concrete bases in locations as noted on the plan or as directed by the Contract Administrator and in accordance with the manufacturer's instructions, and shall be set plumb and level.

E3.7.4 Method and Measurement of Payment

- (a) Benches will be measured on a per unit price basis.
- (b) Benches will be paid for at the Contract Unit Prices. The amount to be paid for shall be the total number of units, measured as specified herein. This price shall be full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work and as accepted by the Contract Administrator.

E3.8 Site Restoration

E3.8.1 Description

- (a) Total Performance of the Work shall not be attained until the Contractor has cleaned up the Site and has removed all tools, equipment, waste, debris and surplus foundation earth to the satisfaction of the Contract Administrator. Unless otherwise specified, the Contractor shall restore all areas of the site beyond the established limit of Work, which have been disturbed by the Contractor's operations to as good as or better than the original condition to the satisfaction of the Contract Administrator. The Contractor shall pay all costs associated with this Work.

E3.9 Existing Services and Utilities

E3.9.1 Description

- (a) No responsibility will be assumed by the Owner 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.

E3.10 Access To Site

E3.10.1 Description

- (a) Access to the Site as required by the Contractor shall be provided and maintained by the Contractor at his own expense and approved by the Contract Administrator.
- (b) 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.

E3.11 Damage to Existing Structures, Trees and Property

E3.11.1 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 City of Winnipeg Contract Administrator, 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.

E3.11.2 The Contractor shall take the following precautionary steps to prevent damage from construction activities to existing park trees within the limits of the construction area:

- (a) The Contractor shall not stockpile materials and soil or park vehicles and equipment within 2 metres of trees.
- (b) Trees identified to be at risk by the Contract Administrator are to be strapped with 25x100x2400 wood planks, or suitable protected as approved by the Contract Administrator.
- (c) Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the

excavation shall be a minimum of 1.5 times the diameter (measured in inches), with the outcome read in feet, from the closest edge of the trunk. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation.

- (d) Operation of equipment within the drip line of the trees shall be kept to a minimum required to perform the Work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the drip lines of trees. The drip line of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.

E3.11.3 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or his/her designate.

E3.11.4 No separate measurement or payment will be made for the protection of trees.