



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 628 - 2012

SHOREHILL DRIVE PARK SPACE DEVELOPMENT

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 SHOREILL DRIVE PARK SPACE DEVELOPMENT

B2. SUBMISSION DEADLINE

B2.1 Submission Deadline: The Submission Deadline is 4:00 p.m. Winnipeg Time, September 26, 2012

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

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

B3. SITE INVESTIGATION

B3.1 Further to C3.1, the Contract Administrator or an authorized representative will be available at the Site at 1pm on September 21st to provide Bidders access to the Site.

B3.2 The Bidder shall not be entitled to rely on any information or interpretation received at the Site Meeting unless that information or interpretation is the Bidder's direct observation, or is provided by the Contract Administrator in writing.

B4. ENQUIRIES

B4.1 All enquiries shall be directed to the Contract Administrator identified in D4.1.

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

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

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

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

B5. 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 Division website at <http://www.winnipeg.ca/matmgt/>

- B5.2.2 The Bidder is responsible for ensuring that he/she has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.
- B5.2.3 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/her sole discretion grant approval for the use of a substitute as an "approved equal" or as an "approved alternative", or may refuse to grant approval of the substitute.
- 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/she 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 may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with 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.

B6.10 Notwithstanding B6.2 to B6.9, and in accordance with B7.7, deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B14.1(a).

B7. BID COMPONENTS

B7.1 The Bid shall consist of the following components:

- (a) Form A: Bid;
- (b) Form B: Prices;

B7.2 Further to B7.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B5.

B7.3 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Bid.

B7.4 The Bid Submission may be submitted by mail, courier or personal delivery, or by facsimile transmission.

B7.5 If the Bid Submission is submitted by mail, courier or personal delivery, it shall be enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address, and shall be submitted to:

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

B7.5.1 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.

B7.6 Bidders are advised not to include any information/literature except as requested in accordance with B7.1.

B7.7 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B14.1(a).

B7.8 If the Bid Submission is submitted by facsimile transmission, it shall be submitted to 204 949-1178.

B7.8.1 The Bidder is advised that the City cannot take responsibility for the availability of the facsimile machine at any time.

B7.8.2 Bids submitted by internet electronic mail (e-mail) will not be accepted.

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/her own name, his/her name shall be inserted;
- (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
- (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;

- (d) if the Bidder is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

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/her own name, it shall be signed by the Bidder;
- (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
- (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers;
- (d) if the Bidder is carrying on business under a name other than his/her own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.

B8.4.1 The name and official capacity of all individuals signing Form A: Bid should 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 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 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.

B9.3 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

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; and
- (b) be financially capable of carrying out the terms of the Contract; and
- (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.

B10.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/debar.stm>

- B10.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:
- (a) have successfully carried out work similar in nature, scope and value to the Work; and
 - (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
 - (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);
- B10.4 Further to B10.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractors has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:
- (a) a valid COR certification number under the Certificate of Recognition (COR) Program administered by the Manitoba Construction Safety Association or by the Manitoba Heavy Construction Association's Safety, Health and Environment Program; or
 - (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/> .
- B10.5 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.
- B10.6 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B11. OPENING OF BIDS AND RELEASE OF INFORMATION

- B11.1 Bids will not be opened publicly.
- B11.2 Following the submission deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/bidopp.asp>
- 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 Division website at <http://www.winnipeg.ca/matmgt/>
- B11.4 The Bidder is advised that any information contained in any Bid may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

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/her Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.
- B13.1.1 Notwithstanding C23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.
- 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 will:
- (a) retain the Bid until after the Submission Deadline has elapsed;
 - (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 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/her Bid after the Submission Deadline but before his/her 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 or acceptable deviation there from (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 is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.
- B14.3 Further to B14.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is responsible and qualified.
- 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.
- 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.
- B14.4.2 Further to B14.1(a), in the event that a unit price is not provided on Form B: Prices, the City will determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

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, in accordance with B14.
- B15.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.
- B15.4 Notwithstanding C4, 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 C1.1, 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

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2006 12 15) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm
- C0.2 A reference in the Bid Opportunity to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Construction*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

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

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of grading and earthwork, construction of pathways, landscaped areas, children's play structure, boardwalks and swale.

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

- (a) Removals and Site Preparation;
- (b) Excavation and Grading;
- (c) Culvert Installation;
- (d) Stripping, Topdressing, Seeding and Sod;
- (e) Riprap & Boulder Placement;
- (f) Play structure and Play Components;
- (g) Site Furniture Installation;
- (h) Tree and Shrub Planting.

D3. DEFINITIONS

D3.1 When used in this Bid Opportunity:

- (a) "**CSA**" means Canadian Standards Association;
- (b) "**ASTM**" means American Society for Testing and Materials;

D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is Scatliff+Miller+Murray, represented by:

Ms. Cheryl Oakden
Landscape Architect

Telephone No. 204 927-3444
Facsimile No. 204 927-3443

D4.2 At the pre-construction meeting, the Ms. Cheryl Oakden will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

CONTRACTOR'S SUPERVISOR

D4.3 At the pre-construction meeting, the Contractor shall identify his/her designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D5. NOTICES

D5.1 Except as provided for in C23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor

shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.

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 facsimile number identified in D4.1.

D5.3 Notwithstanding C21., all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:

The City of Winnipeg
Chief Financial Officer

Facsimile No.: 204 949-1174

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 facsimile number:

The City of Winnipeg
Legal Services Department
Attn: Director of Legal Services

Facsimile No.: 204 947-9155

SUBMISSIONS

D6. AUTHORITY TO CARRY ON BUSINESS

D6.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

D7. SAFE WORK PLAN

D7.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D7.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>

D8. INSURANCE

D8.1 The Contractor shall provide and maintain the following insurance coverage:

- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg and Scatliff, Miller and Murray added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
- (b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$2,000,000

inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence;

- (c) all risks installation floater, carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.

D8.2 Deductibles shall be borne by the Contractor.

D8.3 The Contractor shall provide the Contract Administrator with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than seven (7) Calendar Days from notification of the award of Contract by Purchase Order.

D8.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D9. PERFORMANCE SECURITY

D9.1 If the Contract Price exceeds twenty-five thousand dollars (\$25,000.00), the Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:

- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or
- (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
- (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.

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

D9.2 The Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of Purchase Order and prior to the commencement of any Work on the Site.

D10. SUBCONTRACTOR LIST

D10.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than seven (7) Calendar Days from notification of the award of Contract.

SCHEDULE OF WORK

D11. COMMENCEMENT

D11.1 The Contractor shall not commence any Work until he/she is in receipt of a Purchase Order from the Award Authority authorizing the commencement of the Work.

D11.2 The Contractor shall not commence any Work on the Site until:

- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D6;
 - (ii) evidence of the workers compensation coverage specified in C6.15;

- (iii) the Safe Work Plan specified in D7;
 - (iv) evidence of the insurance specified in D8;
 - (v) the performance security specified in D9; and
 - (vi) the Subcontractor list specified in D10.
- (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.
- (c) the Contractor has provided a written schedule of work outlining dates and duties to be performed.

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

D12. SUBSTANTIAL PERFORMANCE

D12.1 The Contractor shall achieve Substantial Performance within twenty (20) consecutive Working Days of the commencement of the Work as specified in D11.

D12.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.

D12.3 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.

D13. TOTAL PERFORMANCE

D13.1 The Contractor shall achieve Total Performance within (25) consecutive Working Days of the commencement of the Work as specified in D12.

D13.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.

D13.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

D14. LIQUIDATED DAMAGES

D14.1 If the Contractor fails to achieve Substantial Performance in accordance with the Contract by the day fixed herein for Substantial Performance, the Contractor shall pay the City five hundred dollars (\$500.00) per Working Day for each and every Working Day following the day fixed herein for Substantial Performance during which such failure continues.

D14.2 The amount specified for liquidated damages in D14.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Substantial Performance by the day fixed herein for same.

D14.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D15. SCHEDULED MAINTENANCE

- D15.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:
- (a) Tree, shrubs and groundcover as specified in E33.1.4.
- D15.2 Determination of Substantial Performance and Total Performance shall be exclusive of scheduled maintenance identified herein. All scheduled maintenance shall be completed prior to the expiration of the warranty period. Where the scheduled maintenance cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the scheduled maintenance.

CONTROL OF WORK

D16. JOB MEETINGS

- D16.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.
- D16.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

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

- D17.1 Further to C6.24, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

MEASUREMENT AND PAYMENT

D18. INVOICES

- D18.1 Further to C12, the Contractor shall submit an invoice for each portion of Work performed. to:
- The City of Winnipeg
Corporate Finance - Accounts Payable
4th Floor, Administration Building, 510 Main Street
Winnipeg MB R3B 1B9
- Facsimile No.: 204-949-0864
Email: CityWpgAP@winnipeg.ca
- D18.2 Invoices must clearly indicate, as a minimum:
- (a) the City's purchase order number;
 - (b) date of delivery;
 - (c) delivery address;
 - (d) type and quantity of work performed;
 - (e) the amount payable with GST and MRST shown as separate amounts; and
 - (f) the Contractor's GST registration number.
- D18.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

D18.4 Bids Submissions must be submitted to the address in B7.5.

D19. PAYMENT

D19.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

WARRANTY

D20. WARRANTY

D20.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) year thereafter, except where longer warranty periods are specified in the respective Specification sections, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for there under.

D20.1.1 For the purpose of Performance Security, the warranty period shall be one (1) year.

D20.2 Notwithstanding C13.2, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if a 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.

D20.2.1 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

FORM H1: PERFORMANCE BOND
(See D9)

KNOW ALL MEN BY THESE PRESENTS THAT

_____ ,
(hereinafter called the "Principal"), and

_____ ,
(hereinafter called the "Surety"), are held and firmly bound unto **THE CITY OF WINNIPEG** (hereinafter called the "Obligee"), in the sum of

_____ dollars (\$_____)

of lawful money of Canada to be paid to the Obligee, or its successors or assigns, for the payment of which sum the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has entered into a written contract with the Obligee for

BID OPPORTUNITY NO. 628-2012

SHOREHILL DRIVE PARK SPACE DEVELOPMENT

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

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

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

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

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

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

_____ day of _____, 20____.

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

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

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

(Date)

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

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 628-2012

SHOREHILL DRIVE PARK SPACE DEVELOPMENT

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

(Name of Contractor)

(Address of Contractor)

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

Canadian dollars.

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

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

Partial drawings are permitted.

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

(Address)

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

All demands for payment shall specifically state that they are drawn under this Standby Letter of Credit.

Subject to the condition hereinafter set forth, this Standby Letter of Credit will expire on

(Date)

It is a condition of this Standby Letter of Credit that it shall be deemed to be automatically extended from year to year without amendment from the present or any future expiry date, unless at least 30 days prior to the present or any future expiry date, we notify you in writing that we elect not to consider this Standby Letter of Credit to be renewable for any additional period.

This Standby Letter of Credit may not be revoked or amended without your prior written approval.

This credit is subject to the Uniform Customs and Practice for Documentary Credit (1993 Revision), International Chamber of Commerce Publication Number 500.

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4 (d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 The following are applicable to the Work:

<u>Specification No.</u>	<u>Specification Title</u>
CW 1110	General Instructions
CW 1120	Existing Services, Utilities and Structures
CW 1130	Site Requirements
CW 3110	Sub-Grade, Sub-Base and Base Course Construction
CW 3130	Supply and Installation of Geotextile Fabric
CW 3510	Sodding
CW 3520	Seeding
CW 3540	Topsoil and Finish Grading for Establishment of Turf Areas
CW 3615	Rip Rap

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
L0-R0	Cover Sheet
L1-R0	Site Preparation, Removals & Protection
L2-R0	General Arrangements and Materials
L3-R0	Detailed Layout
L4-R0	Detailed Grading and Drainage North
L5-R0	Detailed Grading and Drainage South
L6-R0	Tree Planting Plan, Plant List & Details
L7-R0	Planting Detailed Layout, Plant List & Details
L8-R0	Site Details
SCD-645	Park Path Crushed Limestone
SCD-612	Culvert Installation Under Walkway
SCD-105C	Removable Steel Bollard
SCD-119	Waste Receptacle Metal Slat Type
SCD-122	Tache Style Metal Frame Picnic Table

E2. HAZARDOUS MATERIALS

- E2.1 If asbestos or other hazardous materials are encountered during the Work of the Contract, the Contractor shall stop all work and notify the Contract Administrator immediately. Removal of hazardous materials shall be dealt with by the City and the Contractor shall await further instruction by the Contract Administrator.

E3. PRE-CONSTRUCTION MEETING

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

E4. SITE ACCESS

- E4.1 All access to be on the designated routes through the Site. These routes will be determined at the pre-construction meeting.
- E4.2 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.
- E4.3 The Contractor's operation 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. Damage to areas beyond the marked routes shall be repaired by and at the expense of the Contractor to the satisfaction of the Contract Administrator.

E5. PEDESTRIAN SAFETY AND TRAFFIC MANAGEMENT

- E5.1 Further to CW 1130-R2, the Contractor shall take such measures as are necessary to ensure safe and convenient pedestrian ingress and egress in maintained to private properties while he is Working near them. Any damage caused by the negligence of the Contractor or his Sub-Contractors to the adjacent Works or properties, shall be promptly repaired by him at his own expense, to the satisfaction of the Contract Administrator.
- E5.2 Ambulance/ Emergency vehicle access must be maintained at all times.

E6. SITE CONDITION

- E6.1 The Contractor shall examine the Site and make themselves familiar with the existing conditions (both above and below grade) and nature of Work to be done.
- E6.2 No responsibility will be assumed by the City for correctness or completeness of the Drawings, when provided, with respect to the existing utilities, pipes or other objects either underground or on the surface; the City shall not be liable for the incorrectness and inadequacy thereof. Surface and sub-surface conditions shown on the Drawings and included herein are provided for general information and variations there from shall not affect the terms of the Contract. 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.
- E6.3 The Contractor shall set all necessary control lines, benchmarks, survey, elevation stakes and layout in accordance with the individual site conditions and in consultation with the Contract Administrator.

E7. EXISTING SERVICES AND UTILITIES

- E7.1 This Specification shall amend and supplement CW 1120-R1.
- E7.2 Other than required to be done by the Contractor under the Work of this contract, all necessary precautions shall be exercised by the Contractor so as not to remove, disturb, or damage any existing plant material, pavements, streets, roads, boulevards, light standards, hydro poles, fences, fire hydrants, culverts, water pipes, gas pipes, electrical wires, cables, conduits, sewers or other existing facilities and equipment at the Site of the Work. For all damage incurred in the performance of the Work (either directly or indirectly), the Contractor shall either replace and repair such damage, whichever may be deemed necessary in the opinion of, and acceptable to the 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.

- E7.3 The Contractor's attention is drawn to the existing underground lines or services that may be located in the area of the Work.
- E7.4 The Contractor shall take all necessary precautions when performing the Work to ensure that no damage is done to these existing services.
- E7.5 No responsibility will be assumed by the City for correctness or completeness of the Drawings, when provided, with respect to the existing utilities, pipes or other objects either underground or on the surface; the City shall not be liable for the incorrectness and inadequacy thereof. It shall be the responsibility of the Contractor to determine the location of all such utilities, pipes and other objects and to make good any damage done to them.
- E7.6 All costs in connection with this item including location of the existing service, repairs to any existing services damaged by the construction operation, etc. shall be included in the unit prices bid for supply and installation of the items included under this Contract.
- E7.7 The Contractor will be required to make his own arrangements in connection with the temporary use of lighting, power, gas, sewer, water or other utilities, and pay all costs in connection therewith.
- E7.8 All necessary permits, fees and other like expenses as well as the cost of temporary connections to existing facilities shall be arranged and paid for by the Contractor.

E8. PERMITS, NOTICES, LICENSES, CERTIFICATES, LAWS AND RULES

- E8.1 Further to C6.12, the Contractor shall give all necessary notices, obtain all necessary permits and pay all fees in order that the Work may be carried out. The Contractor shall submit all plans required by any inspection authority and obtain approval of same before proceeding with the Work, and pay any cost attached to the inspection of such plans.
- E8.2 The Contractor shall comply with all laws, ordinances, rules and regulations that would relate to the Work.
- E8.3 All notices, consents, approvals, statements, authorizations, documents or other communications to the City shall be submitted to the Contract Administrator.
- E8.4 All Work shall be performed in compliance with the Manitoba Workplace Health and Safety Act.
- E8.5 All Work shall be performed in compliance with the Manitoba Workplace Health and Safety Fall Protection guidelines.
- E8.6 The Contractor and Sub-contractors must be fully aware of all Work involving hazardous materials. All Work must be performed in compliance with the Manitoba Department of Labour Workplace Health and Safety Guidelines and all other applicable codes. The Contractor is responsible for the immediate notification to the Contract Administrator of his/her encountering of suspected hazardous material during their course of Work.

E9. PROTECTION OF SURVEY INFRASTRUCTURE

- E9.1 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.
- E9.2 Further to C:6.26 (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 am to 4:00 pm 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.

- E9.3 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.
- E9.4 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.
- E9.5 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.

E10. STAKES AND MARKS

- E10.1 The Contractor will mark, to the extent he determines to be necessary, the location, alignment and elevation of the Work by means of stakes or marks, for review and approval by the Contract Administrator. The Contractor shall make the completed Works conform to the lines and marks thus approved and indicated.
- E10.2 The Contractor shall notify the Contract Administrator immediately of the disturbance of any such stakes or marks. The cost of correcting any errors arising out of neglect of the Contractor 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.
- E10.3 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 on account of any alleged inaccuracies. If any error is suspected in the Drawings, 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.
- E10.4 The Contractor shall determine and provide all dimensions and elevations measured from the stakes or marks.

E11. SITE ENCLOSURES

- E11.1 Temporary Site enclosures, as determined necessary at the pre-construction meeting, shall be erected and maintained as required for the duration of the construction period.
- E11.2 Site enclosures shall be considered incidental to the Contract Work.

E12. PRODUCT APPROVALS

- E12.1 The Contractor shall, following award, prepare a complete list of all material to be used on the project and submit the list to the Contract Administrator seventy-two (72) hours prior to start of construction.
- E12.2 The Contractor shall only use material which has been approved by City of Winnipeg or by the Contract Administrator. The list shall provide the product, the manufacturer and the supplier.
- E12.3 All Workmanship and materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Contract Administrator. The Contract Administrator reserves the right to reject any materials or Works which are not in accordance with the requirements of the Specifications.

E12.4 The Contractor shall wholly be responsible for the supply, safe storage, and handling of all materials set forth in this specification, and the control of all operations, incidental thereto notwithstanding any inspection or approval that may have been previously given.

E13. SITE CLEAN UP

E13.1 The Contractor shall upon the completion of Work each day, load and dispose of all excess asphalt cuttings, spoiled concrete, reinforcing steel, granular and other material associated with the Works from the Work Site. The Contractor shall secure or remove all of his machinery and equipment at the end of each day from the immediate work site. The Contractor will not be permitted to store machinery, equipment, or materials on public roads overnight. Any costs in connection with the above mentioned Works are incidental.

E13.2 Unless otherwise specified the Contractor shall restore all areas which have been disturbed by his operations to as good as or better than original condition including removal of all construction debris, repair all vegetation, sod, concrete pavement, concrete curbs, concrete sidewalk and asphalt paving to remain etc. to the satisfaction of the Contract Administrator. Any costs incurred in connection with the above mentioned Work are incidental to unit prices bid under this contract.

E13.3 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.

E13.4 Sod and Topsoil (repair to damaged areas). The Contractor shall install mineral sod and a minimum 75mm compacted thickness of topsoil, as required, and in accordance with CW 3510-R9 and CW 3540-R5.

E14. SURFACE RESTORATION

E14.1 Further to Section 3.3 of CW 1130-R2, the Contractor shall temporarily repair any Work commenced and not completed in the 2012 construction season to the satisfaction of the Contract Administrator. The Contractor shall maintain the temporary repairs in a safe condition as determined by the Contract Administrator until permanent repairs are completed. The Contractor shall bear all costs associated with temporary repairs and their maintenance.

E15. MAINTENANCE KITS

E15.1 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.

E15.2 There shall be no payment for the maintenance kits.

E16. AS-BUILT DRAWINGS

E16.1 The Contractor shall provide the Contract Administrator As-Built Drawings for the installed play equipment (DWG format) once Total Performance is attained.

SITE DEVELOPMENT

E17. TREE PROTECTION AND PRESERVATION

E17.1 Description

- E17.1.1 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 as shown on the Drawings and as hereinafter specified.
- E17.1.2 Work shall include, but not necessarily confined to, the following:
- (a) Supply and Installation of Tree Protection Fencing as indicated on the Drawings. Tree protection areas and fencing locations shall be approved by the Consultant prior to construction. Layout and staking shall be done by the Contractor.
- E17.2 Materials
- E17.2.1 Tree protection areas and fencing locations shall be approved by the Consultant prior to construction. Layout and staking shall be done by the Contractor.
- E17.2.2 Tree protection fences should be constructed of one of the following:
- (a) Galvanized chain-link – 1.8m HT. Posts should be installed on 3.0M (maximum), at a depth of 1.2M minimum. Installation of post shall not result in injury to surface roots or root flares (shoulders) of trees;
 - (b) Moulded plastic construction fencing, 1.2m in height, colour: orange.
- E17.2.3 Fencing should be installed to completely surround the limits of tree protection areas, and should extend at least 3.0m beyond the designated construction limits.
- E17.2.4 Should pruning be required, the Contractor shall contact the Consultant for approval. Pruning work must be done using the proper pruning techniques by a licensed Arbourist.
- E17.2.5 Tree protection fencing must be installed prior to any site activity and shall remain in good condition until its removal is authorized by the Consultant.
- E17.3 Method
- E17.3.1 Further to item 3.1.1, all trees within or immediately adjacent to the proposed construction area will have a 1.0m (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.
- E17.3.2 Overhead Branch and Limb Protection
- (a) Further to 3.1.1, 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;
 - (b) Should pruning be required, the Contractor shall contact the Consultant for approval. Pruning work must be using proper pruning techniques by a licensed Arbourist.
- E17.4 Excavation
- E17.4.1 During all excavation a representative of the Consultant shall be present at all times unless otherwise agreed upon:
- (a) Two (2) roots, 75mm or more in diameter; and/or;
 - (b) Four (4) roots between 50mm and 75mm in diameter. The Consultant shall be notified immediately in the event that roots in excess of that described above are cut, torn, ripped, or otherwise injured;
 - (c) Should root pruning be required the Contractor must ensure proper root pruning techniques are employed by a licensed Arbourist.
- E17.5 Upon approval by the Consultant, prior to any excavation, removal of sidewalk, or other activity that will result in removal of soil and tree roots, all tree roots within work area will be pruned to a depth of 350mm. Pruning shall occur with a Dosko Root Pruner, or equivalent, in accessible areas, and by hand in areas inaccessible to the root pruning machine. Proper root pruning techniques must be used and employed by a licensed Arbourist.

- E17.6 All work under the Dripline of any tree shall be done by hand or by other methods which will prevent breakage or other injury to branches and roots.
- E17.7 Where it is necessary to excavate within the critical root zone of existing trees, contractor shall use all possible care to avoid injury to trees and tree roots. Excavation, in areas where 50mm diameter and larger roots occur, shall be done by hand with approved hand tools. Where possible, tree roots 50mm inches or larger in diameter shall be tunnelled or bored under and shall be covered with moistened burlap to prevent excessive drying.
- E17.8 Wherever roots are exposed smaller than two 50mm in diameter, such roots extending through the excavation shall be hand pruned. All excavated areas within critical root zones shall be closed within twelve (12) hours - if this is not possible, the excavation walls shall be covered with burlap and kept moistened. Prior to backfilling, the Contractor shall contact the Consultant to inspect the condition and treatment of roots larger than 50mm in diameter injured by excavation.
- E17.9 Horizontal directional boring (auger tunnelling), rather than open trenching, shall be used for irrigation line or other utility installation within 150mm linear distance from the trunk base for every 25mm of trunk diameter, if root disruption or utility installation occurs on no more than one side of the tree. If trenching or utility installation will occur on two or more sides of a tree trunk (e.g. N,S,E, or W), then horizontal directional boring shall be used if line installation is within 600mm linear distance from the trunk base for every inch of trunk diameter.
- E17.10 The Consultant is to be notified 48 hours in advance of any large equipment to be 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.
- E17.11 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.
- E17.11.1 Basis of Payment shall be as follows:
- (b) The Contractor is advised that Tree Protection and Preservation is incidental to this Contract Work.

E18. REMOVALS AND SITE PREPARATION

E18.1 Description

- E18.1.1 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 as shown on the Drawings and as herein specified.
- E18.1.2 Work shall include, but not necessarily confined to, the following:
- (a) Removals and Site Preparation shall be undertaken to the design requirements noted on the Drawings and the Specifications, approved on site by the Contract Administrator;
 - (b) Remove existing dead and hazardous trees as shown on Drawing L1. Extent of excavation to be determined onsite by Contract Administrator;
 - (c) Remove and legally dispose of existing debris pile and barbed wire fence in areas shown on Drawing L1 and as directed onsite by Contract Administrator. Route of travel as indicated on Drawing L1;
 - (d) Strip sod in areas as shown on Drawing L1;
 - (e) Remove existing structure, location shown on Drawing L1;
 - (f) Salvage dead trees for reuse as directed onsite by Contract Administrator;

- (g) Contractor to submit weed control strategy to Contract Administrator and City Representative for review prior to Sod and Seed installation.

Construction Methods

- E18.1.3 The Contractor shall remove all as shown on Drawing L1.
- E18.1.4 The Contractor and all sub-contractors shall examine the Site and make themselves familiar with the existing conditions and the nature of the Work to be done.
- E18.1.5 Clearing shall include felling, trimming and cutting trees into sections and satisfactory disposal of trees and other vegetation designated for removal onsite by Consultant. This shall include downed timber, snags, brush and rubbish. Clearing shall include removal off site and to the satisfaction of the Contract Administrator.
- E18.1.6 Understory Clearing to be indicated onsite shall include cutting off unsound or overhanging branches, pruning, underbrush removal at ground level and grubbing tree stumps.
- E18.1.7 The Contractor shall strip existing sod in area as shown on Drawing L1 and legally remove it from Site.
- E18.1.8 The Contractor shall ensure that upon completion of the removal operations, the Site is left in a neat condition free from debris, etc. for approval by the Contract Administrator prior to placing clean fill and/or topdressing.
- E18.1.9 Prevent damage to surface or underground utilities which are to remain. Make good any damage.
- E18.1.10 Do not disturb soil within branch spread of trees to remain.
- E18.1.11 All extraneous materials 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-R12.
- E18.1.12 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.
- E18.1.13 Contractor must coordinate with the Contract Administrator for a site inspection to ensure all removals have occurred.
- E18.2 Method of Measurement and Basis of Payment
- E18.2.1 Method of Measurement shall be as follows:
- (a) Removals, disposal and related Work in accordance with the Drawings and Specification shall be incidental to the lump sum prices for "Removals and Site Preparation" as indicated in Form B: Price. No payment will be made for material removed outside of the limits of excavation as established by the Contract Administrator.
- E18.2.2 Basis of Payment shall be as follows:
- (a) Removals, disposal and related Work will be paid for at the Contract Unit Prices for Item 2: "Removals & Site Preparation" on Form B: Prices and measured as specified herein. The amount to be paid for shall be the total number of units, measured as specified herein, which price shall be for full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work and accepted by the Contract Administrator.

E19. EXCAVATION AND GRADING

- E19.1 Description

- E19.1.1 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 as shown on the Drawings and as herein specified.
- E19.1.2 Work shall include, but not necessarily confined to, the following:
- (a) Excavation and grading of the Site shall be undertaken to the design requirements noted on the Drawings and the Specifications, approved on site by the Contract Administrator, to depths as required for each surface;
 - (b) Supply and install imported fill in areas as required to ensure positive drainage, in accordance with specifications and drawing L1;
 - (c) Excavate and grade swales as required to ensure positive drainage, in accordance with specifications and drawings L1;
 - (d) Hand excavate granular path within tree protection barrier;
 - (e) Finish grading of swales and bermed area as identified on the Drawings;
 - (f) Excavate, remove, legally dispose, rough grade and fill areas where items were removed and will not be replaced.
- E19.2 Materials
- E19.2.1 All fill materials shall conform to CW 3170-R3.
- E19.3 Construction Methods
- E19.3.1 The Contractor shall construct the Site, within the limits indicated, to the design elevations and gradients noted on the Drawings (less the appropriate surface treatment depths specified) and shall excavate, remove and dispose of all unsuitable materials of whatever nature encountered.
- E19.3.2 The Contractor shall construct all sub-grades in accordance with Specification CW 3110-R12. Excavation will be performed as per Section 4.3 of CW 3110-R12. Unsuitable Excavated material shall be disposed of as per Section 3.4 of CW 1130-R2. Surplus material will be used on site in locations specified by Contract Administrator. Any surplus material will be legally disposed of in accordance with Section 3.4 of CW 1130-R2.
- E19.3.3 Excavated or graded materials to be approved before use as fill for grading Work. Protect such approved material from contamination. Stockpile in approved locations. Protection and stockpiling are incidental to unit price bid for removals, excavation and rough grading.
- E19.3.4 The Contractor shall excavate topsoil as per Section 4.3 of CW 3110-R12. Topsoil excavation is incidental to the unit price bid for removals, excavation and rough grading.
- E19.3.5 The Contractor and all sub-contractors shall examine the Site and make themselves familiar with the existing conditions and the nature of the Work to be done.
- E19.3.6 Prevent damage to surface or underground utility lines (utilities) which are to remain. Make good any damage.
- E19.3.7 The Contractor shall excavate to the design grades shown less the appropriate allowance for surface treatment and shall excavate, remove and dispose of all unsuitable materials of whatever nature encountered.
- E19.3.8 Except for drainage swales, berms and embankments indicated, the design gradient for all other areas shall be considered to be straight grade between the design elevations shown. Changes in grade at swales, berms, embankments and field shall be gently contoured as directed by the Contract Administrator to provide future ease of grass mowing operation.
- E19.3.9 In fill areas, where the difference between the existing grade elevation and the design elevation is less than 300mm the Contractor shall scarify the existing ground to a minimum depth of 150mm prior to placement of any fill.

- E19.3.10 The Contractor is advised that there may be useable clay and gravel fill on site. All suitable material will be reviewed and approved by Contract Administrator and then re-used on site. The re-use of this material on site may reduce the quantity of imported gravel and clean earth fill required. The Contractor shall re-use existing site material prior to delivering new material to the Site.
- E19.3.11 No direct payment will be made for placing and grading of existing fill as all costs for this Work is incidental to the lump sum price bid for excavation and rough grading.
- E19.3.12 Areas to Fill
- (a) Fill low and excavated areas in sodded areas with clay material (from site excavations or imported as required) free from roots, muskeg, organic or cohesive matter, building debris, waste materials, rubble, rubbish, frozen portions, soluble materials and rocks larger than 25mm (1") in diameter and capable of sustaining plant and seed growth. Compact to 90% S.P.D. in 150mm (6") lifts. Cost of site excavated materials incidental to unit price bid for excavation, rough grading and site grading.
 - (b) Prior to placing fill over existing ground, scarify surface to depth of 150mm. Maintain fill and existing surface at approximately the same moisture content to facilitate bonding.
- E19.3.13 The Contractor shall construct all subgrades in accordance with Specification CW 3110-R12. This shall include the use of sheep's foot or other suitable compaction equipment as approved by the Contract Administrator to achieve a minimum compaction of 98% Standard Proctor Density below all paved areas (asphalt, concrete, stone chip and limestone paving), and 90% Standard Proctor Density in all other areas disturbed under this Contract unless otherwise indicated
- E19.3.14 Areas of the Site which are to be seeded or sodded are to be excavated to meet the depths as per the drawings and specifications.
- E19.3.15 The Contractor shall construct the sub-grade surface to the depths as shown on the drawings.
- E19.3.16 The Contractor is advised that all excavations, removals, disposal, rough grading, compaction and related Work for construction of sub-base, base course, granular paving and planting areas and sodded areas (adjacent to paved areas) shall be incidental to the unit prices bid for each item as listed in the Schedule of Prices.
- E19.3.17 Following earth moving, rough grading and compaction the Work areas shall be fine graded to provide a maximum deviation of 50mm in 10 metres from the design grade with no low areas that hold water. The finished surface of all disturbed areas shall be dragged and smoothed in such a manner that there are no loose soil particles greater than 50mm in maximum dimensions.
- E19.3.18 Do not disturb soil within branch spread of trees to remain.
- E19.3.19 If required and at locations directed by the Contract Administrator the Contractor shall excavate and remove unsuitable subgrade material and replace it with compacted granular material in accordance with Specification CW3110-R10.
- E19.3.20 Excavation and rough grading includes the removal of items as indicated on the Drawings and as directed by the Contract Administrator. Work includes the satisfactory disposal of unsuitable Site material such as clay susceptible to frost-heaving, silts, rock rubble rubbish and any surplus suitable Site material. Do not disturb adjacent items designated to remain in place.
- E19.3.21 All extraneous materials 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-R12.
- E19.3.22 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.

E19.3.23 The Contractor is to coordinate the layout of play area with the Play Equipment supplier / installer to ensure that CSA requirements are met. Final layout of all play spaces has to be approved by Contract Administrator prior to any construction or removal.

E19.3.24 Excavation should be coordinated with the installation of play equipment so as not to leave an open excavation area subject to ponding water.

E19.4 Method of Measurement and Basis of Payment

E19.4.1 Method of Measurement shall be as follows:

(a) Excavation and Rough Grading Work is a lump sum bid item. No measurement will be undertaken for this Work.

E19.4.2 Basis of Payment shall be as follows:

(a) Excavation and Rough Grading will be paid for at the Contract Lump Sum price. The amount to be paid for completed work, which price shall be for full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work and accepted by the Contract Administrator.

E20. NORTH AND SOUTH ENTRY CULVERTS

E20.1 Description

E20.1.1 This Specification shall supplement CW 3610.

E20.1.2 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 shown on the Drawings and as herein specified.

E20.1.3 Work shall include, but not necessarily confined to the following:

- (a) Excavation, grading, supply and installation of entry culverts to the design requirements noted on the Drawings and the Specifications, approved on site by the Contract Administrator, to depths as required for each surface;
- (b) Finish grading of swales and path area as identified on the Drawings;
- (c) Excavate, remove, legally dispose, rough grade and fill areas where items were removed and will not be replaced.

E20.2 Materials

E20.2.1 All materials supplied under this Specification shall be of a type approved by the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator. All material shall conform to CW 3610.

E20.2.2 Compacted Subgrade:

(a) Subgrade to be compacted and backfill material shall CW 3110-R12 Excavation.

E20.2.3 HDPE Culvert

(a) Refer to Drawing 5/L4 and SCD-612 Culvert Installation Under Walkway.

E20.3 Construction Methods

E20.3.1 The Contractor shall construct the Site, within the limits indicated, to the design elevations specified and shall excavate, remove and dispose of all unsuitable materials of whatever

nature encountered. The Contractor shall confirm proposed locations of all culverts with Contract Administrator prior to installation.

E20.3.2 Contractor shall visit the Site and verify all data and dimensions and report any errors, omissions or discrepancies to the Contract Administrator prior to any installation.

E20.3.3 Contractor shall be responsible for interpretation of grades and protection of stakes. Layout to be approved by Contract Administrator prior to construction.

E20.3.4 Sub-Grade

- (a) Prepare compacted sub-grade to the lines and grades as shown on Drawings. Subgrade to be compacted clay with a minimum length of one (1) meter or two (2) times the diameter of the pipe, whichever is the greater.

E20.3.5 HDPE Culvert

- (a) HDPE Culvert shall be laid on prepared subgrade as indicated on SCD-612 Culvert Installation Under Walkway and;
- (b) HDPE Culvert shall be in accordance with Specification CW 2130.

E20.4 Method of Measurement and Basis of Payment

E20.4.1 Method of Measurement shall be as follows:

- (a) North and South Entry Culvert(s) Installation Work is a lump sum bid item. No measurement will be undertaken for this Work.

E20.4.2 Basis of Payment shall be as follows:

- (a) North and South Entry Culvert(s) will be paid for at the Contract Lump Sum price. The amount to be paid for completed work, which price shall be for full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work and accepted by the Contract Administrator.

E21. WOOD MULCHED PATH

E21.1 Description

E21.1.1 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 as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Supply and Installation of granular base course, wood mulch and geotextile fabric, for pathways as indicated on the Drawings.
- (b) Refer to Drawings for locations where the Park Path transitions from 3.0m to 1.8m widths.

E21.2 Material

E21.2.1 All materials supplied under this Specification shall be of a type approved by the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.

E21.2.2 Compacted Subgrade

- (a) Subgrade to be compacted and the top 50mm to be scarified.

E21.2.3 Bark Mulch

- (a) Bark Mulch to be placed to a depth of 100mm. Mulch to be free of Manitoba Maple and Willow Cutting.

E21.3 Construction Methods

- E21.3.1 Contractor shall visit the Site and verify all data and dimensions and report any errors, omissions or discrepancies to the Contract Administrator prior to any installation.
- E21.3.2 Contractor to layout pathways. Contractor shall be responsible for interpretation of grades and protection of stakes. Layout to be approved by Contract Administrator prior to construction.
- E21.3.3 Sub-Grade
- (a) Prepare compacted sub-grade to the lines and grades as shown on Drawings. Contract Administrator to review sub-grade preparation prior to placement of Mulch.
- E21.3.4 Bark Mulch
- (a) Place Mulch to the lines and grades as shown on Drawings.
- E21.4 Method of Measurement and Basis of Payment
- E21.4.1 Method of Measurement shall be as follows:
- (a) Bark Mulch Path shall be measured on a square meter basis. The area to be paid for shall be the total number of square meters that are installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.
- E21.4.2 Basis of Payment shall be as follows:
- (a) Bark Mulch Path will be paid for at the Contract Unit Price and measured as specified herein. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification.

E22. CRUSHED GRANULAR PATHWAY

- E22.1 Description
- E22.1.1 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 as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:
- (a) Supply and Installation of granular base course, surface course materials and geotextile, for pathways as indicated on the Drawings;
 - (b) Refer to Drawings for locations where pathway transitions in width from 3.0m to 1.8m.
- E22.2 Material
- E22.2.1 All materials supplied under this Specification shall be of a type approved by the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.
- E22.2.2 Compacted Subgrade
- (a) Granular base course material for the pathway shall consist of 150mm of 20mm down crushed limestone and shall conform to CW3110-R10 for crushed limestone base course material.
- E22.2.3 Granular Surface Course for Granular Surface Pathway
- (a) Granular surface course material for the pathway shall consist of 25.4mm of crusher fines/ toppings crushed limestone.
- E22.2.4 Geotextile Fabric
- (a) Geotextile fabric shall be in accordance with CW 3130-R2.

E22.3 Construction Methods

- E22.3.1 Construction method shall conform to Specification CW 3110-R12 'Sub-grade, Sub-base, and Base Course Construction'.
- E22.3.2 Contractor shall visit the Site and verify all data and dimensions and report any errors, omissions or discrepancies to the Contract Administrator prior to any installation.
- E22.3.3 Contractor to layout pathways. Contractor shall be responsible for interpretation of grades and protection of stakes. Layout to be approved by Contract Administrator prior to construction.
- E22.3.4 Sub-Grade
- (a) Prepare compacted sub-grade to the lines and grades as shown on Drawings. Contract Administrator to review sub-grade preparation prior to placement of granular base.
- E22.3.5 Granular Base
- (a) Geotextile fabric to be placed between subgrade and granular base as per CW 3130-R2;
 - (b) Place granular base material to the lines and grades as shown on Drawings. Extend base minimum 150mm beyond width of surface course;
 - (c) Compact material to a minimum of 95 percent Standard Proctor Density.
- E22.3.6 Granular Surface Course
- (a) Place granular surface course material to the lines and grades as shown on Drawings;
 - (b) Compact material to a minimum of 95 percent Standard Proctor Density.
- E22.4 Method of Measurement and Basis of Payment
- E22.4.1 Method of Measurement shall be as follows:
- (a) Granular Surface Pathway shall be measured on a square meter basis. The area to be paid for shall be the total number of square meters that are installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.
- E22.4.2 Basis of Payment shall be as follows:
- (a) Granular Surface Pathway will be paid for at the Contract Unit Price and measured as specified herein. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification.

E23. BOULDER RIPRAP

E23.1 Description

- E23.1.1 The specification shall supplement Specification CW3615-R2.
- E23.1.2 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 shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:
- (a) Supply and installation of Granite Boulder Riprap, Stone Mulch and Geotextile Fabric as indicated on the Drawings.

E23.2 Materials

- E23.2.1 It is the Contractor's responsibility to contact the Contract Administrator with a minimum of two (2) days notice to come and approve the riprap material on the truck at the site prior to unloading and installing.
- E23.2.2 Granite Boulders
- (a) Granite Boulders shall be clean fieldstone of random profile with no cracks or splits. Boulders shall be light in colour with diameters ranging from 500mm to 700mm and shall conform to CW 3615-R2 as per Random Stone Riprap.
- E23.2.3 Stone Mulch
- (a) Stone Mulch shall be 19mm (3/4") diameter round River stone placed to a depth 50mm, as shown in Detail 3/L8.
- E23.2.4 Geotextile Fabric
- (a) Geotextile Fabric shall conform to CW 3130-R2.
- E23.2.5 Granular Base
- (a) Granular Base shall be 19mm down crushed limestone placed to a depth of 100mm, as shown in Detail 3/L8.
- E23.3 Method of Construction
- E23.3.1 Bed for Boulder Rip Rap
- (a) The bed for the Boulder Riprap shall be cleared and trimmed to the lines as shown on the drawings or as stated in the field by the Contract Administrator, prior to the placement. The bed shall be excavated to a depth of 150mm below finished grade of adjacent surfaces. No geotextile fabric, stone mulch or boulders shall be placed until the bed has been approved. No riprap shall be unloaded and placed until boulder material has been approved.
- E23.3.2 Installation of Geotextile Fabric
- (a) The geotextile fabric shall be installed in width as shown on drawings, in accordance with the manufacturer's recommended procedure. The weed barrier shall be installed with the long dimension parallel to the slope and shall be laid smooth and free of tension, stress, folds, wrinkles or creases;
 - (b) Joints in the geotextile fabric shall be overlapped not less than 0.5 metres;
 - (c) Securing pins with washers shall be inserted through the fabric at intervals not greater than 1.5 metres along a line 100 mm from both the lowest and highest exterior edge of the geotextile fabric;
 - (d) At locations confirmed on site by the Contract Administrator, holes will be cut in geotextile fabric for designated planting. Planting to be protected as boulders are installed;
 - (e) The supply and installation of the geotextile fabric pins shall be incidental to the cost of the installation of Boulder Placement.
- E23.3.3 Placement of Boulders
- (a) Boulder placement to be overseen by Contract Administrator. Larger boulders are to be distributed around the planting first and smaller boulders serve to fill the places between the larger boulders. Protect plantings at all time. Sufficient handwork and work/equipment shall be utilized to ensure gaps between boulders are filled to the satisfaction of the Contract Administrator.;
 - (b) Work to be coordinated with installation of plant material.
- E23.3.4 Stone Mulch around Boulder Riprap
- (a) 19mm (3/4") Round Riverstone Mulch to be place over and around Granite Field Stones.

E23.4 Method of Measurement and Basis of Payment

E23.4.1 Method of Measurement shall be as follows:

- (a) Boulders shall be measured on an area basis. The area to be paid for shall be the total number of square meters that are installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.
- (b) The Contractor is advised that the supply and installation of Stone Mulch and Geotextile Fabric under this section is incidental to the unit prices bid of Granite Boulder Placement and no separate payment shall be made.

E23.4.2 Basis of Payment shall be as follows:

- (a) Boulder Placement will be paid for at the Contract Unit Prices per square meter as measured as specified herein. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E24. PLANT BED PREPARATION

E24.1 Description

E24.1.1 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 as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Supply and Installation topsoil and mulch for planting bed, as indicated on Drawing L7. Topsoil shall be supplied in accordance with CW 3540.

E24.2 Materials

E24.2.1 All materials supplied under this specification shall be of a type approved by the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.

E24.3 Construction Methods

E24.3.1 Contractor shall co-ordinate site excavation works with landscaping to ensure minimal additional excavation for shrub beds. All remaining areas to be excavated shall be to the shape shown on the drawings. Beds shall be excavated to the finished depth (including mulch) shown on drawings.

E24.3.2 Excavation shall be filled with soil mixture. After filling, excavation of top of bed shall be level with surrounding grade. Soil should be firmly compacted and indicated soil depths shall be depths after light compaction.

E24.3.3 All areas and locations provided for planting shall be staked according to layout shown on the drawings. Excavation shall not proceed until the layout has been inspected and approved by the Consultant. Excavation shall not be undertaken until all underground utilities have been located and protected.

E24.3.4 The Contractor shall provide a planting bed with a crisp spade edge (where appropriate) around the existing shrubs and tree, complete with weed barrier, topsoil and mulch as indicated on the drawing.

E24.3.5 Mulch shall be spread to a consistent depth over entire planting bed area, taking care not to damage the plants.

E24.4 Method of Measurement and Basis of Payment

E24.4.1 Method of Measurement shall be as follows:

- (a) Plant bed preparation will be measured on a per area price. The area to be paid for shall be the total number of square meters placed and maintained in accordance with this Specification and accepted by the Contract Administrator.

E24.4.2 Basis of Payment shall be as follows:

- (a) Plant Bed preparation will be paid for at the Contract Unit Prices and measured as specified herein. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E25. TOPSOIL AND ENVIRO-GREEN ECOSOD

E25.1 Description

E25.1.1 The specification shall supplement City of Winnipeg specification CW 3510-R9 AND CW 3540-R5.

E25.1.2 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 shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Supply and Installation of imported topsoil, to a minimum 75mm compacted thickness, for areas to be sodded;
- (b) Supply and Installation of mineral sod as required.

E25.2 Materials and Construction Methods

E25.2.1 The Contractor shall install topsoil and sod in areas as shown on Drawings. Contractor to layout edge of sod with Landscape Architect.

E25.2.2 Enviro-Green Eco Sod shall be as supplied by Gusta Sod Farms, or approved equal.

E25.2.3 Damaged areas: Restoration of damaged areas other than as outlined above shall be incidental to the Work. No separate payment shall be made. Restoration shall be achieved using sod and topsoil unless otherwise directed by the Contract Administrator.

E25.3 Method of Measurement and Basis of Payment

E25.3.1 Method of Measurement shall be as follows:

- (a) Supply, placement and maintenance of topsoil and sod will be measured on a square meter basis. The area to be paid for shall be the total number of square meters placed and maintained in accordance with this Specification and accepted by the Contract Administrator.

E25.3.2 Basis of Payment shall be as follows:

- (a) Supply, placement and maintenance of Topsoil and Enviro Green Eco Sod will be paid for at the Contract Unit Prices and measured as specified herein. This price shall be for full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E26. TOPDRESS AND SEEDING

E26.1 Description

E26.1.1 The specification shall supplement City of Winnipeg specification CW 3520-R7.

E26.1.2 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 shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Supply and installation of imported topsoil, to a minimum 75mm compacted thickness, for areas seeded. Topsoil shall be supplied in accordance with Clause 5.2 of CW 3540;
- (b) Installation of Seed. All seed installed by the Contractor shall comply with specification outlined in CW 3520-R7.

E26.2 Materials and Construction Methods

E26.2.1 Rough grading to levels, profiles, and contours shown on the drawings to be approved by Consultant prior to any topsoil placement.

E26.2.2 All areas noted as Mow, Top Dress and Seeding to use "Eco-Turf" as supplied by:

Brett Young

1.888.665.5015

Box 99 St Norbert Postal Stn
Winnipeg MB R3V 1L5 Canada

E26.2.3 Approved topsoil shall be screened and blended with organic soil, or amendments.

E26.2.4 The placed topsoil shall be incorporated with the fractured subgrade after placement and groomed or harrowed with suitable equipment. The Contractor shall fine-grade and loosen the topsoil, eliminating rough spots and low areas to ensure positive drainage

E26.2.5 The Contractor shall cultivate entire area to minimum depth of 150mm for seeding. Cross cultivate those areas where equipment used for hauling and spreading has compacted soil.

E26.2.6 To create the proper seed bed conditions, the Contractor shall harrow-pack or roll-pack the incorporated topsoil in order to consolidate the material and leave the surface smooth and firm to a level where a human footprint leaves less than a 15mm impression. Inspection and approval of final harrowing or packing shall be carried out by the Consultant.

E26.3 Method of Measurement and Basis of Payment

E26.3.1 Method of Measurement shall be as follows:

- (a) Supply, placement and maintenance of top dress and seeding will be measured on an area basis. The area to be paid for shall be the total number of square meters placed and maintained in accordance with this Specification and accepted by the Contract Administrator.

E26.3.2 Basis of Payment shall be as follows:

- (a) Supply, placement and maintenance of topdressing and seed will be paid for at the Contract Unit Prices per square meter for Item. This price shall be for full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator

E27. SITE FURNITURE

E27.1 Description

E27.1.1 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 as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Supply and Installation of Benches;

- (b) Supply and Installation of Picnic Tables;
- (c) Supply and Installation of Bilingual Park Sign;
- (d) Supply and Installation of Removable Steel Bollard;
- (e) Supply and Installation of Waste Receptacles.

E27.2 Materials

- E27.2.1 All materials supplied under this specification shall be of a type approved by the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.
- E27.2.2 Backed Benches shall be Landscape Forms: Gretchenwood Bench 72" width with end loop arms and embedded installation, or approved substitute.
- E27.2.3 Backless Benches shall be Landscape Forms: Gretchenwood Bench 72" width and embedded installation, or approved substitute.
- E27.2.4 Contact for Benches

Landscape Forms

Lee Day

Ontario, Manitoba Representative
p:416-968-6655
m:416-821-4710
f: 416-968-1945

- E27.2.5 Picnic Tables shall be Tache Style Metal Frame, as per SCD 122 & 122A. Tube Steel Frame to be Painted Black.
- E27.2.6 Bilingual Park Sign (double sided w/address) to be City of Winnipeg SCD-154, Contract Administrator to field locate prior to installation;
- E27.2.7 Steel Bollard to be City of Winnipeg SCD-105C.
- E27.2.8 Waste Receptacles shall be Metal Slat Type, as per SCD 119, embedded mount as per manufacturers instruction, powder coated black, with wire basket insert.
- E27.2.9 Contact for Waste Receptacles, Picnic Tables and Bollard:
Aaron Lennon
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

E27.3 Construction Methods

- E27.3.1 All Work is to be located and installed in accordance with the drawings using approved non-rusting, vandal resistant fasteners to ensure solid, durable, finished Work suitable for the purpose intended. Fasteners and assembly hardware shall be incidental to the Work.
- E27.3.2 All furnishings and fixtures to be installed plumb and true to correct elevations and location, as directed the Contract Administrator. The Contractor shall confirm proposed locations of all Site furnishings with Contract Administrator prior to installation.
- E27.3.3 All furnishings and fixtures to be carefully handled so that no parts will be bent, broken or otherwise damaged. Hammering, which will injure or distort fixture, is prohibited.
- E27.3.4 Install Benches as per Manufacturer's Specifications.

- E27.3.5 Install Tables as per Manufacturer's Specifications.
- E27.3.6 Install Waste Receptacles as per SCD 119. Contractor to secure wire basket to metal slat enclosure with chain and lock until Total Performance review when the City shall provide its own lock and chain for each waste receptacle.
- E27.3.7 Install Removable Steel Bollard as per Manufacturer's Specifications.
- E27.4 Method of Measurement and Basis of Payment
- E27.4.1 Method of Measurement shall be as follows:
- (a) Site Furnishings will be measured on a per unit basis. The total unit to be paid for shall be the total number of units that are installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.
- E27.4.2 Basis of Payment shall be as follows:
- (a) All site furnishings will be paid for at the Contract Unit Prices and measured as specified herein. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E28. TIMBER ENTRY SIGN

- E28.1 Description
- E28.1.1 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 as shown on the Drawings and as hereinafter specified.
- (a) Supply and Installation of Timber Fencing and Signage.
- E28.2 Material
- E28.2.1 All workmanship and all materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Contract Administrator including all operations from the selection and production of materials through to final acceptance of the work. The Contractor shall be wholly responsible for the control of all operations incidental thereto notwithstanding any inspection or approval that may have been previously given. The Contract Administrator reserves the right to reject any materials or works, which are not in accordance with the requirements of the Specification.
- E28.2.2 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board. Reference:
- (a) Screw fasteners to be 2 1/2" stainless steel, decking screws;
 - (b) All materials to be new and free of defects impairing strength, durability and appearance of the best commercial quality for the purpose specified;
 - (c) Sizes as shown on drawings. Material shall be hand picked, tight knot; straight, and free of cracks, splits and waness;
 - (d) Standard Grading Rules for Canadian Lumber (2000).
- E28.2.3 Granular Base Course
- (a) Granular Base course material shall consist of 6mm down crushed limestone and shall conform to CW311-R10 for crushed limestone base course material.
- E28.2.4 Sign Letters
- (a) Standard Grading Rules for Canadian Lumber (2000).

E28.3 Construction Methods

- E28.3.1 All Work is to be located and installed in accordance with the drawings using approved non-rusting, vandal resistant fasteners to ensure solid, durable, finished Work suitable for the purpose intended. Fasteners and assembly hardware shall be incidental to the Work.
- E28.3.2 All furnishings to be installed plumb and true to correct elevations and location, as directed the Contract Administrator. The Contractor shall confirm proposed locations of all Site furnishings with Contract Administrator prior to installation.
- E28.3.3 All furnishings and fixtures to be carefully handled so that no parts will be bent, broken or otherwise damaged. Hammering, which will injure or distort fixture, is prohibited.
- E28.3.4 The lumber shall be stored in an orderly fashion and must be stacked in neat regular piles. The bottom pieces in each pile shall be placed on blocks to prevent bending of the timber.
- E28.3.5 Where sawing of lumber is necessary, make saw cuts straight and plumb to provide tight flush vertical joint. Use full length timbers wherever possible. Ensure that tools cutting edges remain sharp. Keep sufficient drill bits on hand. All work to be done by skilled carpenters.
- E28.3.6 Construction method shall conform to Specification CW 3110-R12 'Sub-grade, Sub-base and Base Course Construction'.

E28.4 Method of Measurement and Basis of Payment

- E28.4.1 Method of Measurement shall be as follows:
- (a) The Timber Entry Sign Installation and Work is a lump sum bid. No measurement will be undertaken for this work.
- E28.4.2 Basis of Payment shall be as follows:
- (a) The Timber Entry Sign will be paid for at the Contract Lump Sum price. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and approved by the Contract Administrator.

E29. LANDSCAPE TIMBER EDGING

E29.1 Description

- E29.1.1 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 as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:
- (a) Supply and Installation of Pressure Treated Timber Edging at Entry to Play Area.

E29.2 Materials

- E29.2.1 Pressure Treated Lumber
- (a) 1- 6x6 (8ft. length) pressure-treated timbers to be used.
- E29.2.2 Geotextile Fabric
- (a) Geotextile fabric shall conform to CW 3130-R2.
- E29.2.3 Granular Base
- (a) Granular base course material shall consist of 6mm down crushed limestone and shall conform to CW3110-R10 for crushed limestone base course material.

E29.3 Construction Methods

- E29.3.1 Subgrade

- (a) No Geotextile fabric or Timbers shall be placed until the subgrade has been approved by consultant. Contractor to build up from subgrade. Contractor to scarify and strip to allow subgrade to positive drainage.

E29.3.2 Installation of Geotextile Fabric

- (a) The geotextile fabric shall be installed between subgrade and safety surfacing as shown on drawings, in accordance with the manufacturer's recommended procedure. The weed barrier shall be installed with the long dimension parallel to the slope and shall be laid smooth and free of tension, stress, folds, wrinkles or creases;
- (b) Joints in the geotextile fabric shall be overlapped not less than 0.5 metres;
- (c) Securing pins with washers shall be inserted through the fabric at intervals not greater than 1.5 metres along a line 100 mm from both the lowest and highest exterior edge of the geotextile fabric;
- (d) The supply and installation of the geotextile fabric pins shall be incidental to the cost of the installation of the Landscape Timber Edging.

E29.3.3 Timber Edging

- (a) Timber Edge placement to be overseen by Consultant. Refer to L3 for Detailed Layout. Timbers to be pinned with minimum of two (2) 19mm diameter rebar. Consultant to review the Timber Log Edging prior to installation;
- (b) Work to be coordinated with installation of Play Equipment to confirm depth required for Safety Surfacing;
- (c) Work to include Topsoil and Sod/Seed Repairs 500mm from Timber Edging. Contractor to ensure positive drainage away from Play Area with a minimum slope of 1% and maximum of 10%.

E29.4 Method of Measurement and Basis of Payment

E29.4.1 Method of Measurement shall be as follows:

- (a) Landscape Timber Edging will be measured on a linear metre basis.

E29.4.2 Basis of Payment shall be as follows:

- (a) Landscape Timber Edging will be paid for at the Contract Unit Prices. The amount to be paid for shall be the total number of linear metres, measured as specified herein, which price shall be for full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work and accepted by the Contract Administrator.

E30. TREE PLANTING

E30.1 Description

E30.1.1 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 as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Supply and Installation of trees.

E30.1.2 Reference

- (a) Install trees in accordance with the Canadian Standards for Nursery Stock Current Edition, published by the Canadian Nursery Trades Association, except where specified otherwise.

E30.1.3 Source Quality Control

- (a) All plant material shall be randomly inspected at the source upon request of the Contract Administrator.

- (b) Trees are to be grown in nurseries under proper cultural practices as recommended by the Canadian Nursery Trades Association.
- (c) Only those trees that have been grown for at least the four (4) previous years in local Manitoba nurseries located in an Agriculture Canada Plant Hardiness Zone designation of 2(a or b) or 3(a or b) and within a 250 kilometre radius of Winnipeg, will be accepted. Trees that have grown in plant hardiness zones 1 and 4 or greater will be rejected.

E30.1.4 Maintenance

- (a) The Contractor shall be responsible for the maintenance of the trees for a period of one (1) year from the date of Substantial Performance. Any areas planted after September 15th, the maintenance period will commence on May 15th of the following year or such date as mutually agreed upon by all parties.
- (b) Water to ensure soil moisture conditions for optimum growth and health of plant material. Ensure watering techniques do not cause erosion.
- (c) Reform damaged watering saucers.
- (d) Remove weeds bi-monthly.
- (e) Replace or re-spread damaged, missing or disturbed mulch.
- (f) For non-mulched areas, cultivate monthly to keep top layer of soil friable.
- (g) If required to control insects, fungus and disease, use appropriate control methods in accordance with Federal, Provincial and Municipal regulations. Obtain product approval from Contract Administrator prior to application.
- (h) Apply fertilizer as directed by manufacturer's specifications.
- (i) Remove dead, broken or hazardous branches from plant material.
- (j) Keep trunk protection and tree supports in proper repair and adjustment.
- (k) Remove trunk protection, tree supports and level watering saucers at end of warranty period.
- (l) Remove and replace dead plants and plants not in healthy growing condition. Make replacements in same manner as specified for original plantings.
- (m) Submit monthly written reports to Contract Administrator identifying:
 - (i) Maintenance work carried out.
 - (ii) Development and condition of plant material.
 - (iii) Preventative or corrective measures required which are outside Contractor's responsibility.

E30.1.5 Warranty

- (a) The Contractor shall, at his/her expense, warrant the Work against any and all defects or deficiencies resulting from insect infestation, disease and mechanical damage due to improper handling, installation or maintenance, for a period of two (2) years for trees from the date of the Total Performance. Nursery stock damaged by vandalism or reasons beyond the control of the Contractor shall be replaced by the client.
- (b) End-of-Warranty inspection will be conducted by the Contract Administrator.
- (c) The Contract Administrator reserves the right to request material replacement or extend the Contractor's Maintenance responsibilities for an additional one (1) year if, at the end of the Warranty Period, leaf development and growth are not sufficient to ensure future survival of the plant material.

E30.1.6 Replacements

- (a) During the Maintenance Period, the Contractor shall remove from Site any plant material that has died or failed to grow satisfactorily as determined by the Contract Administrator and replace as per Specifications within a maximum ten (10) day period from notification;

- (b) Defective plants shall be replaced within ten (10) days of notification to the Contractor;
- (c) The Contractor shall extend Maintenance and Warranty on replacement tree for a period equal to the original Maintenance and Warranty Periods;
- (d) The Contractor shall continue such replacement, Maintenance and Warranty until tree is acceptable.

E30.2 Materials

E30.2.1 Planting Soil

- (a) Planting Soil shall consist of black top soil, a fertile friable natural loam containing by volume not less than 4% and no more than 25% of organic matter for clay loams, and not less than 2% and no more than 25% for sandy loams, with an acidity value ranging from pH 6.0 to 8.0 and capable of sustaining vigorous plant growth. Topsoil is to be free of any mixture of subsoil, clay lumps and free of stones and other extraneous matter. It is not to contain couch or crab grass rhizomes.

E30.2.2 Mulch

- (a) Mulch shall be locally available clean bark or wood chip mulch free of leaves, branches and other extraneous matter. The recommended mulch shall consist of chips not less than 15mm not larger than 75mm in size and not more than 20mm thick.

E30.2.3 Miscellaneous Materials

- (a) Water shall be potable and free of minerals which may be detrimental to plant growth.
- (b) Stakes shall be metal T-Bar, steel, 40x40x5x2440mm.
- (c) Guying Wire shall be 3mm diameter multi-strand galvanized steel cable.
- (d) Guying Collar shall be plastic tube, 13mm diameter, nylon reinforced.
- (e) Trunk Protection shall be plastic perforated spiralled strip.
- (f) Fertilizer shall be a slow release formulation of low nitrogen and high phosphorus e.g. 10-50-12. Apply quantities at rates stated by product manufacturer.
- (g) Root Ball Burlap shall be 150 g Hessian burlap, biodegradable.
- (h) Wire Baskets shall be horticultural accepted product designed to carry the weight and to contain a burlap-covered root ball. Minimum diameter basket size is to conform to the same minimum diameter of the tree root ball for the respective minimum tree caliper sizes.

E30.2.4 Plant Material

- (a) Nomenclature of specified trees is to conform to the International Code of Nomenclature for Cultivated Plants and is to be in accordance with the approved scientific names given in the latest edition of the Standardized Plant Names.
- (b) Trees are to be characteristically developed for their species and structurally sound, well branched, healthy and vigorous and densely foliated when in leaf. The 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 root balls.
- (c) Trees are to have been root pruned regularly, but not later than one growing season prior to arrival on Site. The Contractor may be required to furnish documentation to the client on their root-pruning program. Trees in excess of 75mm caliper are to have been half root pruned during each of two successive growing seasons, the latter at least, one growing season prior to arrival on Site.
- (d) All parts of the trees, especially the lower branches, are to be moist and show live, green cambium tissue when cut.
- (e) Trees are to have only one, sturdy, reasonably straight and vertical trunk, and a well balanced crown with fully developed leader.

- (f) Trees are to be free of disease, insect infestation, rodent damage, sun scald, frost cracks, abrasions, unhealed scars, scars exceeding 5cm 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.
- (g) 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.
- (h) Trees exhibiting suppressed, weakly developed branches due to competition from other closely spaced trees in the nursery will not be accepted. Trees exhibiting dead branches will not be accepted.
- (i) Any tree that has come out of dormant stage and is too far advanced will not be accepted unless prior approval obtained. Approval is required for any tree which has been held in cold storage.
- (j) Balled and burlapped trees in excess of a 3m height must have been dug with large firm ball. Roots in root balls must be comprised of 75% fibrous and feeder root systems. Secure root balls with burlap, heavy twine and rope. For trees 75mm or more in caliper, wrap ball in double layer of burlap and drum lace with minimum 10mm diameter rope. Protect root balls against sudden changes in temperature and exposure to heavy rainfall.
- (k) Tree spade dug trees are to be dug with mechanized digging equipment with hydraulic spade. Lift root ball from hole, place in wire basket designed for purpose and lined with burlap. Tie basket to ball with heavy rope. Take care not to injure trunk of tree with wire basket ties or rope.
- (l) Use of collected or native trees is not permitted.

E30.2.5 Tree Quantity and Size

- (a) Trees are to be planted at the quantities and caliper listed on the Plant Lists which are shown on the drawings. Any variation from the specified quantity is to be clearly identified on the Schedule of Prices. Any variations to species, size or caliper of specified trees will require a request for approval from the Contract Administrator.
- (b) Any changes in planting locations will be determined on-site by the Contract Administrator.
- (c) The Contractor shall supply trees as indicated in the Schedule of Prices and PLANT LISTS.
- (d) Trees are to conform to the measurements specified in the on drawing PLANT LISTS, except that trees larger than specified may be used if approved by the Contract Administrator.
- (e) Trees are to be measured when the branches are in their normal position. Height dimensions specified are to refer to the main body of the tree and not from branch tip to root base. Where trees have been measured by caliper or diameter, reference is to be made to the diameter of the trunk measured 15cm above the ground as the tree stands in the nursery prior to lifting. Caliper of tree shall be appropriately designed on a permanently fixed tag on one of the branches.

E30.2.6 Shipment and Pre-Planting Care

- (a) Coordinate shipping of trees and excavation of holes to ensure minimum time lapse between digging and planting.
- (b) Tie branches of trees securely, and protect trees against abrasion, exposure and extreme temperature change during transit. Avoid binding of trees with rope or wire which would damage bark, break branches or destroy natural shape of tree. Give full support to root ball of trees during lifting.

- (c) Cover tree foliage with tarpaulin, and protect bare roots by means of dampened straw, peat moss, saw dust or other acceptable material to prevent loss of moisture during transit and storage.
- (d) Remove broken and damaged roots with sharp pruning shears. Make clean cuts, and cover cuts over 10mm diameter with a tree wound dressing.
- (e) Keep roots moist and protected from sun and wind. Heel-in trees which cannot be planted immediately in shaded areas and water well.

E30.3 Construction Methods

E30.3.1 Workmanship

- (a) Location of trees will be staked out or painted on Site by the Contractor. Locations shall be approved by the Contract Administrator prior to installation.
- (b) Coordinate operations. Keep Site clean and planting holes drained. Immediately remove soil or debris spilled onto street pavement, grass or sidewalk.

E30.3.2 Planting Time

- (a) Plant deciduous trees during dormant period before buds have broken. Trees noted for spring planting only, must be planted in dormant period.
- (b) Plant only under conditions that are conducive to health and physical conditions of trees.
- (c) Provide planting schedule to Contract Administrator. Extending planting operations over long period using limited crew will not be accepted.
- (d) The Contractor must obtain all above and below ground clearances from all the utilities as well as the appropriate District Operations Branch in a timely manner so as not to jeopardize the schedule of the complete tree planting Contract.

E30.3.3 Excavation

- (a) Tree pit to be dug with back hoe.
- (b) Excavate tree pits as indicated by stakes or paint marks.
- (c) Protect bottom of excavations against freezing.
- (d) Remove water which enters excavations prior to planting. Ensure source of water is not ground water and notify Contract Administrator.

E30.3.4 Installation

- (a) Planting shall be done during periods of suitable weather conditions and in accordance with locally accepted practice.
- (b) Trees are to be planted within forty eight (48) hours of excavation from the nursery.
- (c) No tree pit is to be left open at the end of the Contractor's Work Day. Planting program is to be planned to ensure that all approved trees delivered to the Site at designated planting locations are installed and thoroughly watered the same day as delivery.
- (d) With balled and burlapped root balls and root balls in wire baskets, burlap shall be loosened and cut away from the top 1/3 without disturbing root ball. Wire shall be cut away and removed from the top 1/3 of the root ball. Burlap or rope shall not be pulled from under root ball. Non-biodegradable wrapping shall be removed.
- (e) After inserting the tree and tamping the root system with topsoil in layer of 150mm, water shall be poured in until the pit is thoroughly soaked. Filling of the hole shall then be completed and the fill-in soil shall be packed firmly around the roots, leaving a concave surface for convenient watering. After filling, the planting shall be watered at frequent intervals.
- (f) Each tree is to have an earth saucer at its base having a diameter as large as the excavation with a 10cm lip formed at the perimeter of the saucer to retain water.

- (g) All nursery stock shall be set plumb in the centre of pits and at levels as shown on the planting details after settlement has taken place.
- (h) Nursery stock shall be faced to give the best appearance or relationship to adjacent structure and to the approval of the The City's representative. Trees shall be placed equal to depth they were originally growing in nursery fertilizing
- (i) When planting is completed, give surface of planting saucer dressing of fertilizer meeting the requirements of Specification. Mix fertilizer thoroughly with top layer of planting soil and water in well.

E30.3.5 Trunk Protection

- (a) Install trunk protection on trees as indicated.
- (b) Install trunk protection prior to installation of tree supports when used.

E30.3.6 Pruning

- (a) The Contractor shall provide a licensed Manitoba Certified Arborist for each work crew or work site.
- (b) Employ clean sharp tools and make cuts flush with branch collars. Remove dead and injured branches.

E30.3.7 Watering

- (a) Trees are to be watered during the planting procedure as described previously, and once a week thereafter, or more frequently if required, during the growing season.
- (b) A complete record is to be kept of each series of waterings for all planted trees noting: 1) location, and 2) date of watering. This record shall be sent bi-weekly to Scatliff+Miller+Murray Inc. - Fax: (204) 927-3443.
- (c) Apply 40 litres of water per 25mm caliper per application using deep root feeder or low/pressure nozzle and hose. The water stream must not gouge out a hole in the soil and mulch.

E30.4 Method of Measurement

E30.4.1 Installation of trees shall be measured on a per unit basis. The amount to be paid for shall be the total number of trees, shrubs and perennials supplied and installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

E30.5 Basis of Payment

E30.5.1 Payment for Installation of trees shall be paid for at the Contract Unit Prices. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

PLAY AREA

E31. PLAY EQUIPMENT

E31.1 Description

E31.2 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 shown on the Drawings and as herein specified, including but not necessarily confined to the following:

- E31.3 The Play Equipment shall be installed in the play areas as shown on the attached Drawings. All play equipment and their safety zones must fit into the proposed play areas as shown on the drawing.
- E31.3.1 All playground equipment supplied and the method of installation shall be in accordance with the latest edition of the "National Standard of Canada, CAN/CSA-Z614-07".
- E31.3.2 The Play Equipment Contractor shall supply the Contract Administrator and the Site Works Contractor(s) with all dimensions and drawings necessary to accurately show the extents of all safety surfacing and non-encroachment zones required to meet CSA standards.
- E31.3.3 Contractor to submit colour drawing of play equipment, colours and frame with Contract Administrator prior to ordering equipment.
- E31.3.4 This Work to be coordinated with other Contractor(s) responsible for the excavation of play areas and the supply and installation of concrete curb edging for the containment of protective surfacing. Final layout of all play spaces has to be approved by Contract Administrator prior to any construction or removal.
- E31.3.5 The coordination and timing of play area development (including excavation of play areas, supply and installation of play equipment, supply and installation of edging and supply and installation of protective surfacing) to be coordinated at the pre-construction meeting.
- E31.4 The Contractor shall obtain all approvals required to conduct Work described herein.
- E31.5 Components which are unacceptable are the following:
- (a) Wooden structures;
 - (b) Tube (enclosed) slides and crawl tubes;
 - (c) Play panels with many small moving parts;
 - (d) Cable rides;
 - (e) Sand diggers;
 - (f) Merry-go-rounds;
 - (g) Tire Swings;
 - (h) Talk tubes;
 - (i) Binoculars / telescopes;
 - (j) Barrel rollers; and
 - (k) Large number of plastic components.
- E31.6 Play Structures and Play Components
- E31.7 Description
- E31.7.1 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 as shown on the Drawings and as hereinafter specified.
- E31.7.2 Play equipment shall be installed in the play areas as shown on the attached Drawings. All play equipment and safety zones to fit within maximum areas of play spaces with the exception of proposed ground-level play components with zero (0) fall height such as play panels.
- E31.8 Materials
- E31.8.1 General
- (a) Play equipment is to be provided by "Playgrounds R Us. Playground design as shown on the drawing is on-file with Playgrounds R Us. Play Equipment includes the following:

- (i) Custom Heavy Duty PlayBooster by Landscape Structures Inc.
- (ii) Model #173592 Ooodle Swing (2)
- (iii) Model #164174 Cozy Coaster Slide with ASTM Handrail
- (iv) Model #164170 Wevos Mainstructure with 3 Archs
- (v) Model #173582 Imagination Panel
- (vi) Model #173573 Wee Planet Climber
- (vii) Model #173583 Bongo/Xylofun Panel
- (viii) Model #173575 Swiggly Stix
- (ix) Model #173578 Optigear Panel
- (x) Model #164178 Boppity Bridge

E31.8.2 Contact for Play Equipment:
Jody McLean
Playgrounds R Us
Box 7, Group 582, R.R. 5
Winnipeg. MB R2C2Z2

Telephone No. (204) 632-7000
Facsimile No. (204) 632-7421

E31.8.3 All materials shall be structurally sound and suitable for safe play. Durability shall be ensured on all parts and materials.

E31.8.4 Finishes 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

E31.8.5 All hardware shall be tamper-proof in design and requiring special tools. It shall be either carbon steel plated with zinc/nickel and iridescent chromate finish or stainless steel. All necessary hardware and tools shall be provided.

E31.9 Installation

E31.9.1 Play equipment shall be installed as per manufacturer's specifications and in accordance with the most recent Canadian Standards Association Standards.

E31.9.2 All posts and other vertical items shall be plumb and true to vertical, if so designed.

E31.9.3 Concrete footings/ foundation shall be in accordance with E32.

E31.9.4 Installation of play structures shall be coordinated with associated site development Work. The play structures shall be secured and rendered unusable until the safety surface is in place.

E31.10 Method of Measurement and Basis of Payment

E31.10.1 Method of Measurement shall be as follows:

- (a) Play Structure and Play Components will be measured on a per unit basis. In regard to the play structure, the single unit price shall include all play equipment attached to, or functionally linked to the structure.

E31.10.2 Basis of Payment shall be as follows:

- (a) Play Structures will be paid for at the Contract Unit Prices, measured as specified herein, which price shall be for full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work and accepted by the Contract Administrator.

E32. FOUNDATIONS

E32.1 Description

E32.1.1 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 as shown on the Drawings and as herein specified.

E32.1.2 All playground equipment posts, bases and anchors are to be set in concrete footings or piles to ensure stability and prevent frost heaving. An alternative to concrete footings or piles that may be approved includes a welded and secured rail mounting system. The current Standard Construction Specifications of the City of Winnipeg, CW 2160-R7 - Concrete to be used in Underground Works, is to be utilized in the installation of the concrete works for all below ground components.

E32.2 Materials

E32.2.1 The specific concrete requirements shall be:

- (a) Sulfate resistant, Type 50 Cement;
- (b) 28 day compressive strength of 30 Mpa;
- (c) maximum aggregate size of 20mm, nominal;
- (d) slump 80 +/- 20mm;
- (e) maximum water/cement ratio 0.49.

E32.3 Installation

E32.3.1 All posts and supports shall be centered in the concrete footing such that there is a complete collar of concrete around each post and support. Where posts are not perfectly centered there should be a minimum of 2" concrete at any point around the post.

E32.3.2 All concrete footings for play equipment shall be a minimum of three feet (3') depth, or in accordance with Manufacturer's specifications, whichever is greater.

E32.3.3 All concrete footings for single post swing structure shall be a minimum of eight feet (8') depth, or in accordance with Manufacturer's specifications, whichever is greater.

E32.3.4 All posts and supports shall be wiped clean of extraneous concrete.

E32.4 Method of Measurement and Basis of Payment

E32.4.1 Method of Measurement shall be as follows:

- (a) Foundations shall be incidental to the measurement of Play Structures and Independent Components listed above and as shown on Form B: Prices.

E32.4.2 Basis of Payment shall be as follows:

- (a) No separate payment shall be made for play equipment foundations.

E33. PROTECTIVE SURFACING AND SUBSURFACE DRAINAGE

E33.2 Description

E33.2.1 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 as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Supply and Installation of wood fibre safety surfacing and subsurface drainage.

E33.2.2 The extent and layout of protective surfacing shall be the responsibility of the Play Equipment Sub-Contractor. The extents and layout of protective surfacing materials shall be provided to the Site Works and Furnishings Contractor prior to the commencement of excavation of play areas.

E33.2.3 If the Play Equipment Sub-Contractor is unable to install protective surfacing immediately after play equipment is installed, Play Equipment Sub-Contractor shall secure all play areas to prohibit access to the installed play equipment.

E33.3 Materials

E33.3.1 Wood Fibre

(a) Wood Fibre product shall be either Zeager Woodcarpet or Fibar FibarSystem 300 products or substitute acceptable to Contract Administrator in accordance with B6.

(i) Contact for Woodcarpet:

Zeagar Bros. Inc.

4000 East Harrisburg Pike ·

Middletown, PA 17057

USA

Ph: (1-888) 346-8524 or (717) 944-7481 ·

Fax (717) 944-7681

sales@zeager.com

(ii) Contact for FibarSystem 300:

The Fibar Group LLC

80 Business Park Drive, Suite 300

Armonk, NY 10504-1705

USA

Ph: (800) 342-2721

Fax: (914) 273-8659

info@FibarPlaygrounds.com

(b) Wood Fibre surfacing shall include wood fibre, filter cloth, and mats for bottom of slides, if applicable.

E33.4 Sub-Surface Drainage

E33.4.1 Description

(a) (a) This Work shall consist of providing and placing a geocomposite prefabricated drain system as required in the design submission and as described on the drawings and herein. Drainage system shall be installed in accordance with these specifications and in close conformity with the locations and dimensions as shown on the plans or specified by the Contract Administrator. The quantities of drain as shown may be increased or decreased at the direction of the Contract Administrator based on actual site conditions that occur during construction of the project. Such variations in quantity will not be considered as alterations in the details of construction or a change in the character of the Work.

E33.4.2 Material

(a) (a) Drainage pipe will be Multi-Flow or approved substitute in accordance with B6. Drainage pipe will be 150 mm (6"). The manufacturer will size and approve all fittings for use with Multi-Flow or approved substitute drainage pipe.

(b) (b) The drain conduit shall be of flexible, prefabricated, rounded rectangular shaped, composite product. The drain conduit will be wrapped with a non-woven geotextile and will be a non-woven needle-punched construction and consist of long-chain polymeric fibres composed of polypropylene, polyethylene or polyamide. The fibres will be oriented into a multi-directional stable network whereby they retain their positions relative with each other and allow the passage of water as specified. The fabric will be free of any chemical treatment or coating, which reduces permeability

and will be inert to chemical commonly found in soil. The geotextile will conform to the following minimum average roll values.

Weight	ASTM D-3776	3.0 - 4.0
Tensile Strength	ASTM D-4632	100 - 130
Elongation %	ASTM D-4632	50 - 70
Puncture, lb	ASTM D-751	35 - 60
Mullen Burst, psi	ASTM D-3786	110 - 215
Trapezoidal Tear, lb	ASTM D-4533	40 - 42
Coefficient of Permeability	ASTM D-4491	.2 - .4 cm/sec
Flow Rate, gpm/ft ²	ASTM D-4491	100 - 140
Permittivity, 1/sec	ASTM D-4491	1.3 – 2.0
Apparent Opening Size	ASTM D-4751	60/70 Max. US Std Sieve Opening
Seam Strength, lb/ft	ASTM D-4595	100
Fungus	ASTM G-21	No Growth

- (c) (c) The drainage core shall be made of a high-density polyethylene. The core shall be constructed using interconnected corrugated pipes that define and provide the flow channels and structural integrity of the drain. The geotextile shall function only as a filter. The core of the edge drain shall conform to the following physical property requirements.

Thickness, inches	ASTM D-1777	1.0
Flow Rate, gpm/ft*	ASTM D-4716	29
Compressive Strength, psf	ASTM D-1621 (modified sand method)	6000
Pipe Stiffness, pii	ASTM D-2412	100

* At gradient = 0.1, pressure = 10 psi for 100 hours.

(d) (d) Fittings

- (i) (i) The fittings used with the edge drain shall be of a snap together design. In no case shall any drainage product be joined without the use of the manufacturers connector designed specifically for the purpose. Cleanouts will be provided as indicated on the drawing.

(e) (e) Pipe

- (i) (i) Pipe for drain outlet laterals will be either 75 mm (3") PVC pipe meeting the requirements of ASTM D-2729 or ASTM F-949, or high-density polyethylene pipe meeting the requirements of AASHTO M252.
- (ii) (ii) A rodent screen made of 0.3 inch by 0.3-inch square opening size, 0.063-inch gauge, stainless steel or galvanized, welded wire mesh shall be installed in each outlet lateral line. When using galvanized welded wire mesh, the rodent screen shall be galvanized after it has been formed to the shape and dimensions shown on the plans or specified by the Contract Administrator.

E33.4.3 Emitter

- (a) Shall be a 3" polyolefin pop-up drainage emitter with elbow joint, product reference no. NDS# 620 or approved substitute in accordance with B6. Multiflow, or approved substitute, shall be connected to emitter by using manufacturer's adaptor for connecting drainage pipe to 75mm or 100mm round orifice on appropriate hardware.
- (i) Contact for Emitter:
 Consolidated Turf

986 Powell Avenue
Winnipeg, Manitoba
R3H 0H6
Tel: 1-204-633-7276
Fax: 1-204-633-3447

E33.4.4 Construction Methods

- (a) Wood Fibre shall be installed within the play area, to a minimum depth of 300 mm (after compaction) in accordance with CSA standards.
- (b) The installation of the Wood Fibre shall be done immediately after the play equipment has been installed.
- (c) Installation of entire system, including fibre, filter cloth, subsurface drainage, emitter and mats shall be done according manufacturer's instructions. Adequate drainage within play equipment area must be ensured as per same.
- (d) During installation, it shall be the responsibility of the Contractor to remove any pieces of wood fibre that are in excess of 150mm (6") in length.
 - (i) The Contract Administrator will have the right to dig random test holes to confirm depth of safety surfacing and that sizing of wood fibre conforms to (d). If wood fibre sizing does not conform, the Play Equipment Contractor will have to rake surfacing and remove the pieces of wood fibre that do not comply to the satisfaction of the Contract Administrator prior to issuing any payment.
- (e) Installation shall be done by equipment sized to suit the Work being done and the Wood Fibre shall be spread by hand as necessary in the immediate vicinity of the play equipment so as not to damage same. The play equipment shall be swept clean to the satisfaction of the Contract Administrator after installation of the Wood Fibre.

E33.5 Method of Measurement and Basis of Payment

E33.5.1 Method of Measurement shall be as follows:

- (a) Protective Surfacing and subsurface drainage will be measured on a square metre basis.

E33.5.2 Basis of Payment shall be as follows:

- (a) Protective Surfacing and Subsurface Drainage will be paid for at the Contract Unit Prices. The amount to be paid for shall be the total number of square metres, measured as specified herein, which price shall be for full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work and accepted by the Contract Administrator.

E34. TIMBER LOG EDGE

E34.1 Description

E34.1.1 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 as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Installation of Timber Logs as per Drawings descriptions.

E34.2 Materials

E34.2.1 Timber Logs

- (a) Timber Logs shall be reclaimed from site during Site Removals and Site Preparation. Logs to be debarked and free from jagged protrusions. Logs to be 300-450mm in diameter at the longest length available onsite from Removals.

E34.2.2 Granular Base

- (a) Granular base course material shall consist of 6mm down crushed limestone and shall conform to CW3110-R10 for crushed limestone base course material.

E34.2.3 Geotextile Fabric

- (a) Geotextile fabric shall conform to CW 3130-R2.

E34.3 Construction Methods

E34.3.1 Subgrade

- (a) No geotextile fabric or logs shall be placed until the subgrade has been approved by consultant. Contractor to build up from subgrade. Contractor to scarify and strip to allow subgrade to positive drainage.

E34.3.2 Installation of Geotextile Fabric

- (a) The geotextile fabric shall be installed between subgrade and safety surfacing as shown on drawings, in accordance with the manufacturer's recommended procedure. The weed barrier shall be installed with the long dimension parallel to the slope and shall be laid smooth and free of tension, stress, folds, wrinkles or creases;
- (b) Joints in the geotextile fabric shall be overlapped not less than 0.5 metres;
- (c) Securing pins with washers shall be inserted through the fabric at intervals not greater than 1.5 metres along a line 100 mm from both the lowest and highest exterior edge of the geotextile fabric;
- (d) The supply and installation of the geotextile fabric pins shall be incidental to the cost of the installation of the Timber Edging.

E34.3.3 Safety Surfacing

- (a) Safety Surfacing (300 mm depth) shall be installed after to placement of Timber log edging, in accordance with the manufacturer's recommended procedure. Refer to CW Spec 3110.

E34.3.4 Timber Log Edging

- (a) Timber Edge placement to be overseen by Consultant. Refer to L3 for Detailed Layout. Timbers to be pinned with minimum of two (2) 19mm diameter rebar at maximum 2100mm apart. Consultant to review the Timber Log Edging prior to installation;
- (b) Work to be coordinated with installation of Play Equipment to confirm depth required for Safety Surfacing;
- (c) Work to include Topsoil and Sod/Seed Repairs 500mm from Timber Edging. Contractor to ensure positive drainage away from Play Area with a minimum slope of 1% and maximum of 10%.

E34.4 Method of Measurement and Basis of Payment

E34.4.1 Method of Measurement shall be as follows:

- (a) Timber Log Edging will be measured on a linear metre basis.

E34.4.2 Basis of Payment shall be as follows:

- (a) Timber Log Edging will be paid for at the Contract Unit Prices. The amount to be paid for shall be the total number of linear metres, measured as specified herein, which price shall be for full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work and accepted by the Contract Administrator.

E35. PLAY AREA FEATURE BOULDERS

E35.1 Description

E35.1.1 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 as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Supply and Installation of Play Area Feature Boulders as described onsite by Landscape Architect.

E35.2 Materials and Construction Methods

E35.2.1 Granite Feature Boulders

- (a) All granite boulders used in the construction of Play Area shall be clean fieldstone of random profile with no cracks or splits. Boulders shall be light in colour with diameters ranging from 500mm to 900mm.

E35.2.2 Granular Base

- (a) Granular base shall be supplied and installed as per requirements specified in CW 3110-R12 'Sub-Grade, Sub-Base and Base Course Construction'.

E35.3 Method of Measurement and Basis of Payment

E35.3.1 Method of Measurement shall be as follows:

- (a) Granite Feature Boulders will be measured on a per unit basis. The total unit to be paid for shall be the total number of units that are installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

E35.3.2 Basis of Payment shall be as follows:

Granite Feature Boulders will be paid for at the Contract Unit Prices and measured as specified herein. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.