



**THE CITY OF WINNIPEG**

# **BID OPPORTUNITY**

**BID OPPORTUNITY NO. 790-2014**

**LEGION MEMORIAL PARK PLAYGROUND**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 LEGION MEMORIAL PARK PLAYGROUND

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, August 29, 2014.

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 Bidder may view the Site without making an appointment.

### **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. CONFIDENTIALITY**

B5.1 Information provided to a Bidder by the City or acquired by a Bidder by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator. The use and disclosure of the confidential information shall not apply to information which:

- (a) was known to the Bidder before receipt hereof; or
- (b) becomes publicly known other than through the Bidder; or
- (c) is disclosed pursuant to the requirements of a governmental authority or judicial order.

B5.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Bid Opportunity to the media or any member of the public without the prior written authorization of the Contract Administrator.

## **B6. ADDENDA**

- B6.1 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.
- B6.2 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.
- B6.2.1 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/>
- B6.2.2 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.
- B6.2.3 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.

## **B7. SUBSTITUTES**

- B7.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.
- B7.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B7.3 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.
- B7.4 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.
- B7.5 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.
- B7.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Bidder who requested approval of the substitute.

- B7.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.
- B7.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B7.8 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 B15.
- B7.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.
- B7.10 Notwithstanding B7.2 to B7.9, and in accordance with B8.7, deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B15.1(a).

## **B8. BID COMPONENTS**

- B8.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
  - (b) Form B: Prices;
- B8.2 Further to B8.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B7.
- B8.3 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.
- B8.4 The Bid Submission may be submitted by mail, courier or personal delivery, or by facsimile transmission.
- B8.5 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
- B8.5.1 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.
- B8.6 Bidders are advised not to include any information/literature except as requested in accordance with B8.1.
- B8.7 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 B15.1(a).
- B8.8 If the Bid Submission is submitted by facsimile transmission, it shall be submitted to 204 949-1178.

B8.8.1 The Bidder is advised that the City cannot take responsibility for the availability of the facsimile machine at any time.

B8.8.2 Bids submitted by internet electronic mail (e-mail) will not be accepted.

## **B9. BID**

B9.1 The Bidder shall complete Form A: Bid, making all required entries.

B9.2 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.

B9.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B9.2.

B9.3 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.

B9.4 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.

B9.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.

B9.4.2 All signatures shall be original.

B9.5 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.

## **B10. PRICES**

B10.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.

B10.1.1 Notwithstanding C12.2.3(c), prices on Form B: Prices shall not include the Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable.

B10.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.

B10.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.

B10.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

**B11. QUALIFICATION**

B11.1 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.

B11.2 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>

B11.3 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);

B11.4 Further to B11.3(c), if the Total Bid Price exceeds one hundred thousand dollars (\$100,000), 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 copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
- (b) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
- (c) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>).

B11.5 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.

B11.6 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.

## **B12. OPENING OF BIDS AND RELEASE OF INFORMATION**

- B12.1 Bids will not be opened publicly.
- B12.2 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>
- B12.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>
- B12.4 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.

## **B13. IRREVOCABLE BID**

- B13.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 9 of Form A: Bid.
- B13.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work for the time period specified in Paragraph 9 of Form A: Bid.

## **B14. WITHDRAWAL OF BIDS**

- B14.1 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.
- B14.1.1 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.
- B14.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid, and only such person, has authority to give notice of withdrawal.
- B14.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials 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 B14.1.3(b), declare the Bid withdrawn.
- B14.2 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 B13.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law.

## **B15. EVALUATION OF BIDS**

- B15.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Bid Opportunity or acceptable deviation there from (pass/fail);

- (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B11 (pass/fail);
- (c) Total Bid Price;
- (d) economic analysis of any approved alternative pursuant to B7.

B15.2 Further to B15.1(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.

B15.3 Further to B15.1(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.

B15.4 Further to B15.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.

B15.4.1 Further to B15.1(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.

## **B16. AWARD OF CONTRACT**

B16.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

B16.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.

B16.2.1 Without limiting the generality of B16.2, the City will have no obligation to award a Contract where:

- (a) the prices exceed the available City funds for the Work;
- (b) the prices are materially in excess of the prices received for similar work in the past;
- (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
- (d) only one Bid is received; or
- (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.

B16.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B15.

B16.3.1 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.

B16.4 Notwithstanding C4, the City may issue a Purchase Order to the successful Bidder in lieu of the execution of a Contract.

B16.5 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](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 renovation to the Legion memorial Park Playground.

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

- (a) Removal and Site Preparation;
- (b) City of Winnipeg will remove existing play equipment and timber first. Contractor is to remove and dispose of existing bases and safety surfaces;
- (c) Remove, salvage and reinstall existing swing structure;
- (d) Excavation and Grading;
- (e) Construction of concrete piles for entry feature columns;
- (f) Construction of concrete raised planter;
- (g) Supply and installation of play area edging and safety surfacing;
- (h) Supply and installation of play equipment and site furnishings;
- (i) Supply and installation of crushed granular paving and boulders;
- (j) Supply and installation of entry feature, fence and bollards;
- (k) Supply and installation of plant material and sod.

#### 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 Inc. , represented by:

Mr. Andy Johnson  
Contract Administrator  
1120-201 Portage Avenue, Winnipeg, MB

Telephone No. 204-927-3444  
Email [ajohnson@scatliff.ca](mailto:ajohnson@scatliff.ca)

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

D4.3 Bids Submissions must be submitted to the address in B8.5.

**D5. CONTRACTOR'S SUPERVISOR**

D5.1 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.

**D6. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE**

D6.1 The Contract, all deliverables produced or developed, and information provided to or acquired by the Contractor are the property of the City and shall not be appropriated for the Contractors own use, or for the use of any third party.

D6.2 The Contractor shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Contract Administrator.

D6.3 The following shall be confidential and shall not be disclosed by the Contractor to the media or any member of the public without the prior written authorization of the Contract Administrator;

- (a) information provided to the Contractor by the City or acquired by the Contractor during the course of the Work;
- (b) the Contract, all deliverables produced or developed; and
- (c) any statement of fact or opinion regarding any aspect of the Contract.

D6.4 A Contractor who violates any provision of D6 may be determined to be in breach of Contract.

**D7. NOTICES**

D7.1 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.

D7.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D7.3, D7.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the facsimile number identified in D4.1.

D7.3 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

D7.4 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**

**D8. AUTHORITY TO CARRY ON BUSINESS**

D8.1 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.

#### **D9. SAFE WORK PLAN**

D9.1 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.

D9.2 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>

#### **D10. INSURANCE**

D10.1 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+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.

D10.2 Deductibles shall be borne by the Contractor.

D10.3 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.

D10.4 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.

#### **D11. PERFORMANCE SECURITY**

D11.1 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.

D11.1.1 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.

D11.2 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.

## **D12. SUBCONTRACTOR LIST**

D12.1 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**

### **D13. COMMENCEMENT**

D13.1 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.

D13.2 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 D8;
  - (ii) evidence of the workers compensation coverage specified in C6.15;
  - (iii) the Safe Work Plan specified in D9;
  - (iv) evidence of the insurance specified in D10;
  - (v) the performance security specified in D11; and
  - (vi) the Subcontractor list specified in D12.
- (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.

D13.3 The Contractor shall order play equipment and submit this information to the Contract Administrator within seven (7) Working Days of receipt of the Purchase Order.

D13.4 Construction will commence as early as possible in 2014, starting no later than October 1st, 2014.

### **D14. SUBSTANTIAL PERFORMANCE**

D14.1 The Contractor shall achieve Substantial Performance within twenty-five (25) consecutive Working Days of the commencement of the Work as specified in D13.

D14.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.

D14.3 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.

#### **D15. TOTAL PERFORMANCE**

D15.1 The Contractor shall achieve Total Performance within thirty-five (35) consecutive Working Days of the commencement of the Work as specified in D13.

D15.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.

D15.3 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.

#### **D16. LIQUIDATED DAMAGES**

D16.1 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) per Working Day for each and every Working Day following the day fixed herein for Substantial Performance during which such failure continues.

D16.2 The amount specified for liquidated damages in D16.1 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.

D16.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

#### **D17. SCHEDULED MAINTENANCE**

D17.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

(a) Maintenance of plant material as specified in **E36**;

D17.2 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**

#### **D18. JOB MEETINGS**

D18.1 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.

D18.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

**D19. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)**

D19.1 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).

**D20. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS**

D20.1 Further to B11.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B11.4.

**MEASUREMENT AND PAYMENT**

**D21. PAYMENT**

D21.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

**WARRANTY**

**D22. WARRANTY**

D22.1 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 thereunder.

D22.1.1 For the purpose of Performance Security, the warranty period shall be one (1) year.

D22.2 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.

D22.2.1 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 D11)

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. 790-2014

LEGION MEMORIAL PARK PLAYGROUND

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 D11)

\_\_\_\_\_  
(Date)

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

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 790-2014  
  
LEGION MEMORIAL PARK PLAYGROUND

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 (2007 Revision), International Chamber of Commerce Publication Number 600.

\_\_\_\_\_  
(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-R1	General Instruction
CW 1120-R1	Existing Services, Utilities and Structures
CW 1130-R2	Site Requirements
CW 2030-R7	Excavation Bedding and Backfill
CW 2160-R7	Concrete Underground Structures and Works
CW 3010-R4	Clearing and Grubbing
CW 3110-R18	Sub-Grade, Sub-Base and Base Course Construction
CW 3130-R4	Supply and Installation of Geotextile Fabrics
CW 3170-R3	Earthwork and Grading
CW 3310-R15	Portland Cement Concrete Pavement Works
CW 3325-R5	Portland Cement Concrete Sidewalk
CW 3510-R9	Sodding
CW 3540-R5	Topsoil and Finish Grading for the Establishment of Turf Areas
CW 3610-R4	Installation of Culverts

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
G1-R0	Cover Sheet
L1-R0	Existing and Removal Plan
L2-R0	Site and Planting Plan
L3-R0	Layout Plan: Curb / Path / Side Play Areas
L4-R0	Layout Plan: Circular Play Area and Fence
L5-R0	Grading & Drainage Plan
L6-R0	Construction Details
L7-R0	Entry Feature Details
SCD-105B-R3	Post Bollard
SCD-119-R2	Waste Receptacle Side Opening Metal Slat Type
SCD-121A-R2	Tache Bench Composite with Arms
SCD-122-R1	Tache Style Metal Frame Picnic Table
SCD-122A-R1	Tache Style Wheelchair Metal Frame Picnic Table
SCD-136A-R2	Accessible Bench Node and Picnic Table Layout
SCD-517-R0	Standard Detail for Tree Planting
SCD-612-R1	Culvert Installation under Walkway
SCD-645-R1	Park Path Crushed Limestone
SCD-650-R1	Engineered Wood Fibre Safety Surfacing Drainage Diagram
SCD-659-R2	Multi Flow Drainage

## **E2. PRE-CONSTRUCTION MEETING**

E2.1 The Contractor shall not begin the Work under this Contract until a pre-construction meeting has been held between representatives of the General Contractor, the City of Winnipeg, and the Contract Administrator.

## **E3. SITE ACCESS**

E3.1 All access to be on the designated routes through the Site. These routes will be determined at the pre-construction meeting.

E3.2 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.

E3.3 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.

## **E4. PEDESTRIAN SAFETY AND TRAFFIC MANAGEMENT**

E4.1 Further to CW 1130, the Contractor shall take such measures as are necessary to ensure safe and convenient pedestrian ingress and egress is maintained to the Woodhaven Community Center, and along public access roadways and pedestrian routes adjacent to the Site. 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.

E4.2 Ambulance/ Emergency vehicle access must be maintained at all times.

## **E5. SITE CONDITION**

E5.1 The Contractor and applicable Sub-Contractors shall examine the Site and make themselves familiar with the existing conditions (both above and below grade) and nature of Work to be done.

E5.2 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.

E5.3 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.

## **E6. PROTECTION OF EXISTING TREES**

E6.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities:

- (a) All trees will have a 3m 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, unless otherwise agreed to by the City and Contract Administrator throughout the duration of the Contract. Protective fencing around these areas is required.

- (b) Trees within and immediately adjacent to proposed construction and those identified to be at risk by the Contract Administrator are to be strapped with 25 x 100 x 2400 mm wood planks, or suitably protected as approved by the Contract Administrator. Do not use nails or other fasteners that penetrate the tree trunk. The width and length of strapping may be reduced to suit the tree being protected as approved by the Contract Administrator.
- (c) Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the excavation shall be a minimum of 1.5 times the diameter (measured in inches) where 1 inch diameter equals 1 foot measured from the outside edge of the trunk of the tree at 6 inches above grade. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation. They must be properly trimmed with sharp tools to prevent crushing or being pulled by construction equipment. No paint is required. All exposed roots must be mulched until the excavated area is filled with clean earth to avoid exposure to sunlight and desiccation.
- (d) Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the Work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of trees. The dripline of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.
- (e) Work on-Site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to branches does occur, they shall be neatly pruned.
- (f) Repair, replace and maintain tree protection materials during construction until the Project completion.
- (g) Carefully remove safety fencing and strapping material without harming the tree as soon as the construction and restoration Work is complete.

E6.2 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or his designate.

E6.3 No separate measurement or payment will be made for the protection of existing structures, trees and property.

## **E7. EXISTING SERVICES AND UTILITIES**

E7.1 This Specification shall amend and supplement CW 1120.

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 204-918-1360 (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. SURFACE RESTORATION**

- E13.1 Further to Section 3.3 of CW 1130, the Contractor shall temporarily repair any Work commenced and not completed in the 2013 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.

#### **E14. SITE CLEAN UP**

- E14.1 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 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.
- E14.2 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.
- E14.3 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.
- E14.4 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 and CW 3540.
- E14.5 Any costs in connection with Site Cleanup Works are considered incidental and no payment shall be made.

#### **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.

#### **E17. REMOVALS & SALVAGE**

- E17.1 Description
- E17.1.1 This Specification is supplemental to CW 3010 Cleaning and Grubbing.
- E17.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as herein specified.
- E17.1.3 Work shall include, but not necessarily confined to, the following:
- (a) Coordinate with the City of Winnipeg on the removal of old equipment and timber edging;
  - (b) Salvage and stockpile suitable, approved material on Site for reuse (including but not necessarily limited to City of Winnipeg Park Bench, Picnic Table, Sign, Swing Structure, Waste Receptacle, clean topsoil, clay fill and gravel fill) in a secure location. Remove and legally dispose of unsuitable material. Stockpile location to be restored to original condition following removal and re-use of material;

- (c) Remove and legally dispose of additional fill, safety surfacing, paving, edging, fencing, underground piles and vegetation as described on Drawing L1 "Existing and Removals Plan" and as approved by Contract Administrator.

## E17.2 Construction Methods

- E17.2.1 The Contractor shall remove all as shown on Drawing L1.
- E17.2.2 Disposal of material shall be understood to mean the hauling of all unsuitable material from the Site and the unloading in a safe and 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.
- E17.2.3 Prior to commencement of removals operations, Contractor to meet on Site with Contract Administrator and representative of the City of Winnipeg to verify limits of removals.
- E17.2.4 The Contractor shall remove paving, fencing and posts to full depth of base course material.
- E17.2.5 Tree Removals:
  - (a) Prior to commencement of removals operations, Contractor to meet on Site with Contract Administrator and City of Winnipeg Forester or their representative to mark tree removals.
  - (b) Tree stumps to be trimmed as close to existing grade as possible.
- E17.2.6 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.
- E17.2.7 Prevent damage to surface or underground utility lines which are to remain. Make good any damage.
- E17.2.8 Do not disturb soil within branch spread of trees to remain.
- E17.2.9 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.
- E17.2.10 Contractor must coordinate with the Contract Administrator for a site inspection to ensure all removals have occurred.

## E17.3 Method of Measurement

- E17.3.1 Removals and Salvage is a lump sum bid item under "Removal, Relocation, Site Preparation and Grading". No measurement will be made for this work.

## E17.4 Basis of Payment

- E17.4.1 Removals and Salvage and related Work will be paid for at the Contract Lump Sum Prices. The amount to be paid for shall be 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.

## **E18. EXCAVATION AND ROUGH GRADING**

### E18.1 Description

- E18.1.1 This Specification shall amend and supplement CW 3110 "Sub-grade, Sub-base and Base Course Construction" and CW 3170 "Earthwork and Grading".
- E18.1.2 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.

E18.1.3 Work shall include, but not necessarily be confined to, the following:

- (a) Excavation, removals, sawcutting, disposal, subgrade compaction and rough grading of the existing Site for the construction of paved areas, sodded areas and play areas 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) Excavate, remove and legally dispose of unsuitable subgrade and replace with compacted granular material;
- (c) Grading of the existing Site (cut and fill including compaction of subgrade and fill material) to ensure positive drainage in accordance with specifications and drawings;
- (d) Excavate, Remove, Legally Dispose, Rough Grade and Fill areas where items were removed and will not be replaced.

E18.2 Materials

E18.2.1 All imported and salvaged fill materials shall conform to CW 3170.

E18.3 Construction Methods

E18.3.1 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 or surplus materials of whatever nature encountered.

E18.3.2 Disposal of material shall be understood to mean the hauling of all unsuitable material from the Site and the unloading in a legal manner and in accordance with Section 3.4 of CW 1130 "Site Requirements".

E18.3.3 The Contractor shall construct all sub-grades in accordance with Specification CW 3110. Excavation will be performed as per Section 4.3 of CW 3110.

E18.3.4 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. No separate 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 "Removal, Relocation, Site Preparation and Grading".

E18.3.5 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 "Removal, Relocation, Site Preparation and Grading".

E18.3.6 Prevent damage to surface or underground utility lines which are to remain. Make good any damage.

E18.3.7 Do not disturb soil within branch spread of trees to remain, unless otherwise agreed to by the City and the Contract Administrator.

E18.3.8 The Contractor shall excavate topsoil as per Section 4.3 of CW 3110. Topsoil excavation is incidental to the unit price bid for "Removal, Relocation, Site Preparation and Grading".

E18.3.9 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.

- E18.3.10 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.
- E18.3.11 Areas to Fill
- (a) Fill low and excavated areas to be sodded with excavated clay material 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.
  - (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.
- E18.3.12 The Contractor shall construct all subgrades in accordance with Specification CW 3110. 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, and 90% Standard Proctor Density in all other areas disturbed under this Contract unless otherwise indicated.
- E18.3.13 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.
- E18.3.14 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 CW 3110.
- E18.3.15 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.
- E18.3.16 Excavation should be coordinated with the installation of play equipment so as not to leave an open excavation area subject to ponding water.
- E18.4 Method of Measurement
- E18.4.1 Excavation and Rough Grading is a lump sum bid item under "Removal, Relocation, Site Preparation and Grading". No measurement will be made for this work.
- E18.5 Basis of Payment
- E18.5.1 Excavation and Rough Grading and related Work will be paid for at the Contract Lump Sum Prices. The amount to be paid for shall be 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.
- E19. BASE COURSE MATERIAL**
- E19.1 The Specification shall supplement Standard Construction Specification CW 3110 and CW 3130.
- E19.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary 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 Placement of Base Course Material;

- (b) Supply and Placement of Sub-Base;
- (c) Supply and Installation of Separation/ Reinforcement Geotextile Fabric;
- (d) Compaction.

- E19.3 There will be no separate measurement and payment for supply and placement of sub-base. All Work shall be considered incidental to this specification.
- E19.4 There will be no separate measurement and payment for supply and installation of Separation/ Reinforcement Geotextile Fabric. All Work shall be considered incidental to this specification.
- E19.5 There will be no separate measurement and payment for compaction. All Work shall be considered incidental to this specification.
- E19.6 All costs in connection with the testing and approval of base courses shall be considered incidental to this specification.
- E19.7 Method of Measurement/ Basis of Payment
- E19.7.1 The Contractor is advised that all Work under this section is incidental to the unit prices bid in those items for which base course material is required under this Contract.

## **E20. ENTRY CULVERTS**

- E20.1 Description
- E20.1.1 This Specification shall supplement CW 3610 "Installation of Culverts" and SCD-612 "Culvert Installation Under Walkway".
- 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.
  - (d) Remedial work to repair pathway and surrounding area after culvert has been installed.
- 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 as per CW 3110.
- E20.2.3 Sand in accordance with Section 2 of CW 2030. Sand shall be used as a levelling course.
- E20.2.4 Culvert shall be 200mm diameter High Density Polyethylene (HDPE).
- E20.3 Construction Methods

- E20.3.1 The Contractor shall stake out location and extent of culvert installation prior to start of construction as shown on the Drawings. Layout to be approved by Contract Administrator prior to construction.
- E20.3.2 Contractor shall be responsible for interpretation of grades and protection of stakes. Layout to be approved by Contract Administrator prior to construction.
- E20.3.3 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.
- E20.3.4 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.
- E20.3.5 Culvert shall be installed in accordance with CW 3610 and SCD-612.
- E20.3.6 Ensure slope and invert elevation of culvert is consistent with swale grades and in the direction of drainage.
- E20.3.7 Turf shall be repaired as required in accordance with City of Winnipeg Standard Specifications for Topsoil and Sodding.
- E20.3.8 Sub-Grade
- (a) Prepare compacted sub-grade to the lines and grades as shown on Drawings. Impervious compacted clay bedding shall be provide for a minimum length of one (1) meter or two (2) times the diameter of the pipe, whichever is the greater, at both ends of the culvert to achieve a seal against seepage.
- E20.3.9 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) Entry Culverts 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) Entry Culverts will be paid for at the Contract Unit 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. CONCRETE FORMWORK**
- E21.1 Description
- E21.1.1 The specification shall supplement Specification CW 3310 "Portland Cement Concrete Pavement Works", CW 3325 "Portland Cement Concrete Sidewalk", and CW 3110 "Sub-grade, Sub-base and Base Course Construction".
- E21.2 Reference Standards
- (a) All concrete formwork is to be done in accordance with CAN/CSA-A23.1 and CAN/CSA-A23.2
- E21.3 Materials
- E21.4 Formwork lumber: plywood and wood formwork materials conform to CAN-086.
- (a) Plywood: Douglas Fir to CSA 0121, concrete form grade, square edge, 19mm thick.

- E21.5 Form ties: removal or snap-off metal ties, fixed of adjustable length, free of devices leaving holes larger than 25mm dia in concrete surface
- E21.6 Formwork release agent: chemically active release agents containing compounds that react with free lime present in concrete to provide water insoluble soaps, preventing concrete from sticking to forms.
- E21.7 Construction Methods
- E21.7.1 Erection
- (a) Verify lines, levels and dimensions before proceeding with formwork and ensure dimensions agree with drawings.
  - (b) Construct forms to produce finished concrete conforming to shape, dimensions, locations and levels indicated within tolerances required by CAN/CSA-A23.
  - (c) If requested, prepare and submit for approval to Contract Administrator, diagram showing proposed location and details of all construction joints.
  - (d) Formwork shall be constructed to permit easy dismantling and stripping and such that removal will not damage the concrete. Provision shall be made in the formwork for shores to remain undisturbed during stripping where required.
  - (e) Forms shall be constructed and maintained so that the completed work is within minus 3 mm or plus 6 mm of the dimensions shown on the Drawings.
  - (f) Align form joints and make watertight. Keep form joints to minimum.
  - (g) Clean formwork in accordance with CAN/CSA-A23:1. Only permitted if in good condition.
  - (h) Where prefabricated panels are used, care shall be taken to ensure that adjacent panels remain flush. Where metal forms are used, all bolts and rivets shall be countersunk and well ground to provide a smooth, plane surface.
  - (i) All form lumber, studding, etc. becomes the property of the Contractor when the work is finished, and it shall be removed from the concrete and the site by the Contractor after the concrete is set, free of extra charge, and the entire site left in a neat and clean condition.
  - (j) It shall be permissible to use the forms over again where possible, provided they are thoroughly cleaned and in good condition after being removed from the former portions of the Work. The Contract Administrator shall be the sole judge of their condition and his decision shall be final regarding the use of them again.
- E21.7.2 Form Removal
- (a) The Contract Administrator must be notified at least 24 hours prior to form removal and give approval prior to beginning work.
- E21.7.3 Patching of formed surfaces
- (a) Immediately after forms have been removed, but before any repairing or surface finish is started, the concrete surface shall be inspected by the Contract Administrator. Any repair or surface finishing started before this inspection may be rejected and required to be removed.
  - (b) All formed concrete surfaces shall have bolts, ties, struts and all other timber or metal parts not specifically required for construction purposes cut back twenty-five (25) mm from the surface before patching.
  - (c) Minor surface defects caused by honeycomb, air pockets greater than 5 mm in diameter and voids left by strutting and tie holes shall be repaired by removing the defective concrete to sound concrete, dampening the area to be patched and then applying patching mortar. A slurry grout consisting of water and cement, shall be well brushed onto the area to be patched. When the slurry grout begins to lose the water sheen, the patching mortar shall be applied. It shall be struck off slightly higher than the surface and left for one hour before final finishing to permit initial shrinkage of the

patching mortar, it shall be touched up until it is satisfactory to the Contract Administrator.

- (d) All objectionable fins, projections, offsets, streaks or other surface imperfections shall be removed by approved means to the Contract Administrator's satisfaction. Cement washes of any kind shall not be used.
- (e) Wherever "Concrete Surface Coating" is to be applied, patching of minor surface defects shall be done by the Thoroseal applicator using Thorite. Payment for same is considered incidental to the works of this Specification. Patching of snap tie holes to defects larger than 15 mm in diameter shall be done under this Specification.

#### E21.7.4 Finishing of Formed Surfaces

- (a) Concrete shall be cast against forms which will produce plane surfaces with no bulges, indentation or swelling other than those shown on the Drawing. The arrangement of panel joints shall be kept to a minimum. Panels containing worn edges, patches or other defects which will impair the texture of concrete surfaces shall not be used. All fins on the concrete surfaces shall be removed.

#### E21.7.5 Inspection

- (a) 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 specified work. The Contractor shall be wholly responsible for the control of all operations incidental thereto notwithstanding any inspection or approval that may have been previously given. The Contract Administrator reserves the right to reject any materials or works which are not in accordance with the requirements of this Specification.

#### E21.7.6 Access

- (a) The Contract Administrator shall be afforded full access for the inspection of form work and constituent materials.

#### E21.8 Measurement and Payment

E21.9 The supply and installation of Concrete Formwork will be considered incidental to the supply and placement of Cast-in-Place Concrete, acceptably installed in accordance with this Specification and accepted by the Contract Administrator, and no separate payment will be made.

### **E22. CAST IN PLACE CONCRETE**

#### E22.1 Description

E22.1.1 The specification shall supplement Specification CW 3310 "Portland Cement Concrete Pavement Works", CW 3325 "Portland Cement Concrete Sidewalk", and CW 3110 "Sub-grade, Sub-base and Base Course Construction".

E22.1.2 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 Concrete Pavement for Bike Racks;
- (b) Supply and installation of Flush Concrete Curb Edging;
- (c) Supply and installation of Concrete Raised Planter;
- (d) Supply and installation of Concrete Pile for Entry Feature.

#### E22.2 Related Sections

E22.2.1 All Concrete formwork to be done in accordance with CAN/CSA-A23.1-M77 and CAN/CSA-A23.2, except where specified otherwise.

### E22.3 Materials

E22.3.1 Portland Cement to CAN3-A5-M 1983 and CW 3310.

E22.3.2 Sub Base and Base Course as per CW 3110

E22.3.3 Geotextile fabric shall be in accordance with CW 3130.

E22.3.4 Planter Insulation shall be 51mm (2") thick rigid polystyrene.

E22.3.5 Planter drain pipe shall be 25mm diameter PVC pipe.

E22.3.6 Chemical admixtures to CAN3-A266.2-M78. Contract Administrator to approve accelerating or set retarding admixtures during cold and hot weather placing. Use of calcium chloride is not permitted.

E22.3.7 Curing and sealing compound to: CAN/CSA-A23.1-M90, CPD Acrylic cure and seal or equal and to ASTM C309-81, Type 1 - chlorinated rubber.

E22.3.8 Accessories and Application Equipment: As per manufacturers specifications.

E22.3.9 Pre-molded joint fillers: Flexcell Expansion Joint Filler

#### E22.3.10 Concrete Mixes

(a) All concrete Work shall be in accordance with CSA A23.1 Concrete Materials and methods of concrete construction.

(b) Proportion normal density concrete in accordance with CSA A23.1 to give the following properties:

(i) Concrete for pavement and edging:

- 1) Cement: Type 50 Sulphate resistant
- 2) Maximum Coarse Aggregate: 20mm
- 3) Minimum Compressive Strength at 28 days: 32 Mpa
- 4) Maximum Water/Cement Ratio: 0.45
- 5) Class of Exposure: C-2
- 6) Maximum Slump: 80mm + 30mm
- 7) Air Content: 5-8%

(ii) Concrete for planters and piles shall be as indicated on the Drawings

E22.3.11 Reinforcing shall be as indicated on Drawings.

### E22.4 Construction Methods

#### E22.4.1 Grade Preparation

- (a) Construction method shall conform to Specification CW 3110 'Sub-grade, Sub-base, and Base Course Construction'.
- (b) 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.
- (c) Contractor to layout all concrete work. Contractor shall be responsible for interpretation of grades and protection of stakes. Layout to be approved by Contract Administrator prior to construction.
- (d) Excavate to lines and grades as indicated on drawings less material. All pads and concrete footings shall be installed as indicated on the Drawings.

#### E22.4.2 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.

#### E22.4.3 Granular Base

- (a) Geotextile fabric to be placed between subgrade and granular base as per CW 3130;
- (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.

#### E22.4.4 Workmanship

- (a) Do all concrete Work in accordance with CAN/CSA-A23.1. All testing of concrete shall be done in accordance with CAN/CSA-A23.2. Obtain Contract Administrator's approval of granular base and reinforcing steel before placing concrete. Provide 3 Calendar Days notice prior to placing of concrete.
- (b) Pumping of concrete is permitted only after approval of equipment and mix.
- (c) Ensure reinforcing bars and reinforcement and inserts are not disturbed during concrete placement.
- (d) Do not place load upon new concrete until authorized by Contract Administrator as per City of Winnipeg Standards.

#### E22.4.5 Finishing of Concrete:

- (a) Finish concrete in accordance with CAN/CSA/A23.1.
- (b) All shall be finished by a specialty concrete finisher.
- (c) The size of finishing crews shall be planned with due regard for the effects of concrete temperatures and atmospheric conditions of the rate of hardening of the concrete.
- (d) Finish of all items shall be clean with no pits, chips, bumps or other surface imperfections.
- (e) Hand steel trowelled smooth as directed by the Contract Administrator.
- (f) Immediately after floating, give Concrete Pavement for Bike Racks uniform broom finish to produce regular corrugations not exceeding 2 mm deep, perpendicular to direction of travel.
- (g) Provide edging with 10 mm radius edging tool.

#### E22.4.6 Expansion and Contraction Joints

- (a) Install tooled transverse contraction joints after floating, when concrete is stiff, but still plastic, at intervals of 1.5 m.
- (b) Install expansion joints in consultation with Contract Administrator.
- (c) Furnish filler for each joint in a single piece for depth and width required for joint, unless otherwise authorized by Contract Administrator. When more than one piece is required for a joint, fasten abutting ends and hold securely by stapling or other positive fastening.
- (d) Seal expansion joints with sealant approved by Contract Administrator.

#### E22.4.7 Curing

- (a) Cure concrete by adding moisture continuously in accordance with CAN/CSA-A23.1 to exposed finished surfaces for at least 1 day after placing, or sealing moisture in by curing compound approved by Contract Administrator.
- (b) Where burlap is used for moist curing, place two pre-wetted layers on concrete surface and keep continuously wet during curing period.

- (c) Apply curing compound evenly to form continuous film. In accordance with manufacturer's requirements.

E22.4.8 Backfill

- (a) Allow concrete to cure for seven [7] days prior to backfilling.
- (b) Backfill to designated elevations with material approved by Contract Administrator. Compact and shape to required contours as indicated on drawings

E22.4.9 Instruction for Concrete Raised Planters:

- (a) Excavate the tree pits by hand to the dimensions and depth shown on the Drawings. Soft dig/ day lighting process to be used in area of existing underground utilities. Ensure base of tree pit slopes to drain in the same direction as surrounding playground area (min. 2% slope).
- (b) Clear excavation of all construction debris, trash, rubble and any foreign material from planter prior to placing planting medium. Excavate and remove oil spills and other soil contamination sufficiently to remove the harmful material. Fill over excavation with approved fill and compact to the required subgrade compaction.
- (c) Coordinate installation of planters with playground equipment and safety surfacing suppliers. Make provision and ensure proper timing of operations.
- (d) Install reinforcing, waterproofing, granular material, geotextile fabric and rigid insulation in planters as shown on the drawings and as described in this specification. Install topsoil to within 100mm of top of planter and wood mulch to within 50mm of top of planter.
- (e) Backfill with planting medium compacting sufficiently to provide good soil consistency for tree planting and to minimize settlement.
- (f) Plant tree in location shown on the Drawings and as per E36 Tree Planting.

E22.4.10 Cleanup and Damage

- (a) Immediately on completion of concrete Work the Contractor shall remove from Site all equipment, timbers, shores, excavated materials, unused concrete, rubbish etc. caused by operations, and leave the Site clean, level and ready for other Works.
- (b) The Contractor shall be responsible for making good all areas damaged by operations.

E22.5 Method of Measurement

E22.5.1 Concrete Pavement for Bike Racks shall be measured on an area basis. The area to be paid for shall be the total number of square meters installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

E22.5.2 Flush Concrete Curb Edging shall be measured on a linear meter basis. The quantity to be paid for shall be the total number of linear meters installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

E22.5.3 Concrete Raised Planters shall be measured on a linear meter basis. The quantity to be paid for shall be the total number of linear meters installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

E22.5.4 Concrete Pile for Entry Feature shall be considered incidental to the Unit Price for Entry Feature and no separate measurement shall be made.

E22.6 Basis of Payment

E22.6.1 Cast in place Concrete Pavement for Bike Racks, Flush Concrete Curb Edging and Concrete Raised Planters 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 including excavation, subgrade preparation, granular backfill, granular base, compaction, geotextile, concrete, reinforcing steel and forming herein described and all other items incidental to the Work and accepted by the Contract Administrator.

E22.6.2 Price for Concrete Pile for Entry Feature will be considered incidental to the Unit Price for Entry Feature and no separate payment will be made.

### **E23. CRUSHED GRANULAR PAVING**

#### **E23.1 Description**

E23.1.1 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;

#### **E23.2 Material**

E23.2.1 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.

#### **E23.2.2 Compacted Subgrade**

- (a) Granular base course material for the pathway shall consist of 150mm of 20mm down crushed limestone and shall conform to CW3110 for crushed limestone base course material.

#### **E23.2.3 Granular Surface Course for Crushed Limestone Pathway**

- (a) Granular surface course material for the pathway shall consist of 25.4mm of crusher fines/ toppings crushed limestone.

#### **E23.2.4 Geotextile Fabric**

- (a) Geotextile fabric shall be in accordance with CW 3130.

#### **E23.3 Construction Methods**

E23.3.1 Construction method shall conform to Specification CW 3110 'Sub-grade, Sub-base, and Base Course Construction'.

E23.3.2 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.

E23.3.3 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.

#### **E23.3.4 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.

#### **E23.3.5 Granular Base**

- (a) Geotextile fabric to be placed between subgrade and granular base as per CW 3130;
- (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.

- E23.3.6 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.

E23.4 Method of Measurement and Basis of Payment

E23.4.1 Method of Measurement shall be as follows:

- (a) Crushed Limestone Pathway shall be measured on a square meter 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.

E23.4.2 Basis of Payment shall be as follows:

- (a) Crushed Limestone 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.

**E24. SALVAGED SWING STRUCTURE**

E24.1 General

E24.1.1 This specification shall cover the re-installation and painting of a salvaged swing structure.

E24.1.2 The work to be done by the Contractor under this Specification shall include the furnishing of labour, materials, equipment, tools, supplies, storage, transportation, overhead, markup and all things necessary for and incidental to the satisfactory performance and completion of all works as hereinafter specified, and as described on the Drawings.

E24.1.3 Related Specifications:

- (a) E26 – Foundations.

E24.2 Materials

E24.2.1 The Contractor shall be responsible for the supply, safe storage, and safe handling of all materials as set forth in this Specification. All materials shall be handled in a careful and workmanlike manner, to the satisfaction of the Contract Administrator.

E24.2.2 Primer to be acid etching primer.

E24.2.3 Paint to be Rustoleum Automotive Acrylic Enamel, colour: Semi-Gloss Black.

E24.2.4 New anchoring bolts to match diameter, thread length, material and embedment depth of existing bolts in original pile. Contractor to be responsible for recording necessary information prior to demolishing existing pile.

E24.3 Construction Methods

E24.3.1 Pole and fixture shall be cleaned of all rust, dirt, loose paint or other surface imperfections and painted as per paint manufacturer's instructions prior to installation.

E24.3.2 Touch up paint shall be applied as required following pole installation.

E24.3.3 Pole shall be installed as per specifications and drawings. Contractor to ensure pole set plumb.

E24.4 Method of Measurement

- (a) The Relocation of Salvaged Swing Structure will be measured on a per unit basis.
- (b) Foundation shall be incidental to the measurement of the relocation of salvaged swing structure listed above. No measurement will be made.

#### E24.5 Basis of Payment

- (a) The Relocation of Salvaged Swing Structure shall be paid for at the Lump Sum Unit Price as specified herein, which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the work included in this Specification.
- (b) No separate payment shall be made for swing foundations.

### **E25. PLAY EQUIPMENT**

#### E25.1 Description

E25.2 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:

E25.3 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.

E25.3.1 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".

E25.3.2 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.

E25.3.3 Contractor to submit colour drawing of play equipment, colours and frame with Contract Administrator prior to ordering equipment.

E25.3.4 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.

E25.3.5 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.

E25.4 The Contractor shall obtain all approvals required to conduct Work described herein.

E25.5 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.

#### E25.6 Play Structures and Play Components

## E25.7 Description

E25.7.1 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.

E25.7.2 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.

## E25.8 Materials

### E25.8.1 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 (Drawing #76827-1-1). Play Equipment includes the following:

- (i) PlayBooster by Landscape Structures Inc. (Model #76827-1-1)
- (ii) 34' Zipkrooz by Landscape Structures Inc. (Model #194663A)
- (iii) Oodle Swing by Landscape Structures Inc. (Model #173592A)

### E25.8.2 Contact for Play Equipment:

Jodi McLean  
Playgrounds R Us  
Box 7, Group 582, R.R. 5  
Winnipeg. MB R2C2Z2

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

E25.8.3 All materials shall be structurally sound and suitable for safe play. Durability shall be ensured on all parts and materials.

E25.8.4 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

E25.8.5 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.

## E25.9 Installation

E25.9.1 Play equipment shall be installed as per manufacturer's specifications and in accordance with the most recent Canadian Standards Association Standards.

E25.9.2 All posts and other vertical items shall be plumb and true to vertical, if so designed.

E25.9.3 Concrete footings/ foundation shall be in accordance with E26.

E25.9.4 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.

E25.9.5 Swing seats shall not be installed until the safety surface is in place.

## E25.10 Method of Measurement and Basis of Payment

E25.10.1 Method of Measurement shall be as follows:

- (a) Netplex Climbing Structure 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.
- (b) Zipkrooz 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.
- (c) Oodle Swing will be measured on a per unit basis.

E25.10.2 Basis of Payment shall be as follows:

- (a) Netplex Climbing Structure 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.
- (b) Zipkrooz 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.
- (c) Oodle Swing 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.

## E26. FOUNDATIONS

### E26.1 Description

E26.1.1 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.

E26.1.2 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 - Concrete Underground Structures and Works, is to be utilized in the installation of the concrete works for all below ground components.

### E26.2 Materials

E26.2.1 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.

### E26.3 Installation

E26.3.1 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.

E26.3.2 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.

E26.3.3 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.

E26.3.4 All posts and supports shall be wiped clean of extraneous concrete.

E26.4 Method of Measurement and Basis of Payment

E26.4.1 Method of Measurement shall be as follows:

- (a) Foundations shall be incidental to the measurement of Play Equipment and Salvaged Swing Structure listed above and as shown on Form B: Prices.

E26.4.2 Basis of Payment shall be as follows:

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

## **E27. SAFETY SURFACING AND SUBSURFACE DRAINAGE**

E27.1 General 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 wood fibre safety surfacing and associated subsurface drainage.
- (b) Supply and Installation of sand safety surfacing and associated subsurface drainage.

E27.2 Safety Surfacing

E27.2.1 Description

- (a) This Specification shall cover the supply and installation of wood fibre safety surfacing within the Play Equipment and Swing Areas.
- (b) This Specification shall cover the supply and installation of sand safety surfacing within the Log Steppers Areas.
- (c) This Specification shall cover the supply and installation of safety surfacing to drain out of the play areas and connect subsurface drainage to emitters as per Drawing SCD-650-R1 and SCD-659-R2.

E27.2.2 Material

- (a) Play sand shall be natural 'washed' playground sand of rounded particles, free of fines, clay, stones, silt or other debris and shall meet the following criteria:
  - (i) 100% passing 6.7mm sieve;
  - (ii) 99.5% passing 4.75 mm sieve;
  - (iii) 97-100% passing 2.36 mm sieve;
  - (iv) 70-90% passing 1.18 mm sieve;
  - (v) 25-60% passing 600um sieve;
  - (vi) 5-25% passing 300um sieve;
  - (vii) 0-3% passing 150 um sieve;
  - (viii) 0-1% passing 75um sieve.
- (b) Samples of specified sand shall be submitted for approval to the Contract Administrator at least seven (7) Calendar Days prior to ordering of the material.
- (c) Wood Fibre product shall be either Zeager Woodcarpet or Fibar FibarSystem 200 or 300 products or substitute acceptable to Contract Administrator in accordance with B7 and E27.2.2(e).
- (d) Wood Fibre surfacing shall be supplied by an authorized distributor and delivery slips and/or a warranty certificate from an authorized supplier are to be submitted to the Contract Administrator prior to installation.

- (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](mailto:sales@zeager.com)
  
- (ii) Contact for FibarSystem 200 or 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](mailto:info@FibarPlaygrounds.com)

- (e) If substitute to Zeagar Woodcarpet or Fibar FibarSystem 200 or 300 is proposed, it must meet the following conditions:
  - (i) Materials must be IPEMA certified Engineered Wood Fibre
  - (ii) Material must consist of random-sized, clean, engineered hardwood chips. Standard wood chips or bark mulch are not acceptable.
  - (iii) Materials must meet or exceed ASTM F1292 standards for impact attenuation
  - (iv) Materials must be certified by the CSA and approved for playground use
  - (v) Materials must comply with ASTM F1951 Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment
  - (vi) Materials must be covered by \$10,000,000.00 product liability insurance as well as provide a minimum 10 year warranty against loss of resiliency
- (f) Wood Fibre surfacing shall include wood fibre, filter cloth, subsurface drainage system and mats under swings and end of slides.
- (g) Mats are to be installed directly on top of the geotextile fabric and secured in place with two (2) duckbill anchors per mat.

### E27.2.3

#### Construction Methods

- (a) Area for play sand shall be excavated, sub-drain installed, log stppers, timber log and boulders installed prior to installation of sand. Area shall be lined with geotextile.
- (b) Play sand shall be installed within the log steppers play area, as defined by timber log edging and boulders to a minimum depth of 300 mm and rack level.
- (c) Wood Fibre shall be installed within the play structure and swing areas, as defined by timber log edging to a minimum depth of 200 mm (after compaction). In the case where proposed play equipment includes a maximum fall height greater than 2.4m (8'), depth of material to directly correspond to maximum fall height of play equipment in accordance with manufacturer's specification.
- (d) The installation of the safety surfacing shall be done immediately after the play equipment has been installed.
- (e) Installation of entire system, including safety surfacing, filter cloth, subsurface drainage, emitter and mats under swings and slide ends shall be done according

manufacturer's instructions. Adequate drainage within play equipment area must be ensured as per same.

- (f) Mud grade of play area shall be graded to drain to one edge of the play area and area cleared of any debris which inhibits proper drainage or installation of products. Drainage pipe shall be installed from the subsurface drainage system within the play area to run outside of the play area perimeter to drain to lower grade area ending with an Emitter as per instruction by the Contract Administrator. The cost of this shall be included in the price for the supply and installation of safety surfacing.
- (g) Filter fabric must be cut and fit around playground equipment footings and overlap seams by 300mm.
- (h) 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 E27.3.4(d). If wood fibre sizing does not conform, the Contractor will have to rake surfacing and remove the pieces of wood fibre that do not comply with the satisfaction of the Contract Administrator prior to issuing any payment.
- (i) Installation shall be done by equipment sized to suit the Work being done and the safety surfacing 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 safety surfacing.

### E27.3 Sub-Surface Drainage

#### E27.3.1 Description

- (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.

#### E27.3.2 Material

- (a) Drainage pipe will be Multi-Flow or approved substitute in accordance with B7. 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) 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 <sup>2</sup>	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) 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) Fittings

- (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) Pipe

- (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) 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.

E27.3.3 Backfill for Trenches

- (a) As per SCD-659-R2.

E27.3.4 Construction Methods

- (a) The layout of the subdrain is to be marked on Site and approved by the Contract Administrator prior to trenching. Trenches shall be a min. 150mm in width. Optimum location for extending subdrain beyond the play area limits to be determined on site. Drainage pipe to be capped with emitter as described herein.
- (b) Subdrain within the play area is to be laid on the prepared surface to facilitate cross movement of water. Subdrain shall be installed below geotextile and in conformance with details provided.
- (i) Play area to be graded to drain toward subdrain. This subdrain is to be used in conjunction with the appropriate wood fibre drainage layer to bring excess water out of the play area.
- (c) Contractor is to protect subdrain from excessive weight during the duration of construction and to repair and make good any pipe collapsed prior to acceptance.
- (d) Fitting for the drain will be installed in accordance with the manufacturer's recommendations and Specification.

- (e) Any damaged edge drain or outlet lateral will be replaced or repaired by splicing in an undamaged section of drain at the Contractor's expense. The repair must be in accordance with the manufacturer's specification and to the satisfaction of the Contract Administrator.

#### E27.4 Method of Measurement and Basis of Payment

##### E27.4.1 Method of Measurement shall be as follows:

- (a) Safety Surfacing (including wood fibre or sand, drainage and mats) is a lump sum bid item. No measurement will be made for this work.

##### E27.4.2 Basis of Payment shall be as follows:

- (a) Safety Surfacing (including wood fibre or sand, drainage and mats) will be paid for at the Contract Unit Prices 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.
- (b) This payment shall be understood to include all trenching, backfill, pipe, fittings, emitters, wood fibre or sand, filter cloth, mats, subsurface drainage and items incidental to the Work included in the Specification.

### **E28. TIMBER LOG EDGE**

#### 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, including, but not necessarily confined to the following:

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

#### E28.2 Materials

##### E28.2.1 Timber Logs

- (a) Timber Logs to be debarked and free from jagged protrusions. Logs to be 300-450mm in diameter at the longest length available.

##### E28.2.2 Granular Base

- (a) Granular base course material shall consist of 6mm down crushed limestone and shall conform to CW 3110 for crushed limestone base course material.

##### E28.2.3 Geotextile Fabric

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

#### E28.3 Construction Methods

##### E28.3.1 Subgrade

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

##### E28.3.2 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.

#### E28.3.3 Safety Surfacing

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

#### E28.3.4 Timber Log Edge

- (a) Timber Log Edge placement to be overseen by Contract Administrator. Refer to L2 Site Plan. Timbers to be pinned with minimum of two (2) 19mm diameter rebar at maximum 2100mm apart. Contract Administrator 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 Repairs 500mm from Timber Edging. Contractor to ensure positive drainage away from Play Area with a minimum slope of 1% and maximum of 10%.

#### E28.4 Method of Measurement and Basis of Payment

##### E28.4.1 Method of Measurement shall be as follows:

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

##### E28.4.2 Basis of Payment shall be as follows:

- (a) Timber Log Edge 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.

### **E29. BOULDER EDGE AT PATH AND SAND PLAY AREA**

#### 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 Boulder Edge as described onsite by Landscape Architect.

#### E29.2 Materials and Construction Methods

##### E29.2.1 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 1200mm to 1500mm and shall conform to CW 3615 as per Random Stone Riprap.

##### E29.2.2 Granular Base

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

### E29.3 Method of Measurement and Basis of Payment

#### E29.3.1 Method of Measurement shall be as follows:

- (a) Boulder Edge 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.

#### E29.3.2 Basis of Payment shall be as follows:

- (a) Boulder Edge 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.

## **E30. TIMBER EDGE AT PATH**

### 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 Pressure Treated Timber Edge at Entry to Play Area.

### E30.2 Materials

#### E30.2.1 Pressure Treated Lumber

- (a) 1- 6x6 (8ft. length) pressure-treated timbers to be used.

#### E30.2.2 Geotextile Fabric

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

#### E30.2.3 Granular Base

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

### E30.3 Construction Methods

#### E30.3.1 Subgrade

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

#### E30.3.2 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.

### E30.3.3 Timber Edging

- (a) Landscape Timber Edging placement to be overseen by Contract Administrator. Refer to L2 Site Plan. Timbers to be pinned with minimum of two (2) 19mm diameter rebar. Contract Administrator to review the Landscape Timber 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%.

### E30.4 Method of Measurement and Basis of Payment

#### E30.4.1 Method of Measurement shall be as follows:

- (a) Timber Edge will be measured on a linear metre 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.

#### E30.4.2 Basis of Payment shall be as follows:

- (a) Timber Edge 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.

## **E31. LOG STEPPERS**

### E31.1 Description

E31.1.1 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 Log Steppers.

### E31.2 Materials

#### E31.2.1 Logs

- (a) Logs shall be reviewed and approved by Contract Administrator prior to delivery to site.
- (b) Acceptable species include oak, elm or ash.
- (c) Debarked, sanded smooth and chamfered top as show on Drawings.
- (d) All ends and cuts shall be treated with preservation before being secured.
- (e) Cutting of treated materials will be done by the supplier before treatment. However, field cutting, fitting, and matching may be required as indicated on the drawings. The contractor shall make the necessary cuts and holes in a true and workmanlike manner. The contractor shall seal all cuts with an approved preservative to match lumber.
- (f) Name and type of preservative shall be reviewed and approved by Contract Administrator prior to applying to logs.

#### E31.2.2 Granular Base Course

- (a) Granular base course material shall consist of 20mm down crushed limestone and shall conform to CW3110 for crushed limestone base course material.

### E31.3 Construction Methods

#### E31.3.1 Handling and Storage of Materials

- (a) Lumber brought to the site shall be carefully handled to avoid damaging the outer fibres. Dropping of the timber from the back of the truck to the ground will not be allowed.
- (b) Special tools and slings shall be employed to prevent the penetration of bruising of the treated surfaces. The use of tongs, chains, or sharp tools for handling purposes will not be allowed.
- (c) 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.

#### E31.3.2 Installation

- (a) Stake and layout logs as coordinate with Contract Administrator on site and as indicated in Drawings. Layout shall be checked and approved by Contract Administrator prior to construction.
- (b) Excavate and Grade trench to required elevation as per E18.
- (c) Subgrade to be compacted to 95% Standard Proctor Density.
- (d) No Timbers shall be placed until the subgrade of trench has been approved by Contract Administrator. Contractor to build up from subgrade. Contractor to scarify and strip to allow subgrade to positive drainage.
- (e) Backfill trench with granular base material as per Drawing. Position the post and hold securely in place in the hole, place granular base course backfill material and compact around the post to within 75mm of the finished grade. After the granular material has been satisfactorily compacted, 75mm of compacted limestone base course is to be placed on top.
- (f) All steppers thoroughly tamped and granular mounded for future settling and drainage way from steppers.
- (g) Log Steppers to be set plumb with no gap between steppers. Contractor shall support features while sufficient compacted granular fill is installed to level the features.
- (h) Ensure logs are stable and unmovable once placed.
- (i) All posts thoroughly tamped and granular mounded for future settling and drainage away from post.
- (j) All Work is to be installed in accordance with the drawings using approved material to ensure solid, durable, finished Work suitable for the purpose intended.

### E31.4 Method of Measurement and Basis of Payment

#### E31.4.1 Method of Measurement shall be as follows:

- (a) Log Steppers will be measured on a lump sum price. 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.

#### E31.4.2 Basis of Payment shall be as follows:

- (a) Log Steppers 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.

## E32. SITE FURNITURE

### 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 hereinafter specified, including, but not necessarily confined to the following:

- (a) Delivery and Installation of Benches;
- (b) Delivery and Installation of Picnic Tables;
- (c) Delivery and Installation of Accessible Picnic Table;
- (d) Delivery and Installation of Waste Receptacles;
- (e) Supply and Installation of Bollards;
- (f) Supply and installation of Bicycle Racks.

### E32.2 Materials

E32.2.1 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.

E32.2.2 Bench shall be supplied by the City of Winnipeg FOB Central manufacturing facility at no cost to the Contractor. Bench shall be Tache Style Backed Bench Composite with Arms, as per SCD-121A, Product #52501085, with **black metal**, or substitute approved in accordance with B7.

E32.2.3 Picnic Table shall be supplied by the City of Winnipeg FOB Central manufacturing facility at no cost to the Contractor. Picnic Table shall be Tache Style Metal Frame, as per SCD-122, with wood slats and grey tone painted finish, or substitute approved in accordance with B7.

E32.2.4 Accessible Picnic Table shall be supplied by the City of Winnipeg FOB Central manufacturing facility at no cost to the Contractor. Accessible Picnic Table shall be Tache Style Wheelchair Metal Frame, as per SCD-122A, with wood slats and grey tone finish with **black metal**, or substitute approved in accordance with B7.

E32.2.5 Waste Receptacle shall be supplied by the City of Winnipeg FOB Central manufacturing facility at no cost to the Contractor. Waste Receptacle shall be Metal Slat Type, **black metal**, as per SCD 119, Product #52501063BLK (metal slat WR) and Product #52501058 (Wire Basket), or substitute approved in accordance with B7, or substitute approved in accordance with B7.

### E32.2.6 Bollards

- (a) Wood post shall be 1800mm in length and 190mm to 230mm diameter pressure treated (ACQ) rough Spruce, green tone, dimensions as shown on City of Winnipeg SCD-105B. Wood shall be smooth and free of rough area
- (b) Wood post are to include a 50mm chamfer as shown on City of Winnipeg SCD-105B.
- (c) Wood Preservative to be Woodlife Coppercoat or approved alternative as per B7.
- (d) Granular backfill shall be 19mm down limestone.

E32.2.7 Contact for Benches and Waste Receptacles:

Aaron Lennon @ 204-986-5505  
Supervisor of Central Repair/Manufacturing Facility  
City of Winnipeg  
Fleet Management Agency Division  
Public Works Department  
215 Tecumseh St  
Winnipeg. MB R3E 3S4

Email: [ALennon@winnipeg.ca](mailto:ALennon@winnipeg.ca)

- E32.2.8 Contact for Picnic Tables:  
Brain Mayer @ 204-470-7747, or  
Marc Laurin @ 204-479-5489, or  
Todd Hendry @ 204-470-4834  
Centralized Park Services  
City of Winnipeg  
960 Thomas Ave.  
Winnipeg. MB  
Email: [BMayer@winnipeg.ca](mailto:BMayer@winnipeg.ca)  
Email: [MLaurin@winnipeg.ca](mailto:MLaurin@winnipeg.ca)  
Email: [THendry@winnipeg.ca](mailto:THendry@winnipeg.ca)
- E32.2.9 Bicycle Racks shall be Dero Hoop Rack As manufactured by Dero Bike Racks, surface mount, powder coated colour: black.  
(a) Mounting hardware for bicycle racks shall be cadmium plated. All site furnishings shall include the supply of maintenance kits for care and cleaning. Maintenance kits shall include maintenance manuals, complete manufacturer's parts lists, touch-up paint, an extra of each bolt, washer and any other hardware utilized, and all special tools necessary for assembly and maintenance.
- E32.2.10 Contact for Bicycle Racks:  
Jodi McLean  
Playgrounds R Us  
Box 7, Group 582, R.R. 5  
Winnipeg. MB R2C2Z2  
  
Telephone No. (204) 632-7000  
Facsimile No. (204) 632-7421
- E32.3 Construction Methods
- E32.3.1 Contractor shall obtain Benches, Picnic Tables, Accessible Picnic Table and Waste Receptacle from the City and deliver to the jobsite.
- E32.3.2 Install as per manufacture's instructions, City of Winnipeg Details and the attached drawings.
- E32.3.3 Waste Receptacles - 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.
- E32.3.4 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.
- E32.3.5 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.
- E32.3.6 All powder coating finishes shall meet or exceed ASTM standards for hardness, adhesion, impact and salt spray resistance.
- E32.3.7 Smooth all cut edge and weld joints prior to hot dip galvanizing and ensure that all tubing is free from burrs, cracks, defects and other imperfections
- E32.3.8 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.
- E32.3.9 Bollards

- (a) Install Bollards as per Drawing and SCD-105B.
- (b) Install posts in minimum 300mm diameter holes backfilled with compacted limestone.
- (c) Treat all cut ends of wood with wood preservative.
- (d) The grade of the post must be averaged over irregularities in the grade at the site in order to ensure a smooth and uniform grade. The post shall be set so that they are 900mm above finished grade.

#### E32.4 Method of Measurement and Basis of Payment

##### E32.4.1 Method of Measurement shall be as follows:

- (a) All 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.

##### E32.4.2 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.

### **E33. TIMBER SPLIT RAIL FENCE**

#### E33.1 Description

E33.1.1 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 Split Rail Fence.

#### E33.2 Material

E33.2.1 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.

E33.2.2 Wood Posts shall be ACQ pressure treated, No. 2 or better SPF, green tone, size noted on the drawings.

E33.2.3 Wood Rails shall be ACQ pressure treated, No. 2 or better Fir, green tone, size noted on the drawings.

E33.2.4 All new lag bolts and fasteners shall be galvanized coated or rustproof and rated for use with ACQ pressure treated lumber, size to suit. Lag bolts shall be min. 12mm dia. and 150mm length, c/w washers.

E33.2.5 All materials to be new and free of defects impairing strength, durability and appearance of the best commercial quality for the purpose specified;

E33.2.6 Sizes as shown on drawings. Material shall be hand picked, tight knot; straight, and free of cracks, splits and waness;

E33.2.7 Granular Base Course

- (a) Granular Base course material shall consist of 19mm down crushed limestone and shall conform to CW3110 for crushed limestone base course material.

### E33.3 Construction Methods

- E33.3.1 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.
- E33.3.2 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.
- E33.3.3 Construction method shall conform to Specification CW 3110 'Sub-grade, Sub-base and Base Course Construction'.
- E33.3.4 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.
- E33.3.5 All furnishings and fixtures to be carefully handled so that no parts will be bent, broken or otherwise damaged. Hammering, which will injure or distort fixture, is prohibited.
- E33.3.6 The wood posts are to be set in 300mm wide holes, minimum 1200mm depth, spaced a maximum of 2440 mm on centre, spacing noted on drawings.
- E33.3.7 The holes shall be backfilled with crushed limestone, compacted in 150mm lifts.
- E33.3.8 All cuts shall be treated with end cut preservative to match the factory applied treatment, and to the manufacturer's recommendations and standards.
- E33.3.9 Wood rails are to be installed with lag bolts, which are countersunk into the wood rails. Pre-drill holes for locations at rail end where wood may crack.

### E33.4 Method of Measurement and Basis of Payment

- E33.4.1 Method of Measurement shall be as follows:
  - (a) The Timber Split Rail Fence will be measured on a linear metre basis.
- E33.4.2 Basis of Payment shall be as follows:
  - (a) The Timber Split Rail Fence 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.

## E34. ENTRY FEATURE

### 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) Supply and Installation of custom powder coated airplane entry feature and galvanized posts complete with anchoring system into concrete pile.

### E34.2 Samples

- E34.2.1 Submit sample of colour of powder coating for Contract Administrator's approval. Deliver samples prepaid to Contract Administrator's business address and Notify Contract Administrator in writing, at time of submission of deviations in samples from requirements of Contract Documents.

- (a) Specific RAL and Pantone colour numbers shall be supplied by the Contract Administrator

### E34.3 Shop Drawings

E34.3.1 Contractor shall submit shop drawings for all supply items within two weeks after award of contract and prior to fabrication for review and approval by Contract Administrator.

- (a) Shop Drawings shall be stamped by a P.Eng., with a Manitoba license.
- (b) Drawings showing all sizes and dimensions, position and spacing of reinforcing, openings, connection details, layout plan, finishes, all inserts, and all other relevant information showing immediate adjacent materials for proper coordination shall be submitted to the Contract Administrator for review prior to fabrication. Five copies of all shall be provided.

### E34.4 Construction Methods

#### E34.4.1 Metal Work

- (a) Metal for airplane, poles and anchoring supports to be as dimensioned on the drawings. All metal to be as specified on drawings.
- (b) Standard angles and plates, unless otherwise specified, all steel for new members shall conform to the requirements of CSA Standard CAN/CSA-G40.21-M87, Grade 300W.
- (c) Welding consumables for all processes shall be certified by the manufacturer as complying with the requirements of the following specifications:
- (d) Manual, shielded metal arc-welding (SMAW):
- (e) All electrodes for manual, shielded metal arc welding shall conform to CSA Standard CSA W48.1-M1991 classification number E7018 for single pass tack welds and CSA W48.3-M1982, classification numbers E8016-B1, E8016-C3, E8018-B1 or E8018-C3 for final welds.
- (f) Hardware: All bolts, nuts, washers, inserts, etc., as required for a complete installation shall be stainless steel, Type 316 unless noted otherwise.
- (g) Equipment: All equipment shall be of a type approved by the Contract Administrator and shall be kept in good working order
- (h) Refer to E35 Miscellaneous Metal for Entry Feature for fabrication and finishing requirements.
- (i) Refer to E21 Concrete Formwork, E22 Cast in Place Concrete OR Drawings for Concrete Pile.

### E34.5 Method of Measurement and Basis of Payment

#### E34.5.1 Method of Measurement shall be as follows:

- (a) Entry Feature will be measured on a lump sum price. 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.
- (b) Concrete pile shall be incidental to the measurement of Entry Feature listed above and as shown on Form B: Prices.

#### E34.5.2 Basis of Payment shall be as follows:

- (a) Entry Feature 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.
- (b) No separate payment shall be made for entry feature concrete pile.

## **E35. MISCELLANEOUS METAL FOR ENTRY FEATURE**

### **E35.1 Description**

E35.1.1 This Specification shall cover supply, fabrication, galvanizing, transportation, handling and installation of miscellaneous metal, including all miscellaneous metal elements and incidental component/fasteners, as specified herein.

E35.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified.

### **E35.2 Shop Drawings**

E35.2.1 Contractor shall submit shop drawings for all supply items within two weeks after award of contract and prior to fabrication for review and approval by Contract Administrator.

E35.2.2 Shop Drawings shall be stamped by a P.Eng., with a Manitoba license.

E35.2.3 Shop drawings are to clearly indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners and accessories.

E35.2.4 Indicate welded connections using CISC standard welding symbols. Clearly indicate net weld lengths.

### **E35.3 Materials**

#### **E35.3.1 General**

- (a) The Contractor shall be responsible for the supply, safe storage and handling of all miscellaneous metal materials as set forth in this Specification.
- (b) 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.
- (c) All metals are to be new materials and free from defects impairing strength, durability and appearance of the best commercial quality for the purpose specified.
- (d) All supplied items shall be factory assembled to ensure fitment and painted with all accessories and attachments to ensure complete and operational assemblies.

#### **E35.3.2 Structural and Miscellaneous Steel**

- (a) Unless otherwise specified, all steel for new members shall meet the requirements of CAN / CSA – G40.20 / G40.21 – M92.

#### **E35.3.3 Welding**

- (a) Unless otherwise noted, all welding shall conform to the requirements of CSA Standard W59 – M1989.

#### **E35.3.4 Hardware**

- (a) All bolts, nuts, washers, inserts, etc., as required for a complete installation shall be stainless steel, Type 316 unless noted otherwise.

#### **E35.3.5 Galvanizing Touch-up**

- (a) Field-applied galvanizing, to touch-up damaged hot-dip galvanizing and to galvanize field welds, shall be done with self-fluxing, low temperature, zinc-based alloy rods in accordance with ASTM A780-80 for "Repair of Damaged Hot Dip Galvanizing Coatings".
- (b) Approved products for field touch up work are: Galvalloy as manufactured by Metalloy Products Company and Welco Galvanizing Alloy, as manufactured by Thermocote Welco. Locally, both products are available from Welder Supplies Limited, 25 McPhillips Street, Winnipeg, Manitoba.

## E35.4 Construction Methods

### E35.4.1 Structural and Miscellaneous Steel

- (a) Structural and miscellaneous steel fabrication shall be in accordance with CAN / CSA – S16.1 – M89.

### E35.4.2 Welding

- (a) Welding shall be in accordance with CSA W59 – M1989.
- (b) All welds to be 6mm unless noted otherwise.
- (c) Seal weld all joints
- (d) The welding shop must be certified and qualified in accordance with CSA W47.1 – 1983.

### E35.4.3 Welding to Galvanized Metal

- (a) All field welding to galvanized metal shall be touched up by the Galvalloy process as described in E26.6.1. All Galvalloy repairs shall be made flush with adjacent metal.

### E35.4.4 Finish

- (a) All exposed surfaces shall be smooth and free of sharp edges.
- (b) The exterior surface shall be cleaned of all grease and oil and all loose particles.
- (c) All steel shall be hot-dipped galvanized to meet the requirements of CAN / CSA G164 – M92.

### E35.4.5 Galvanizing Touch-up Procedure

- (a) Any areas of damaged galvanizing, and all field welds, are to receive field-applied galvanizing as specified herein.
- (b) Surfaces to receive field-applied galvanizing shall be cleaned using a wire brush, a light grinding action, or mild blasting to remove loose scale, rust, paint, grease, dirt, or other contaminants. Preheat the surface to 315°C and wire brush the surface during preheating. Rub the cleaned preheated area with the repair stick to deposit an evenly distributed layer of zinc alloy. Spread the alloy with a wire brush, spatula, or similar tool. Field-applied galvanizing shall be blended into existing galvanizing of surrounding surfaces and shall be buffed and polished if required to match the surrounding surfaces. Care shall be taken to not overheat surfaces beyond 400°C and to not apply direct flame to the alloy rods.

### E35.4.6 Fabrication

- (a) Contractor to verify all dimensions on site prior to shop fabrication.
- (b) Fabricate items of sizes and profiles detailed on the drawings and approved shop drawings with joints neatly fitted and properly secured.
- (c) Supply all components required for proper anchorage of miscellaneous metals. Fabricate anchorage and related components of same material and finish as metal fabrications unless otherwise noted.
- (d) Grind or file exposed welds and metal sections smooth and flush.

### E35.4.7 Installation

- (a) Install items plumb, square and level to fit accurately and maintain free from distortion or defects detrimental to appearance and performance.
- (b) Make provision for erections stresses and temporary bracing. Keep work in alignment at all times.
- (c) Replace items damaged in course of installation
- (d) Perform all field assembly, bolting and welding to match standard of shop bolting and welding.

- (e) After installation, touch up field bolts, nuts, welds, and scratched and damaged painted surfaces.
- (f) Install all items as indicated on the drawings.

**E35.5 Measurement and Payment**

- E35.5.1 No separate allowance will be made for metal fabrication, supply, finish and installation. All costs associated with the work in this section shall be included in the individual unit prices for work itemized in "Form B" prices.

**E36. TREE PLANTING**

**E36.1 Description**

- E36.1.1 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.

- E36.1.2 Work shall include, but not necessarily confined to, the supply and installation of topsoil, mulch and trees as indicated on the drawings.

**E36.2 General**

**E36.2.1 Reference**

- (a) All plants shall be supplied and installed as per the Canadian Standards for Nursery Stock Current Edition, published by the Canadian Nursery Trades Association, except where specified otherwise.

**E36.2.2 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.

**E36.2.3 Maintenance**

- (a) The Contractor shall be responsible for the maintenance of the trees for a period of two (2) years from the date of Total 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 weekly.
- (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 weekly 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.

#### E36.2.4 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 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 two (2) years if, at the end of the Warranty Period, leaf development and growth are not sufficient to ensure future survival of the plant material.

#### E36.2.5 Replacements

- (a) During the Warranty 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 trees shall be replaced within three (3) days of notification to the Contractor, unless otherwise agreed to by the City and Contract Administrator.
- (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.

### E36.3 Materials

#### E36.3.1 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.

#### E36.3.2 Mulch

- (a) Bark Mulch shall be Eco-mulch, colour: brown

#### E36.3.3 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.

#### E36.3.4 Plant Material

- (a) All nursery stock supplied shall be Canadian Prairie nursery grown, and of species and sizes indicated in the plant list on the drawings. Its quality shall be in accordance with the "Guide Specification for Nursery Stock of the Canadian Nursery Trades Association".
- (b) Any nursery stock dug from native stands, wood lots, orchards, or neglected nurseries and which have not received proper cultural maintenance as advocated by the Canadian Nursery Trades Association shall be designated as "collected plants". The use of "collected plants" will not be permitted unless specified below.
- (c) Nomenclature of specified nursery stock shall conform to the International Code of Nomenclature for Cultivated Plants and shall be in accordance with the approved scientific names given in the latest edition of Standardized Plant Names. The names of varieties not named therein are generally in conformity with the names accepted in the nursery trade.
- (d) Plants larger than specified may be used if approved by the Contract Administrator. The use of such plants shall not increase the Contract price.
- (e) Plants shall be free of disease, insect infestation, rodent damage, or environmental stress.
- (f) Trees:
  - (i) 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;
  - (ii) 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;
  - (iii) To have all parts, especially lower branches, moist and show live, green cambium tissue when cut;
  - (iv) Single stem trees to have only one, sturdy, reasonably straight and vertical trunk, and a well balanced crown with fully developed leader.
  - (v) 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;
  - (vi) 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;
  - (vii) 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.
  - (viii) 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.

- (ix) 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.
- (x) 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.
- (xi) Use of collected or native trees is not permitted.

#### E36.3.5 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 List.
- (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.

#### E36.3.6 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.

#### E36.4 Construction Methods

##### E36.4.1 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.

#### E36.4.2 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.

#### E36.4.3 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.

#### E36.4.4 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 City of his representative. Trees shall be placed equal to depth they were originally growing in nursery.

#### E36.4.5 Fertilizing

- (a) 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.

#### E36.4.6 Trunk Protection

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

**E36.4.7 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.

**E36.4.8 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) 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.

**E36.5 Method of Measurement**

**E36.5.1** Installation of trees shall be measured on a per unit basis. The amount to be paid for shall be the total number of trees supplied and installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

**E36.6 Basis of Payment**

**E36.6.1** Payment for Installation of trees shall be paid for at the Contract Unit Prices for the "Items of Work" listed below. 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.

Items of Work:

- (a) Tree Planting
- (b) One year Plant Maintenance

**E37. TOPSOIL AND SOD**

**E37.1 Description**

**E37.1.1** The specification shall amend and supplement City of Winnipeg specification CW 3510 and CW 3540.

**E37.1.2** 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.

**E37.2 Materials and Construction Methods**

**E37.2.1** The Contractor shall install topsoil and sod in any existing play areas where material is removed and not re-established as play area, or where play surfacing is not proposed.

**E37.2.2** Play equipment areas: The Contractor shall install topsoil and sod around the perimeter of newly cribbed areas to clean up turf disturbed by the Work. Sod and topsoil shall be installed as shown on Drawings and with a distance of a maximum of 500mm from the edging as per Drawings.

E37.2.3 The Contractor shall install topsoil and sod in any existing pathway area where material is removed and not re-established as pathway.

E37.2.4 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.

### E37.3 Method of Measurement

E37.3.1 Supply, placement and maintenance of topsoil and sod 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.

### E37.4 Basis of Payment

E37.4.1 Supply, placement and maintenance of topsoil and sod will be paid for at the Contract Unit Prices as indicated on Form B: Prices. 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.