



**THE CITY OF WINNIPEG**

# **BID OPPORTUNITY**

**BID OPPORTUNITY NO. 705-2016**

**BONNYCASTLE PARK IMPROVEMENT**

## TABLE OF CONTENTS

### PART A - BID SUBMISSION

Form A: Bid	1
Form B: Prices	3

### PART B - BIDDING PROCEDURES

B1. Contract Title	1
B2. Submission Deadline	1
B3. Site Investigation	1
B4. Enquiries	1
B5. Confidentiality	1
B6. Addenda	2
B7. Substitutes	2
B8. Bid Components	3
B9. Bid	4
B10. Prices	4
B11. Disclosure	4
B12. Qualification	5
B13. Opening of Bids and Release of Information	6
B14. Irrevocable Bid	6
B15. Withdrawal of Bids	6
B16. Evaluation of Bids	7
B17. Award of Contract	7

### PART C - GENERAL CONDITIONS

C0. General Conditions	1
------------------------	---

### PART D - SUPPLEMENTAL CONDITIONS

#### General

D1. General Conditions	1
D2. Scope of Work	1
D3. Definitions	1
D4. Contract Administrator	1
D5. Contractor's Supervisor	1
D6. Ownership of Information, Confidentiality and Non Disclosure	1
D7. Notices	2

#### Submissions

D8. Authority to Carry on Business	2
D9. Safe Work Plan	3
D10. Insurance	3
D11. Performance Security	3
D12. Subcontractor List	4

#### Schedule of Work

D13. Commencement	4
D14. Substantial Performance	4
D15. Total Performance	5
D16. Liquidated Damages	5
D17. Scheduled Maintenance	5

#### Control of Work

D18. Job Meetings	5
D19. Prime Contractor – The Workplace Safety and Health Act (Manitoba)	6
D20. The Workplace Safety and Health Act (Manitoba) – Qualifications	6

#### Measurement and Payment

D21. Payment	6
--------------	---

**Warranty**

D22. Warranty	6
Form H1: Performance Bond	7
Form H2: Irrevocable Standby Letter of Credit	9
Form J: Subcontractor List	11

**PART E - SPECIFICATIONS**

**General**

E1. Applicable Specifications and Drawings	1
E2. Pre-Construction Meeting	1
E3. Site Access	1
E4. Pedestrian Safety and Traffic Management	2
E5. Site Condition	2
E6. Protection of Existing Trees	2
E7. Existing Services and Utilities	3
E8. Permits, Notices, Licenses, Certificates, Laws and Rules	4
E9. Protection of Survey Infrastructure	4
E10. Stakes and Marks	4
E11. Site Enclosures	5
E12. Product Approvals	5
E13. Submittals	5

**Site Development**

E14. Removals and Site preparation	6
E15. Earthwork and Grading	8
E16. Base Course Material	9
E17. Concrete Formwork	10
E18. Pour In Place Concrete	12
E19. Pre-Cast Concrete Paving Slabs	15
E20. Site Furniture	16
E21. Fill Station and Hose Bibb	17
E22. Welded wire Fence and Gates	19
E23. Custom Laser Cut Entry Fence and Gate	21
E24. Miscellaneous Metal	23
E25. Bonnycastle Bench	25
E26. Electrical and Lighting	26
E27. Planting Bed Preparation	27
E28. Planting of Trees and Shrubs	28
E29. Artificial Turf	34
E30. Surface Restoration	38
E31. Site Clean Up	38

## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 BONNYCASTLE PARK IMPROVEMENT

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, July 6, 2017.

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 D3.1(a).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 B16.
- 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.

## **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.
- 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 B16.1(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.
- B10.2 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. DISCLOSURE**

- B11.1 Various Persons provided information or services with respect to this Work. In the City's opinion, this relationship or association does not create a conflict of interest because of this full

disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.

B11.2 The Persons are:

- (a) Anthony Militano (Barkman Concrete)
- (b) Shelley Baker (Tom Beggs Agencies)
- (c) Wallace and Wallace Fencing

## **B12. QUALIFICATION**

B12.1 The Bidder shall:

- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba; 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.

B12.2 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>

B12.3 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);

B12.4 Further to B12.3(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/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

- (a) Written confirmation of a safety and health certification meeting SAFE Work Manitoba's SAFE Work Certified Standard (e.g., COR™ and SECOR™) or
  - (i) 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
  - (ii) 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
- (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>.)

B12.5 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.

B12.6 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.

### **B13. OPENING OF BIDS AND RELEASE OF INFORMATION**

B13.1 Bids will not be opened publicly.

B13.2 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>

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

B13.4 The Bidder is advised that any information contained in any Bid may be released if required by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law or by City policy or procedures (which may include access by members of City Council).

### **B14. IRREVOCABLE BID**

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

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

### **B15. WITHDRAWAL OF BIDS**

B15.1 A Bidder may withdraw his/her Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

B15.1.1 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.

B15.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid, and only such person, has authority to give notice of withdrawal.

B15.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials 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 B15.1.3(b), declare the Bid withdrawn.

B15.2 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 B14.2 shall be liable for such damages as are

imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law.

## **B16. EVALUATION OF BIDS**

B16.1 Award of the Contract shall be based on the following bid evaluation criteria:

- (a) compliance by the Bidder with the requirements of the Bid Opportunity or acceptable deviation there from (pass/fail);
- (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to (a) (pass/fail);
- (c) Total Bid Price;
- (d) economic analysis of any approved alternative pursuant to B7.

B16.2 Further to B16.1(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.

B16.3 Further to B16.1(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.

B16.4 Further to B16.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices adjusted, if necessary, as follows:

- (a) if the lowest evaluated responsive Bid submitted by a responsible and qualified Bidder is within the budgetary provision for the Work, no adjustment will be made to the Total Bid Price; or
- (b) if the lowest evaluated responsive Bid submitted by a responsible and qualified Bidder exceeds the budgetary provision for the Work, the Total Bid Prices of all responsive Bids submitted by responsible and qualified Bidders will be adjusted by progressively deducting item(s) Item 19 – Twig Benches, Item 17 – Custom Bonnycastle Bench and Item 21 - Elkay Bottle Fill Station in the order listed, until a Total Bid Price within the budgetary provision is achieved.

B16.4.1 Further to B16.1(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.

## **B17. AWARD OF CONTRACT**

B17.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

B17.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.

B17.2.1 Without limiting the generality of B17.2, the City will have no obligation to award a Contract where:

- (a) the prices exceed the available City funds for the Work;
- (b) the prices are materially in excess of the prices received for similar work in the past;
- (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
- (d) only one Bid is received; or

(e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.

- B17.3 The Work of this Contract is contingent upon Council approval of sufficient funding in the 2017 Capital Budget. If the Capital Budget approved by Council does not include sufficient funding for the Work, the City will have no obligation to award a Contract.
- B17.4 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 B16.
- B17.4.1 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.
- B17.5 Notwithstanding C4, the City may issue a Purchase Order to the successful Bidder in lieu of the execution of a Contract.
- B17.6 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 Site Improvement and Dog Park Development of Bonnycastle Park at 260 Assiniboine Avenue.

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

- (a) Removal and disposal of existing bases and surfaces;
- (b) Excavation, Earthwork and Grading;
- (c) Supply and installation of paving;
- (d) Supply and installation of fences, gates and site furnishings;
- (e) Supply and installation of light standard;
- (f) Supply and installation of water fill station and hose connections; and
- (g) Supply and installation of plant materials and artificial turf.

#### **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. Derek Murray  
Landscape Architect

Telephone No. 204 927-3444

Email Address [dmurray@scatliff.ca](mailto:dmurray@scatliff.ca)

D4.2 At the pre-construction meeting, Mr. Murray 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.

#### **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 D3.1(a).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
- D7.1 Bids Submissions must not be submitted to the above facsimile numbers. Bids must be submitted in accordance with B8.**

## **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/matmgmt/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 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, referencing the bid number or the specific operations to be performed, 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 commence the Work on the Site within seven (7) Working Days of receipt of the Purchase Order.

### **D14. SUBSTANTIAL PERFORMANCE**

D14.1 The Contractor shall achieve Substantial Performance within Forty-Five (45) 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 re-inspected.

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 Sixty (60) 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 re-inspected.
- 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 Total Performance in accordance with the Contract by the day fixed herein for Total Performance, the Contractor shall pay the City Two-Hundreds dollars (\$200) per Working Day for each and every Working Day following the day fixed herein for Total 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 Total 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 specified in E28.
- 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 B12.4, 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 B12.4.

**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. 705-2016

BONNYCASTLE PARK IMPROVEMENT

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)



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	General Instruction
CW 1120	Existing Services, Utilities and Structures
CW 1130	Site Requirements
CW 2030	Excavation Bedding and Backfill
CW 3160	Concrete Underground Structure and Works
CW 3010	Clearing and Grubbing
CW 3110	Sub-Grade, Sub-Base and Base Course Construction
CW 3130	Supply and Installation of Geotextile Fabrics
CW 3170	Earthwork and Grading
CW 3310	Portland Cement Concrete Pavement Works
CW 3325	Portland Cement Concrete Sidewalk
CW 3540	Topsoil and Finish Grading for the Establishment of Turf Areas

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
L1	Existing and Removal Plan
L2	Site Plan
L3	Layout Plan
L4	Grading Plan
L5	Planting Plan
L6	Landscape Details 1
L7	Landscape Details 2
E1-00	Electrical Site Plan
E2-00	Electrical Symbol Legend, Drawings List, Details and Schedules
E3-00	Electrical Specifications

#### 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-R2, 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-R1.

E7.2 Other than required to be done by the Contractor under the Work of this Contract, all necessary precautions shall be exercised by the Contractor so as not to remove, disturb, or damage any existing plant material, pavements, streets, roads, boulevards, light standards, hydro poles, fences, fire hydrants, culverts, water pipes, gas pipes, electrical wires, cables, conduits, sewers or other existing facilities and equipment at the Site of the Work. For all damage incurred in the performance of the Work (either directly or indirectly), the Contractor shall either replace and repair such damage, whichever may be deemed necessary in the opinion of, and acceptable to the Contract Administrator, and the cost of which shall be borne entirely by the Contractor. The Contractor shall also indemnify and save harmless the City from all claims made directly or indirectly against it in respect to any such damage.

E7.3 The Contractor's attention is drawn to the existing underground lines or services that may be located in the area of the Work.

E7.4 The Contractor shall take all necessary precautions when performing the Work to ensure that no damage is done to these existing services.

E7.5 No responsibility will be assumed by the City for correctness or completeness of the Drawings, when provided, with respect to the existing utilities, pipes or other objects either underground or on the surface; the City shall not be liable for the incorrectness and inadequacy thereof. It shall be the responsibility of the Contractor to determine the location of all such utilities, pipes and other objects and to make good any damage done to them.

E7.6 All costs in connection with this item including location of the existing service, repairs to any existing services damaged by the construction operation, etc. shall be included in the Unit Prices bid for supply and installation of the items included under this Contract.

E7.7 The Contractor will be required to make his own arrangements in connection with the temporary use of lighting, power, gas, sewer, water or other utilities, and pay all costs in connection therewith.

E7.8 All necessary permits, fees and other like expenses as well as the cost of temporary connections to existing facilities shall be arranged and paid for by the Contractor.

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

E8.1 Further to C6.12, the Contractor shall give all necessary notices, obtain all necessary permits and pay all fees in order that the Work may be carried out. The Contractor shall submit all plans required by any inspection authority and obtain approval of same before proceeding with the Work, and pay any cost attached to the inspection of such plans.

E8.2 The Contractor shall comply with all laws, ordinances, rules and regulations that would relate to the Work.

E8.3 All notices, consents, approvals, statements, authorizations, documents or other communications to the City shall be submitted to the Contract Administrator.

E8.4 All Work shall be performed in compliance with the Manitoba Workplace Health and Safety Act.

E8.5 All Work shall be performed in compliance with the Manitoba Workplace Health and Safety Fall Protection guidelines.

E8.6 The Contractor and Sub-Contractors must be fully aware of all Work involving hazardous materials. All Work must be performed in compliance with the Manitoba Department of Labour Workplace Health and Safety Guidelines and all other applicable codes. The Contractor is responsible for the immediate notification to the Contract Administrator of his/her encountering of suspected hazardous material during their course of Work.

**E9. PROTECTION OF SURVEY INFRASTRUCTURE**

E9.1 Notwithstanding clause 4 "Protection of Survey Bars" of the Standard Provisions; Current legislation, The Surveys Act, places the onus on those undertaking construction to protect the Survey Infrastructure from damage as a result of their activity.

E9.2 Further to C:6.26 (g), at least 72 hours prior to the commencement of the On-Site Work the Contractor shall contact the City of Winnipeg, Geomatics Services Branch at 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 and 1.83m ht. Metal Construction Fence 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. SUBMITTALS**

- E13.1 Contractor to submit to Contract Administrator product samples and other requirements as listed below for review and approval prior to commencement of associated Works.
- E13.2 Contractor to submit with reasonable promptness and in orderly sequence so as not to cause delays in Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed. Notify Contract Administrator in writing at time of submission, identifying deviations from requirements of Contract Documents and stating reasons for deviations.
- E13.3 Work affected by submittal shall not proceed until review and approval by the Contract Administrator.
- E13.4 Contractor's responsibility for errors and omissions in submission is not relieved by the Contract Administrator's review of submittals.

### E13.5 PRODUCT SAMPLES

- a) The Contractor shall supply representative samples of:
  - i) Artificial Turf
  - ii) Barkman Travertine Tile
  - iii) The Contractor shall fabricate a 300mm x 300mm sample of the gate's laser cut infill panel and dog silhouettes prior to the commencement of any Work related to the overall fabrication of laser cut gate.
- b) Contractor to supply product samples a minimum of 5 (five) Working Days prior to placing material order. No Product order shall be placed prior to approval by Contract Administrator.

### E13.6 SHOP DRAWINGS

- a) The Contractor shall supply shop drawings for review and approval by the Contract Administrator in accordance with Specifications:
  - a. E23. Custom Laser Cut Entry Fence & Gate
  - b. E25. Bonnycastle Bench
  - c. E29. Artificial Turf Sub-surface drainage system
- b) Contractor to verify all dimensions and conditions on site prior to the submission of shop drawings.
- c) Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design Drawings and Specifications.
- d) Shop Drawings shall be provided to Contract Administrator a minimum of ten (10) Working Days prior to scheduled fabrication to allow sufficient time for necessary review, comment, revision and approval.

## SITE DEVELOPMENT

### E14. REMOVALS AND SITE PREPARATION

#### E14.1 Description

- E14.1.1 This Specification is supplemental to CW 3010 "Cleaning and Grubbing".
- E14.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as herein specified.
- E14.1.3 Work shall include, but not necessarily confined to, the following:
  - (a) Salvage and stockpile suitable, approved material on Site for reuse (including but not necessarily limited to 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;
  - (b) Remove and legally dispose of existing site elements as per Drawing L1;

- (c) Pruning of existing trees and shrub as per Drawing L1;
- (d) Relocation of Existing Bike Rack as per Drawing L1 & L2;
- (e) Relocation of four (4) Existing Planters as per Drawing L1 & L2.

## E14.2 Construction Methods

### E14.2.1 General

- (a) 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.
- (b) 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.
- (c) The Contractor shall remove paving to full depth of base course material.
- (d) 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.
- (e) Prevent damage to surface or underground utility lines which are to remain. Make good any damage.
- (f) Do not disturb soil within branch spread of trees to remain.
- (g) All extraneous materials to be removed from the Site and disposed of in a safe and legal manner.
- (h) Contractor must coordinate with the Contract Administrator for a site inspection to ensure all removals have occurred.

### E14.2.2 Removal of Existing Elements

- (a) The Contractor shall remove and legally dispose off-site elements as indicated on Drawing L1.
- (b) Sawcut existing Asphalt Paving to ensure smooth transition with new paving area.

### E14.2.3 Pruning

- (a) Prune existing trees and shrub to extent as directed by Contract Administrator.
- (b) The Contractor shall provide a licensed Manitoba Certified Arborist for each work crew or work Site.
- (c) Employ clean sharp tools and make cuts flush with branch collars. Remove dead and injured branches.

## E14.3 Method of Measurement

- E14.3.1 Removals and Site Preparation is a lump sum bid item. No measurement will be made for this work.
- E14.3.2 Pruning and Removal of Existing Trees and Shrubs is a lump sum bid item. No measurement will be made for this work.
- E14.3.3 Relocation of Bike Rack and Planters shall be consider incidental to the Unit Price for "Site Preparation & Grading", and no separate measurement or payment shall be made.

## E14.4 Basis of Payment

- E14.4.1 Removals and Site Preparation and related Work will be paid for at the Contract Lump Sum Prices for "Site Preparation & Grading". 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.

E14.4.2 Pruning and Removal of Existing Trees and Shrubs and related Work will be paid for at the Contract Lump Sum Prices for "Pruning and Removal of Existing Shrub and Trees". 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.

## **E15. EARTHWORK AND GRADING**

### **E15.1 Description**

E15.1.1 This Specification shall amend and supplement CW 3110 "Sub-grade, Sub-base and Base Course Construction" and CW 3170 "Earthwork and Grading".

E15.1.2 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.

E15.1.3 Work shall include, but not necessarily be confined to, the following:

- (a) Excavation, removals, saw cutting, disposal, subgrade compaction and rough grading of the existing Site for the construction of paving areas, turf areas and planting 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) Earthwork and grading of the Site (cut and fill including compaction of subgrade and fill material) to ensure positive drainage in accordance with specifications and drawings;

### **E15.2 Materials**

E15.2.1 All imported and salvaged fill materials shall conform to CW 3170.

### **E15.3 Construction Methods**

E15.3.1 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.

E15.3.2 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".

E15.3.3 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.

E15.3.4 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 Earthwork and Grading.

E15.3.5 The Contractor shall excavate topsoil as per Section 4.3 of CW 3110. Topsoil excavation is incidental to the unit price bid for Earthwork and Grading.

E15.3.6 Except for drainage trench, 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 trench, swales, berms, embankments and field shall be gently contoured as directed by the Contract Administrator to provide future ease of maintenance operation.

E15.3.7 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.

- E15.3.8 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 Earthwork and Grading.
- E15.3.9 Prevent damage to surface or underground utility lines which are to remain. Make good any damage.
- E15.3.10 Do not disturb soil within branch spread of trees to remain, unless otherwise agreed to by the City and the Contract Administrator.
- E15.3.11 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.
- E15.3.12 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.
- E15.3.13 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.
- E15.3.14 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.

E15.4 Method of Measurement and Basis of Payment

- E15.4.1 Earthwork and Grading shall be consider incidental to the Unit Price for "Site Preparation & Grading", and no separate measurement or payment shall be made.

**E16. BASE COURSE MATERIAL**

- E16.1 The Specification shall supplement Standard Construction Specification CW 3110 "Sub-Grade, Sub-Base and Base Course Construction" and CW 3130 "Supply and Installation of Geotextile Fabric".
- E16.2 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.

- E16.3 There will be no separate measurement and payment for supply and placement of sub-base. All Work shall be considered incidental to this specification.
- E16.4 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.
- E16.5 There will be no separate measurement and payment for compaction. All Work shall be considered incidental to this specification.
- E16.6 All costs in connection with the testing and approval of base courses shall be considered incidental to this specification.
- E16.7 Method of Measurement and Basis of Payment
- E16.7.1 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.

**E17. CONCRETE FORMWORK**

E17.1 Description

- E17.1.1 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".

E17.2 Reference Standards

- (a) All concrete formwork is to be done in accordance with CAN/CSA-A23.1 and CAN/CSA-A23.2

E17.3 Materials

- E17.4 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.

- E17.5 Form ties: removal or snap-off metal ties, fixed or adjustable length, free of devices leaving holes larger than 25mm dia in concrete surface

- E17.6 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.

E17.7 Construction Methods

E17.7.1 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.

#### E17.7.2 Form Removal

- (a) The Contract Administrator must be notified at least 24 hours prior to form removal and give approval prior to beginning work.

#### E17.7.3 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 is diameter shall be done under this Specification.

#### E17.7.4 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.

#### E17.7.5 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.

**E17.7.6 Access**

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

**E17.8 Measurement and Payment**

E17.9 The supply and installation of Concrete Formwork will be considered incidental to the supply and placement of Pour-in-Place Concrete, acceptably installed in accordance with this Specification and accepted by the Contract Administrator, and no separate payment will be made.

**E18. POUR IN PLACE CONCRETE**

**E18.1 Description**

E18.1.1 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".

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

- (a) Supply and installation of Concrete Pavement;
- (b) Artificial Turf Mounting Curb
- (c) Supply and installation of Concrete Raised Planter;
- (d) Supply and installation of Concrete Pile for Gate & Fences
- (e) Supply and installation of all related geotextile fabric, base course and reinforcing as indicated on the Drawings.

**E18.2 Related Sections**

E18.2.1 All Concrete formwork to be done in accordance with CAN/CSA-A23.1-M77 and CAN/CSA-A23.2, except where specified otherwise.

**E18.3 Materials**

E18.3.1 Portland Cement to CAN3-A5-M 1983 and CW 3310.

E18.3.2 Sub Base and Base Course as per CW 3110

E18.3.3 Geotextile fabric shall be in accordance with CW 3130.

E18.3.4 Planter Insulation shall be 51mm (2") thick rigid polystyrene.

E18.3.5 Planter drain pipe shall be 25mm diameter PVC pipe.

E18.3.6 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.

E18.3.7 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.

E18.3.8 Accessories and Application Equipment: As per manufacturers specifications.

E18.3.9 Pre-molded joint fillers: Flexcell Expansion Joint Filler

#### E18.3.10 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:
    - 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

E18.3.11 Reinforcing shall be as indicated on Drawings.

#### E18.4 Construction Methods

##### E18.4.1 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.
- (e) All concrete paving, planters and piles to conform to CW3310 and the Drawings.
- (f) Contractor to sawcut existing asphalt pathway to meet edge of new concrete pavement, ensure smooth transition.
- (g) Concrete pavement shall be a smooth towelled finished.

##### E18.4.2 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.

##### E18.4.3 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.

##### E18.4.4 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.

E18.4.5 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.

E18.4.6 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.

E18.4.7 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

E18.4.8 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 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 artificial turf 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) Also refer to note on the Drawings, E27 Planting Bed Preparation and E28 Planting of Trees and Shrub

E18.4.9 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.

#### E18.5 Method of Measurement

- E18.5.1 Pour in Place Concrete Pavement 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
- E18.5.2 Concrete Raised Planters shall 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.
- E18.5.3 Concrete Piles for Gate and Fences shall be considered incidental to the Unit Price for Gate and Fences and no separate measurement and payment shall be made.

#### E18.6 Basis of Payment

- E18.6.1 Pour in Place Concrete Pavement will be paid for at the Contract Unit price and measured as specified herein. The price shall be payment in full 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
- E18.6.2 Concrete Raised Planters will be paid for at the Contract Unit price and measured as specified herein. The price shall be payment in full 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.

### **E19. PRE-CAST CONCRETE PAVING SLABS**

#### E19.1 Description

- E19.1.1 The specification shall supplement Specification CW 3330 "Installation of Interlocking Paving Stones".
- E19.1.2 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 pre-cast concrete paving slabs.
- E19.1.3 Submit Full size sample of paving slabs 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

#### E19.2 Material

- E19.2.1 Barkman Travertine Paving Tile, 596 x 596 x 51mm (24 x 24 x 2"), Color: Ivory.

#### E19.3 Construction Methods

- E19.3.1 Install Pre-Cast Concrete Slabs on compacted and levelled subgrade to elevations approved by the Contract Administrator.

#### E19.4 Method of Measurement

E19.4.1 Pre-Cast Concrete Slabs shall be measured on a unit basis. The number to be paid for shall be the total number of pre-cast concrete slabs that are installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

#### E19.5 Basis of Payment

E19.5.1 Pre-Cast Concrete Slabs will be paid for at the Contract Unit Prices for Item "Pre-Cast Concrete Slabs" on Form B: 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.

### E20. SITE FURNITURE

#### E20.1 Description

E20.1.1 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 Twig Bench (4);
- (b) Supply and Installation of In-Ground Waste Bins (2).

#### 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.

#### E20.2.2 Twig Bench

(a) Twig Bench shall be Landscape Forms Twig Bench, or approved equal in accordance with B7.

(b) Contact for Twig Bench:

Lee Day  
Landscape Forms  
P: (416) 968-6655  
F: (416) 968-1944  
M: (416) 821-4710  
Email: [LeeD@landscapeforms.com](mailto:LeeD@landscapeforms.com)  
Website: <http://www.landscapeforms.com/en-US/product/Pages/Escofet-Twig.aspx>

#### E20.2.3 In-Ground Waste Bin

(a) In-Ground Waste Bin shall be Alfa Mini 82, Colour: Black, or approved equal in accordance with B7.

(b) Contact for Alfa Mini 82:

ALFA Products Inc.  
P: 1-800-665-7487  
F: (204) 694-7133  
Email: [info@eqnx.biz](mailto:info@eqnx.biz)  
Website: <http://www.eqnx.biz/alfa/mini.html>

#### E20.3 Construction Methods

E20.3.1 Install as per manufacturer's instructions.

- E20.3.2 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.
- E20.3.3 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.
- E20.3.4 All powder coating finishes shall meet or exceed ASTM standards for hardness, adhesion, impact and salt spray resistance.
- E20.3.5 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
- E20.3.6 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.
- E20.4 Method of Measurement and Basis of Payment
- E20.4.1 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.
- E20.4.2 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.

## **E21. FILL STATION AND HOSE BIBB**

- E21.1 Description
- E21.1.1 This specification shall supplement the on-sheet Civil Specifications for all fabrication and installation of components and the supply and installation of fixtures.
- E21.1.2 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 all material needed for proper connection and installation of a Water Bottle Fill Station and Hose Bibbs.
- E21.2 Materials
- E21.2.1 Fill Station
- (a) Fill Station shall be Elkay Outdoor EZH2O Bottle Filling Station Pedestal, Non-Filtered Non-Refrigerated Freeze Resistant, Model #: LK4400BFFRK, Colour: Gray, or approved equal in accordance with B7.
  - (b) Contact for Fill Station:
    - Shelley Baker
    - Tom Beggs Agencies
    - 6-2166 Notre Dame Ave., Winnipeg, MB, R3H 0K2
    - P: (204) 953-1900
    - F: (204) 774-6915
    - Email: [shelleybaker@mts.net](mailto:shelleybaker@mts.net)
    - Website: <http://www.elkay.com/drinking-solutions/lk4400bfrk>

- E21.2.2 Hose Bibb
- (a) Hose Bibb as per on-sheet Civil Drawing and Specifications.
- E21.2.3 Protection
- (a) The Contractor shall be responsible for the supply, safe storage and handling of all materials as set forth in this Specification.
  - (b) Prevent damage to roadways and sidewalk, landscaping, buildings, underground and surface or sub-surface utilities.
- E21.2.4 Quality Assurance
- (a) All workmanship and all materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Consultant including all operations from the selection and production of materials through to final acceptance of the specified Work.
  - (b) 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 Consultant reserves the right to reject any materials or Works that are not in accordance with the requirements of this Specification.
- E21.2.5 General Workmanship
- (a) Finish all work straight, even, smooth and free of any defects to approved dimensions and details.
- E21.2.6 Unacceptable Work
- (a) Any Work found to be unacceptable shall be immediately brought to the attention of the Contract Administrator and shall be corrected in accordance with A.W.S. D1.1, Subsection 3.7.
  - (b) No repair shall be made until agreed to by the Consultant.
- E21.2.7 General
- (a) Unless detailed or specified otherwise, standard products will be acceptable if construction details and installation meet intent of Drawings and Specifications in the opinion of the Contract Administrator.
- E21.3 Construction Methods
- E21.3.1 Transportation, Handling and Storage
- (a) Components shall be loaded in such a manner that they can be transported and unloaded at their destination without being excessively stressed, deformed or otherwise damaged.
  - (b) Material to be temporarily stored shall be placed on skids above the ground. Skids shall be kept clean and properly drained. Long members shall be supported on skids placed near enough to prevent injury from deflection.
- E21.3.2 Fill Station Installation
- (a) Fill Station shall be installed as indicated in Drawings and Manufacturer's Specifications. Layout shall be marked on site and verified by Contract Administrator prior to excavation.
  - (b) Fill Station shall be installed plumb.
- E21.4 Method of Measurement and Basis of Payment
- E21.4.1 Method of Measurement shall be as follows:
- (a) Fill Station will be measured as a lump sum bid item. No measurement will be made for this work

- (b) Hose Bibbs 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.

E21.4.2 Basis of Payment shall be as follows:

- (a) Fill Station 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, including base, piping, connections 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) Hose Bibbs 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, including base, piping, connections, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

**E22. WELDED WIRE FENCE AND GATES**

E22.1 Description

E22.1.1 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) 1.22m ht. Pallas Welded Wire Perimeter Fence
- (b) 1.22m ht. Pallas Welded Wire Fence – 300 Assiniboine Extension
- (c) Gate B - 1.07m ht., 1.50m opening Pallas Welded Wire Fence Self Closing Single Gate
- (d) Gate C - 1.22m ht., 1.22m opening Pallas Welded Wire Fence Self Closing Single Gate
- (e) Gate D - 1.22m ht., Two (2) 1.22m wide (2.44m opening) Pallas Welded Wire Fence Self Closing Double Gate
- (f) Gate E - 1.22m ht., Two (2) 1.22m wide (2.44m opening) Pallas Welded Wire Fence Self Closing Double Gate – 300 Assiniboine Extension
- (g) Powder coating of all fence, gates, hardware and panels, unless otherwise noted.

E22.2 Materials

E22.2.1 General

- (a) The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification.
- (b) All materials shall conform to the Canadian General Standards Board (CGSB) Specifications CAN 2-138.1 and CAN 2-138.2.
- (c) If requested by the Contract Administrator, the Contractor shall supply shop drawings of all gates to be supplied prior to manufacture for the Contract Administrator's approval.

E22.2.2 Welded Wire Fencing and Gates

- (a) Pallas Double Wire Welded Wire Fencing, powdercoat: black, or approved equal in accordance with B7.
- (b) Contact for Pallas Fencing:  
Wallace and Wallace.  
P: [204-452-2700](tel:204-452-2700)  
F: (204-284-1868

Website: <http://wallacefences.com/commercial/welded-wire/pallas#features>

#### E22.2.3 Swing Gates

- (a) Swing Gates shall be supplied and installed complete with approved hinges, latches, chain holdbacks, and a gate latch suitable for padlock, which is accessible from either side.
- (b) Hinges shall permit the gate to swing back 180 degrees in line with the fence.
- (c) Hinges shall not protrude into the gate opening.

#### E22.3 Construction Methods

##### E22.3.1 General

- (a) The Contractor shall install welded fence in accordance with the drawings and the Canadian General Standards Board Specification CAN 2-138.3.
- (b) Layout shall be marked on site and approved by Contract Administrator prior to excavation.
- (c) Alignment shown on the drawings is for general arrangement only. Prior to construction, meet with the Contract Administrator to select the most appropriate alignment, and sequence of installation in order to mitigate the amount of clearing and grubbing necessary, and restrict access to the construction site.

##### E22.3.2 Alignment

- (a) Prior to any performing any work, meet with Contract Administrator to review alignment and extents of clearing and grubbing.

##### E22.3.3 Post Installation

- (a) Line posts except where otherwise specified, shall be installed to a minimum depth of 1220mm.
- (b) Posts shall be plumbed and set to give correct alignment.
- (c) Bending of posts to give correct alignment is not acceptable.
- (d) Maximum spacing between posts shall not exceed 3.0 metres.

##### E22.3.4 Corner Posts

- (a) Install corner posts where change in alignment exceeds 10°.

##### E22.3.5 Braces

- (a) Install horizontal braces between end and gate posts and nearest line posts, placed in centre of panel and parallel to ground surface.
- (b) Install braces on both sides of corner and straining posts in similar manner.

##### E22.3.6 Welded Wire Panel Installation

- (a) Welded wire panels must be installed 25mm off the ground, Where the ground is sloping the bottom of the panel must run parallel to the ground at all times too prevent locations for dog's to escape.

#### E22.4 Method of Measurement and Basis of Payment

##### E22.4.1 Method of Measurement shall be as follows:

- (a) Welded Fence will be measured on a per linear metre measure basis. The total unit to be paid for shall be the total number of linear metres that are installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.
- (b) Welded Gate 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.

**E22.4.2** Basis of Payment shall be as follows:

- (a) Welded Fence will be paid for at the Contract Unit Price per metre measured 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.
  - (i) Pallas Welded Wire Perimeter Fence (1.22m ht.)
  - (ii) 300 Assiniboine Extension - Pallas Welded Wire Perimeter Fence (1.22m ht.)
- (b) Welded Gates will be paid for at the Contract Unit Price per item measured 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.
  - (i) Gate B - Pallas Welded Wire Fence Self Closing Single Gate (1.07m ht., 1.50m opening)
  - (ii) Gate C - Pallas Welded Wire Fence Self Closing Single Gate (1.22m ht., 1.22m opening)
  - (iii) Gate D - Pallas Welded Wire Fence Self Closing Double Gate (1.22m ht., 2.44m opening)
  - (iv) Gate E - 300 Assiniboine Extension - Pallas Welded Wire Fence Self Closing Double Gate (1.22m ht., 2.44m opening)

**E23. CUSTOM LASER CUT ENTRY FENCE AND GATE**

**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 1.07m ht. Custom Welded Wire Entry Fence completed with Laser Cut Insert (Dog Silhouettes)
- (b) Supply and installation of 1.07m ht. Custom Welded Wire Entry Fence (Plain, no Laser Cut Insert)
- (c) Supply and installation of Gate A – Custom Laser Cut Entry Gate
- (d) Supply and installation all related posts, anchoring system and concrete piles.

**E23.2** Samples

**E23.2.1** Submit sample 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 colour numbers shall be supplied by the Contract Administrator

**E23.3** Mock up

**E23.3.1** Submit 300mm x 300mm mock up of representative areas of gate laser cut patterns (to illustrate size of openings) for Contract Administrator's approval. Deliver mock up 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

**E23.4** Shop Drawings

**E23.4.1** 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) 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.

## E23.5 General

### E23.5.1 Related Sections

- (a) Specification E18 Pour-in-place Concrete
- (b) Specification E24 Miscellaneous Metal

## E23.6 Construction Methods

### E23.6.1 Metal Work

- (a) Metal for gate, post 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 E24 Miscellaneous Metal for fabrication and finishing requirements.

E23.6.2 AutoCAD drawings for the gate patterns will be provided to the Contractor.

## E23.7 Method of Measurement and Basis of Payment

### E23.7.1 Method of Measurement shall be as follows:

- (a) Fence will be measured on a per linear measure basis. The total unit to be paid for shall be the total number of linear metres that are installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.
- (b) Gate 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.

### E23.7.2 Basis of Payment shall be as follows:

- (a) Fence will be paid for at the Contract Unit Price per metre measured 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.
  - (i) Custom Welded Wire Entry Fence c/w Laser Cut Insert (1.07m ht.)
  - (ii) Custom Welded Wire Entry Fence (Plain, 1.07m ht.)
- (b) Gates will be paid for at the Contract Unit Price per item measured 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.

- (i) Gate A – Custom Laser Cut Entry Gate

## **E24. MISCELLANEOUS METAL**

### **E24.1 Description**

E24.1.1 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.

E24.1.2 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.

### **E24.2 Shop Drawings**

E24.2.1 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.

E24.2.2 Shop Drawings shall be stamped by a P.Eng., with a Manitoba license.

E24.2.3 Shop drawings are to clearly indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners and accessories.

E24.2.4 Indicate welded connections using CISC standard welding symbols. Clearly indicate net weld lengths.

### **E24.3 Materials**

#### **E24.3.1 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.

#### **E24.3.2 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.

#### **E24.3.3 Welding**

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

#### **E24.3.4 Hardware**

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

#### **E24.3.5 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.

#### E24.4 Construction Methods

##### E24.4.1 Structural and Miscellaneous Steel

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

##### E24.4.2 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.

##### E24.4.3 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.

##### E24.4.4 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.

##### E24.4.5 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.

##### E24.4.6 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.

##### E24.4.7 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.

#### E24.5 Measurement and Payment

E24.5.1 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.

### **E25. BONNYCASTLE BENCH**

#### E25.1 Description

E25.1.1 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 Bonnycastle Bench.

#### E25.1.2 Shop Drawings

- (a) Contractor to provide three sets of shop drawings to Contract Administrator or approval prior to fabrication. Show drawings to include all dimensions, materials, material sizes, hardware and finishes

#### E25.2 General

##### E25.2.1 Related Sections

- (a) Specification E18 Pour-in-place Concrete
- (b) Specification E24 Miscellaneous Metal

#### E25.3 Material

E25.3.1 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.

E25.3.2 The Contractor shall be responsible for the supply, safe storage and handling of all miscellaneous metal materials as set forth in this Specification.

E25.3.3 Metal Work performed under 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.

- (a) Refer to E24 Miscellaneous Metal for fabrication and finishing requirements.

E25.3.4 All materials to be new and free of defects impairing strength, durability and appearance of the best commercial quality for the purpose specified.

E25.3.5 Sizes as shown on drawings. Material shall be hand picked, tight knot; straight, and free of cracks, splits and wanes.

E25.3.6 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.

- E25.3.7 All furnishings to be delivered to the site and installation date to be coordinated with the furniture installation contractor
- E25.3.8 Benches
- (a) Benches shall be manufactured with recycled elm or approved equal material in accordance with B7, hand selected, free from waness, cracks, splits and bows. All steel work to be galvanized and shall be powder coated matte black. All hardware shall be stainless steel
- E25.4 Construction Methods
- E25.4.1 All Work is to be located and installed in accordance with the drawings using approved non-rusting, corrosion resistant, vandal resistant fasteners to ensure solid, durable, finished Work suitable for the purpose intended. Fasteners and assembly hardware shall be incidental to the Work.
- E25.4.2 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.
- E25.4.3 Construction method shall conform to Specification CW 3110 'Sub-grade, Sub-base and Base Course Construction'.
- E25.4.4 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.
- E25.5 Method of Measurement and Basis of Payment
- E25.5.1 Bonnycastle Bench 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.
- E25.5.2 Payment for Bonnycastle Bench shall be paid for at the Contract Unit Price. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

## **E26. ELECTRICAL AND LIGHTING**

- E26.1 Description
- E26.1.1 This Specification shall include but not limited to:
- (a) Trenching, supply and installation of conduit and cabling for light standards along pathway.
- (b) Provide and install necessary wiring to make a complete and operating system.
- (c) Supply and install light standards and concrete piles as indicated on Drawing.
- (d) Provision of all permits, approvals and applications.
- E26.2 Material
- E26.2.1 This specification shall supplement the on-sheet Electrical and Structural Specifications for all fabrication and installation of components and the supply and installation of lighting fixtures.
- E26.2.2 The Contractor shall be responsible for the supply, safe storage and handling of all materials as set forth in this Specification.
- E26.2.3 General Workmanship
- (a) Finish all work straight, even, smooth and free of any defects to approved dimensions and details.

- (b) Provide necessary angles, brackets, metal inserts, rivets, anchor bolts, frames, adjusting screws, gaskets and other items necessary for the complete installation of the work.
- (c) Concrete and Reinforcing Steel: in accordance with on-sheet Structural specifications,

#### E26.3 Method of Measurement

- E26.3.1 Trenching, Conduit, Wire and Backfill is a lump sum bid item. No measurement will be undertaken for this work.
- E26.3.2 Electrical Hook-up is a lump sum bid item. No measurement will be undertaken for this work.
- E26.3.3 Lights 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.

#### E26.4 Basis of Payment

- E26.4.1 Payment for Installation of Electrical and Lighting 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.

##### Item of Work:

- 22. Trenching, Conduit, Wire and Backfill
- 23. Electrical Hook-up
- 24. Lights

### **E27. PLANTING BED PREPARATION**

#### E27.1 Description

- E27.1.1 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as herein specified.
- E27.1.2 Work shall include, but not necessarily confined to, the supply and installation of topsoil and mulch for planting bed, as indicated on the drawings.
- E27.1.3 Related Sections
  - (a) Specification E18 Pour In Place Concrete for Raised Planter Preparation

#### E27.2 Materials

- E27.2.1 All material supplied under this Specification shall be of a type approved by the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.
- E27.2.2 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.

E27.2.3 Mulch

- (a) Bark Mulch shall be locally available tree mulch. Mulch from willow and poplar trees will not be accepted
- (b) Mulch shall be free of leaves, branches and other extraneous matter. The recommended mulch shall consist of chips not less than 15mm not larger than 75mm in size and not more than 20mm thick.
- (c) Existing Planting Areas and Concrete Planters specified to be covered with Bark Mulch free of leaves, branches and other extraneous matter. The recommended mulch shall consist of chips not less than 15mm not larger than 75mm in size and not more than 20mm thick.

E27.2.4 Water

- (a) Water shall be potable and free of minerals which may be detrimental to plant growth

E27.2.5 Fertilizer

- (a) Fertilizer shall be complete synthetic slow release fertilizer with maximum 35% water-soluble nitrogen.

E27.3 Construction Methods

E27.3.1 Contractor shall co-ordinate Site excavation works with landscaping to ensure minimal additional excavation for shrub beds. All remaining areas to be excavated shall be to the shape shown on the Drawings. Beds shall be excavated to the finished depth (including mulch) as shown on Drawings.

E27.3.2 Excavation shall be filled with soil mixture. After filling, elevation of top of bed shall be level with surrounding grade unless otherwise noted on drawing. Soil should be firmly compacted and indicated soil depths shall be depth after compaction.

E27.3.3 All areas and locations provided for planting shall be staked according to layout shown on the drawings. Excavation shall not proceed until the layout has been inspected and approved by the Consultant. Excavation shall not be undertaken until all underground utilities have been located and protected.

E27.3.4 Mulch shall be spread to a consistent depth over entire planting bed area and to depths as indicated on the Drawings. Care shall be taken not to damage the plants.

E27.4 Method of Measurement

E27.4.1 Planting Bed Preparation will be measured on an area basis. The area to be paid for shall be the total number of square meters that are installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

E27.5 Basis of Payment

E27.5.1 Payment for Installation of Planting Bed Preparation shall be paid for at the Contract Unit Prices. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

**E28. PLANTING OF TREES AND SHRUBS**

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 herein specified.

E28.1.2 Work shall include, but not necessarily confined to, the relocation, supply and installation of trees and shrubs as indicated on the drawings.

**E28.1.3 Black Hills Spruce will be supplied by the City. The Contractor will be responsible for relocating these trees from the Forks Parking Lot - Parcel 4 to the site, removing them from and disposing their planters and installed at the locations shown on the drawings. These trees are not subject to warranty.**

## E28.2 General

### E28.2.1 Related Sections

- (a) Specification E27 Planting Bed Preparation

### E28.2.2 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.

### E28.2.3 Source Quality Control

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

### E28.2.4 Maintenance

- (a) The Contractor shall be responsible for the maintenance of the trees and shrubs 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.

#### E28.2.5 Warranty

- (a) The Contractor shall, at his/her expense, warrant the Work against any and all defects or deficiencies resulting from insect infestation, disease and mechanical damage due to improper handling, installation or maintenance, for a period of two (2) years for 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.
- (d) Relocated Black Hills Spruce are not subject to warranty

#### E28.2.6 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.

#### E28.3 Materials

##### E28.3.1 Planting Soil and Mulch

- (a) As per E27 Planting Bed Preparation.

##### E28.3.2 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) ARBORTILE® by Deep Root Canada Corp., or approved equal in accordance with B7.
  - (i) Contact Information:
    - Suite 341 – 550 West Broadway. Vancouver, BC V5Z 0E9
    - Tel: 604 687 0899
    - Toll Free: 800 561 3883
    - Fax: 604 684 6744
    - Website: <http://www.deeproot.com/products/arbortie/applications>
    - Email: [mjames@deeproot.com](mailto:mjames@deeproot.com)
- (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.

### E28.3.3 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.

#### E28.3.4 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.

#### E28.3.5 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.

#### E28.4 Construction Methods

##### E28.4.1 Workmanship

- (a) All areas and locations provided for planting shall be staked out or painted on Site by the Contractor according to layout shown on the Drawings. Excavation shall not proceed until the layout has been inspected and approved by the Contract Administrator. Excavation shall not be undertaken until all underground utilities have been located and protected.
- (b) Coordinate operations. Keep Site clean and planting holes drained. Immediately remove soil or debris spilled onto street pavement, grass or sidewalk.

- (c) Work to be coordinated with installation of fencing and planting of shrub.

#### E28.4.2 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.

#### E28.4.3 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.
- (e) Upon excavation of the planting bed, the excavation shall be backfilled with a topsoil mixture to a depth to permit adequate installation and stabilization of the plant material. Topsoil shall be placed in accordance with City of Winnipeg Standard Construction Specification CW 3540 to a 300mm depth

#### E28.4.4 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 The City of his representative. Trees shall be placed equal to depth they were originally growing in nursery.
- (i) Tree Pit depth shall be such that the top of the root ball is even with the existing grade, taking into account that proper planting depth requires the root flare to be at or slightly above the finished grade. It is important to determine how deep the root flare is in the ball before it is placed in the planting hole. Sometimes the top of the ball may

need to be raised until the root flare is at the proper planting depth and/or soil must be removed from the top of the ball.

- (j) Each tree must be planted such that the trunk flare is visible at the top of the root ball. Trees where the trunk flare is not visible shall be considered a deficiency and payment for the planting will not be received until the deficiency is addressed. Do not cover the top of the root ball with soil.

**E28.4.5 Supply and Installation of Mulch**

- (a) Contractor to supply and install mulch in tree pit, planters and in areas as indicated in the Drawings. Mulch supplied shall cover entire planting area to a consistent depth of 100mm.
- (b) Mulch must not be placed within 8cm (3in.) of tree trunks.

**E28.4.6 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.

**E28.4.7 Trunk Protection**

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

**E28.4.8 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.

**E28.4.9 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.
- (c) A complete record is to be kept of each series of waterings for all planted trees noting: 1) location, and 2) date of watering. This record shall be sent bi-weekly to Scatliff+Miller+Murray Inc. - Fax: (204) 927-3443.

**E28.5 Method of Measurement**

- E28.5.1 Installation of trees and shrubs shall be measured on a per unit basis. The amount to be paid for shall be the total number of trees, shrubs and perennials supplied and installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

**E28.6 Basis of Payment**

- E28.6.1 Payment for Installation of trees and shrubs shall be paid for at the Contract Unit Prices. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

**E29. ARTIFICIAL TURF**

- 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 artificial turf.
- (b) Supply and Installation of artificial turf anchor curb.
- (c) Supply and Installation of complete sub-surface drainage system
- (d) Connection of sub-surface drainage system to City catchbasin

## E29.2 General

### E29.2.1 Related Sections

- (a) Removal and Site Preparation
- (b) Earthwork and Grading
- (c) Pour in Place Concrete

### E29.2.2 Submittals

- (a) Dog Park Field Shop Drawing Submittal: Submit two sets of the field shop drawings to the Consultant for review and approval. The submittal shall include an electronic copy of the plans and the Specifications. The plans shall include field edging / anchor curb details, insert details, seam details, seam layout, gluing patterns, dimensional shop drawing for boundaries.

### E29.2.3 Quality Control

- (a) Installation of all aspects of the synthetic turf system shall be performed under the continuous on-site supervision of a competent superintendent thoroughly experienced in the installation of synthetic turf.
- (b) The superintendent shall be satisfactory to the Consultant in all respects.

## E29.3 Materials

### E29.3.1 General

- (a) The field shall be comprised of vertically draining in-filled synthetic turf systems. The turf system shall consist of a non-directional synthetic grass like surface pile that shall be tufted or knitted into a synthetic backing.
- (b) All backing layers and coatings shall be firmly bonded together. Coating materials must be completely cured and bonded to the other backing layers. Synthetic turf panels or rolls that do not meet this requirement will be rejected.
- (c) The entire system shall be resistant to weather, insects, rot, mildew, and fungus growth, and be non-allergenic and non-toxic. The entire system shall be constructed to maximize dimensional stability, to resist damage and normal wear and tear from its designated use, and to minimize ultraviolet degradation.
- (d) All adhesives used in bonding the system together shall be resistant to moisture, bacterial and fungus attacks, and resistant to ultraviolet rays at any location upon installation.

### E29.3.2 Synthetic Turf:

- (a) Synthetic Turf shall be SoftLawn® Pet Turf “Kennel Cut” or approved equal in accordance with B7.
- (b) Contact:
  - STI International.
  - P: [204-960-2600](tel:204-960-2600)
  - Website: <http://synthetic-turf.ca/softlawn-kennel-cut/>

E29.3.3 Synthetic Turf Adhesive Material Properties

- (a) Adhesive material to adhere the synthetic turf to the pad shall be polyurethane 34T1 foaming "frothing" adhesive and designed specifically for synthetic turf application. Adhesive material shall be resistant to moisture, bacterial and fungus attacks, and resistant to ultraviolet rays.

E29.3.4 Turf Infill

- (a) Infill shall be Silica Sand, as per manufacturer's recommendations

E29.3.5 Delivery and Storage

- (a) Deliver products in original unopened packaging with legible manufacturer's identification.
- (b) Comply with manufacturer's recommendations.
- (c) Store in a dry place out of direct sunlight.
- (d) Protect from damage by the elements and construction procedures.

E29.4 Construction Methods

E29.4.1 General

- (a) The dog park field shall be comprised of vertically draining in-filled synthetic turf systems. The turf system shall consist of a non-directional synthetic grass like surface pile that shall be tufted or knitted into a synthetic backing.
- (b) All backing layers and coatings shall be firmly bonded together. Coating materials must be completely cured and bonded to the other backing layers. Synthetic turf panels or rolls that do not meet this requirement will be rejected.
- (c) The Contractor shall perform an inspection of the field base and sub-surface drainage system and submit written acceptance of the base for the installation of the synthetic turf system. The inspection and certification shall be completed at least two working days prior to turf installation. When planning the installation schedule, the Contractor shall allow for minor field base restoration work to be performed by the field base contractor.

E29.4.2 Synthetic Turf Installation

- (a) Perform all Work in strict accordance to the Drawings, shop drawings and manufacturer's Specifications and instructions.
- (b) Verification: The Contractor is responsible for inspecting, verifying, and accepting all installed Work of this section.
- (c) Environmental Conditions: Do not apply adhesive materials or infill material when:
  - (i) Ambient air temperature is below 10 degrees C.
  - (ii) Material temperatures are below 10 degrees C.
  - (iii) Rain is falling or pending
  - (iv) Conditions exist, or are pending, that will be unsuitable to the installation of the system.
- (d) Accept base onto which the synthetic turf surfacing system and the anchoring system are to be applied, as specified above.
- (e) Immediately prior to application of the synthetic turf, the base shall be thoroughly cleaned of all foreign material, soil, or any other substances that may be detrimental to permeability and the installation of the turf system.

E29.4.3 Inspection of Materials

- (a) Prior to installation, and immediately upon delivery of synthetic turf system materials to the Project site, the Contractor shall inspect material as follows:
- (b) General inspection for damaged or defective items;

- (c) Measure turf pile height and thickness of each roll;
- (d) Measure backing perforation diameter and spacing;
- (e) Reject damaged materials and all materials out of tolerance with the Specifications.
- (f) Conduct such additional inspections as are required to ensure quality control is maintained to a high level.
- (g) After installation, inspect Project area for acceptable seaming, adhesive bonding, uniformity of colour of turf, bubble-free surface smoothness as laid, insert installations, edge details. Remove and/or repair deficient workmanship prior to requesting the Consultant's inspection pursuant to completion and acceptance of the Work.

#### E29.4.4 Owner's Test

- (a) Owner may have samples of the turf submitted and tested for verification of conformance to Specifications. Turf system acceptance is subject to the results of these tests.
- (b) Any material so tested and found not conforming to the Specifications will be rejected and replaced with material conforming to the Specifications at the Contractor's expense. Re-submittal shall be required.

#### E29.4.5 Turf Installation

- (a) Method of Bonding of Material Surfaces: The bonding or fastening of all system material components shall provide a permanent, tight, secure and hazard-free turf. System material components include:
- (b) Bonding and seaming must maintain their integrity for total length of Warranty period.
- (c) All seams for panels shall have open mesh "scrim" backing with adhesive bonding. Seam spacing is to be held to the absolute maximum and only as approved.
- (d) Panels shall have intermediate scrim reinforced bonding
- (e) Seams for all main turf panels are to be sewn.
- (f) All corners and sharp edges for must be fastened by hand sewing.
- (g) All sewn seams shall be brushed to provide full coverage of fiber over the thread.
- (h) Turf edges to be as shown on the edge fastening detail and specified herein.
- (i) After installation, inspect project area for acceptable seaming, adhesive bonding, uniformity of colour of turf, bubble-free surface smoothness as laid, insert installations, edge details. Remove and/or repair deficient workmanship prior to requesting the Consultant's inspection pursuant to completion and acceptance of the work.

#### E29.4.6 Cleaning

- (a) The Contractor shall remove all excess materials of all types, equipment, debris, etc., from the site immediately after completion of the Work. Remove all stains and other blemishes from all finished surfaces. Leave Work in a clean, new appearing condition, ready for use by Owner.
- (b) The Contractor shall inspect the entire field area with a hand held metal detector to identify any construction materials or tools left on the field. All such materials shall be removed prior to Owner occupancy of the field.

#### E29.4.7 Protection

- (a) Adequate protection of materials and Work from damage will be the responsibility of the Contractor during installation and until acceptance of the Work. The Contractor will be responsible for protection after the acceptance of the Work until final acceptance of all Contract Work by the Owner. All material damaged prior to acceptance by the Owner shall be replaced at no cost to the Owner.

**E29.4.8 Extra Materials**

- (a) Deliver to Owner all extra materials herein specified. Receive Owner's written receipt for all materials. Deliver receipt to Consultant.
- (b) Turf for Future Repairs: Material may be roll ends or cut-offs; however, each piece of fabric shall be at least 2 meters x 3 meters. At least one green turf piece shall be at least 3 meters x 4.5 meters. The following are minimum areas for the extra synthetic turf materials to be provided by Contractor to the Owner:
  - (i) Green Turf: 100 square meters

**E29.5 Measurement**

- E29.5.1 Supply, placement and maintenance of artificial turf will be measured on an area basis. The area to be paid for shall be the total number of square meters placed and maintained in accordance with this Specification and accepted by the Contract Administrator.
- E29.5.2 Quantities of units are based on the proposed design drawings as supplied by the Contract Administrator.
- E29.5.3 Artificial Turf Anchor Curb 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.

**E29.6 Basis of Payment**

- E29.6.1 Supply, installation and maintenance of artificial turf will be paid for at the Contract Unit Prices on Form B: Price and measured as specified herein. This price shall be for full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.
- E29.6.2 Supply and installation of artificial turf anchor curb will be paid for at the Contract Unit Prices on Form B: Price and measured as specified herein. This price shall be for full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

**E30. SURFACE RESTORATION**

- E30.1 Further to Section 3.3 of CW 1130, the Contractor shall temporarily repair any Work commenced and not completed in the 2016 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.

**E31. SITE CLEAN UP**

- E31.1 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.
- E31.2 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.
- E31.3 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.

- E31.4 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.
- E31.5 Any costs in connection with Site Cleanup Works are considered incidental and no payment shall be made.