



**THE CITY OF WINNIPEG**

# **BID OPPORTUNITY**

**BID OPPORTUNITY NO. 886-2010**

**MAGER COMBINED SEWER DISTRICT SEWER SEPARATION, CONTRACT NO. 3**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 MAGER COMBINED SEWER DISTRICT SEWER SEPARATION, CONTRACT NO. 3

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, December 23, 2010.

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.

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

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

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

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

### **B5. ADDENDA**

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

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

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

B5.2.2 The Bidder is responsible for ensuring that he has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

B5.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 9 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

## **B6. SUBSTITUTES**

- B6.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.
- B6.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B6.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.
- B6.4 The Bidder shall ensure that any and all requests for approval of a substitute:
- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
  - (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
  - (c) identify any anticipated cost or time savings that may be associated with the substitute;
  - (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;
  - (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.
- B6.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.
- B6.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, only to the Bidder who requested approval of the substitute.
- B6.6.1 The Bidder requesting and obtaining the approval of a substitute shall be entirely responsible for disseminating information regarding the approval to any person or persons he wishes to inform.
- B6.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B6.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B15.
- B6.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.
- B6.10 Notwithstanding B6.2 to B6.9, and in accordance with B7.6 deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B15.1(a).

## **B7. BID COMPONENTS**

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

- (a) Form A: Bid;
  - (b) Form B: Prices;
  - (c) Bid Security
    - (i) Form G1: Bid Bond and Agreement to Bond, or  
Form G2: Irrevocable Standby Letter of Credit and Undertaking, or  
a certified cheque or draft;
- B7.2 Further to B7.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B6.
- B7.3 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Bid.
- B7.4 The Bid shall be submitted enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address.
- B7.4.1 Samples or other components of the Bid 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.
- B7.5 Bidders are advised not to include any information/literature except as requested in accordance with B7.1.
- B7.6 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B15.1(a).
- B7.7 Bids submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.
- B7.8 Bids shall be submitted to:  
The City of Winnipeg  
Corporate Finance Department  
Materials Management Division  
185 King Street, Main Floor  
Winnipeg MB R3B 1J1
- B8. BID**
- B8.1 The Bidder shall complete Form A: Bid, making all required entries.
- B8.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:
  - (a) if the Bidder is a sole proprietor carrying on business in his own name, his name shall be inserted;
  - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
  - (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
  - (d) if the Bidder is carrying on business under a name other than his own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.
- B8.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B8.2.
- B8.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.
- B8.4 Paragraph 11 of Form A: Bid shall be signed in accordance with the following requirements:

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

B8.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.

B8.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

## **B9. PRICES**

B9.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.

B9.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.

B9.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.

B9.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

## **B10. QUALIFICATION**

B10.1 The Bidder shall:

- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba; and
- (b) be financially capable of carrying out the terms of the Contract; and
- (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.

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

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

B10.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) have successfully carried out work similar in nature, scope and value to the Work; and
- (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
- (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);

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

## **B11. BID SECURITY**

- B11.1 The Bidder shall provide bid security in the form of:
- (a) a bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in the form included in the Bid Submission (Form G1: Bid Bond and Agreement to Bond); or
  - (b) an irrevocable standby letter of credit, in the amount of at least ten percent (10%) of the Total Bid Price, and undertaking 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 included in the Bid Submission (Form G2: Irrevocable Standby Letter of Credit and Undertaking); or
  - (c) a certified cheque or draft payable to "The City of Winnipeg", in the amount of at least fifty percent (50%) of the Total Bid Price, drawn on a bank or other financial institution registered to conduct business in Manitoba.
- B11.1.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.
- B11.1.2 All signatures on bid securities shall be original.
- B11.1.3 The Bidder shall sign the Bid Bond.
- B11.1.4 The Surety shall sign and affix its corporate seal on the Bid Bond and the Agreement to Bond.
- B11.2 The bid security of the successful Bidder and the next two lowest evaluated responsive and responsible Bidders will be released by the City when a Contract for the Work has been duly executed by the successful Bidder and the performance security furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.
- B11.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B11.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.
- B11.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.



B11.3 The bid securities of all Bidders will be released by the City as soon as practicable following notification by the Contract Administrator to the Bidders that no award of Contract will be made pursuant to the Bid Opportunity.

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

B12.1 Bids will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Division, or in such other office as may be designated by the Manager of Materials.

B12.1.1 Bidders or their representatives may attend.

B12.1.2 Bids determined by the Manager of Materials, or his designate, to not include the bid security specified in B11 will not be read out.

B12.2 Following the submission deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt>

B12.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract Amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt>

B12.4 The Bidder is advised that any information contained in any Bid may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

## **B13. IRREVOCABLE BID**

B13.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 10 of Form A: Bid.

B13.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work until a Contract for the Work has been duly executed and the performance security furnished as herein provided, but any Bid shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 10 of Form A: Bid.

## **B14. WITHDRAWAL OF BIDS**

B14.1 A Bidder may withdraw his Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

B14.1.1 Notwithstanding C23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.

B14.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 11 of Form A: Bid, and only such person, has authority to give notice of withdrawal.

B14.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:

- (a) retain the Bid until after the Submission Deadline has elapsed;
- (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 11 of Form A: Bid; and
- (c) if the notice has been given by any one of the persons specified in B14.1.3(b), declare the Bid withdrawn.

B14.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B13.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law, including the right to retain the Bidder's bid security.

## **B15. EVALUATION OF BIDS**

B15.1 Award of the Contract shall be based on the following bid evaluation criteria:

- (a) compliance by the Bidder with the requirements of the Bid Opportunity, or acceptable deviation there from (pass/fail);
- (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B9.4 (pass/fail);
- (c) Total Bid Price;
- (d) economic analysis of any approved alternative pursuant to B6.

B15.2 Further to B15.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.

B15.3 Further to B15.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his Bid or in other information required to be submitted, that he is responsible and qualified.

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

B15.4.1 If there is any discrepancy between the Total Bid Price written in figures, the Total Bid Price written in words and the sum of the quantities multiplied by the unit prices for each item, the sum of the quantities multiplied by the unit prices for each item shall take precedence.

B15.4.2 Further to B15.1(a), in the event that a unit price is not provided on Form B: Prices, the City will determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

## **B16. AWARD OF CONTRACT**

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

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

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

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

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

**B16.3.1** Following the award of contract, a Bidder will be provided with information related to the evaluation of his Bid upon written request to the Contract Administrator.

## 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 the installation of an outfall into the Seine River and the installation of various land drainage sewers.

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

- (a) Installation of 300 mm to 1050 mm diameter land drainage sewer by trenchless methods;
- (b) Installation of 1200 mm diameter corrugated steel pipe outfall;
- (c) Installation of manholes and catchbains;
- (d) Installation of riprap;
- (e) Riverbank regrading;
- (f) Reconnection of existing sewers to new sewers;
- (g) Sewer service renewals if required;
- (h) Abandon existing sewers;
- (i) Catchbasin and catch pit rehabilitation;
- (j) CCTV inspection; and
- (k) Temporary and permanent surface restorations;
- (l) Site cleanup.

#### **D3. CONTRACT ADMINISTRATOR**

D3.1 The Contract Administrator is Stantec Consulting Ltd., represented by:

Hartley Katz, C.E.T., P.Eng.  
Senior Project Manager  
905 Waverley Street  
Winnipeg, Manitoba, R3T 5P5  
Telephone No. (204) 489-5900  
Facsimile No. (204) 453-9012

D3.2 At the pre-construction meeting, Hartley Katz will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

#### **D4. CONTRACTOR'S SUPERVISOR**

D4.1 At the pre-construction meeting, the Contractor shall identify his designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

#### **D5. NOTICES**

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

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

D5.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D5.3, D5.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the address or facsimile number identified in D3.1.

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

The City of Winnipeg  
Chief Financial Officer

Facsimile No.: (204) 949-1174

D5.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following address or facsimile number:

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

Facsimile No.: (204) 947-9155

## **D6. FURNISHING OF DOCUMENTS**

D6.1 Upon award of the Contract, the Contractor will be provided with five (5) complete sets of the Bid Opportunity. If the Contractor requires additional sets of the Bid Opportunity, they will be supplied to him at cost.

## **SUBMISSIONS**

### **D7. AUTHORITY TO CARRY ON BUSINESS**

D7.1 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.

### **D8. SAFE WORK PLAN**

D8.1 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.

D8.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>

### **D9. INSURANCE**

D9.1 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, broad form property damage cover and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;

- (b) automobile liability insurance for owned automobiles used for or in connection with the Work in the amount of at least two million dollars (\$2,000,000.00) at all times during the performance of the Work and until the date of Total Performance;
- (c) an 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.

D9.2 Deductibles shall be borne by the Contractor.

D9.3 The Contractor shall provide the City Solicitor with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in C4.1 for the return of the executed Contract.

D9.4 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.

#### **D10. PERFORMANCE SECURITY**

D10.1 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.

D10.1.1 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.

D10.2 If the bid security provided in his Bid was not a certified cheque or draft pursuant to B11.1(c), 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 letter of intent and 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.

#### **D11. SUBCONTRACTOR LIST**

D11.1 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 the date specified in the General Conditions for the return of the executed Contract.

## **SCHEDULE OF WORK**

### **D12. COMMENCEMENT**

- D12.1 The Contractor shall not commence any Work until he is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.
- D12.2 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 D7;
    - (ii) evidence of the workers compensation coverage specified in C6.15;
    - (iii) the Safe Work Plan specified in D8;
    - (iv) evidence of the insurance specified in D9;
    - (v) the performance security specified in D10; and
    - (vi) the Subcontractor list specified in D11;
  - (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.
- D12.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the letter of intent.
- D12.3 The City intends to award this Contract by January 20, 2011.
- D12.3.1 If the actual date of award is later than the intended date, the dates specified for Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

### **D13. CRITICAL STAGES**

- D13.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements;
- (a) Construction of all outfall works must be completed prior to April 1, 2011. This does not include restorations.

### **D14. SUBSTANTIAL PERFORMANCE**

- D14.1 The Contractor shall achieve Substantial Performance within eighty-five (85) consecutive Working Days of the commencement of the Work as specified in D12.
- D14.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.
- D14.3 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.

### **D15. TOTAL PERFORMANCE**

- D15.1 The Contractor shall achieve Total Performance within one hundred (100) consecutive Working Days of the commencement of the Work as specified in D12.



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

D15.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

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

D16.1 If the Contractor fails to achieve Substantial Performance, Total Performances, or Critical Stages in accordance with the Contract by the day fixed herein for Substantial Performance, Total Performances, or Critical Stages, the Contractor shall pay the City the following amount for each and every Working Day following the day fixed herein for Substantial Performance, Total Performances, or Critical Stages during which such failure continues.

- |                             |   |
|-----------------------------|---|
| (a) Critical Stage          | One thousand dollars (\$1,000.00)                   |
| (b) Substantial Performance | One thousand two hundred fifty dollars (\$1,250.00) |
| (c) Total Performance       | Six hundred dollars (\$600.00)                      |

D16.2 The amount specified for liquidated damages in D16.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Substantial Performance by the day fixed herein for same.

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

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

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

- (a) Reflective Crack Maintenance as specified in CW 3250;
- (b) Sod as specified in CW 3510;
- (c) Tree Removal and as specified in E18;
- (d) Seeding and Sodding as specified in E32.
- (e) Silt fence as specified in E29.

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 deems it necessary.

**D19. TRAFFIC CONTROL**

D19.1 Traffic control shall be carried out in accordance with Section 3.7 of CW 1130.

D19.2 Should the Contract Administrator require that Work on Regional Streets be carried out at night, on Sundays, on public holidays or that Work be restricted or suspended during peak traffic hours, the Contractor shall comply without additional compensation being considered to meet these requirements.

D19.3 Regional Streets in this Contract are:

(a) St. Anne's Road

D19.4 Traffic control shall be required to complete the sewer installation, deficiencies and restorations along St. Anne's Road, north of Fermor Avenue to North of North Property Line Varennes Avenue. Refer to Appendix B Traffic Management Plan..

(i) The northbound curb lane will be closed to traffic north of Fermor Avenue to north of Varennes Avenue. The southbound lane between Fermor Avenue and Varennes Avenue will require localized barricades around catchbasin installations once the mainline sewer is installed on St. Anne's Rd. Maintain a minimum of one northbound and one southbound lane at all times.

(ii) Bus traffic shall be maintained at all times.

D19.5 Further to Section 3.6 of CW 1130, the Contractor shall maintain safe pedestrian crossing at intersections at all times. If possible, only one pedestrian crossing at an intersection is to be blocked by construction at any one time. If more than one pedestrian crossing is blocked by construction at an intersection at the same time the Contractor shall provide flag persons to safely escort pedestrians across the intersection. The Contractor shall leave pedestrian crossing locations safe and free of equipment that may hamper pedestrians when no construction activities are being performed at a particular crossing location.

D19.6 The Contractor shall not park company or private vehicles inside the barricaded work zone in a manner that will block sightlines for vehicles and pedestrians approaching and crossing.

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

D20.1 Further to C6.24, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

**MEASUREMENT AND PAYMENT**

**D21. INVOICES**

D21.1 Further to C12, the Contractor shall submit an invoice for each order delivered to:

The City of Winnipeg  
Corporate Finance - Accounts Payable  
4th Floor, Administration Building, 510 Main Street  
Winnipeg MB R3B 1B9

Facsimile No.: (204) 949-0864  
Email: [CityWpgAP@winnipeg.ca](mailto:CityWpgAP@winnipeg.ca)

D21.2 Invoices must clearly indicate, as a minimum:

(a) the City's purchase order number;

- (b) date of delivery;
- (c) delivery address;
- (d) type and quantity of goods delivered;
- (e) the amount payable with GST and MRST shown as separate amounts; and
- (f) the Contractor's GST registration number.

D21.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

D21.4 Bids Submissions must be submitted to the address in B7.8

**D22. PAYMENT**

D22.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

**WARRANTY**

**D23. WARRANTY**

D23.1 Warranty is as stated in C13.

**FORM H1: PERFORMANCE BOND**  
(See D10)

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. 886-2010

MAGER COMBINED SEWER DISTRICT SEWER SEPARATION, CONTRACT NO. 3

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

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

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

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

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

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

\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ .

**SIGNED AND SEALED**  
in the presence of:

\_\_\_\_\_  
(Witness as to Principal if no seal)

\_\_\_\_\_  
(Name of Principal)

Per: \_\_\_\_\_ (Seal)

Per: \_\_\_\_\_

\_\_\_\_\_  
(Name of Surety)

By: \_\_\_\_\_ (Seal)  
(Attorney-in-Fact)

**FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT  
(PERFORMANCE SECURITY)**  
(See D10)

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

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

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 886-2010

MAGER COMBINED SEWER DISTRICT SEWER SEPARATION, CONTRACT NO. 3

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

\_\_\_\_\_  
(Name of Contractor)

\_\_\_\_\_  
(Address of Contractor)

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

\_\_\_\_\_ Canadian dollars.

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

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

Partial drawings are permitted.

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

\_\_\_\_\_  
(Address)

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

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

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

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

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

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

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

\_\_\_\_\_  
(Name of bank or financial institution)

Per: \_\_\_\_\_  
(Authorized Signing Officer)

Per: \_\_\_\_\_  
(Authorized Signing Officer)





## PART E - SPECIFICATIONS

### GENERAL

#### E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

E1.1 These Specifications shall apply to the Work.

E1.2 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.

E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>

E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.

E1.2.3 Further to C2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.

E1.3 The following are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
	Cover Sheet
LD-5569	ST. ANNE'S ROAD – 1 <sup>ST</sup> MH SOUTH OF INMAN AVE. TO 63.5 N OF MH AT INMAN AVE.
LD-5570	ST. ANNE'S ROAD – 15.0 S OF MH AT KINGSWOOD AVE. TO 70.0 N OF 1 <sup>ST</sup> MH N OF KINGSWOOD AVE.
LD-5571	ST. ANNE'S ROAD - 20.9 S OF 1ST MH S OF REGAL AVE. TO 58.1 N OF 1 <sup>ST</sup> MH N OF REGAL AVE.
LD-5572	ST. ANNE'S ROAD - 2.0 S OF 1ST MH S OF AVONDALE RD. TO MH AT VARENNES AVE.
LD-5573	FERMOR AVENUE / INMAN AVENUE - 1ST MH W OF ST. ANNE'S RD. TO 77.5 E OF MH AT ST. ANNE'S RD.
LD-5574	FERMOR AVENUE - 21.8 W OF 1ST MH E OF ST. ANNE'S RD. TO 103.2 E OF 1ST MH E OF ST. ANNE'S RD.
LD-5575	FERMOR AVENUE - 16.8 W OF 2ND MH E OF ST. ANNE'S RD. TO 108.2 E OF 2ND MH E OF ST. ANNE'S RD.
LD-5576	FERMOR AVENUE - 11.8 W OF 3RD MH E OF ST. ANNE'S RD. TO 113.2 E OF 3RD MH E OF ST. ANNE'S RD.
LD-5577	FERMOR AVENUE - 6.8 W OF 4TH MH E OF ST. ANNE'S RD. TO END OF OUTFALL AT SEINE RIVER
LD-5578	KINGSWOOD AVENUE - 1ST MH W OF ST. ANNE'S RD. TO MH AT ST. ANNE'S RD.
LD-5579	DETAILS 1 OF 2
LD-5580	DETAILS 2 OF 2

## **E2. SOILS INVESTIGATION REPORT**

- E2.1 Further to C3.1, of the General Conditions, a geotechnical soils investigation has been completed in the vicinity of the proposed works to determine the character of the subsurface soil to facilitate the design of the Work. The information is considered accurate at the locations indicated and at the time of the investigation. However, considerable variations in the soil conditions may exist between test holes and fluctuations in ground water levels can be expected seasonally. Test hole logs are included.
- E2.2 Bidders are responsible for any interpretation they place on the supplied information and are expected to make such additional investigation of the soil as they feel necessary to satisfy themselves.
- E2.3 Any test borings made by the bidder shall be done in accordance with the requirements of the appropriate authority of the City of Winnipeg and the federal Department of Fisheries and Oceans. Bidders shall notify the Contract Administrator prior to starting any soil boring operation.

## **GENERAL REQUIREMENTS**

### **E3. OFFICE FACILITIES**

- E3.1 The Contractor shall supply office facilities meeting the following requirements:
- (a) The field office shall be for the exclusive use of the Contract Administrator.
  - (b) The building shall be conveniently located near the site of the Work at a location determined by the Contract Administrator.
  - (c) The building shall have a minimum floor area of 20 square metres, a height of 2.4m with a window and a door entrance with a suitable lock. The Contractor shall supply two keys for the lock.
  - (d) The building shall be suitable for all weather use. It shall be equipped with an electric heater and air conditioner so that the room temperature can be maintained between either 16-18°C or 24-25°C.
  - (e) The building shall be adequately lighted with fluorescent fixtures and have a minimum of three wall outlets.
  - (f) The building shall be furnished with a table 3m X 1.2m, and a minimum of eight (8) chairs.
  - (g) A portable toilet shall be located near the field office building. The toilet shall have a locking door and be for the exclusive use of the Contract Administrator and other personnel from the City.
  - (h) The field office building and the portable toilet shall be cleaned on a weekly basis immediately prior to each site meeting. The Contract Administrator may request additional cleaning when it is deemed necessary.
- E3.2 The Contractor shall be responsible for all installation and removal costs, all operating costs, and the general maintenance of the office facilities.
- E3.3 The office facilities will be provided from the date of the commencement of the Work to the date of Total Performance.

#### **E4. APPROVALS TO CONSTRUCT THE OUTFALL**

- E4.1 Formal approvals from the Department of Fisheries and Oceans and the City of Winnipeg Waterways to construct the outfall have not been received at the time of advertising this Bid Opportunity.
- E4.2 The Contract Administrator will not entertain any claims for delay based on the date of the approvals from the Department of Fisheries and Oceans and/ or the City of Winnipeg Waterways.
- E4.3 The Contractor shall note that all works within 107 meters (350 feet) of the regulated summer water level of the Seine River are within the jurisdiction of the Waterway By-Law. Subject to DFO / Waterways approvals, no work can commence within 107 meters (350 feet) of the Seine River.
- E4.4 The Contract Administrator will apply and pay for the required Waterway Approval for the permanent Work. The Contractor shall adhere to restrictions imposed by the permit.

#### **E5. ENVIRONMENTAL PROTECTION PLAN**

- E5.1 The Contractor shall plan and implement the Work of this Contract strictly in accordance with the requirements of the Environmental Protection Plan as herein specified, Fisheries and Oceans and Winnipeg Waterways.
- E5.2 The Contractor is advised that at least the following Acts, Regulations, and By-laws apply to the Work and are available for viewing at the office having jurisdiction.
- (a) Federal
    - (i) Canadian Environmental Assessment Act (CEAA) c.37
    - (ii) Transportation of Dangerous Goods Act and Regulations c.34
    - (iii) The Fisheries Act
    - (iv) Navigable Waters Protection Act
  - (b) Provincial
    - (i) The Dangerous Goods Handling and Transportation Act D12
    - (ii) The Endangered Species Act E111
    - (iii) The Environment Act c.E125
    - (iv) The Fire Prevention Act F80
    - (v) The Manitoba Heritage Resources Act H39.1
    - (vi) The Manitoba Noxious Weeds Act N110
    - (vii) The Manitoba Nuisance Act N120
    - (viii) The Public Health Act c.P210
    - (ix) The Workplace Safety and Health Act W210
    - (x) And current applicable associated regulations.  
*(Note: Provincial regulations updated as of September 1999)*
  - (c) Municipal
    - (i) The City of Winnipeg By-law No. 2480/79 and all amendments up to and including 7969/2000
    - (ii) The City of Winnipeg By-law No. 1573/77 and all amendments up to and including 7670/2000
    - (iii) And any other applicable Acts, Regulations, and By-Laws.
- E5.3 The Contractor is advised that the following environmental protection measures apply to the Work.
- (a) Materials Handling and Storage

- (i) Construction materials shall not be deposited or stored on riverbanks or river shorelines unless written acceptance from the Contract Administrator is received in advance.
  - (ii) Construction materials and debris shall be prevented from entering the Seine River. In the event that materials and/or debris inadvertently enter the watercourse, the Contract shall be required to remove the material and restore the watercourse to its original condition.
- (b) Fuel Handling and Storage
- (i) Storage of fuel and other petroleum products will not be permitted within 107 meters of the Seine River.
  - (ii) All fuel handling shall comply with The Dangerous Goods and Transportation Act Storage and Handling of Petroleum Products Regulation and any local land use permits.
  - (iii) The Contractor shall ensure that all fuel storage containers are inspected daily for leaks and spillage.
  - (iv) When servicing requires the drainage or pumping of fuels, lubricating oils or other fluids from equipment, a groundsheet of suitable material (such as HDPE) and size shall be spread on the ground to catch the fluid in the event of a leak or spill.
  - (v) Refuelling of mobile equipment and vehicles shall take place at least 107 metres from a watercourse.
  - (vi) A sufficient supply of materials, such as absorbent material and plastic oil booms, to clean up minor spills shall be stored nearby on-site. The Contractor shall ensure that additional material can be made available on short notice.
  - (vii) An emergency spill kit shall be kept on site to clean up any spills or leaks.
- (c) Waste Handling and Disposal
- (i) The construction area shall be kept clean and orderly at all times during and at completion of construction.
  - (ii) At no time during construction shall personal or construction waste be permitted to accumulate for more than one day at any location on the construction Site.
  - (iii) All resulting debris shall be deposited at a Waste Disposal Ground operating under the authority of Manitoba Regulation #150/91. Exceptions are liquid industrial and hazardous wastes which may require special disposal methods.
  - (iv) Indiscriminate dumping, littering, or abandonment shall not take place.
  - (v) No on-site burning of waste is permitted.
  - (vi) Waste storage areas shall not be located within 107 meters of the Seine River.
  - (vii) Run-off from a waste storage area shall not be allowed to cause siltation of a watercourse.
  - (viii) Waste storage areas shall be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.
  - (ix) Equipment shall not be cleaned within 107 meters of the Seine River; contaminated water from onshore cleaning operations shall not be permitted to enter watercourses.
- (d) Dangerous Goods/Hazardous Waste Handling and Disposal
- (i) Dangerous goods/hazardous wastes are identified by, and shall be handled according to, The Dangerous Goods Handling and Transportation Act and Regulations.
  - (ii) The Contractor shall be familiar with The Dangerous Goods Handling and Transportation Act and Regulations.
  - (iii) The Contractor shall have on-site staff that is trained and certified in the handling of the dangerous/hazardous goods, when said dangerous/hazardous goods are being utilized on-site for the performance of the Work.
  - (iv) Different waste streams shall not be mixed.

- (v) Disposal of dangerous goods/hazardous wastes shall be at approved hazardous waste facilities.
  - (vi) Liquid hydrocarbons shall not be stored or disposed of on-site.
  - (vii) Used oils shall be removed from site immediately and shipped to waste oil recycling centres, incinerators, or secure disposal facilities approved for such wastes.
  - (viii) Used oil filters shall be drained, placed in suitable storage containers, and buried or incinerated at approved hazardous waste treatment and disposal facilities.
  - (ix) Dangerous goods/hazardous waste storage areas will not be permitted on site.
- (e) Emergency Response
- (i) The Contractor shall ensure that due care and caution is taken to prevent spills.
  - (ii) The Contractor shall report all major spills of petroleum products or other hazardous substances with significant impact on the environment and threat to human health and safety (as defined in Table 1 on the following page) to Manitoba Conservation, immediately after occurrence of the environmental accident, by calling the 24-hour emergency phone number (204) 945-4888. The Contract Administrator shall also be notified.
  - (iii) The Contractor shall designate a qualified supervisor as the on-site emergency response co-coordinator for the project. The emergency response co-coordinator shall have the authority to redirect manpower in order to respond in the event of a spill.
  - (iv) The following actions shall be taken by the person in charge of the spilled material or the first person(s) arriving at the scene of a hazardous material accident or the on-site emergency response co-coordinator:

Notify emergency-response co-coordinator of the accident:

- (i) identify exact location and time of accident
- (ii) indicate injuries, if any
- (iii) request assistance as required by magnitude of accident (Manitoba Conservation 24-hour Spill Response Line (204) 945-4888, Police, Fire Department, Ambulance, company backup)

Attend to public safety:

- (i) stop traffic, roadblock/cordon off the immediate danger area
- (ii) eliminate ignition sources
- (iii) initiate evacuation procedures if necessary

Assess situation and gather information on the status of the situation, noting:

- (i) personnel on-site
- (ii) cause and effect of spill
- (iii) estimated extent of damage
- (iv) amount and type of material involved
- (v) proximity to waterways, sewers, and manholes

If safe to do so, try to stop the dispersion or flow of spill material:

- (i) approach from upwind
- (ii) stop or reduce leak if safe to do so
- (iii) dike spill material with dry, inert sorbet material or dry clay soil or sand
- (iv) prevent spill material from entering waterways and utilities by diking
- (v) prevent spill material from entering manholes and other openings by covering with rubber spill mats or diking

Resume any effective action to contain, clean up, or stop the flow of the spilled product.

- (i) The emergency response co-coordinator shall ensure that all environmental accidents involving contaminants shall be documented and reported to Manitoba

Conservation according to The Dangerous Goods Handling and Transportation Act Environmental Accident Report Regulation 439/87.

- (ii) When dangerous goods are used on-site, materials for containment and cleanup of spill material (e.g. absorbent materials, plastic oil booms, and oversized recovery drums) shall be available on-site.
- (iii) Minor spills of such substances that may be contained on land with no significant impact on the environment may be responded to with in-house resources without formal notification to Manitoba Environment.
- (iv) City emergency response, 9-1-1, shall be used if other means are not available.
- (v) The on-site emergency response coordinator shall contact The Canadian Coast Guard, Selkirk (204) 785-6030, if the spill material reaches and is on or in the Red or Assiniboine Rivers.

**Table 1 Spills that must be reported to the Manitoba Conservation as Environmental Accidents**

Classification	Hazard	Reportable Quantity/Level
1	Explosives	All
2.1	Compressed Gas (flammable)	100 L*
2.2	Compressed Gas	100 L*
2.3	Compressed Gas (toxic)	All
2.4	Compressed Gas (corrosive)	All
3	Flammable Liquids	100 L
4	Flammable Solids	1 kg
5.1 PG** I & II	Oxidizer	1 kg or 1 L
PG III	Oxidizer	50 kg or 50 L
5.2	Organic Peroxide	1 kg or 1 L
6.1 PG I	Acute Toxic	1 kg or 1 L
PG II & III	Acute Toxic	5 kg or 5 L
6.2	Infectious	All
7	Radioactive	Any discharge or radiation level exceeding 10 mSv/h at the package surface and 200 uSv/h at 1 m from the package surface
8	Corrosive	5 kg or 5 L
9.1	Miscellaneous	50 kg (except PCB mixtures)
9.1	PCB Mixtures	500 g
9.2	Aquatic Toxic	1 kg or 1 L
9.3	Waste (Chronic Toxic)	5 kg or 5 L

\* Container capacity (refers to container water capacity)

\*\* PG = Packing Group(s)

#### E5.4 Vegetation

- (i) Vegetation shall not be distributed without written permission of the Contract Administrator. The Contractor shall protect plants or trees which may be at risk of accidental damage. Such measures may include protective fencing or signage and shall be approved in advance by the Contractor Administrator.
- (ii) All landowners adjacent to the area of application of herbicides or pesticides shall be notified prior to the Work.
- (iii) Trees or shrubs shall not be felled into watercourses.
- (iv) Areas where vegetation is removed during clearing, construction, and decommissioning activities, shall be revegetated as soon as possible, or as directed by the Contract Administrator.

E5.4.1 The Contractor shall provide, install, and maintain adequate warning signs and lighting on any structure beyond the water's edge to notify boats and other craft navigating on the Seine River that construction is underway. These warnings shall meet the requirements of the Winnipeg Rivers and Streams Authority and of the Canadian Coast Guard.

E5.4.2 Prior to commencing any applicable operations over the Seine River, the Contractor shall provide to the Contract Administrator a copy of all necessary approvals received by the Contractor.

E5.4.3 No measurement and payment shall be made for "Environmental Protection Plan". All items included under "Environmental Protection Plan" shall be considered incidental to the Work and no measurement or payment shall be made for any item in this section.

## **E6. CHANNEL PROTECTION**

E6.1 The ice surface and riverbank channel shall be cleared of construction materials prior to spring melt. The Contractor shall clean up all materials, including but not limited to:

- (a) soil, snow fence, construction debris, etc. from this construction activity. All items that will have an adverse impact on the channel shall be removed.

E6.2 Channel Protection shall be considered incidental to the Works of this Contract and no measurement or payment will be made for this item.

## **E7. PROTECTION OF EXISTING TREES**

E7.1 Removal of some trees will be required. The Contract Administrator in consultation with the Contractor will identify which trees will be removed.

E7.2 The Contractor shall take the following precautionary steps to avoid damage from construction activities to any existing trees not marked for removal within the limits of the construction area.

- (a) Strap mature tree trunks with 25 x 150 x 2400 wood planks. Smaller trees shall be similarly protected using appropriately sized planks.
- (b) Excavations shall be carried out in a manner to minimize damage to existing root systems. Where roots must be cut to facilitate an excavation they shall be neatly pruned at the face of the excavation.
- (c) Work on site shall be carried out in a manner to minimize damage to existing tree branches. Where damage to tree branches does occur, the Contractor shall neatly prune the damaged branch.
- (d) American Elm trees shall not be pruned between April 1<sup>st</sup> and August 1<sup>st</sup> and Siberian Elm trees between April 1<sup>st</sup> and July 1<sup>st</sup> of any year under the provisions of the Dutch Elm Disease Act.

E7.3 All damage to existing trees not marked for removal due to the Contractor's construction activities shall be repaired by the City of Winnipeg, Public Works Department, Forestry Branch at the Contractor's expense.

- (a) Trees damaged during construction activities shall be examined by bonded tree care professionals; viable trees damaged during construction activities shall be pruned according to good practice by bonded tree care professionals. Damaged trees which are not viable shall be replaced at the expense of the Contractor.
- (b) Trees identified to be at risk by the Contract Administrator are to be strapped with 25 x 100 x 2400 millimetre wood planks, or suitably protected as approved by the Contract Administrator.
- (c) Herbicides and pesticides shall not be used within 107m of any surface watercourses.

E7.4 No separate measurement or payment will be made for protection of trees.

## **E8. SITE ACCESS**

E8.1 Site access for the Fermor Ave. outfall shall be as indicated on the drawings in Appendix C.

- E8.2 Contractor may coordinate access through Real Canadian Superstore parking lot if desired, but permission to access the site from that point will be between the Contractor and the Real Canadian Superstore, the Contract Administrator will not be involved in that agreement.
- E8.3 At the time of advertising this Bid Opportunity, permission to use the swimming pool parking lot at King George Park had not been granted by the City. The Contractor shall not enter the pool parking lot until they have received permission for the Contract Administrator. It may not be possible to use this as access depending on the City's decision.
- E8.4 Restoration of the pool parking lot shall be completed with granular material to the satisfaction of the Contract Administrator.
- E8.5 No payment shall be made for restoration of existing swimming pool parking lot.
- E8.6 Installation of a culvert and approach will be required to cross the ditch as indicated on the drawing in Appendix C. No payment shall be made for the installation or removal of the culvert or any other works or materials associated with site access.
- E8.7 Contractor shall not use the existing asphalt multi-use path on the north side of the Fermor Ave Right-of Way or the path off Des Muerons to access the site. Any path crossings necessary to transport equipment or materials shall require the Contractor to take necessary protective measures to ensure the path is not damaged in any way. Damage to asphalt paths shall be repaired at the Contractor's expense.
- E8.8 Access off St. Anne's Rd / Fermor Ave. shall require traffic control measures and a flagman to control access.
- E8.9 Any damage caused to streets, boulevards, green space, parking lots or pedestrian paths due to site access will be restored at the Contractor's expense.

**E9. EXISTING CATCH BASIN LEADS**

- E9.1 Where existing catch basin leads are being abandoned, the existing leads must be plugged or abandoned in accordance with CW 2030. All catch basin leads, regardless of being shown on the drawings or not, must be plugged or abandoned as required.
- E9.2 Measurement and Payment will be in accordance with CW 2030.

**E10. REMOVAL OF EXISTING CURB INLETS**

- E10.1 Removal of existing curb inlets to allow for the installation of new catch basins will include all work and materials to completely remove and dispose of existing curb inlets as indicated on the drawings.
- E10.2 Measurement and Payment
- (a) Removal of existing curb inlets will be measured on a unit basis for the number of existing curb inlets removed in accordance with the Drawings and this specification, and accepted by the Contract Administrator, and as counted by the Contract Administrator.
  - (b) Removal of existing curb inlets will be paid for at the Contract Unit Price for "Removal of Existing Curb Inlets", which price shall be payment in full for supplying all materials and performing all operations herein specified, and all other items included in the work of this specification.

**E11. GROUT UNDER EXISTING CATCH BASIN FRAME**

- E11.1 Construction Methods
- (a) Prevent construction materials and debris from entering the sewer.



- (b) Remove loose and unsound material from inside surface of wall area to be repaired. Clean and prepare repair area as required and apply approved concrete patching compound in accordance with manufacturer's instructions. Finish surface smooth and form to shape of wall.

- (c) Remove construction debris and materials from existing sewer.

#### E11.2 Measurement and Payment

- (a) Grouting the interior of existing catch basins will be measured for payment on a vertical metre basis and paid for at the Contract Unit Price for "Grouting Existing Catch Basins". Length to be paid for will be the total number of vertical metres patched in accordance with this specification, accepted and measured by the Contract Administrator.

### **E12. SEWER AND SEWER SERVICE ABANDONMENT INSPECTIONS**

E12.1 Further to CW 2130, CCTV inspections will be required in existing sewers to verify the proper method of abandonments of existing sewers or sewer services. No WRc coding shall be required for these CCTV inspections. Contract Administrator shall be present during the inspections and approval of abandonments shall be at the Contract Administrator's discretion.

E12.2 Measurement for the CCTV inspections for verifying sewer and service abandonments shall be done on a length basis for each size and type of sewer and paid for at the Contract Unit Price for "Sewers and Sewer Service Inspection" as measured and accepted by the Contract Administrator. All work and materials required to complete the inspections shall be included with the price for "Sewers and Sewer Service Inspection".

### **E13. PARTIAL SLAB PATCHES**

E13.1 Construct full depth partial slab patches in accordance with CW 3230.

E13.2 Full depth partial slab patches shall be measured on an area basis and paid for at the Contractor Unit Price per square metre for "Partial Slab Patches" for each type of pavement.

E13.3 No differentiation will be made for class of patch.

E13.4 No separate measurement or payment will be made for Drilled Dowels or Tie Bars, the cost for which shall be included in the prices for "Partial Slab Patches".

### **E14. RENEWAL OF EXISTING PRECAST SIDEWALK PAVING BLOCKS**

E14.1 Description

- (a) This specification covers the removal and replacement (supply and installation) of existing precast sidewalk blocks.

E14.2 Materials and Equipment

- (a) Blocks to be used shall match the size and shape of the existing concrete blocks.

E14.3 Construction Methods

- (a) Remove and dispose of existing concrete sidewalk blocks.
- (b) Where excavation is required to install LDS pipe, backfill material within 1 meter of the existing sidewalk shall be Class 3.
- (c) Permanently restored sections of path shall follow original grades and alignment.
- (d) Excavation to completed in accordance to CW 3110.
- (e) Compact the sub-grade as directed by the Contract Administrator.
- (f) Supply and install and levelling course as per CW 3110.

#### E14.4 Measurement and Payment

- (a) Renewal of existing precast sidewalk blocks shall be measured on an area basis and paid for at the Contract Unit Price for "Renewal of Existing Precast Sidewalk Paving Blocks".
- (b) All work and materials required to dispose of and supply and install new pre-cast sidewalk blocks shall be included in the price for "Renewal of Existing Precast Sidewalk Paving Blocks". No additional payment shall be made for subgrade preparation. Any work required to adjust the new paving blocks after initial installation due to subsidence during the warranty period shall be included in the price.

### **E15. TEMPORARY CONCRETE SURFACE RESTORATIONS**

- E15.1 If the weather will not permit final road pavement restorations to be completed in a timely manner after the underground work, temporary surface restorations for shafts or excavations within the pavement shall be made installing Temporary Concrete Surface Restorations until such a time as final restorations are complete.
- E15.2 Temporary Concrete Surface Restorations shall conform to CW 2130 with the following exceptions:
  - (a) No tie bars, dowels, or reinforcing steel shall be required.
- E15.3 If the weather will permit, road pavement restorations shall be final restorations and shall commence immediately after underground construction.
- E15.4 Construction of temporary concrete pavement shall be measured on a square metre basis. The amount paid for shall be the total number of square metres of specified thickness acceptably placed. Payment shall be compensation in full for preparation of the base, supplying forms, insulating blankets, as well as supply and placement of Portland Cement concrete pavement complete. Payment shall include removal and disposal of the temporary pavement when permanent restorations commence.
- E15.5 Temporary surface restorations must be completed and maintained to the satisfaction of the Contract Administrator.
  - (a) Any temporary concrete, cement stabilized fill, limestone and/or cold mix placed during winter construction shall be completely removed and the remaining backfill shall be flooded, tamped, and topped up prior to performing permanent pavement restorations.
- E15.6 Temporary concrete shall be maintained and/or replaced in such a manner that it does not present a hazard to pedestrians and vehicles to the satisfaction of the Contract Administrator. The cost of maintenance and/or replacement of temporary concrete shall be incidental to the installation of the temporary concrete until final concrete restorations are completed.

### **E16. TINTED CONCRETE BUS PAD RESTORATION**

#### E16.1 Description

- (a) This specification covers the construction of "red" tinted concrete pavement, intended to delineate Transit only lanes at various existing locations within this project. The tinted concrete is finished at grade and is the width of the travel lane. Care must be taken with consistency in water/cement ratio and finishing as the color can be affected load to load.
- (b) Referenced Standard Construction Specifications
  - (i) CW 3310 – Portland Cement Concrete Pavement Works

#### E16.2 Materials and Equipment

- (a) Concrete Materials
  - (i) The Contractor shall base the tinted concrete mix on a mix design that has been approved for the latest construction season by the City of Winnipeg Research and Standards Engineer.

- (ii) The base mix design shall conform to section 6 of CW 3310 with the following alterations:
  - (i) Type 1 mix as per Section 6.2 of CW 3310
  - (ii) Slump for hand placement shall be 80 mm +/- 20 mm prior to adding superplasticizers (if required) to facilitate finishing without adding water to the surface.
  - (iii) Alterations to the base mix design will be considered by the Contract Administrator if necessary to account for the concrete tint material and finishing operations.
- (b) Concrete Tint
  - (i) "Red" coloured metal oxide pigment used to permanently colour ready-mix concrete.
  - (ii) Approved Product List
    - (i) Lafarge Red (Premium) supplied through L.M. Scofield Company
    - (ii) SG160-2 Sunrise Red supplied through L.M. Scofield Company
    - (iii) Contractor to cast one coloured concrete sample minimum 200 mm \* 200 mm in area using base concrete mix for approval by Contract Administrator.
  - (iii) Tinted concrete shall not be placed until sample colour has been accepted by the Contract Administrator. The contractor shall demonstrate that the sample will achieve the approximate colour advertised by the pigment supplier using local concrete mix materials.
- (c) Superplasticizers
  - (i) Superplasticizers shall conform to the requirements of CSA CAN3-A266.5 and CAN3-A266.6, but must be compatible with the air-entraining agent. The agent shall be free of chlorides and shall not affect the air-entraining agent's ability to produce a satisfactory air void system.
- (d) Liquid Membrane-Forming Curing Compound
  - (i) Curing Compound shall be clear (no pigment), and water based conforming to the requirements of ASTM C309.
- (e) Other Materials
  - (i) All other materials as per CW 3310
- (f) Floating and Finishing Equipment
  - (i) Use only wood or magnesium floats. Bull floats used for initial finishing shall be constructed of wood only.
- (g) Other Equipment
  - (i) All other equipment as per CW 3310

#### E16.3 Construction Methods

- (a) Concrete formwork, steel reinforcement, placement, curing, and joint sealing as per CW 3310 except as modified in the following clauses.
- (b) Construct formed 50 mm headers to define the lane edge and transverse termination of at-grade coloured concrete where the adjacent pavement is to be asphalt overlaid.
- (c) Clean finishing tools and equipment and let dry prior to finishing. Wet tools will fade the colouring. Wetting of tools during finishing operation is not permitted.
- (d) Place concrete at a consistent slump. No water shall be added on Site. Superplasticizer may be added at a rate suggested by the concrete supplier if additional workability is needed.
- (e) No localized water spray or fogging is permitted to assist in finishing as this will locally fade the colour.

- (f) Clear curing compound only shall be used. The use of water curing or plastic film is not allowed. Plastic film for insulation in cold weather must be approved by the Contract Administrator.
- (g) A minimum of one half of an existing slab will be renewed if any renewal is required. Nothing smaller than one half of a slab will be allowed for aesthetic purposes.

#### E16.4 Measurement and Payment

- (a) Tinted Concrete Bus Pad Restoration will be measured on an area basis and paid for at the Contract Unit Price per square meter for "Tinted Concrete Bus Pad Restoration".
- (b) The area to be paid for will be the total number of square meters of tinted concrete supplied and placed at grade in accordance with this specification and accepted by the Contract Administrator.

### **E17. ABANDONING EXISTING CSP THROUGH FLOOD PROTECTION BERM**

E17.1 Abandoning the existing 450mm CSP through the existing flood protection berm as illustrated on drawing LD-5577, shall be completed by plugging one end with mortar or concrete and completely filling the entire length of the CSP with cement stabilized flowable fill.

E17.2 Abandonment of the CSP through the flood protection berm shall be measured for payment on a unit basis and paid for at the Contract Unit Price for "Abandon Existing CSP Through Flood Berm". Payment shall be made only after the Contract Administrator has inspected and accepted the Work.

### **E18. TREE REMOVAL**

#### E18.1 Description

- (a) This Specification shall cover the removal of existing trees.
- (b) 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.

#### E18.2 Materials

- (a) Existing Trees to be removed include, but not limited to ash, elm, cottonwood, oak, pine, maple, spruce, etc., all of which may be cut with standard chain saw equipment. The existing trees range from 50 mm to 500 mm diameter.

#### E18.3 Construction Methods

- (a) Prior to commencement of the Work the Contract Administrator with input from the Contractor, shall identify all trees for removal. The Contractor shall cut down only trees designated to be removed, and grub out all stumps and roots greater than 100 mm diameter. Trees are to be felled so as to land within the limits of the Works. The Contractor shall load and haul all trees, stumps, roots, logs, brush, rubbish and all other surface litter from the Site and dispose of these materials at an approved disposal Site.
- (b) The Contractor shall take all precautions to prevent damage to structures, adjacent property and to trees and shrubs. In the event of damage, the Contractor will be held liable, and will pay the City of Winnipeg Public Works Department the cost of restoration.
- (c) Any trees damaged during construction activities shall be examined by a bonded tree care professional and pruned as required. Damaged trees which are not viable shall be replaced by the Contractor at his own cost.
- (d) No trees, other than those marked by the Contract Administrator as to be removed, shall be removed.
- (e) Any trees damaged or removed, that were not marked as trees to be removed, will have to be replaced at the Contractor's expense. Value of the trees is determined by the Forestry

Branch of the Public Works Department. It should be noted that some trees within the limits of this Contract are considered very valuable and great care must be taken with respect to protecting trees that are to remain.

#### E18.4 Measurement and Payment

- (a) The removal of existing trees shall be measured on a per tree basis and paid for at the Contract Unit Price per unit for "Tree Removal", "50 mm to 250 mm diameter", and "greater than 250 mm to 500 mm diameter". The amount to be paid shall be the total number of trees removed in accordance with this specification, accepted and measured by the Contract Administrator.
- (b) The removal of trees and brush less than 50 mm diameter is considered incidental to the Work and no separate measurement or payment will be made.

### E19. RANDOM STONE RIPRAP

#### E19.1 Description

- (a) Further to CW 3615, this section shall cover the supply and placement of random stone riprap used for riverbank armoring along the riverbank of the Seine River as illustrated on the drawings.

#### E19.2 Materials

- (a) Geotextile placed below riprap on undisturbed soil shall conform to CW 3130.

#### E19.3 Construction Methods

- (a) Geotextile fabric shall be placed on undisturbed soil prior to the installation of the rock.
- (b) Random stone riprap shall be placed over the geotextile to the lines and grades shown on the drawings.
- (c) Sufficient leveling shall be done to produce a neat and uniform surface, conforming to the shape and dimensions shown on the Drawings.
- (d) The allowable fill tolerances shall be within  $\pm 100$  mm of the grades and thickness shown on the Drawings, provided positive downslope grading is achieved.
- (e) Provide a smooth uniform surface from the existing grade and new riprap when placing outside edges or transitions, as accepted by the Contract Administrator.
- (f) Temporary stockpiling of riprap along the riverbank shall not be permitted. Material shall be placed to the required lines and grade shown the Drawing immediately upon delivery to the Site.

#### E19.4 Measurement and Payment

- (a) The supply and placement of random stone riprap shall be measured on a volume basis and paid for at the Contract Unit Price for "Random Stone Riprap". The volume to be paid for shall be the total volume measured of riprap supplied and placed in accordance with this Specification, as measured by and accepted by the Contract Administrator.

### E20. GEOTEXTILE

#### E20.1 Description

- (a) This Specification, in conjunction with CW 3130, shall cover the supply and placement of geotextile fabric below the random stone riprap, rockfill riprap and the grouted stone riprap.

#### E20.2 Materials

- (a) Geotextile shall conform to CW 3130.

#### E20.3 Construction Methods

- (a) Snow and ice shall be cleared from the riverbank in prior to placement of geotextile.

- (b) The fabric shall be loosely laid in order to allow conformity to the bedding surface. Folds and wrinkles in the fabric shall be avoided. Pins, nails or weights shall be installed to hold the fabric in place such that placement of fill material will not excessively stretch or tear the fabric and seam overlaps will be maintained.
- (c) The fabric shall be overlapped in a downstream direction (upstream panel overtop of downstream panel) at all joints a minimum of 600 mm. The overlap shall be pinned or secured.
- (d) A minimum of 300 mm of riprap shall be placed over the fabric prior to equipment passage.
- (e) Riprap shall be placed on the geotextile in such a manner that the geotextile is not damaged, torn, excessively stretched, or punctured.
- (f) Any damaged geotextile, as identified by the Contract Administrator, shall be replaced immediately at the Contractors own cost.

#### E20.4 Measurement and Payment

- (a) The supply and placement of geotextile, and related Work specified herein will be measured on an area basis and paid for at the Contract Unit Price for "Geotextile". The area to be paid for shall be the total number of square metres of ground covered by geotextile, placed in accordance with this Specification, accepted and measured by the Contract Administrator.
- (b) Overlap at all joints shall be considered a single layer of geotextile for measure and payment purposes.
- (c) Geotextile used for repairs will be excluded from the quantity paid.

### **E21. STRAW WATTLE**

#### E21.1 Description

- (a) This specification shall amend and supplement City of Winnipeg Standard Construction Specification CW 3540 "Topsoil and Finish Grading for Establishment of Turf Areas", and shall cover supply, preparation and placement of straw wattles as required.
- (b) Referenced Standard Construction Specifications
  - (i) CW 3540 – Topsoil and Finish Grading for Establishment of Turf Areas.

#### E21.2 Materials

- (a) Use Stenlog or other approved bio-degradable straw wattle (150 mm diameter).

#### E21.3 Construction Methods

- (a) Install 300 mm Stenlog or other straw wattle sediment control material in accordance with the manufacturer's specifications around all rip rap areas, drainage inlets and outlets, and catch basins with grouted stone riprap.
- (b) Install straw wattles so that no gaps exist between the soil and the bottom of the wattle, and the ends of adjacent wattles are overlapped 150 mm minimum to prevent water and sediment passing. Achieve a tight seal between the wattle segments.
- (c) Dog leg terminal ends of straw wattle up the slope to prevent channelling of sedimentation.
- (d) Use 300 mm wooden stakes to fasten straw wattle to the soil. Place stakes on each side of the straw wattle, lying across the natural fibre twine, spaced 900 mm to 1200 mm on centre. Leave 30 to 50 mm of wood stake exposed above the wattle.
- (e) Avoid damage to wattles. Damaged areas of wattles should be cut and tied off, then treated as terminal ends.
- (f) Straw Wattle will have to be maintained until the replanted vegetation has grown to the point where the Straw Wattle will no longer be required. Contractor shall maintain the

Straw Wattles as directed by the City's Naturalist, regardless of the time required for the reseeding / replanting of the riverbank to grow to the satisfaction of the City's naturalist.

#### E21.4 Measurement and Payment

- (a) Straw wattle will be measured on a length basis for the number of linear metres of wattle installed in accordance with the Drawings and this specification, and accepted by the Contract Administrator, as computed by the Contract Administrator.
- (b) Straw wattle will be paid for at the Contract Unit Price for "Straw Wattle", which price shall be payment in full for supplying all materials and performing all operations herein specified, and all other items included in the work of this specification.
- (c) Contractor shall maintain Straw Wattle while in use at their own expense. No additional payment shall be made for re-installation of straw wattle due to negligence or poor workmanship. Re-installation of straw wattle shall be as directed by the Contract Administrator.

### E22. STRAW MULCH

#### E22.1 Description

- (a) This Specification shall cover the supply and placement of straw mulch on all areas of the riverbank to provide temporary erosion protection where existing vegetation has been removed.

#### E22.2 Materials

- (a) The material shall consist of wheat or barley straw, or other plants approved by the Contract Administrator. The straw mulch shall be air dried, reasonably light in colour, and shall not be musty, mouldy, caked or otherwise of low quality. The mulch shall be free of coarse (chaff) material and free of noxious weeds and/or seeds to prevent the introduction of weeds into previously seeded and planted areas. Dry mulching material that breaks down and does not bend will not be acceptable. The power mulching process shall produce a minimum of 75% of the straw being between 150 mm and 200 mm in length.

#### E22.3 Construction Methods

- (a) General
  - (i) The Contractor shall supply and place straw mulch material immediately after final grading is completed and prior to March 31.
  - (ii) Straw mulch shall be placed ensuring that there is a minimum of 90% ground coverage by area, as measured and accepted by the Contract Administrator.
  - (iii) Mulched areas shall be inspected periodically and after runoff producing storm events. Damaged areas shall be repaired immediately as determined by the Contract Administrator. Areas requiring re-mulching as directed by the Contract Administrator will be re-measured and additionally paid for at the Contract Unit Price for the Work item.
- (b) Spreading of Straw Mulch Material
  - (i) The straw mulch material shall be spread at a rate of 0.45 kg/m<sup>2</sup>, to a layer 25 to 50 mm in thickness. Mulch that remains clumped or bunched after application shall be separated and re-spread.
- (c) Removal of Straw Mulch
  - (i) Immediately prior to placement of topsoil and sod and/or topsoil and seed all straw mulch shall be removed and disposed of off site.

#### E22.4 Measurement and Payment

- (a) Supply placement and removal of straw mulch will be measured on an area basis and paid for at the Contract Unit Price for "Straw Mulch". The area to be paid for shall be the total

number of square metres of ground covered by straw mulch, supplied and placed in accordance with this specification, accepted and measured by the Contract Administrator.

## **E23. DITCH INLET GRATES**

### **E23.1 Description**

- (a) This Specification covers the supply and installation of ditch inlet grates on catchbasins as illustrated on the drawings.

### **E23.2 Materials**

- (a) Ditch Inlet Grate
  - (i) All steel shall be supplied in accordance with details on the Drawings. All steel shall be hot dip galvanized and all hardware shall be stainless steel. Ditch Inlet Grates shall be Shopost Iron Works MK-A1 or approved equal.

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

- (a) Ditch Inlet Grates
  - (i) The Contractor shall be required to supply and install ditch inlet grates on drainage inlets shown on the Drawings.
  - (ii) The ditch inlet grate shall be understood to include the supply and installation of all anchor steel, grate steel, and hardware. All concrete material shall be included in the unit price bid for the catchbasins.
  - (iii) The ditch inlet grate shall be securely fastened to the drainage inlets as shown on the Drawings and as approved by the Contract Administrator.
  - (iv) Any galvanized surfaces that are damaged shall be coated with a galvanizing compound approved by the Contract Administrator.

### **E23.4 Measurement and Payment**

- (a) Ditch Inlet Grates
  - (i) The supply and installation of ditch inlet grates will not be measured for payment and shall be included in the payment for "Catchbasins SD-025 - c/w Ditch Inlet Grates".

## **E24. SUPPLY AND INSTALLATION OF OUTFALL CSP**

### **E24.1 Description**

- (a) This Specification shall amend and supplement Standard Specifications CW 2130 and CW 3610.
- (b) The Work to be done by the Contract 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 hereinafter specified.

### **E24.2 Materials**

- (a) Handling and Storage of Materials
  - (i) All materials shall be handled and stored in a careful and Workman-like manner, to the satisfaction of the Contract Administrator.
- (b) Slip Joint
  - (i) The slip joint shall be installed as shown on the drawings. Galvanizing shall be hot-dip conforming to the requirements of CSA G164-N1981, to a minimum net retention of 600g/m<sup>2</sup>. All bolts and nuts shall be galvanized steel conforming to ASTM A-325. All welding shall be fully approved by the Canadian Welding Bureau in conformance with CSA Standard W.47.1. Welding splatter and other fabricator burrs, where exposed, shall be ground off and/or field smooth, and left ready for subsequent operations. All miscellaneous metal, after fabrication, shall be hot-dip galvanized.



- (c) Galvanized Primer
  - (i) Galvanized primer for repair of damaged coating shall be zinc rich, ready mix to CGSB-1-GP-181M.
- (d) Bedding and Backfill Material
  - (i) Sand bedding and Modified Class 2 backfill material as per CW 2030, modified to have 0.6 m of compacted excavated Site select material as opposed to the detailed 0.3 m of compacted excavated material.
- (e) CSP Outfall Pipe
  - (i) Shall have 2.8 mm wall thickness.
- (f) CSP Couplers
  - (i) Material for CSP to CSP connections shall conform to CSA Specification CAN3-G401. Standard or dimpled with bolt and angle attachments.

#### E24.3 Construction Methods

- (a) Bedding
  - (i) Ensure bedding is thoroughly tamped and that the pipe is uniformly supported throughout and completed in accordance with CW 2030, unless otherwise indicated by the Contract Administrator.
- (b) Backfill
  - (i) Backfill around the pipe, in maximum 300 mm lifts, alternating from side to side. At no time should the difference in backfill elevation on either side of the pipe be greater than 450 mm. Work must be completed in accordance with CW 2030, unless otherwise indicated by the Contract Administrator.
  - (ii) Backfilling above the pipe shall be in accordance with CW 2030 for Modified Class 2 backfill. The top 600 mm of backfill is to be Site select excavated material, as approved on Site by the Contract Administrator, not the standard 300 mm excavated material. The Contractor shall ensure the compaction equipment utilized, is consistent with degree of compactive effort required to achieve the specified densities, and adequately protects against overloading the pipe.
- (c) Trench Shoring and Excavation
  - (i) Where open cut methods are used, the trench shall be dug and maintained using a wood or steel shoring to minimize trench width on riverbank, designed and sealed by a Structural Professional Engineer who is a practicing member of the Association of Professional Engineers and Geoscientists of the Province of Manitoba (APEGM). The Contractor shall provide AutoCAD shop drawings to the Contract Administrator, for review, prior to the start of excavation. Work must be completed in accordance with CW 2030, unless otherwise indicated by the Contract Administrator.
  - (ii) The Contractor shall provide temporary shoring as part of the Supply and Installation of Outfall CSP. The temporary shoring installed during the construction operations must be removed upon completion of construction.
  - (iii) The Contractor shall take precautionary steps to prevent damage from construction activities to the existing riverbank, including vegetation and pathways. All damage to adjacent pathways caused by the Contractor's activities shall be repaired to, equal or better condition than prior to construction, as approved by the Contract Administrator. No separate measurement or payment will be made for the protection of adjacent pathways.
  - (iv) All machinery used to complete work within 107 meters of the riverbank shall be free of leaks and cleaned regularly to prevent loose material from being deposited near the River.
- (d) Diversion of Flows
  - (i) Flows such as snowmelt, rainfall, a watermain break, or any other flow travelling through the outfall shall be diverted during construction. The cost of the flow diversion is considered incidental to the installation of the pipe.

- (e) Installation of CSP
  - (i) CSP field cuts shall be straight circumferential cuts. Clean all ends free of burrs etc., and touch up all areas affected by Work with galvanized primer.
  - (ii) All outfall pipes shall be installed as shown on the drawings and in accordance with CW 3610.
  - (iii) All pipes shall be laid to the established line and grade.
- (f) Connections
  - (i) Slip joints are to be external unless noted otherwise on the drawings. The receiving pipes are to be cleaned of all surface debris, including but not limited to frozen backfill, ice and internal sediment.
  - (ii) The slip joints are to be installed in locations as shown on the drawings and as directed by the Contract Administrator. Angle brackets are to be located at the 9:00 and 3:00 o'clock position unless approved otherwise by the Contract Administrator. Bolts are to be tightened evenly throughout the coupler.

#### E24.4 Measurement and Payment

- (a) Supply and Installation of Outfall CSP
  - (i) Supply and installation of the new outfall CSP shall be measured on a linear basis and paid for at the Contract Unit Price for "Supply and Installation of Outfall CSP". The length to be paid for shall be the total number of linear meters of CSP, measured from the concrete collar to the tip of the manufactured bevelled end section, horizontally above the center of the pipe installed in accordance with this Specification and acceptable to the Contract Administrator. The bevelled end section shall be considered incidental to the installation of the CSP and no separate payment will be made.
  - (ii) Payment for excavation, bedding and backfill, and temporary shoring shall be included in the price per metre of CSP culvert installed.
- (b) Supply and Installation of Slip Joints
  - (i) The supply and installation of Slip Joints shall be measured on a unit basis and paid for at the Contract Unit Price for "Slip Joints". The units to be paid for shall be the total number of internal slip joints installed in accordance with this Specification and acceptable to the Contract Administrator as computed from measurements made by the Contract Administrator.
- (c) Supply and Installation of Temporary Trench Shoring
  - (i) Temporary trench shoring will be considered incidental to the installation of the outfall CSP. No measurement or payment shall be made for this item.

### **E25. SUPPLY AND INSTALLATION OF OUTFALL SAFETY GRATE BAR SCREEN**

#### E25.1 Description

- (a) This Specification shall cover the supply and installation of the safety grate bar screen located at the end of the CSP outfall.

#### E25.2 Materials

- (a) Shop drawings shall be submitted for the safety gratings and shall be installed as shown on the drawings.
- (b) Galvanizing shall be hot-dip conforming to requirements of CSA G164- N1981 to a minimum net retention of 600g/m<sup>2</sup>.
- (c) All bolts and nuts shall be typical steel, conforming to ASTM A-320 Grade B8M.

#### E25.3 Construction Methods

- (a) Safety Grate shall be constructed as shown on the drawings.

- (b) All welding shall be fully approved by the Canadian Welding Bureau in conformance with CSA Standard W47.1. Welding shall be done by currently licensed welders only.
- (c) Welding splatter and other fabricator burrs, where exposed, shall be ground off and/or filed smooth, and left ready for subsequent operations.
- (d) All miscellaneous metal, after fabrication, shall be hot-dip galvanized. No separate measurement or payment shall be made for hot-dip galvanizing.

#### E25.4 Measurement and Payment

- (a) The supply and installation of the Safety Grate Bar Screen shall be measured on a unit basis. The units to be paid for shall be the total number of Safety Grate Bar Screens supplied and installed in accordance with this Specification and acceptable to the Contract Administrator from measurements made by the Contract Administrator.
- (b) Supply and installation of Safety Grate Bar Screen will be paid for at the Contract Unit Price for "Supply and Installation of Safety Grate Bar Screen", measured specified herein, which price shall be payment in full for performing all operations described and all other items incidental to the Work included in this Specification.

### **E26. CONCRETE COLLAR**

#### E26.1 Description

- (a) All concrete work for the concrete collar, materials and construction methods, shall be according to the details in this specification and as detailed in the contract drawings.

#### E26.2 Materials

- (a) Concrete shall be in accordance with CW 2160 Type B concrete.

#### E26.3 Cold Weather Requirements

- (a) Should any concrete Work be required to be carried out when the mean daily temperature is below 5°C or anticipated to be below 5°C within the next 24 hours, cold weather requirements will be specified herein.
- (b) All freshly placed concrete shall be protected from the elements and from defacements due to construction operations.
- (c) The following are minimum requirements for protecting concrete during and after placement during freezing weather, but mere adherence to these requirements will not relieve the Contractor of the necessity for producing concrete which has not been weakened or injured by frost or freezing, or replacing such damaged Work at no additional expense to the City;
  - (i) Before any concrete is placed, all ice, snow, and frost shall be completely removed from all form Work, and other surfaces against which concrete temperatures of such surfaces raised above 7°C for twenty-four (24) hours minimum prior to concreting. Where concrete Work is to come in contact with the earth, the surface of the earth shall be completely free of frost when concrete is placed thereon.
  - (ii) Concrete aggregates and water shall be heated to not over 80°C. Concrete shall be not less than 20°C or more than 30°C in temperature when deposited. Concrete when placed during freezing weather, or if freezing is anticipated during curing period, shall be fully enclosed and the temperature of same maintained at not less than 20°C for five (5) days nor less than 5°C for an additional five (5) days.
  - (iii) Heating enclosures shall be strong and wind-proof, well ventilated with heating units so located as to prevent local overheating or drying of the concrete or damage from combustion gases. Only indirect fired heaters will be accepted. Units must be vented outside the enclosure. No direct fired units will be accepted.
  - (iv) The Contractor shall inform the Contract Administrator well in advance as to the methods of enclosure and frost protection he proposes to employ.

- (v) Cold weather requirements shall be considered incidental to the construction of cast-in-place concrete and no measurement or payment shall be made for this item.

**E26.4 Construction Methods**

- (a) Cast in place Concrete Construction
  - (i) Construct cast in place concrete in accordance with CW 2160, except as supplemented, revised or amended in this specification and as indicated in the construction notes on the Drawings.
  - (ii) Adjust the location of reinforcing steel adjacent to openings to frame those openings in accordance with good practice, and maintain the bar spacing intent.
  - (iii) Do not use welded splices for reinforcing steel.
  - (iv) Order all wall reinforcing steel in lengths to best suit the spacing of walers so that reinforcing bars will not be bent or misformed in order to remove the walers.
- (b) Backfill
  - (i) Place and compact backfill material as indicated on the Drawings in accordance with CW 2030.
  - (ii) Do not place backfill material in a frozen state.
  - (iii) Supply heating and hoarding in accordance with CW 2160 if required to ensure material does not freeze before compaction is complete.
  - (iv) Notify the Contract Administrator at least one (1) full Working Day in advance of any backfilling operation. No Backfill shall be placed against concrete until approved by the Contract Administrator and in no case before field cured test cylinders show the concrete strength to be 75% of that specified.
- (c) Grout
  - (i) Mix and apply grout in accordance with the manufacturer's instructions. Consistency to be suitable for the intended application.

**E26.5 Measurement and Payment**

- (a) Construction of the concrete collar will be measured on a unit basis and paid for at the Contract Unit Price for "Concrete Collar". Said price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this specification.

**E27. ROCKFILL RIPRAP**

**E27.1 Description**

- (a) This Specification shall cover the supply and placement of rockfill riprap.

**E27.2 Materials**

- (a) The rockfill material for use as riprap shall consist of a clean free draining, sound, dense, durable, crushed rock. The material shall be free from organics, roots, silts, sand, clay, snow, ice or any other material that would detract from the strength and drainage characteristics of clean rockfill.
- (b) Individual particles shall be shaped such that no dimension is greater than two times the smallest dimension. Flat, elongated, or platy particle shapes will not be accepted.
- (c) Should the Contractor choose to use limestone, it shall be durable white crystalline limestone. Softer buff to yellow dolomite or dolostone will not be accepted.
- (d) The rockfill material shall meet the following requirements:

Parameter	Test Method	Specified Limit
Bulk Specific Gravity	ASTM C127	2.6 minimum

Absorption	ASTM C127	2.5% maximum
LA Abrasion Loss	ASTM C131	32% maximum
Soundness	ASTM C88	13% maximum
Gradation	ASTM D5519	See below

- (e) Rockfill riprap shall be well graded having a full range and even distribution of sizes and shall conform to the following gradation:

Canadian Metric Sieve Size (mm)	Percent of Total Dry Weight Passing Each Sieve
450	100%
300	35-80%
100	20-60%
50	10-30%
5	0-5%

- (f) Grade riverbank surfaces as illustrated on the drawings prior to placing the riprap layer.  
 (g) Place the riprap layer at a uniform level throughout.

**E27.3 Submittals**

- (a) The Contractor shall submit the proposed supplier(s) and location of quarry Sites for supply of rockfill riprap.  
 (b) Representative samples of the rockfill riprap submitted for material testing purposes shall be completed as specified herein.

**E27.4 Quarry Sites**

- (a) Contractors supplying rockfill riprap shall be responsible for demonstrating that the material is of adequate quality and volume to meet the material specifications contained herein.

**E27.5 Testing and Approval**

- (a) All materials set forth in this Specification shall be subject to inspection and testing by the Contract Administrator or by the testing laboratory designated by the Contract Administrator. There shall be no charge for any materials taken by the Contract Administrator for testing purposes.  
 (b) Mine slag or acid generating rock shall not be used as riprap material.  
 (c) The procedures for preparation of all rockfill samples for use in material inspection and testing shall be subject to review and acceptance by the Contract Administrator for individual tests. The samples may be obtained from crushed and processed material at the sizing necessary for specific tests if the material is deemed to be representative of the riprap that will be used, subject to the acceptance of the Contract Administrator.  
 (d) The testing frequency necessary to confirm the material quality will be specified at the discretion of the Contract Administrator.

**E27.6 Construction Methods**

- (a) Rockfill Riprap shall be pushed or rolled into place in such a manner that the larger rocks are uniformly distributed and the smaller rocks serve to fill the places between the larger rocks such that excessive segregation of the various particle sizes does not occur.
- (b) Sufficient levelling shall be done to produce a neat and uniform surface, conforming to the shape and dimensions shown on the Drawings.
- (c) The allowable fill tolerances shall be within  $\pm 50$  mm of the grades and thickness shown on the Drawings, provided positive downslope grading is achieved.
- (d) Provide a smooth uniform surface from the existing grade and new riprap when placing outside edges or transitions, as accepted by the Contract Administrator.
- (e) Temporary stockpiling of riprap along the riverbank shall not be permitted. Material shall be placed to the required lines and grade shown the Drawing immediately upon delivery to the Site.

#### E27.7 Measurement and Payment

- (a) The supply and placement of rockfill riprap shall be measured on a weight basis and paid for at the Contract Unit Price for "Rockfill Riprap". The weight to be paid for shall be the total number of metric tonnes of rockfill supplied and placed in accordance with this Specification, as measured by a certified weigh scale and accepted by the Contract Administrator.

### **E28. RIVERBANK REGRADING**

#### E28.1 Description

- (a) This specification shall cover the riverbank regrading at the site, including excavation and reworking of excavated material, and impervious clay supply and placement.
- (b) 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 an incidental to the satisfactory performance and completion of all work as hereinafter specified.

#### E28.2 Materials

- (a) The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification.
- (b) Native Material to be Excavated
  - (i) The materials covered in this specification consist of the in-situ overburden soils, and may include but not necessarily be limited to organic topsoil, clay, silt, sand, gravel, fill, rubble, roots, riprap, concrete blocks, etc., all of which may be excavated with standard hydraulic excavation equipment.
- (c) Clay Backfill
  - (i) The impervious clay backfill to be used for riverbank regrading shall consist of a high plasticity clay material, with a liquid limit in excess of 50%. The clay shall be free of deleterious material such as roots, organic material, ice, snow or other unsuitable materials, and may be salvaged from the on-site excavation, as approved by the Contract Administrator. Frozen material will not be accepted.

#### E28.3 Construction Methods

- (a) General
  - (i) The limits of the riverbank regrading will be laid out in the field by the Contract Administrator.
- (b) Native Material to be Excavated
  - (i) All excavated material shall be removed off site immediately upon excavation or stockpiled as directed by the contract administrator.
- (c) Clay Backfill

- (i) The clay backfill material shall be pushed and kneaded into place to ensure that the entire excavated volume is entirely filled with clay, and that no void spaces remain. The clay backfill shall be compacted to a minimum of 95% Standard Proctor.
  - (ii) Clay backfill for placement on the bank slope shall not be stockpiled on the riverbank.
  - (iii) Grade soils in the direction away from the water coarse and never into the stream itself.
- (d) Post Grading Sediment Control Measures
- (i) Install straw wattles as per E21, silt fencing as per E29 and straw mulch as per E22.

**E28.4 Measurement and Payment**

The supply and placement of the riverbank regrading will be measured on an area basis. The area to be paid for shall be the total number of square metres of "Riverbank Regrading", supplied and placed in accordance with this Specification, as measured in the field and accepted by the Contract Administrator.

**E28.5 Basis of Payment**

The supply and placement of riverbank regrading will be paid for at the Contract Unit Price per square metre for the "Riverbank Regrading", measured as specified herein, which 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.

**E29. INSTALLATION OF SILT FENCE**

**E29.1 Description**

- (a) This specification covers the erection of temporary silt fencing, which shall be installed and maintained around all excavations within 30 meters of the Seine River to control runoff and minimize the release of detrimental silt loading to watercourses.
- (b) The scope Work included in this specification is as follows:
  - (i) Supply and Install temporary silt fencing at the locations as directed by the Contract Administrator, in accordance with the detailed drawing provided prior to undertaking any excavations on the site where silt fencing is required.
  - (ii) Maintain the silt fencing in serviceable condition throughout the entire duration of activities at the Site where silt fencing is required, including final restoration and cleanup of the construction Site.
  - (iii) Remove the silt fencing and restore the area where the fencing was installed, without further disturbing the area and without releasing any deleterious substances to the adjacent watercourse.

**E29.2 Materials**

- (a) Fences Posts
  - (i) Fence posts shall be 100 mm diameter untreated wood posts or 50 mm diameter steel.
- (b) Filter Fabric
  - (i) Filter Fabric shall be a woven geotextile material specifically designed for a silt fence applications, meeting the following minimum requirements:

Property	Test Method	Value
Grab Tensile Strength	ASTM D 4632	0.55 kN
Grab Tensile Elongation	ASTM D 4632	15%
Mullen Burst	ASTM D 4786	2060 kPa
Puncture	ASTM D 4833	0.285 kN

Trapezoid Tear	ASTM D 4533	0.285 kN
UV Resistance	ASTM D 435	5 80 % @ 500 hrs
Apparent Opening Size (AOS)	ASTM D 4751	0.60 mm
Flow Rate	ASTM D 4491	405 l/min/m <sup>2</sup>

Acceptable Product: "Amoco Pro Pex 2130 Silt Fence Fabric" or approved equal.

- (c) Wire Mesh
  - (i) Wire mesh shall be galvanized or plain metal with wire gauge = 3.0 mm, wire spacing @ 150 mm o/c.
- (d) Fencing Material Fasteners
  - (i) Staples or wire ties of sufficient strength and spacing to withstand 500 N (100 lbf) pull test at any point on the wire mesh.

### E29.3 Construction Methods

- (a) Ensure that no deleterious substances are discharged into the adjacent watercourse at any time during construction activities.
- (b) Silt Fence Installation
  - (i) Construct silt fences prior to construction activities in such a way as to block any materials from running off into the Seine River.
  - (ii) If ice exists within the limits of the excavation at the time of the riprap and CSP installation, the Contractor shall install silt fence under water at the base of the riverbed along outside edge of excavation to the edge of the ice that is to remain.
  - (iii) If there is ice found to be frozen right to the bottom of the riverbed, the Contractor will not be required to install the silt fence until after the installation of the riprap and CSP including backfilling) is completed. Silt fence will be placed along outside edge of excavation limits in this scenario.
  - (iv) Erect silt fences on the lower one half to third of a slope, or where erodibility is high.
  - (v) If excavation extends into riverbed, ensure silt fence encompassed outer limits of excavation.
  - (vi) Excavate 150 x 150 anchor trench along alignment of silt fence as indicated.
  - (vii) Install fence posts as indicated. Ensure that fence posts are firmly driven into undisturbed soil, or are completely and firmly backfilled if installed via auger methods.
  - (viii) Attach wire mesh as support backing for silt fence filter fabric with fasteners. Attach silt fence filter fabric on top of wire mesh in similar fashion.
  - (ix) Overlap any fence seams (wire mesh or filter fabric) by 450 mm minimum.
  - (x) Install and compact impermeable excavated materials into anchor trench and slope as indicated. Compact to 95% of maximum dry density (ASTM D-698).
  - (xi) Any holes left in the ice or along the riverbank due to installation activities shall be filled in with clean ice or snow to make the area safe for recreational users.
- (c) Silt Fence Maintenance
  - (i) Inspect silt fence daily, prior to starting any other construction activities. If fence posts are found loose or not upright, repair in accordance with installation procedure as specified. If silt fence is found to be loose or torn, repair or replace as necessary.
  - (ii) If silt deposition at the fence is 300 mm or more in depth, carefully remove and dispose of silt offsite without disturbing silt fence. If silt fence is determined to be unusable due to excessive silt build up by the Contract Administrator, the Contractor shall install new sections of silt fence as required.
- (d) Silt Fence Removal



- (i) The silt fence shall remain in place until new vegetation growth has established on the bank, as determined by the City's Naturalist. The time period could extend to the following autumn months depending on the rate of revegetation.
- (ii) Upon authorization of the Contract Administrator, remove all fence posts, wire mesh, fabric, and fasteners from Site.
- (iii) Restore areas disturbed without releasing any deleterious substances to the adjacent watercourse.

#### E29.4 Measurement and Payment

- (a) The supply, placement, and removal of silt fence shall be measured on a length basis and paid for at the Contract Unit Price per lineal metre for "Silt Fence". The length to be paid for shall be the total number of metres supplied and placed in accordance with this Specification, accepted and measured by the Contract Administrator. Payment of silt fence shall be in accordance with the following payment schedule:
  - (i) Sixty percent (60%) of the Contract Unit Price per lineal metre for "Silt Fence" shall be paid following supply and installation.
  - (ii) Forty percent (40%) of the Contract Unit Price per lineal metre for "Silt Fence" shall be paid following final removal.
- (b) Removal of accumulated sediment from the silt fence is considered incidental to the Work and no separate measurement of payment will be made.
- (c) Maintenance of silt fence during construction progress shall be included with the price for "Silt Fence". Contractor shall maintain and re-install silt fence as directed by the Contract Administrator. No additional payment shall be made for re-installation of silt fence due to negligence or poor workmanship.

### **E30. TEMPORARY SAFETY FENCE**

E30.1 The Contractor shall erect and maintain safety fence around all open excavations. The fencing shall enclose all excavations with appropriate gates or openings that are closed at the end of each Work day. Appropriate signs shall be erected to warn all recreational users of the river that a possible open water hazard exists. The safety fencing shall consist of Dupont Number L70 orange plastic safety fence or approved equal in accordance with B6, with a mesh spacing of 45 mm. Fences shall be erected to a minimum height of 1.2m above ground level and a minimum of 600mm above the surface of the snow. Posts are to be 38x89 wood posts spaced at 3m intervals (max.).

E30.2 Upon completion of the Work, the fence shall be removed and disposed of offsite.

E30.3 No payment shall be made for the supply, installation, adjustment or removal of any safety fencing.

### **E31. MULTI-USE PATHWAY RESTORATION**

E31.1 Description

- (a) This specification covers the restoration of the existing Multipurpose Pathway on the north side of Femor Ave east of St. Anne's Road.
- (b) Only sections of the existing pathway that are approved by the Contract Administrator shall be removed. The intent is to minimize disturbance of the existing pathway and disruptions to pedestrian traffic.
- (c) Contractor shall take measures to protect the existing pathway against equipment damage.
- (d) Referenced Standard Construction Specifications
  - (i) CW 3410 – Asphaltic Concrete Pavement Works

E31.2 Materials and Equipment

- (a) Asphaltic Concrete Materials
  - (i) The base mix design shall conform to CW 3410.

#### E31.3 Construction Methods

- (a) Temporary gravel multipurpose pathway detours shall be constructed prior to the removal of the existing pathway so pedestrian traffic can be maintained throughout the Work. The temporary pathway detours shall be maintained to the satisfaction of the Contract Administrator until the completion of the permanent restorations of the path. All pedestrians shall have access to St. Anne's Rd via the pathway throughout the construction period. Contractor shall stage Work in such a way that all users of the path are safe to pass without obstructions at all times.
- (b) Temporary pathway detours shall maintain a width of the 3.5 metres and match existing elevations at the tie in locations.
- (c) Restoration of the existing pathway shall be completed by replacing the existing pathway to the lines and grades encountered prior to removal.
- (d) See drawings for existing pathway cross section. Permanent restorations to be as per the detail section shown. Permanent pathway restorations shall be completed as per CW 3110, CW 3130, CW 3170 and CW 3410.

#### E31.4 Measurement and Payment

- (a) Multipurpose Pathway Restoration will be measured on an area basis and paid for at the Contract Unit Price per square meter for "Multipurpose Pathway Restoration". The area to be paid for will be the total number of square meters of pathway restored in accordance with this specification and accepted by the Contract Administrator.
- (b) No additional payment shall be made for subgrade compaction, geotextile, sub-base material, base coarse material, or asphalt required to restore the existing multi-use pathway. All work and materials required to restore the existing pathway shall be included in the price for "Multi-Use Pathway Restoration".
- (c) The removal and disposal of the existing pathway and the installation, maintenance and removal of the temporary pathway shall be considered incidental to the multipurpose pathway restoration and no measurement or payment will be made.
- (d) Further, if the Contractor fails to maintain temporary or existing pathways as directed and within the time period given by the Contract Administrator, the City or its designate may perform the work required and the cost may be deducted from payments owed.
- (e) No payment shall be made for pathways that are damaged due to negligence or pathway that was not designated to be removed by the Contract Administrator prior to its removal. Contractor shall take measures to ensure existing pathways are protected from construction activities outside of the areas designated as to be removed.

### **E32. SEEDING AND SODDING**

E32.1 This specification shall amend and supplement CW 3520 for restoration of any ditches within the construction area, specifically the area for the Fermor Ave. outfall area.

E32.2 All seeding shall occur prior to July 1<sup>st</sup> of any year for the seed mixture listed in E32.3 (b). If seeds cannot be sown prior to July 1<sup>st</sup>, then Contractor will be required to keep the site free from weeds and seed in the fall. All seeding, shrub, and sapling planting shall occur between May 1 to May 31 for the seed mixture listed in E32.3 (c).

E32.3 Clause 5.3 in CW 3520 shall be replaced with the following;

- (a) All seed supplied by the Contractor shall be Canada Certified No. 1 or Canada Certified No. 2 and come complete with a Certificate of Analysis verifying that quality standards for Canada Certified No. 1 or Canada Certified No. 2 seed are met. The Contractor shall submit the Certificates of Analysis to the Contract Administrator.

- (b) The seed supplied for the existing ditches shall be free of disease and mixed by percentage (%) of weight to meet the following blends or mixtures:
  - (i) 30% Big Bluestem (*Andropogon gerardii*)
  - (ii) 10% Canada Wild Rye (*Elymus Canadensis*)
  - (iii) 5% Slough Grass (*Beckmannia syzigachne*)
  - (iv) 5% Slender Wheatgrass (*Agropyron trachycaulum*)
  - (v) 20% Green Needlegrass (*Stipa viridula*)
  - (vi) 10% Switch Grass (*Panicum virgatum*)
  - (vii) 10% Fowl Blue Grass (*Poa palustris*)
  - (viii) 10% Side-Oats Grama (*Bouteloua curtipendula*)
- (c) The seed supplied for the existing riverbank shall be free of disease and mixed by percentage (%) of weight to meet the following blends or mixtures:
  - (i) 30% Big Bluestem (*Andropogon gerardii*)
  - (ii) 10% Canada Wild Rye (*Elymus Canadensis*)
  - (iii) 5% Slough Grass (*Beckmannia syzigachne*)
  - (iv) 5% Slender Wheatgrass (*Agropyron trachycaulum*)
  - (v) 20% Green Needlegrass (*Stipa viridula*)
  - (vi) 10% Switch Grass (*Panicum virgatum*)
  - (vii) 10% Fowl Blue Grass (*Poa palustris*)
  - (viii) 10% Side-Oats Grama (*Bouteloua curtipendula*)
  - (ix) Various shrubs and saplings as directed by City's Naturalist
- (d) The Contractor shall provide the Contract Administrator with a copy of an invoice or a shipping bill received from the seed distributor specifying the quantities of each type of seed supplied for the Work Site and the delivery date.
- (e) Any variations to the above referenced seed blends or mixtures shall be approved by the Contract Administrator prior to sowing.

E32.4 The following will amend clause 5.9 in CW 3520;

- (a) The Contractor shall rough cut the turf mixture area at a height greater than four (4) inches. The Contractor shall mow the turf mixture area once or twice within the first growing season. Remove clippings that will smother grassed areas.

E32.5 The Supply and Installation of Erosion Control Blanket on Riverbank

- (a) An erosion control blanket shall be installed over areas seeded with the seed mixture stated in E32.3(c) immediately following the seeding and planting of the riverbank area.
- (b) The erosion control blanket shall extend from the tree line down to the lower limit of the seeding area. No blanket is required over the riprap areas.
- (c) The erosion control blanket shall consist of a natural fibre and must be approved by the City's Naturalist.
- (d) The erosion control blanket shall be installed and maintained as per manufacturer's recommendations and as directed by the City's Naturalist. Time period for maintenance will depend on the success of re-vegetation of the riverbank.

E32.6 Sodding

- (a) The Contractor shall restore all existing grassed areas other than ditches within the Fermor Outfall area with sod as per CW 3510.

E32.7 Measurement and Payment

- (a) Seeding of the ditches within the Fermor Outfall area as well as the re-vegetation along riverbank will be incidental to the installation of the pipe. No measurement or payment

shall be made for the restoration of any grassed or treed areas, regardless of seeding, sodding or planting methods restorations.

- (b) Installation and maintenance of the erosion control blanket will be incidental to the seeding and planting along the riverbank. No measurement or payment shall be made for this item. Contractor shall have no claim for extended maintenance due to failed restoration attempts.

### **E33. PROTECTION OF FLOOD PROTECTION BERM**

- E33.1 The Contractor shall not disturb the existing flood protection berm illustrated on Drawing LD-5576. The Contractor shall take the necessary precautions to protect the berm using appropriate shoring and construction methods to minimize excavations near the berm
- E33.2 The Contractor shall supply a plan to the Contract Administrator illustrating the intended installation method prior to the installation of any items within 20 meters on either side of the berm. Only after the Contract Administrator has approved the plan will the Contractor be permitted to work within that area.
- E33.3 Any disturbance to the flood protection berm due to construction activities shall be restored as per CW 3170 and to the satisfaction of the Contract Administrator. No payment shall be made for the protection or restoration of the existing flood protection berm. Maintenance of restored areas on flood protection berm shall be incidental to the work and no payment shall be made for this work.

### **E34. SUSPENSION OF WORK ACTIVITIES WHEN SEWER CONTROL GATES ARE ACTIVATED DURING PERIODS OF HIGH RIVER LEVELS**

- E34.1 The Contractor is advised that as the elevation of the Red and Assiniboine Rivers rise from the normal winter or summer levels due to spring runoff or periods of heavy rainfall the City is required to close various control gates located on sewer system outfalls. Similarly, as the elevation of the rivers drop to normal levels, the City is required to open the control gates that have been closed. Control gates begin to be closed when river levels reach elevation 226.340 (James Avenue 7.0). As well, higher river levels can cause the level of flow in sewers to be higher than normal.
- E34.2 In the event the Red and Assiniboine Rivers rise to an elevation where the City has to begin closing control gates, the Contract Administrator will direct that work activities in any sewers affected by the gate closure be suspended and the risk of runoff causing flooding in the sewer evaluated. Work will continue to be suspended as long as there is a risk of the sewer being flooded while the control gate is closed unless the Contractor provides flow control measures approved jointly by the Contract Administrator, City of Winnipeg Collection System and Flood Control Branch and Local Services Branch.
- E34.3 Similarly, as river elevations drop and the City has to open control gates that have been closed, the Contract Administrator will direct that work activities in any sewers affected by the control gate opening be suspended due to the risk of the river flooding the sewer once the gate is opened. Work will continue to be suspended as long as the sewer is being flooded from the river unless the Contractor provides flow control measures approved jointly by the Contract Administrator, City of Winnipeg Collection System and Flood Control Branch and Local Services Branch.
- E34.4 The Contractor will have no claim for extra Work or compensation as a result of suspension of Work due to the City closing and opening control gates during periods of rising and dropping river levels. If in the opinion of the Contract Administrator the suspension will cause the completion of the Work to occur after the specified date for Critical Stages or Substantial Performance and the Contractor's schedule would have reasonably permitted completion of the Work before the required date, the date for Critical Stages or Substantial Performance will be adjusted accordingly.

## **E35. STREET LIGHT CABLE**

### **E35.1 Construction Methods**

- (a) At locations where street lighting cable is to be replaced as directed by the Contract Administrator, the Contractor shall, after completion of backfilling and grading of land drainage sewer trenches, construct a trench suitable for the placement of street lighting cable or install a 50 mm HDPE conduit by coring methods. The HDPE conduit will be supplied by the street lighting utility at no cost to the Contractor.
- (b) The trench or cored pipe shall be constructed on the same alignment as the street light bases or as directed by the Contract Administrator. The bottom of the trench shall be between 600 mm and 750 mm below the top of the curb and shall be no more than 150 mm in width. The invert of cored pipe shall be 600 mm to 750 mm below the top of the curb.
- (c) The Contractor shall provide 48 hours notice to the Contract Administrator prior to the commencement of trenching or coring operations in order to allow coordination of the cable installation by the street lighting utility.
- (d) Upon completion of cable installations by the street lighting utility the Contractor shall backfill, compact and grade the boulevard sections disturbed. Backfill shall be Class 4 Backfill in accordance with CW 2030.
- (e) Sodding boulevards disturbed during street light cable installation will be incidental to the Work.

### **E35.2 Measurement and Payment**

- (a)
  - (i) The installation of street lighting cable shall be measured on a linear meter basis based on measurements take by the Contract Administrator. Payment shall be made at the Contract Unit Price for "Street Light Cable – Trenching", measured as specified herein which price shall be payment in full for performing all operations and supply all materials and all other items incidental to the Work included in this specification.
- (b)
  - (i) The installation of HDPE conduit shall be measured on a linear metre basis from shaft face to shaft face based on measurements taken by the Contract Administrator. Payment shall be made at the Contract Unit Price for "Street Light Cable – Coring of HDPE Conduit", measured as a specified herein which price shall be payment in full for performing all operations and supplying all materials and all other items incidental to the Work included in this specification.

## **E36. PROVISIONAL ITEMS**

**E36.1** The Provisional Items listed in the Schedule of Prices are a part of the Contract.

**E36.2** The Contractor shall not perform Work included in the Provisional Items without prior authorization from the Contract Administrator. All Work included in the Provisional Items will be carried out within the construction areas shown on the Drawings.

**E36.3** Notwithstanding GC:7, the City reserves the right to diminish all or any portion of the Items of Work listed in the Provisional Items and no claim shall be made for damages on grounds of loss of anticipated profit or for any other reason.