



THE CITY OF WINNIPEG

REQUEST FOR PROPOSAL

RFP NO. 942-2016

**FOR THE CONSTRUCTION OF NATURALIZATION AND BANK STABILIZATION
FOR THE SEINE RIVERBANK AT JOHN BRUCE PARK**

TABLE OF CONTENTS

PART A - PROPOSAL SUBMISSION

Form A: Proposal	1
Form B: Prices	4

PART B - BIDDING PROCEDURES

B1. Contract Title	1
B2. Submission Deadline	1
B3. Site Investigation	1
B4. Enquiries	1
B5. Confidentiality	2
B6. Addenda	2
B7. Substitutes and alternative Construction procedures	Error! Bookmark not defined.
B8. Proposal Submission	Error! Bookmark not defined.
B9. Proposal (Section A)	4
B10. Prices	5
B11. Experience of Proponent and Subcontractors (Section C)	5
B12. Experience of Key Personnel Assigned to the Project (Section D)	5
B13. Project Understanding and Methodology (Section E)	6
B14. Project Schedule (Section F)	6
B15. Disclosure	6
B16. Qualification	7
B17. Opening of Proposals and Release of Information	8
B18. Irrevocable Offer	8
B19. Withdrawal of Offers	8
B20. Interviews	9
B21. Negotiations	9
B22. Evaluation of Proposals	9
B23. Award of Contract	10

PART C - GENERAL CONDITIONS

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

PART D - SUPPLEMENTAL CONDITIONS

General

D1. General Conditions	1
D2. Scope of Work	1
D3. Definitions	1
D4. Contract Administrator	1
D5. Contractor's Supervisor	2
D6. Ownership of Information, Confidentiality and Non Disclosure	2
D7. Notices	2
D8. Furnishing of Documents	2

Submissions

D9. Authority to Carry on Business	3
D10. Safe Work Plan	3
D11. Insurance	3
D12. Performance Security	3
D13. Subcontractor List	4
D14. Equipment List	4
D15. Detailed Work Schedule	4

Schedule of Work

D16. Commencement	5
D17. Critical Stages	5
D18. Substantial Performance	6
D19. Total Performance	6

D20. Liquidated Damages	6
D21. Scheduled Maintenance	6
Control of Work	
D22. Job Meetings	7
D23. Prime Contractor – The Workplace Safety and Health Act (Manitoba)	7
D24. The Workplace Safety and Health Act (Manitoba) – Qualifications	7
D25. Safety	7
D26. Site Cleaning	7
D27. Inspection	8
D28. Deficiencies	8
Measurement and Payment	
D29. Payment	8
Warranty	
D30. Warranty	9
Form H1: Performance Bond	10
Form H2: Irrevocable Standby Letter of Credit	12
Form J: Subcontractor List	14
Form K: Equipment	15

PART E - SPECIFICATIONS

General

E1. Applicable Specifications and Drawings	1
--	---

General Requirements

E2. Complete Project	1
E3. Work By Others	1
E4. Existing Services and Utilities	1
E5. Access to Site	2
E6. Site Condition	2
E7. Damage to Existing Structures, Trees and Property	2
E8. Permits, Notices, Licences, Certificates, Laws and Rules	2
E9. Stakes and Marks	3
E10. Pedestrian Safety and Traffic Management	3
E11. Protection of the Survey Infrastructure	3
E12. Tree and shrub Protection	4
E13. Layout of Works	5
E14. Existing Underground Services	5
E15. Product Approvals	5
E16. Damage to Streets and Structures	6
E17. Construction Facilities and Staging	6
E18. Site Preparation, Excavation, Removals, and Rough Grading	6
E19. Site Restoration	7
E20. Plant Material	8
E21. Native Grass Plug Planting	10
E22. Gabion Mattress	11
E23. Tied Concrete Blocks	15
E24. Willow Spiling	16
E25. Extended Maintenance	19

PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 FOR THE CONSTRUCTION OF NATURALIZATION AND BANK STABILIZATION FOR

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 p.m. Winnipeg time, November 2, 2016.

B2.2 Proposals 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.

B3.2 The Bidder is advised that there is construction around the Site and to use all precautions in accessing the riverbank.

B3.3 The Bidder is responsible for determining:

- (a) the location of any utility which can be determined from the records or other information available at the offices of any public authority or person, including a municipal corporation and any board or commission thereof, having jurisdiction or control over the utility;
- (b) the nature of the surface and subsurface conditions at the Site;
- (c) the location, nature, quality or quantity of the materials to be removed or to be employed in the performance of the Work;
- (d) the nature, quality or quantity of the Plant needed to perform the Work;
- (e) all matters concerning access to the Site, power supplies, location of existing services, utilities or materials necessary for the completion of the Work; and
- (f) all other matters which could in any way affect his/her Proposal or the performance of the Work.

B4. ENQUIRIES

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

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

B4.3 If the Bidder is unsure of the meaning or intent of any provision therein, the Bidder should request clarification as to the meaning or intent prior to the Submission Deadline.

B4.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Request for Proposal will be provided by the Contract Administrator to all Bidders by issuing an addendum.

B4.5 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Request for Proposal will be provided by the Contract Administrator only to the Bidder who made the enquiry.

B4.6 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B4 unless that response or interpretation is provided by the Contract Administrator in writing.

B5. CONFIDENTIALITY

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

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

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

B6. ADDENDA

B6.1 The Contract Administrator may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Request for Proposal, or clarifying the meaning or intent of any provision therein.

B6.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.

B6.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/bidopp.asp>.

B6.2.2 The Bidder is responsible for ensuring that he/she has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

B6.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 9 of Form A: Proposal. Failure to acknowledge receipt of an addendum may render a Proposal non-responsive.

B7. SUBSTITUTES

B7.1 The Work is based on the Plant, Materials and methods specified in the Request for Proposal.

B7.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.

B7.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.

B7.4 The Proponent shall ensure that any and all requests for approval of a substitute:

- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
- (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
- (c) identify any anticipated cost or time savings that may be associated with the substitute;
- (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior

substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;

- (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.

- B7.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his/her sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.
- B7.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Proponent who requested approval of the substitute.
- B7.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Proponents. The Proponent requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.
- B7.7 If the Contract Administrator approves a substitute as an “approved equal”, any Proponent may use the approved equal in place of the specified item.
- B7.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Proponent bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B22.
- B7.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B8. PROPOSAL SUBMISSION

- B8.1 The Proposal shall consist of the following components:
 - (a) Form A: Proposal;
 - (b) Form B: Prices;
- B8.2 The Proposal should also consist of the following components:
 - (a) Experience of Proponent and Subcontractors (Section C) in accordance with B11;
 - (b) Experience of Key Personnel Assigned to the Project (Section D), in accordance with B12;
 - (c) Project Understanding and Methodology (Section E) in accordance with B13; and
 - (d) Project Schedule (Section F) in accordance with B14.
- B8.3 Further to B7, all components of the Proposal shall be fully completed or provided in the order indicated, and submitted by the Proponent no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Proposal.
- B8.4 Further to B8.2, all components of the Proposal should be fully completed or provided in the order indicated, and submitted by the Proponent no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Proposal.
- B8.5 Proponents should submit one (1) unbound 8.5” x 11” original (marked “original”) including drawings and four (4) copies (copies can be in any size format) for sections identified in B7 and B8.2.

- B8.6 Proposal format, including type of binding, number of pages, size of pages and, font, etc., will not be regulated, except that the Proposal should be presented in the Sections identified above. Proponents are encouraged to use their creativity to submit a Proposal which provides the requested information for evaluation and other information which illustrates the strength of their team.
- B8.7 Proponents are advised that inclusion of terms and conditions inconsistent with the Request for Proposal, will be evaluated in accordance with B22.1(a).
- B8.8 The Proposal shall be submitted enclosed and sealed in an envelope/package clearly marked with the RFP number and the Proponent's name and address.
- B8.9 Proposals submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.
- B8.10 Proposals shall be submitted to:
The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg MB R3B 1J1
- B8.11 Any cost or expense incurred by the Proponent that is associated with the preparation of the Proposal shall be borne solely by the Proponent.

B9. PROPOSAL (SECTION A)

- B9.1 The Proponent shall complete Form A: Proposal, making all required entries.
- B9.2 Paragraph 2 of Form A: Proposal shall be completed in accordance with the following requirements:
- (a) if the Proponent is a sole proprietor carrying on business in his/her own name, his/her name shall be inserted;
 - (b) if the Proponent is a partnership, the full name of the partnership shall be inserted;
 - (c) if the Proponent is a corporation, the full name of the corporation shall be inserted;
 - (d) if the Proponent is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.
- B9.2.1 If a Proposal is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B9.2.
- B9.3 In Paragraph 3 of Form A: Proposal, the Proponent shall identify a contact person who is authorized to represent the Proponent for purposes of the Proposal.
- B9.4 Paragraph 11 of Form A: Proposal shall be signed in accordance with the following requirements:
- (a) if the Proponent is a sole proprietor carrying on business in his/her own name, it shall be signed by the Proponent;
 - (b) if the Proponent is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
 - (c) if the Proponent 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 Proponent is carrying on business under a name other than its own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.

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

B9.5 If a Proposal is submitted jointly by two or more persons, the word "Proponent" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Proponents in the Proposal and the Contract, when awarded, shall be both joint and several.

B10. PRICES

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

B10.2 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.

B10.3 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B11. EXPERIENCE OF PROPONENT AND SUBCONTRACTORS (SECTION C)

B11.1 Proposals should include:

- (a) details demonstrating the history and successful experience of the Proponent and Subcontractors in providing riverbank naturalization design, erosion control design, construction, establishment and maintenance of natural areas on up to three projects of similar complexity, scope and value.

B11.2 For each project listed in B11.1(a), the Proponent should submit:

- (a) description of the project;
- (b) role of the contractor;
- (c) project's original contracted construction cost and final construction cost;
- (d) project's location and photos of construction and after final acceptance;
- (e) project's expected acceptance date and final acceptance date;
- (f) project owner;
- (g) reference information (two current names with telephone numbers per project).

B11.2.1 Where applicable, information should be separated into Proponent and Subcontractor project listings.

B11.3 The Proposal should include general company profile information, including years in business, average volume of work, number of employees and other pertinent information for the Proponent and all Subcontractors.

B12. EXPERIENCE OF KEY PERSONNEL ASSIGNED TO THE PROJECT (SECTION D)

B12.1 Describe your approach to overall team formation and coordination of team members.

B12.1.1 Include an organizational chart for the Project.

B12.2 Submit the experience and qualifications of the Key Personnel assigned to the Project for projects of similar complexity, scope and value, including the principals-in-charge, and the Contractors Representative. Include educational background and degrees, professional recognition, job title, years of experience in current position, years of experience in design and construction, and years of experience with existing employer. Roles of each of the Key Personnel in the Project should be identified in the organizational chart referred to in B12.1.1.

- B12.3 For each person identified, list at least two comparable projects in which they have played a primary role. If a project selected for a key person is included in B11, provide only the project name and the role of the key person. For other projects provide the following:
- (a) Description of project;
 - (b) Role of the person;
 - (c) Project Owner;
 - (d) Reference information (two current names with telephone numbers per project).

B13. PROJECT UNDERSTANDING AND METHODOLOGY (SECTION E)

- B13.1 Describe your company's approach to riverbank stabilization, naturalization and team organization, so that the evaluation committee has a clear understanding of the methods the Proponent will use in the delivery of this Project.
- B13.2 Methodology should be presented in accordance with the Scope of Services identified in D2.
- B13.3 Proposals should address:
- (a) the Contractor's proposed riverbank stabilization approach for installation including availability of equipment for construction;
 - (b) the Contractor's proposed restoration approach for naturalized riverbank vegetation and transition zones from water level with a mix of live stakes, and grass plugs;
 - (c) proposed site preparation, riverbank access and grading procedures;
 - (d) proposed site protection and river flow control methods; Including the Contractor's proposed approach to construct a cofferdam (or suitable alternative) should it be necessary for the Contractor to deposit materials within the Seine River channel or should material be inadvertently deposited within the river channel as a result of the work.
 - (e) the specific live stake and grass plug source(s) and analysis;
 - (f) weed control management procedures for seeding and planting in in-situ soil and in new topsoil;
 - (g) maintenance and protection procedures for landscape planting;
 - (h) schematic plan of planting areas, seeding zones, and grading; and
 - (i) any other issue that conveys your team's understanding of the Project requirements.

B14. PROJECT SCHEDULE (SECTION F)

- B14.1 Proponents should present a carefully considered Critical Path Method schedule using Microsoft Project or similar project management software, complete with resource assignments (key personnel), durations (weekly timescale) and milestone dates or events. The schedule should address each requirement of the Scope of Services.
- B14.2 The Proponent's schedule should include critical dates for review and approval processes by the City and dates for Substantial and Total Performance. Reasonable times should be allowed for completion of these processes.

B15. DISCLOSURE

- B15.1 Various Persons provided information or services with respect to this Work. In the City's opinion, this relationship or association does not create a conflict of interest because of this full disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.
- B15.2 The Persons are:
- (a) Lakefront Restorers

- (b) Motz Enterprises (Flexamat Manufacturer)

B15.3 Additional Material:

- (a) Flexamat Riverbank Detail

B16. QUALIFICATION

B16.1 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, or if the Bidder does not carry on business in Manitoba, in the jurisdiction where the Bidder does carry on business; 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.

B16.2 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>.

B16.3 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); and
- (d) Personnel should have at least one year of experience in landscape maintenance and should be under the direction of a foreman, in all cases, with not less than five (5) years of experience with similar maintenance operations.

B16.4 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.

B16.5 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.

B16.6 Further to B16.3(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 copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
- (b) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or

- (c) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>.)

B16.7 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.

B16.8 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.

B17. OPENING OF PROPOSALS AND RELEASE OF INFORMATION

B17.1 Proposals will not be opened publicly.

B17.2 After award of Contract, the names of the Bidders and the Contract amount of the successful Bidder 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/> .

B17.3 To the extent permitted, the City shall treat all Proposal Submissions as confidential, however the Bidder is advised that any information contained in any Proposal 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.

B17.4 Following the award of Contract, a Bidder will be provided with information related to the evaluation of his/her submission upon written request to the Contract Administrator.

B18. IRREVOCABLE OFFER

B18.1 The Proposal(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 10 of Form A: Proposal.

B18.2 The acceptance by the City of any Proposal shall not release the Proposals of the other responsive Bidders and these Bidders shall be bound by their offers on such Work until a Contract for the Work has been duly executed and the performance security furnished as herein provided, but any offer shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 10 of Form A: Proposal.

B19. WITHDRAWAL OF OFFERS

B19.1 A Bidder may withdraw his/her Proposal without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

B19.1.1 Notwithstanding C23.3, the time and date of receipt of any notice withdrawing a Proposal shall be the time and date of receipt as determined by the Manager of Materials.

B19.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Proposal or the Bidder's authorized representatives named in Paragraph 11 of Form A: Proposal, and only such person, has authority to give notice of withdrawal.

B19.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:

- (a) retain the Proposal until after the Submission Deadline has elapsed;
- (b) open the Proposal to identify the contact person named in Paragraph 3 of Form A: Proposal and the Bidder's authorized representatives named in Paragraph 11 of Form A: Proposal; and

- (c) if the notice has been given by any one of the persons specified in B19.1.3(b), declare the Proposal withdrawn.

B19.2 A Bidder who withdraws his/her Proposal after the Submission Deadline but before his/her offer has been released or has lapsed as provided for in B18.2 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.

B20. INTERVIEWS

B20.1 The Contract Administrator may, in his/her sole discretion, interview Bidders during the evaluation process.

B21. NEGOTIATIONS

B21.1 The City reserves the right to negotiate details of the Contract with any Bidder. Bidders are advised to present their best offer, not a starting point for negotiations in their Proposal Submission.

B21.2 The City may negotiate with the Bidders submitting, in the City's opinion, the most advantageous Proposals. The City may enter into negotiations with one or more Bidders without being obligated to offer the same opportunity to any other Bidders. Negotiations may be concurrent and will involve each Bidder individually. The City shall incur no liability to any Bidder as a result of such negotiations.

B21.3 If, in the course of negotiations pursuant to B21.2 or otherwise, the Bidder amends or modifies a Proposal after the Submission Deadline, the City may consider the amended Proposal as an alternative to the Proposal already submitted without releasing the Bidder from the Proposal as originally submitted.

B22. EVALUATION OF PROPOSALS

B22.1 Award of the Contract shall be based on the following evaluation criteria:

- (a) Compliance by the Proponent with the requirements of the Request for Proposal or acceptable deviation therefrom: (pass/fail)
- (b) Qualifications of the Proponent and the Subcontractors, if any, pursuant to B15: (pass/fail)
- (c) Total Bid Price; 40%
- (d) Experience of Proponent and Subcontractors; (Section C) 10%
- (e) Experience of Key Personnel Assigned to the Project; (Section D) 10%
- (f) Project Understanding and Methodology (Section E) 35%
- (g) Project Schedule. (Section F) 5%

B22.2 Further to B22.1(a), the Award Authority may reject a Proposal as being non-responsive if the Proposal Submission is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Proposal, or waive technical requirements or minor informalities or irregularities if the interests of the City so require.

B22.3 Further to B22.1(b), the Award Authority shall reject any Proposal submitted by a Proponent who does not demonstrate, in its Proposal or in other information required to be submitted, that it is responsible and qualified.

B22.4 Further to B22.1(c), the Total Bid Price shall be the Total Bid Price shown on Form B: Prices.

- B22.4.1 Further to B22.1(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.
- B22.5 If, in the sole opinion of the City, a Proposal does not achieve a pass rating for B22.1(a) and B22.1(b), the Proposal will be determined to be non-responsive and will not be further evaluated.
- B22.6 Further to B22.1(d), Experience of Proponent and Subconsultants will be evaluated considering the experience of the organization on successful projects of similar size and complexity as well as other information requested.
- B22.7 Further to B22.1(e), Experience of Key Personnel Assigned to the Project will be evaluated considering the experience and qualifications of the Key Personnel and Subcontractor personnel on Projects of comparable size and complexity.
- B22.8 Further to B22.1(f), Project Understanding and Methodology will be evaluated considering your team's understanding of the City's Project, scope of services included, approach to naturalization, approach to river flow control and team organization.
- B22.9 Further to B22.1(g), Project Schedule will be evaluated considering the Proponent's ability to comply with the requirements of the Project.
- B22.10 Notwithstanding B22.1(d) to B22.1(g), where Proponents fail to provide a response to B8.2(a) to B8.2(d), the score of zero may be assigned to the incomplete part of the response.

B23. AWARD OF CONTRACT

- B23.1 The City will give notice of the award of the Contract, or will give notice that no award will be made.
- B23.2 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 Proposals are determined to be responsive.
- B23.2.1 Without limiting the generality of B23.2, 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 Proposal 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.
- B23.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the most advantageous offer.
- B23.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Proposal upon written request to the Contract Administrator.
- B23.4 The City may, at its discretion, award the Contract in phases.
- B23.5 Notwithstanding Paragraph 6 of Form A: Proposal and C4, the City will issue a Letter of Intent to the successful Bidder in lieu of execution of a Contract.
- B23.5.1 The Contract documents as defined in C1.1(n)(ii) in their entirety shall be deemed to be incorporated in and to form a part of the Letter of Intent notwithstanding that they are not necessarily attached to or accompany said Letter of Intent.

- B22.6 The form of Contract with the City of Winnipeg will be based on the Contract as defined in C1.1(n).
- B23.6 Following the award of Contract, a Proponent will be provided with information related to the evaluation of its Proposal upon written request to the Contract Administrator.
- B23.7 If, after the award of Contract, the Project is cancelled, the City reserves the right to terminate the Contract. The Proponent will be paid for all Services rendered up to time of termination.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2006 12 15) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm .
- C0.2 A reference in the Request for Proposal 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 bank stabilization and erosion protection to the west bank of the Seine River adjacent to John Bruce Park, including the supply and installation of gabion mattress, tied concrete block and willow spiling with maintenance along the lower bank.

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

- (a) Site Preparation
- (b) Removal of grouted rip-rap and debris around existing culvert
- (c) Rough Grading of existing slopes
- (d) Supply and Install Gabion Mattress
- (e) Supply and Install Tied Concrete Blocks (Flexamat or Equivalent)
- (f) Supply and Install Willow Spiling Stakes
- (g) Supply and Install Willow Spiling Branch Bundles
- (h) Supply and Install Willow Spiling Topsoil
- (i) Supply and Install Willow Stakes within Gabions
- (j) Supply and Install Native Grass Plugs within Tied Concrete Blocks
- (k) Site Restoration

D3. DEFINITIONS

D3.1 When used in this Request for Proposal:

- (a) "re-vegetation" means the establishment of native shrubs and grasses for a riverbank and transition zone with live stakes and grass plugs.

D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is McGowan Russell Group Inc., represented by:

Ms. Susan Russell

President

Telephone No. 204-956-0396

D4.2 Before commencement of Work, Ms. Russell will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D4.3 Bids Submissions must be submitted to the address in B8.10

D4.4 At the pre-commencement meeting, the Contract Administrator will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D4.5 Bids Submissions must be submitted to the address in B8.10.

D5. CONTRACTOR'S SUPERVISOR

D5.1 Further to C6, the Contractor shall employ and keep on the Work, at all times during the performance of the Work, a competent supervisor and assistants, if necessary, acceptable to the Contract Administrator. The supervisor shall represent the Contractor on the Site. The supervisor shall not be replaced without the prior consent of the Contract Administrator unless the supervisor proves to be unsatisfactory to the Contractor and ceases to be in his/her employ.

D5.2 Before commencement of Work, the Contractor shall identify his/her designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D5.2.1 Further to C5, Contract Administrator may give instructions or orders to the Contractor's supervisor and such instructions or orders shall be deemed to have been given to the Contractor.

D6. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE

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

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

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

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

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

D7. NOTICES

D7.1 Notwithstanding C23.2.2, all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:

The City of Winnipeg
Chief Financial Officer

Facsimile No.: 204 949-1174

D7.2 **Bids Submissions** must be submitted to the address in B8.10

D8. FURNISHING OF DOCUMENTS

D8.1 Upon award of the Contract, the Contractor will be provided with three (3) complete sets of the Request for Proposal and one electronic file. If the Contractor requires additional sets of the Request for Proposal, they will be supplied to him at cost.

SUBMISSIONS

D9. AUTHORITY TO CARRY ON BUSINESS

D9.1 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.

D10. SAFE WORK PLAN

D10.1 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.

D10.2 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> .

D11. INSURANCE

D11.1 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; such liability policy to also contain a cross-liability clause, non-owned automobile liability and products and completed operations cover, to remain in place at all times during the performance of the Work;
- (b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence;
- (c) all risks installation floater, carrying adequate limits to covers all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.

D11.2 Deductibles shall be borne by the Contractor.

D11.3 The Contractor shall provide the Contract Administrator with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D11.4 The Contractor shall not cancel, materially alter, or cause the policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D11.5 The City shall have the right to alter the limits and/or coverages as reasonably required from time to time during the continuance of this agreement.

D12. PERFORMANCE SECURITY

D12.1 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.

D12.1.1 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.

D12.2 The Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award and prior to the commencement of any Work on the Site.

D13. SUBCONTRACTOR LIST

D13.1 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 C4.1 for the return of the executed Contract.

D14. EQUIPMENT LIST

D14.1 The Contractor shall provide the Contract Administrator with a complete list of the equipment which the Contractor proposes to utilize (Form K: Equipment 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 C4.1 for the return of the executed Contract.

D15. DETAILED WORK SCHEDULE

D15.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least two (2) Business Days prior to the commencement of any Work on the Site.

D15.2 The detailed work schedule shall consist of the following:

- (a) a critical path method (C.P.M.) schedule for the Work;
- (b) a Gantt chart for the Work based on the C.P.M. schedule; and
- (c) a daily manpower schedule for the Work

all acceptable to the Contract Administrator.

D15.3 Further to D15.2(a), the C.P.M. schedule shall clearly identify the start and completion dates of all of the following activities/tasks making up the Work as well as showing those activities/tasks on the critical path:

- (a) site preparation
- (b) removals and rough grading;
- (c) installation of gabion mattress;
- (d) installation of tied concrete blocks;
- (e) installation of willow spiling;
- (f) installation of willow stakes ;
- (g) installation of grass plugs;
- (h) site restoration; and
- (i) maintenance for all items.

- D15.4 Further to D15.2(b), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.
- D15.5 Further to D15.2(c), the daily manpower schedule shall list the daily number of individuals on the Site for each trade.
- D15.6 Contractor to update all schedules weekly and provide any changes in timelines to Contract Administrator.

SCHEDULE OF WORK

D16. COMMENCEMENT

- D16.1 The Contractor shall not commence any Work until he/she is in receipt of a notice of award from the City authorizing the commencement of the Work.
- D16.2 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 D9;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the Safe Work Plan specified in D10;
 - (iv) evidence of the insurance specified in D11;
 - (v) the performance security specified in D12;
 - (vi) the Subcontractor list specified in D13;
 - (vii) the equipment list specified in D14; and
 - (viii) the detailed work schedule specified in D15.
 - (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.
 - (c) the Contractor has supplied a detailed plan for naturalization and it has been approved by the City of Winnipeg.
- D16.3 The Contractor shall commence the Work on the design within seven (7) Working Days of receipt of the letter of intent.
- D16.4 The City intends to award this Contract by December 2, 2016.
- D16.4.1 If the actual date of award is later than the intended date by 15 calendar days, the dates specified for Commencement, Critical Stages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D17. CRITICAL STAGES

- D17.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:
- (a) Gabion Mattress and Tied Concrete Block installation to be completed by February 28, 2017.
 - (b) All site grading work to be completed by February 28, 2017.
 - (c) Willow Spiling installation and willow stakes to be planted while in dormancy by June 15, 2017
 - (d) Grass plugs to completed by June 15, 2017

D18. SUBSTANTIAL PERFORMANCE

- D18.1 The Contractor shall achieve Substantial Performance by February 28, 2017.
- D18.2 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.
- D18.3 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.

D19. TOTAL PERFORMANCE

- D19.1 The Contractor shall achieve Total Performance by June 15, 2017.
- D19.2 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.
- D19.3 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.

D20. LIQUIDATED DAMAGES

- D20.1 If the Contractor fails to achieve critical stages Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Calendar Day for each and every Calendar Day following the days fixed herein for same during which such failure continues:
- (a) Critical stage as specified in D17.1 a) & b) - five hundred dollars (\$500.00);
 - (b) Critical stage as specified in D17.1 c) & d) - five hundred dollars (\$500.00);
 - (c) Substantial Performance - five hundred dollars (\$500.00);
 - (d) Total Performance - one thousand dollars (\$1000.00).
- D20.2 The amounts specified for liquidated damages in D20.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve critical stages, Substantial Performance or Total Performance by the days fixed herein for same.
- D20.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D21. SCHEDULED MAINTENANCE

- D21.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:
- (a) Maintenance of plant material as specified in E25;
- D21.2 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

D22. JOB MEETINGS

- D22.1 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.
- D22.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

D23. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

- D23.1 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).

D24. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

- D24.1 Further to B16.6, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B16.6.

D25. SAFETY

- D25.1 Further to C6, the Contractor shall be solely responsible for safety at the Site and for compliance with all laws, rules, regulations and practices required by the applicable safety legislation.
- D25.2 The Contractor shall be solely responsible for securing the Site, and any existing facility thereon, and for the proper care and protection of the Work already performed.
- D25.3 The Contractor shall do whatever is necessary to ensure that:
- (a) no person, property, right, easement or privilege is injured, damaged or infringed by reason of the Contractor's activities in performing the Work;
 - (b) the health and safety of all persons employed in the performance of the Work or otherwise is not endangered by the method or means of its performance;
 - (c) adequate medical services are available to all persons employed on the Work and at all times during the performance of the Work;
 - (d) adequate sanitation measures are taken and facilities provided with respect to the Work.
 - (e) pedestrian and other traffic on any public or private road or waterway is not unduly impeded, interrupted or endangered by the performance or existence of the Work or Plant;
 - (f) fire hazards in or about the Work are eliminated; and
 - (g) open water safety measures are followed by all persons working near the Seine River; and

D26. SITE CLEANING

- D26.1 The Contractor shall maintain the Site and the Work in a tidy condition and free from the accumulation of waste and debris, other than that caused by the City or by other contractors.

D26.1.1 As the Work progresses, the Contractor shall remove any surplus Plant and Material not required for the performance of the remaining Work. He shall also remove waste and debris other than that caused by the City or other contractors, and leave the Site and the Work clean and suitable for occupancy by the City unless otherwise specified.

D26.1.2 Total Performance shall not be considered to have been achieved until the Contractor has cleaned up the Site and has removed all Plant, surplus Material, waste and debris, other than that left by the City or other contractors.

D27. INSPECTION

D27.1 Before beginning or resuming operations upon any portion of the Work, the Contractor shall notify the Contract Administrator so as to enable him to arrange for inspection. If the Contractor fails to notify the Contract Administrator, the Contractor shall, if and when required by the Contract Administrator, forthwith take down or expose and redo that portion of the Work required to facilitate inspection. The cost of such taking down or exposure, and redoing, if any, shall be borne by the Contractor.

D27.2 If and when required by the Contract Administrator, the Contractor shall take down or expose forthwith any portion of the Work where the Contract Administrator determines that the Work is not in accordance with the Contract. The cost of such taking down or exposure, and redoing, if any, shall fall upon the City if the taking down or exposure indicates that the portion exposed was properly performed, but if otherwise the cost shall be borne by the Contractor.

D28. DEFICIENCIES

D28.1 Further to C11, the Contract Administrator may order the Contractor to alter or improve his methods, to increase or improve his Plant, to furnish additional or more suitable Material, or to employ additional or more qualified labour if, at any time, the Contract Administrator determines that:

- (a) the Work is not being, or will likely not be, performed satisfactorily; or
- (b) progress is not being, or will likely not be, maintained in accordance with the work schedule.

D28.2 If the Work or any part thereof is taken out of the Contractor's control pursuant to C18.7, all Plant and Material, and the interest of the Contractor in all licences, powers and privileges acquired, used or provided by the Contractor under the Contract shall be assigned by the Contractor to the City without compensation to the Contractor.

D28.3 The City shall have the right to take possession of and use any of the Contractor's material and property of every kind provided by the Contractor for the purpose of the Work, and to procure other Plant or Material for the completion thereof.

D28.4 When the Contract Administrator certifies that any Plant, Material or any interest of the Contractor referred to in D28.2, is no longer required for the purposes of the Work, or that it is not in the best interest of the City to retain that Plant, Material or interest, it shall revert to the Contractor.

MEASUREMENT AND PAYMENT

D29. PAYMENT

D29.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

WARRANTY

D30. WARRANTY

- D30.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire two (2) years thereafter unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.
- D30.2 Notwithstanding C13.2 or D30.1, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if:
- (a) a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended user
 - (b) Plant material and grass plugs are to have a two year warranty as per E25. Warranty period to begin on a date specified by the Contract Administrator after the Work has been completed, inspected and accepted. This warranty period may begin prior to Total Performance.
- D30.2.1 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

FORM H1: PERFORMANCE BOND
(See D12)

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

RFP NO. 942-2016

FOR THE CONSTRUCTION OF NATURALIZATION AND BANK STABILIZATION FOR THE SEINE RIVERBANK AT JOHN BRUCE PARK

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 D12)

(Date)

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

RE: PERFORMANCE SECURITY – RFP NO. 942-2016

FOR THE CONSTRUCTION OF NATURALIZATION AND BANK STABILIZATION FOR THE SEINE
RIVERBANK AT JOHN BRUCE PARK

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

(Name of Contractor)

(Address of Contractor)

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

Canadian dollars.

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

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

Partial drawings are permitted.

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

(Address)

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

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

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

(Date)

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

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

This credit is subject to the Uniform Customs and Practice for Documentary Credit (2007 Revision), International Chamber of Commerce Publication Number 600.

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

FORM K: EQUIPMENT
(See D14)

THE CONSTRUCTION OF NATURALIZATION AND BANK STABILIZATION FOR THE SEINE
RIVERBANK AT JOHN BRUCE PARK

1. Category/type:	
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	
2. Category/type:	
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	
3. Category/type:	
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	
4. Category/type:	
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	

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 Request for Proposal 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>
L0	Existing Conditions
L1	Layout Plan
L2	Grading Plan
L3.1	Details
L3.2	Details
M1	"Flexamat" Riverbank Detail

GENERAL REQUIREMENTS

E2. COMPLETE PROJECT

- E2.1 The Contractor is to deliver a complete project including all permits, inspections, demolition/removals, connections, tie-ins, restorations, etc. required to operate and maintain the project.

E3. WORK BY OTHERS

- E3.1 The City of Winnipeg will have regular maintenance and staff working in the area. The Contractor is to ensure that all personnel have safe access to complete their works.
- E3.2 The adjacent granular pathway is constructed by others. Coordinate site work to ensure finish surface of adjacent landscape area is not damaged by further construction of the pathway. Coordinate timing of removals and grading.

E4. EXISTING SERVICES AND UTILITIES

- E4.1 No responsibility will be assumed by the City or the Contract Administrator for correctness or completeness of the Drawings, when provided, with respect to the existing utilities, pipes or other objects, either underground or on the surface; the City and the Contract Administrator shall not be liable for the incorrectness and inadequacy thereof. It shall be the responsibility of the Contractor to determine the location of all such utilities, pipes and other objects and to make good any damage done to them.

E5. ACCESS TO SITE

- E5.1 Access to the Site as required by the Contractor shall be provided and maintained by the Contractor at his own expense and approved by the Contract Administrator.
- E5.2 The Contractor's operations shall be limited to the minimum area necessary for undertaking the Work and he shall be responsible for all damage resulting from his Work on private or public property.

E6. SITE CONDITION

- E6.1 The Contractor shall examine the Site and make themselves familiar with the existing conditions (both above and below grade) and nature of Work to be done.
- E6.2 Surface and sub-surface conditions shown on the Drawings and included herein are provided for general information and variations there from shall not affect the terms of the Contract.
- E6.3 The Contractor shall set all necessary control lines, benchmarks, survey, elevation stakes and layout in accordance with the individual Site conditions and in consultation with the Contract Administrator.

E7. DAMAGE TO EXISTING STRUCTURES, TREES AND PROPERTY

- E7.1 All necessary precautions shall be exercised by the Contractor so as not to remove, disturb, or damage any existing trees, shrubs, sod, pavements, streets, roads, boulevards, poles, hydrants, water pipes, gas pipes, electrical wires, cables, conduits, sewers or other existing facilities and equipment at the Site of the Work. For all damage incurred in the performance of the Work (either directly or indirectly), the Contractor shall either replace and repair such damage, whichever may be deemed necessary in the opinion of, and acceptable to the Contract Administrator, and the cost of which shall be borne entirely by the Contractor. The Contractor shall also indemnify and save harmless the City and the Contract Administrator from all claims made directly or indirectly against it in respect to any such damage.

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

- E8.1 Further to C6.12, the Contractor shall give all necessary notices, obtain all necessary permits and pay all fees in order that the Work may be carried out. The Contractor shall submit all plans required by any inspection authority and obtain approval of same before proceeding with the Work, and pay any cost attached to the inspection of such plans.
- E8.2 The Site Development Permits (including lot grading and damage deposits) will be obtained and paid for by Owner prior to commencement of construction. A copy of this permit will be provided to the Contractor upon award of Contract.
- E8.3 The Site Waterway Permit will be obtained and paid for by Owner prior to commencement of construction. A copy of this permit will be provided to the Contractor upon award of Contract.
- E8.4 The Contractor shall comply with all laws, ordinances, rules and regulations that would relate to the Work.
- E8.5 All notices, consents, approvals, statements, authorizations, documents or other communications to the City shall be submitted to the Contract Administrator.
- E8.6 All Work shall be performed in compliance with the Manitoba Workplace Health and Safety Act.
- E8.7 All Work shall be performed in compliance with the Manitoba Workplace Health and Safety Fall Protection guidelines.
- E8.8 The Contractor and Sub-contractors must be fully aware of all Work involving hazardous materials. All Work must be performed in compliance with the Manitoba Department of Labour

Workplace Health and Safety Guidelines and all other applicable codes. The Contractor is responsible for the immediate notification to the Contract Administrator of his/her encountering of suspected hazardous material during their course of Work.

E9. STAKES AND MARKS

- E9.1 The Contractor will mark, to the extent he determines to be necessary, the location, alignment and elevation of the Work by means of stakes or marks, based on the initial grades set by McGowan Russell Group Inc and Amec Foster Wheeler of the tied concrete blocks and gabion mattress for review and approval by the Contract Administrator. The Contractor shall make the completed Works conform to the lines and marks thus approved and indicated.
- E9.2 The Contractor shall notify the Contract Administrator immediately of the disturbance of any such stakes or marks. The cost of correcting any errors arising out of neglect of the Contractor to so notify the Contract Administrator shall be borne entirely by the Contractor, as well as the cost of replacing any disturbed stakes or marks.
- E9.3 Before commencing Work, the Contractor shall satisfy himself as to the meaning and correctness of all stakes and marks and no claims shall be entertained by the City on account of any alleged inaccuracies. If any error is suspected in the Drawings, Specifications or the directions of the Contract Administrator, Work shall be discontinued until the errors are rectified, but no claims shall be made on account of any delay occasioned thereby.
- E9.4 The Contractor shall determine and provide all dimensions and elevations measured from the stakes or marks.

E10. PEDESTRIAN SAFETY AND TRAFFIC MANAGEMENT

- E10.1 Further to CW 1130, the Contractor shall take such measures as are necessary to ensure safe and convenient pedestrian ingress and egress is maintained to private properties while he is Working near them. Any damage caused by the negligence of the Contractor or his SubContractors to the adjacent Works or properties, shall be promptly repaired by him at his own expense, to the satisfaction of the Contract Administrator.
- E10.2 The Contractor shall, during the construction of this project, maintain safe, accessible, access to the adjacent facilities at all times.
- E10.3 The Contractor shall provide signage for existing pathway closure as needed during the construction of this project
- E10.4 The Contractor shall isolate the work Site with temporary fencing. These shall be erected and maintained as required for the duration of the construction period.
- (a) Orange safety fencing will be accepted as sufficient to isolate the site.
- E10.5 Ambulance/Emergency vehicle access must be maintained at all times.
- E10.6 Site enclosures shall be considered incidental to the Contract Work.

E11. PROTECTION OF THE SURVEY INFRASTRUCTURE

- E11.1 Notwithstanding clause 4 "Protection of Survey Bars" of the Standard Provisions; Current legislation, The Surveys Act, places the onus on those undertaking construction to protect the Survey Infrastructure from damage as a result of their activity.
- E11.2 Further to C:6.26 (g), at least seventy-two (72) hours prior to the commencement of the On-Site Work the Contractor shall contact the City of Winnipeg, Geomatics Services Branch at 986-4826 (8:00 am to 4:00 pm Monday to Friday excluding holidays) to obtain underground clearance. Geomatics Services will locate and mark all known outline survey monuments and geodetic control monuments and confirm the physical condition of those monuments upon completion of construction, at no cost to the Contractor.

- E11.3 Where a survey post, bar or control monument lies in the line of the proposed Work and must be disturbed, the Contractor shall provide the Contract Administrator with forty-eight (48) hours notice to permit referencing for future replacement, at no cost to the Contractor. Failure to provide the specified notice shall result in the Contractor paying for all costs associated with replacing or relocating the disturbed outline survey monuments and geodetic control monuments.
- E11.4 Survey monuments and geodetic control monuments at or adjacent to the Site, not in the line of the proposed construction that are damaged or disturbed by the Contractor shall be replaced or relocated by the City or its agent and all associated costs shall be paid for by the Contractor. An approximate estimate of the costs involved to restore a legal survey monument is \$1,000 per bar and \$3,000 per control monument. Contractors must ensure their landscaping and other subcontractors are aware of this clearance procedure and the potential restoration costs.
- E11.5 Where possible, amounts owed to the City in accordance with the above will be deducted from any payments to be made by the City to the Contractor.

E12. TREE AND SHRUB PROTECTION

- E12.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities to mature existing riverbank trees within the limits of the construction area. Existing trees 8" caliper or larger are to be protected to City of Winnipeg Standards during construction.
- (a) The Contractor shall not stockpile materials and soil or park vehicles and equipment within 2 metres of trees.
 - (b) Trees identified to be at risk by the Contract Administrator are to be strapped with 25x100x2400mm wood planks, or suitable protection as approved by the Contract Administrator.
 - (c) Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the excavation shall be a minimum of 1.5 times the diameter (measured in inches), with the outcome read in feet, from the closest edge of the trunk. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation.
 - (d) Operation of equipment within the drip line of the trees shall be kept to a minimum to perform the Work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the drip lines of trees. The drip line of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.
- E12.2 Where tree protection fencing is called for the Contractor shall install orange safety fencing with a minimum height of 1.2m using t-rail metal stakes at a maximum spacing of 2m o.c. Safety fencing shall be securely fastened to the trail stake.
- E12.3 Contractor shall maintain tree protection fence until such time as construction is sufficiently well progressed as to ensure that vehicular traffic and movement of heavy materials is no longer necessary to complete the remaining works.
- E12.4 All damage to existing trees, shrubs or grasses caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator, City Forester or his/her designate and City Naturalist or his/her designate.
- E12.5 Tree protection shall be incidental to the work and will have no separate measurement and payment.

E13. LAYOUT OF WORKS

- E13.1 Further to E9, The Contractor will work from layout information provided in the construction drawings and will be responsible to provide an experienced survey crew to layout and check the locations and elevations of all components of the Work included in this Contract.
- E13.2 The Contractor must provide all necessary survey equipment in good operating conditions.
- E13.3 The Contractor shall supply all materials (painting, stakes, ribbon, markers, etc) and labour necessary for the accurate location and setting out of the Work.
- E13.4 From time to time the Contract Administrator may have a survey crew on the Site, but they will check the Work done by the Contractor's survey personnel only. The checking of the Work by the Contract Administrator surveyors will not relieve the Contractor of any responsibility of the correctness of the Work. Should any structure or paving or any part thereof be installed in any location other than that shown on the Drawings, then the error shall be rectified by the Contractor all at his own expense and at the satisfaction of, and in a manner specified by the Contract Administrator.

E14. EXISTING UNDERGROUND SERVICES

- E14.1 The Contractor's attention is drawn to the existing underground lines or services that may be located in the area of the Work.
- E14.2 The Contractor shall take all necessary precautions when performing the Work to ensure that no damage is done to these existing services.
- E14.3 No responsibility will be assumed by The City for correctness or completeness of the Drawings, when provided, with respect to the existing utilities, pipes or other objects either underground or on the surface, shall not be liable for the incorrectness and inadequacy thereof. It shall be the responsibility of the Contractor to determine the location of all such utilities, pipes and other objects and to make good any damage done to them.
- E14.4 All costs in connection with this item including location of the existing service, repairs to any existing services damaged by the construction operation, etc. shall be included in the unit prices bid for supply and installation of the items included under this Contract.
- E14.5 The Contractor will be required to make his own arrangements in connection with the temporary use of lighting, power, gas, sewer, water or other utilities, and pay all costs in connection therewith.
- E14.6 All necessary permits, fees and other like expenses as well as the cost of temporary connections to existing facilities shall be arranged and paid for by the Contractor.

E15. PRODUCT APPROVALS

- E15.1 The Contractor shall, following award, prepare a complete list of all material to be used on the project and submit the list to the Contract Administrator seventy two (72) hours prior to start of construction.
- E15.2 The Contractor shall only use material which has been approved in the City of Winnipeg Approved Products for Surfaces works dated October 2016 or by the Contract Administrator. The list shall provide the product, the manufacturer and the supplier.
- E15.3 Other than required to be done by the Contractor under the Work of this contract, all necessary precautions shall be exercised by the Contractor so as not to remove, disturb, or damage any existing plant material, pavements, streets, roads, boulevard, poles, hydrants, water pipes, gas pipes, electrical wires, cables, conduits, sewers or other existing facilities and equipment at the Site of the Work. For all damage incurred thereto in the performance of the Work, the Contractor shall upon instructions from the Contractor Administrator, either replace or repair

such damage, whichever may be deemed necessary in the opinion of, and acceptable to the Contract Administrator and the costs of which shall be borne entirely by the Contractor.

E15.4 All workmanship and materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Contract Administrator. The Contract Administrator reserves the right to reject any materials or Works which are not in accordance with the requirements of the Specifications.

E15.5 The Contractor shall be wholly responsible for the supply, safe storage, and handling of all materials set forth in this specification, and the control of all operations incidental thereto notwithstanding any inspection or approval that may have been previously given.

E16. DAMAGE TO STREETS AND STRUCTURES

E16.1 The Contractor is to be advised of the following existing Site features to be retained and protected to the City of Winnipeg Standards:

- | | | |
|------------------|-----------------------------|-------------|
| a) trees | e) all underground services | i) pathways |
| b) sidewalk | f) hydro poles | j) fences |
| c) sod | g) catch basins | k) culverts |
| d) fire hydrants | h) curb inlets | l) |

E17. CONSTRUCTION FACILITIES AND STAGING

E17.1 The Contractor shall be responsible for providing his own storage and handling of all his/her construction operations. The use of public right-of-ways will not be allowed.

E18. SITE PREPARATION, EXCAVATION, REMOVALS, AND ROUGH GRADING

E18.1 This specification is supplemental to CW 3110 and CW 3170. The Work of this section comprises the furnishing of all labour, equipment and materials required to complete the excavation fill, grading and related Work including, but not necessarily confined to, the following:

- (a) Site Preparation to include necessary provisions for the protection of river channel as approved on site by the Contract Administrator and City of Winnipeg Riverbank Management Engineer.
- (b) Excavation, removal, and disposal, of debris, etc. in area of new topsoil to the design requirements noted on the Drawings, approved on Site by the Contract Administrator, less the appropriate surface finish allowance.
- (c) Earthwork and grading of the Site (cut and fill) to ensure positive drainage to the Seine River and as required to establish vegetation stakes and grass plugs to be installed along the riverbank
- (d) Removal and disposal of existing grouted rip rap located around outfall #1 as noted on the drawings

Construction Methods

E18.2 Should it be necessary for the Contractor to deposit materials within the Seine River Channel (i.e Temporary Road, cofferdam, etc.) or should material inadvertently be deposited within the creek channel as a result of the work (i.e riverbank undercutting for placement of gabion baskets), the Contractor shall take such steps as are necessary to remove such material and return the river channel to the condition it was in prior to construction. This includes provision of a silt fence along the toe of the slop if the river level is less than 0.5m or a cofferdam if the river level exceeds more than 0.5m at any given point. When a cofferdam is to be required, it shall consist of sand bags and geotextile to reduce the contamination of the river and to preserve the fish habitat. Alternate cofferdam options can be considered with prior approval from the Contract Administrator. If conditions are such that no water in the riverbed is present, neither a silt fence nor a cofferdam would be required.

- E18.3 The Contractor shall remove and dispose of all materials and debris that is not conducive to plant material growth on site to the depth required to replace with topsoil to support naturalization.
- E18.4 The Contractor shall remove and dispose of existing grouted rip-rap as noted for removal on the Drawings and determined onsite with the Contract Administrator.
- E18.5 The Contractor shall construct the Site within the limits indicated to the design elevations and gradients noted on the Drawings, less the appropriate surface treatment depths specified and shall excavate, remove and dispose of all unsuitable materials of whatever nature encountered.
- E18.6 The Contractor shall restrict his activities strictly to within the limits of the Work, unless receiving prior written approval from the Contract Administrator. The Contractor shall take all precautions to prevent damage to traffic structures, pole lines, existing trees, Site services and adjacent property and he shall be liable for any damages occurring in the performance of this Work.
- E18.7 The Contractor shall examine the Site and make themselves familiar with the existing conditions and the nature of the Work to be done.
- E18.8 The Contractor shall prevent damage to surface or underground utility lines which are to remain and make good any damage.
- E18.9 The Contractor shall excavate to the design grades shown less the appropriate allowance for surface treatment and shall excavate, remove and dispose of all unsuitable materials of whatever nature encountered.
- E18.10 Excavated or graded materials to be approved before use as fill for grading Work. Protect such approved material from contamination. Stockpile in approved locations on Site. Protection and stockpiling are incidental to unit prices bid for excavation, removals and rough grading.
- E18.11 The Contractor shall ensure that upon completion of the removal operations the Site is left in a neat condition free from debris, etc. for approval by the Contract Administrator prior to commencing new construction.
- E18.12 No direct payment will be made for placing and grading of existing fill as all costs for this Work shall be included in the lump sum bid for rough grading within the limit of the Work.

Measurement and Payment

- E18.13 Site Preparation will be paid for on a lump sum basis for "Site Preparation" as specified herein, which price shall be payment in full for performing all operations herein and all other items incidental to the Work included in this Specification.
- E18.14 Rough grading and excavation will be paid for on a lump sum basis for "Rough grading and excavation" as specified herein, which price shall be payment in full for performing all operations herein and all other items incidental to the Work included in this Specification.
- E18.15 Remove and dispose of existing grouted rip-rap will be measured on a lump sum basis. The amount to be paid for shall be incidental to the amount removed in accordance with the specifications and accepted by the Contract Administrator, as computed from measurements made by the Contract Administrator.

E19. SITE RESTORATION

- E19.1 Total Performance of the Work shall not be attained until the Contractor has cleaned up the Site and has removed all tools, equipment, waste, debris and surplus foundation earth to the satisfaction of the Contract Administrator. Unless otherwise specified, the Contractor shall restore all areas of the Site beyond the established limit of Work, which have been disturbed by the Contractor's operations to as good as or better than the original condition to the satisfaction of the Contract Administrator. The Contractor shall pay all costs associated with this Work.

E20. PLANT MATERIAL

Description

- E20.1 The following list generally describes the scope of this section:
- (a) Supply and installation of live willow stakes and grass plugs;
 - (b) Maintenance to date of substantial performance;
 - (c) Warranty to acceptance.

General

- E20.2 Obtain approval of plant material at source.
- E20.3 Notify Contract Administrator of source of material at least 7 days in advance of shipment. No Work under this Section is to proceed without approval.
- E20.4 Acceptance of plant material at source does not prevent rejection at Site prior to or after planting operations.
- E20.5 Source of all plant material to be from an area within the same hardiness zone and soil conditions as Winnipeg.

Shipment and Pre-Planting Care

- E20.6 Co-ordinate shipping of live stakes and excavation of holes to ensure minimum time lapse between digging and planting.
- E20.7 All live stakes shall be maintained in a continuously cool, covered, and moist state prior to use and be in good condition when installed.

Materials

Water

- E20.8 Water should be potable and free of minerals, which may be detrimental to plant growth.

Plant Material

- E20.9 Quality and Source: All plant material to be approved by City and Contract Administrator at source.
- E20.10 Live stakes shall be 19mm in diameter and 1.5- 2m long. No leaf buds shall have initiated growth beyond 63mm and the cambium layer shall be moist, green and healthy.

Cold Storage

- E20.11 Approval required for plant material, which has been held in cold storage.

Substitutions

- E20.12 Substitutions to plant material as indicated on plantings plan are not permitted unless written approval has been obtained as to type, variety and size prior to award of Contract. Plant substitutions must be similar species and of equal size to those originally specified.

Construction Methods

Workmanship

- E20.13 Mark out location of live stakes prior to planting. Obtain approval by the City and Contract Administrator prior to excavating.

- E20.14 Apply anti-desiccant in accordance with material manufacturer's instructions only as required.
- E20.15 Co-ordinate operations. Keep Site clean and planting holes drained. Immediately remove soil or debris spilled onto pavement.

Planting Time

- E20.16 Install live cuttings during dormant period, before buds have broken. Plant material noted for spring planting only, must be planted in dormant period.
- E20.17 When permission has been obtained to plant materials after buds have broken, spray plants with anti-desiccant to slow down transpiration prior to transplanting.
- E20.18 Plant only under conditions that are conducive to health and physical conditions of plants.
- E20.19 Provide planting schedule. Executing planting operations over long period using limited crew will not be accepted.

Excavations

- E20.20 Prepare planting areas as shown on the Drawings.
- E20.21 Provide drainage for planting holes in heavy soil if natural drainage does not exist. Have method approved.
- E20.22 Protect bottom of excavations against freezing.
- E20.23 Remove water, which enters excavations prior to planting. Ensure source of water is not ground water.

Planting

- E20.24 Live stakes shall be inserted a minimum of 1.0m into the soil or 2/3 the length of the stake
- E20.25 A minimum of 100mm and two live buds of the live stake shall be exposed above the soil or gabions
- E20.26 Live stakes shall be cut to a point on the basal end for insertion in the ground.
- E20.27 An iron bar or similar tool shall be used to make a pilot hole to prevent damaging the material during installation.
- E20.28 Live stakes shall be inserted by hand into pilot holes
- E20.29 Tamp soil around live stakes where possible to eliminate air voids.
- E20.30 Care shall be taken not to damage the live stakes during installation. Those damaged at the top during installation shall be trimmed back to undamaged condition.

Pruning

- E20.31 Prune shrubs after establishment only as required to remove broken diseased or dead branches. Employ clean sharp tools and make cuts flush with main branch, smooth and sloping as to prevent accumulation of water.

Maintenance

- E20.32 After completion of planting operation to the satisfaction of the Contract Administrator and City of Winnipeg, the Contractor shall be responsible for the maintenance of the plant material until date of Substantial Performance and commencement of two year warranty.

- E20.33 Replace any dead or damaged plant material during the maintenance period, including replacement of vandalized material.
- E20.34 Water sufficiently to maintain optimum growing conditions. Ensure adequate moisture in root zone at freeze-up.
- E20.35 The Contractor shall provide all necessary equipment, including: tractors, mowers, hand mowers, trimmers, fertilizer spreaders, pruning tools, hoses, water meters, and any other items necessary for the maintenance of the plant material indicated in this Specification.

Personnel

- E20.36 The Contractor shall provide all necessary personnel for the ongoing maintenance operations.

Maintenance Methods

Watering

- E20.37 Live stakes and grass plugs shall be watered twice weekly, or as required to ensure health of stakes and grass plugs during maintenance period.
- E20.38 To determine the need for watering, make a soil test weekly with a one-inch auger. Take a test sample from both the planting soil by drilling to a minimum depth of 600mm. The soil shall contain enough moisture to hold together when compressed in the hand, but not be muddy.

Fertilizing

- E20.39 Because of the specialized nature of such operations, fertilizing is to be done by a qualified local arborist.
- E20.40 Fertilize in the fall over the surface of the ground surrounding the plants, then soak the area thoroughly, use 10-6-4 analysis fertilizer spreading a maximum of 0.13 kg per square metre.

Spraying

- E20.41 Spray shrubs to control insect pests and diseases. Use horticulturally recommended compounds specific for the problem to be contained.

Insects and Diseases

- E20.42 Spray plants to combat pests and diseases. Do not use DDT or sprays prohibited by Agriculture Canada.

Measurement and Payment

- E20.43 Supply and Installation of Plant Material will be measured and paid on a unit basis. The number of units to be paid shall be the total number of each type and size of units supplied and installed in accordance with the Drawings and Specifications and as measured and accepted by the Contract Administrator as specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the Work included in this Specification.

E21. NATIVE GRASS PLUG PLANTING

- E21.1 Further to E20 Plant Material. This specification will generally set out the requirements for Native Grass Plug Planting.
- E21.2 Contractor to follow Project Methodology for native grass plug planting as approved by the City of Winnipeg Naturalist.
- E21.3 Project Methodology is to include the following:

- (a) Develop and implement a planting approach for native grass plugs with a mix of grasses, and forbs planted at 0.5m intervals including pre and post planting maintenance actions.
- (b) Provide a planting plan that will provide a sustainable naturalized area.
- (c) Plug bed preparation plan.
- (d) Weed control plan.

Materials

- E21.4 Water should be potable and free of minerals, which may be detrimental to plant growth.
- E21.5 Quality and Source: All Native Grass Plugs to be approved by City of Winnipeg Naturalist and Contract Administrator at source.
- E21.6 All design, monitoring, Work and Materials required for the establishment of the naturalized area are to be included in the unit price provided under this section.
- E21.7 The Contract Administrator will terminate the establishment period after the following criteria have been met:
 - (a) The certified native grass plugs meets the requirements specified in the Project Methodology as approved by the City of Winnipeg Naturalist.
 - (b) The area is free of any visual obstructions such as debris.
 - (c) The area has established into a healthy, vigorously growing condition.

Measurement and Payment

- E21.8 Native grass plugs will be measured and paid on an area basis. The area to be paid for shall be the total number of square meters established in accordance with this Specification and accepted by the Contract Administrator measured as specified herein, which price shall be payment in full for completing all operations herein described and all other items incidental to the Work included in this Specification.

E22. GABION MATTRESS

Work Included

- E22.1 This specification shall cover the supply and placement of the gabions for the project as a mean of erosion protection.
- E22.2 The work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, and all things necessary for and incidental to the satisfactory performance and completion of all work as hereinafter specified.

Equipment

- E22.3 All equipment, implements, tools and facilities used shall be of a size and type as required to complete the work in a reasonable time. The Contractor shall keep all equipment in good working order, and have sufficient standby equipment available at all times, as required.

Method of Measurement

- E22.4 The supply and placement of the "Gabions" shall be measured on volume of a cubic metre basis in their final position. The volume to be paid for shall be measured as the volume in accordance with this Specification and Construction Drawings.

Basis of Payment

- E22.5 The supply and placement of the "Gabions" will be paid at the Contract Unit Price per cubic metre for in placed "Gabions", as determined by the Contractor and confirm by Owner, as

specified herein, which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the work included in the Specification.

Products:

Gabions

- E22.6 The gabions are baskets manufactured from Type 8x10 double twisted hexagonal woven steel wire mesh, as per ASTM A975. The basket sizes will be measured in accordance with the Construction Drawings.
- E22.7 The steel wire used in the manufacture of the gabion shall be zinc coated soft temper steel that is further coated with PVC to provide additional protection for use in polluted, contaminated or aggressive environments (i.e. in salt, fresh water, acid soil or any corrosive environments)
- E22.8 All physical property requirements for wire shall conform to:
 - (a) All tests on wire must be performed prior to manufacturing the mesh.
 - (b) All wire should comply with ASTM A975, style 3 coating, galvanized and PVC coated steel wire
 - (c) Wire used for the manufacture of gabions and the lacing wire, shall have a maximum tensile strength of 515 MPa as per ASTM A641/ A641M soft temper steel.
- E22.9 All physical property requirements for woven wire mesh Type 8x10 shall conform to:
 - (a) The mesh and wire characteristics shall be in accordance with ASTM A975 Table 1, Mesh type 8x10 and PVC coated.
 - (b) The nominal mesh opening, D is 83 mm, where D being the distance between the axis of two consecutive twists (refer to ASTM A975)
 - (c) Mesh Tensile Strength shall be in a minimum of 42.3 kN/m when tested in accordance with ASTM A975 Section 13.1.1.
 - (d) Punch Test resistance shall be a minimum of 23.6 kN when tested in compliance with ASTM A975 13.1.4.
 - (e) Connection to Selvedges shall be 17.5 kN/m when tested in accordance with ASTM A975.
- E22.10 All physical property requirements for Polyvinyl Chloride (P.V.C.) coating shall conform to:
 - (a) The initial property of the PVC coating shall be in compliance with ASTM A975 Section 8.2.
 - (b) Prior to UV and abrasion degradation, the PVC polymer coating shall have a projected minimum durability of 60 years when tested in accordance with UL 746B Polymeric Material – Long Term Property Evaluation for heat aging test.
- E22.11 All physical property requirements for galvanized and PVC coated lacing wire and internal stiffener shall conform to:
 - (a) PVC coating thickness: Nominal – 0.5 mm; Minimum – 0.38mm.
 - (b) Lacing wire, Cross Tie/ Stiffener wire and Performed Stiffener

Types	Internal Diameter (mm)	External Diameter (mm)
Lacing Wire	2.20	3.20
Cross Tie/ Stiffener wire	2.20	3.20
Performed Stiffener	3.40	4.40

- E22.12 Stainless steel overlapping fasteners may be used in lieu of, or to complement, lacing wire for basket assembly and installation. All physical property requirements for Spenax Fasteners shall conform to:
- (a) High tensile fasteners shall have a nominal spacing of 100 mm, not to exceed 150 mm for all assembly and installation. This is based on a 17.5 kN/m pull apart resistance for galvanized mesh with this spacing (ASTM A975-11 Section 13.1.2).
 - (b) Fastener used for assembly and installation of the units on the field shall be tested for compliance with the ASTM A975-11 Section 13.1.2.2 Pull-Apart Resistance. Producer or supplier of the wire mesh shall provide certification no later than 15 days prior to construction.
 - (c) When tested in accordance to Section 13.1.2.2, the average maximum resistance of the fasteners from the field shall not be lower than 90% of the resistance provided in the certification.
 - (d) Stainless Steel Fasteners should have 3.05 mm diameter according to ASTM A313/ A313M, Type 302, Class I.
 - (e) The tensile strength of the fastener should be ranging from 1530 to 1744 MPa in accordance with ASTM A313 Table 5.
 - (f) Proper installation of rings: A properly formed Spenax fastener shall have a nominal overlap of 25 mm after closure.

Rock

- E22.13 The Contractor shall supply riverstone, which is dense, durable, sound, resistant to the action of water and frost, and suitable in all respects for the purpose intended. Stone rip-rap shall be free from sod, roots, organic material and debris prior to placement. Individual pieces of stone shall be free of defects such as seams or cracks that would cause rapid or excessive deterioration or degradation.
- E22.14 Should the Contractor choose to use limestone (upon approval by the Contract Administrator), it shall be durable white crystalline limestone or dolomite. Softer buff to yellow dolomite or dolostone will not be accepted.
- E22.15 Gabion rocks shall range between 100 mm and 200 mm diameter. The range in sizes shall allow for a variation of 5% oversize and / or 5% undersize rock, provided the undersize rock is not placed on the gabion exposed surface.

Execution

Construction Methods

- E22.16 All work related to the gabion storage, handling, and installation shall comply with the procedures and recommendations of the manufacturers. The Contractor shall supply all manufacturer recommendations for storage, handling and installation to the Geotechnical Consultant.
- E22.17 The limits of the gabion placement shall be coincident with those shown on the Construction Drawings.
- E22.18 Prior to gabion installation, the bearing the gabion bearing should be prepared so that a uniform surface is obtained. The bearing surface of the gabion shall be evaluated by the Geotechnical Consultant to confirm the subsurface conditions to support the gabion wall. Any soft and weak subgrade encountered should be remediated following the recommendations provided by the Geotechnical Consultant.
- E22.19 The bearing surface of the gabion shall have a minimum of 2% of surface slope downslope to promote positive drainage away from the excavated wall.
- E22.20 The bearing surface of the gabion shall be cleared of all deleterious organic materials (i.e. sod, roots, branches, etc).

- E22.21 Voids/ gaps could be present between the excavated vertical soil wall and the gabion. For this instance, the voids should be backfilled with free draining granular fill between the excavated soil walls.
- E22.22 When needed backfill soil should consist of free draining granular fill to promote water drainage behind the gabion wall. Clay fill may also be accepted given that both the backfilled surface is sloped to promote drainage away and the material is approved by the Geotechnical Consultant. The backfill soil shall be free of excess moisture, roots, muck, sod, snow, frozen lumps, organic material or other deleterious materials.
- E22.23 Gabions are supplied folded flat and packed in bundles. The units are assembled individually by erecting the sides, ends, and diaphragms, ensuring that all panels are in the correct position, and the tops of all sides are aligned. The four corners shall be connected first, followed by the internal diaphragms to the outside walls. All connections should use lacing wire or fasteners as previously described in Section E22.6- E22.12.
- E22.24 The procedure for using lacing wire consists of cutting a sufficient length of wire, and first looping and/or twisting to secure the lacing wire to the wire mesh. Proceed to lace with alternating double and single loops through every mesh opening approximately every 150 mm, pulling each loop tight and finally securing the end of the lacing wire to the wire mesh by looping and/or twisting. The use of fasteners shall be in accordance with the manufacturer's recommendations as specified in Section E22.6- E22.12.
- E22.25 After initial assembly, the gabions are carried to their final position and are securely joined together along the vertical and top edges of their contact surfaces using the same connecting procedure(s) described in Section E22.16- E22.30. Whenever a structure requires more than one layer, the upper empty baskets shall also be connected to the top of the lower layer along the front and back edges of the contact surface using the same connecting procedure(s) described in Section E22.26.
- E22.26 Gabions shall be installed around existing culverts with a stepped face. Baskets are to be placed on top of each other with a 457mm set back. Contractor to ensure baskets are set into riverbank to prevent overturning. Gabions are to be securely joined together along the vertical edges of their contact surface as well as horizontally along the top edges using the same connecting procedure(s) described in Section E22.16-E22.30. Whenever a structure requires more than one layer, the upper empty baskets shall also be connected to the top of the lower layer along the front and back edges of the contact surface using the same connecting procedure(s) described in Section E22.26.
- E22.27 Gabions shall be filled with rock as specified in Section E22.13- E22.15. During the filling operation some manual stone placement is required to minimize voids. The exposed faces of vertical structures may be carefully hand placed to give a neat, flat, and compact appearance. Care shall be taken when placing fill material to ensure that the sheathing on the PVC coated baskets is not damaged. The cells shall be filled in stages so that local deformation may be avoided. That is, at no time shall any cell be filled to a depth exceeding 300 mm higher than the adjoining cell. It is also recommended to slightly overfill the baskets by 25 mm to 50 mm to allow for settlement of the rock. Behind gabion walls, lightly compact the backfill material simultaneously to the same level as the filled gabions.
- E22.28 MacTie preformed stiffeners or lacing wire can be used as internal connecting wires when a structure requires more than one layer of gabions to be stacked on top of each other. Internal Connecting Wires with lacing wire shall connect the exposed face of a cell to the opposite side of the cell. Internal Connecting Preformed stiffeners shall connect the exposed face of a cell to the adjacent side of the cell. Preformed stiffeners are installed at 45° to the face/side of the unit, extending an equal distance along each side to be braced (approximately 300 mm). An exposed face is any side of a gabion cell that will be exposed or unsupported after the structure is completed.
- E22.29 1 m high gabions shall be filled in three layers, 300 mm at a time. Connecting wires/bracings shall be installed after the placement of each layer, that is, at 300mm high and 600 mm high.

0.5 m high gabions do not require connecting wires/bracings unless the baskets are used to build vertical structures. In some cases, these units shall be filled in two layers, 250 mm at a time. Connecting wires shall be installed after the placement of the first layer, which is at 250 mm high.

E22.30 Once the gabion baskets are completely full, the lids will be pulled tight until the lid meets the perimeter edges of the basket. A tool such as a lid closer can be used. The lid must then be tightly laced and/or fastened along all edges, ends and tops of diaphragm(s) in the same manner as described in Section E22.16- E22.31.

E22.31 Where shown on the drawings or otherwise directed by the engineer, the gabions shall be cut, folded and fastened together to suit site conditions. The mesh must be cleanly cut and surplus mesh either folded back or overlapped so that it can be securely fastened together with lacing wire or fasteners in the manner described in Section 3.1. Any reshaped gabions shall be assembled, installed, filled and closed as specified in the previous sections.

E23. TIED CONCRETE BLOCKS

General

Work Included

E23.1 This specification shall cover the supply and placement of the Tied Concrete Blocks for the project as a mean of erosion protection.

E23.2 The work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, and all things necessary for and incidental to the satisfactory performance and completion of all work as hereinafter specified.

Equipment

E23.3 All equipment, implements, tools and facilities used shall be of a size and type as required to complete the work in a reasonable time. The Contractor shall keep all equipment in good working order, and have sufficient standby equipment available at all times, as required.

Method of Measurement

E23.4 The supply and placement of the "Tied Concrete Blocks" shall be measured on an area basis. The area to be paid for shall be the total number of square metres of ground covered by the Tied Concrete Blocks (i.e. overlap at all joints will be considered a single layer), placed in accordance with this Specification and accepted by the Geotechnical Consultant, as measured in the field.

Basis of Payment

E23.5 The supply and placement of the "Tied Concrete Blocks" will be paid at the Contract Unit Price per square metre for "Tied Concrete Blocks", as determined by the Contractor's daily Layout Survey and confirmed by the As-Built Measurement and Survey completed by the Owner, as specified herein, which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the work included in the Specification.

Products

"Flexamat "(or Equivalent Product in accordance with B7)

E23.6 "Flexamat" is manufactured from individual concrete blocks tied together with high strength polypropylene bi-axial geogrid. Each block is tapered, beveled and interlocked and includes connections that prevent lateral displacement of the blocks within the mats when they are lifted for placement.

- E23.7 Furnish blocks manufactured with concrete conforming to the cement requirements of ASTM C150 and to the aggregate requirements of ASTM C33. Meet a minimum compressive strength of 27.6 MPa (4,000 psi) at 28 days. Furnish blocks that have a minimum weight of 1.4 kg (3 lb) per block. Blocks shall be placed no further than 50 mm (2 in) apart.
- E23.8 Cover the mat or otherwise protect it during long periods of storage to protect against degradation of the backing material as recommended by the manufacturer.
- E23.9 Mats will be rolled for shipment and are packaged with handling straps. These handling straps shall only be used for lifting below 0.6m (2 ft) as a means to place heavy duty lifting straps under rolls. Upon delivery, rolls may be left exposed for up to 30 days. If exposure will exceed 30 days, cover or tarp the rolls to minimize UV exposure.
- E23.10 All mats to be inspected upon delivery. Assure that all units are sound and free of defects that would interfere with the proper placing of the unit or impair the strength or permanence of the construction.
- E23.11 Chipping or missing concrete resulting in a weight loss exceeding 15% of the average weight of a concrete unit is grounds for rejection by the engineer. Replace, repair or patch the damaged areas per the manufacturer's recommendations.

Execution

Construction Methods

- E23.12 Prior to installing the Tied Concrete Blocks, prepare the subgrade as detailed in the plans. All subgrade surfaces to be smooth and free of all rocks, stones, sticks, roots, and other protrusions or debris of any kind that would result in an individual block being raised more than 19 mm (3/4 in) above the adjoining blocks. If seeding is required for the project, provide subgrade material that can sustain growth.
- E23.13 Ensure the prepared subgrade provides a smooth, firm, and unyielding foundation for the mats. The subgrade shall be graded into a parabolic or trapezoidal shape in order to concentrate flow to middle of mat or mats.
- E23.14 When vegetation is required, prepare topsoil subgrade before installation of the concrete mats in accordance with the specifications.
- E23.15 Install mats to the line and grade shown on the plans and according to the manufacturer's guidelines.
- E23.16 Tied Concrete Blocks shall be fastened and anchored to the ground as shown in Construction Drawings. Fastening and anchoring shall comply with the manufacturer recommendations.
- E23.17 For seams parallel to the flow line in ditch or channel applications, centre a minimum 0.9 m (3 ft) wide strip of soil retention blanket under the seam. Fasten along the seam at 1.5 m (5 ft) maximum spacing.
- E23.18 Shingle seams perpendicular to the flow line with the downstream mat recessed a minimum of 2 blocks under the upstream mat and fastened together along the seam at 0.6 m (2 ft). maximum spacing if required by manufacturer or engineer.

E24. WILLOW SPILING

Description

- E24.1 The following list generally describes the scope of this section:
- (a) Supply and installation of Willow Spiling;
 - (b) Maintenance to date of substantial performance;
 - (c) Warranty to acceptance.

General

- E24.2 Obtain approval of plant material at source.
- E24.3 Notify Contract Administrator of source of material at least 7 days in advance of shipment. No Work under this Section is to proceed without approval.
- E24.4 Acceptance of plant material at source does not prevent rejection at Site prior to or after planting operations.
- E24.5 Source of all plant material to be from an area within the same hardiness zone and soil conditions as Winnipeg.

Shipment and Pre-Planting Care

- E24.6 Co-ordinate shipping of live willow stakes, willow bundles and excavation of holes to ensure minimum time lapse between digging and planting.
- E24.7 All live stakes and bundles shall be maintained in a continuously cool, covered, and moist state prior to use and be in good condition when installed.

Materials

Water

- E24.8 Water should be potable and free of minerals, which may be detrimental to plant growth.

Topsoil and Backfill

- E24.9 Quality and Source: Comply with City of Winnipeg standards.

Plant Material

- E24.10 Quality and Source: Comply with City of Winnipeg planting guidelines. All plant material to be approved by City and Contract Administrator at source.
- E24.11 Live willow stakes shall be 19mm in diameter and 1.5- 2m long. No leaf buds shall have initiated growth beyond 63mm and the cambium layer shall be moist, green and healthy.
- E24.12 Willow branches shall be 12-19mm in diameter and 1.5-2m long and bundled. No leaf buds shall have initiated growth beyond 63mm and the cambium layer shall be moist, green and healthy.

Cold Storage

- E24.13 Approval required for plant material, which has been held in cold storage.

Substitutions

- E24.14 Substitutions to plant material as indicated on plantings plan are not permitted unless written approval has been obtained as to type, variety and size prior to award of Contract. Plant substitutions must be similar species and of equal size to those originally specified.

Construction Methods

Workmanship

- E24.15 Mark out location of live stakes prior to planting. Obtain approval by the City and Contract Administrator prior to excavating. Live stakes are to be installed 0.5m on centre.
- E24.16 Co-ordinate operations. Keep Site clean and planting holes drained. Immediately remove soil or debris spilled onto pavement.

Planting Time

- E24.17 Install live cuttings during dormant period, before buds have broken.
- E24.18 When permission has been obtained to plant materials after buds have broken, spray plants with anti-desiccant to slow down transpiration prior to transplanting.
- E24.19 Plant only under conditions that are conducive to health and physical conditions of plants.
- E24.20 Provide planting schedule. Executing planting operations over long period using limited crew will not be accepted.

Excavations

- E24.21 Prepare planting areas as shown on the Drawings.
- E24.22 Provide drainage for planting holes in heavy soil if natural drainage does not exist. Have method approved.
- E24.23 Protect bottom of excavations against freezing.
- E24.24 Remove water, which enters excavations prior to planting. Ensure source of water is not ground water.

Planting

- E24.25 Live stakes shall be inserted a minimum of 1.0m into the soil or 2/3 the length of the stake
- E24.26 Live stakes shall be cut to a point on the basal end for insertion in the ground.
- E24.27 Use a dead blow hammer to drive stakes into the ground (or equivalent accepted method by the Contract Administrator). An iron bar or similar tool shall be used to make a pilot hole to prevent damaging the material during installation.
- E24.28 Tamp soil around live stakes where possible to eliminate air voids.
- E24.29 Willow branch bundles are to be woven around on alternating sides of the live stakes along the top 1/3 of the stake above the ground. The Contractor is to ensure a seamless connection is made between bundles being woven.
- E24.30 A minimum of 180mm of the live stake shall be exposed above the woven branches.
- E24.31 Care shall be taken not to damage the live stakes and willow bundles during installation. Those damaged at the top during installation shall be trimmed back to undamaged condition.

Pruning

- E24.32 Prune shrubs after establishment only as required to remove broken diseased or dead branches. Employ clean sharp tools and make cuts flush with main branch, smooth and sloping as to prevent accumulation of water.

Maintenance

- E24.33 After completion of planting operation to the satisfaction of the Contract Administrator and City of Winnipeg, the Contractor shall be responsible for the maintenance of the plant material until date of Substantial Performance and commencement of two year warranty.
- E24.34 Replace any dead or damaged plant material during the maintenance period, including replacement of vandalized material.
- E24.35 Water sufficiently to maintain optimum growing conditions. Ensure adequate moisture in root zone at freeze-up.

E24.36 The Contractor shall provide all necessary equipment, including: tractors, mowers, hand mowers, trimmers, fertilizer spreaders, pruning tools, hoses, water meters, and any other items necessary for the maintenance of the plant material indicated in this Specification.

Personnel

E24.37 The Contractor shall provide all necessary personnel for the ongoing maintenance operations.

E24.38 Personnel should have at least one year of experience in landscape maintenance and should be under the direction of a foreman, in all cases, with not less than five (5) years of experience with similar maintenance operations.

Maintenance Methods

Watering

E24.39 Willow spiling shall be watered twice weekly, or as required to ensure health of stakes and grass plugs during maintenance period.

E24.40 To determine the need for watering, make a soil test weekly with a one-inch auger. Take a test sample from both the planting soil by drilling to a minimum depth of 600mm. The soil shall contain enough moisture to hold together when compressed in the hand, but not be muddy.

Measurement and Payment

E24.41 Willow Spiling Stakes will be measured and paid per stake. The area to be paid for shall be the total number of willow stakes established in accordance with this Specification and accepted by the Contract Administrator measured as specified herein, which price shall be payment in full for completing all operations herein described and all other items incidental to the Work included in this Specification.

E24.42 Willow Spiling Branch Bundles will be measured and paid per bundle. The area to be paid for shall be the total number of willow branch bundles to be woven as established in accordance with this Specification and accepted by the Contract Administrator measured as specified herein, which price shall be payment in full for completing all operations herein described and all other items incidental to the Work included in this Specification.

E24.43 Topsoil and Backfill for Willow Spiling will be measured and paid on an area basis. The area to be paid for shall be the total number of square meters established in accordance with this Specification and accepted by the Contract Administrator measured as specified herein, which price shall be payment in full for completing all operations herein described and all other items incidental to the Work included in this Specification.

E25. EXTENDED MAINTENANCE

Description

E25.1 The Specification shall deal with the maintenance of the Plant Material for two (2) calendar years after acceptance in accordance with Warranty.

Materials and Personnel

E25.2 The Contractor shall provide all necessary equipment, including: tractors, trimmers, fertilizer spreaders, pruning tools, water trucks, hoses, water meters, and any other items necessary for the maintenance of the area indicated in this Specification.

E25.3 The Contractor shall provide all necessary personnel for the ongoing maintenance operations.

Work Included

E25.4 The following areas shall be part of the maintenance jurisdiction:

- (a) The plant material as indicated on the Construction Drawings

E25.5 Maintenance of Plant Material

- a) Live stakes and grass plugs shall be watered twice weekly, or as required to ensure health of stakes and grass plugs during maintenance period.
- b) To determine the need for watering, make a soil test weekly with a one-inch auger. Take a test sample from both the planting soil by drilling to a minimum depth of 600mm. The soil shall contain enough moisture to hold together when compressed in the hand, but not be muddy.
- c) Because of the specialized nature of such operations, fertilizing is to be done by a qualified local arborist.
- d) Fertilize in the fall over the surface of the ground surrounding the plants, then soak the area thoroughly, use 10-6-4 analysis fertilizer spreading a maximum of 0.13 kg per square metre.
- e) Spray plants to combat pests and diseases. Do not use DDT or sprays prohibited by Agriculture Canada.
- f) Prune stakes as directed by City of Winnipeg Forestry.
- g) Coordinate spring, mid-summer and fall inspections with Contract Administrator for each year of maintenance.

E25.6 The Contractor shall agree and guarantee to replace and replant any nursery stock found dead or in poor condition at each inspection during the maintenance period. "Poor Condition" shall be interpreted as meaning nursery stock in which branches are dead or dying, or have not shown satisfactory growth of leaves. All replacements shall be of same size and species, as specified.

E25.7 Upon the end of the required maintenance period, a Site inspection shall be held. If at this time, all Material and Works is satisfactory the Contract for maintenance and warranty shall be terminated.

Measurement and Payment

E25.8 Extended Maintenance will be measured on a yearly basis and paid for in accordance with this Specification and accepted by the Contract Administrator which price shall be payment in full for Extended Maintenance.