



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 581-2013

INSTALLATION OF SURVEY MONUMENTS AT NEWPCC

TABLE OF CONTENTS

PART A - BID SUBMISSION

Form A: Bid	1
Form B: Prices	3

PART B - BIDDING PROCEDURES

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

PART C - GENERAL CONDITIONS

C0. General Conditions	1
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PART D - SUPPLEMENTAL CONDITIONS

General

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

Submissions

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

Schedule of Work

D12. Commencement	4
D13. Substantial Performance	4
D14. Total Performance	4
D15. Liquidated Damages	5

Control of Work

D16. Prime Contractor – The Workplace Safety and Health Act (Manitoba)	5
D17. The Workplace Safety and Health Act (Manitoba) – Qualifications	5

Measurement and Payment

D18. Invoices	5
D19. Payment	6

Warranty

D20. Warranty	6
Form H1: Performance Bond	7

Form H2: Irrevocable Standby Letter of Credit	9
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PART E - SPECIFICATIONS

General

E1. Applicable Specifications and Drawings	1
E2. Bored Cast-in-place concrete piles	1
E3. CONCRETE REINFORCEMENT	3
E4. CAST-IN-PLACE CONCRETE	4
E5. SUBMITTALS	10
E6. Quality Control	12

PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 INSTALLATION OF SURVEY MONUMENTS AT NEWPCC

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, July 26, 2013.

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

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

B3. SITE INVESTIGATION

B3.1 Further to C3.1, a Site meeting will be held at 10am on July 19, 2013 at NEWPCC, 2230 Main Street, meet at Reception Desk, to provide Bidders access to the Site.

B3.2 The Bidder will be provided access to the location of the survey monuments on parcel 1 of Drawing 1 listed in Part E - Specifications.

B3.3 Bidders may independently access and view the monument location on Parcel 2 from Ferrier Street.

B3.4 The Bidder shall not be entitled to rely on any information or interpretation received at the Site investigation unless that information or interpretation is the Bidder's direct observation, or is provided by the Contract Administrator in writing.

B4. ENQUIRIES

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

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

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

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

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

B5. CONFIDENTIALITY

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

- (a) was known to the Bidder before receipt hereof; or
- (b) becomes publicly known other than through the Bidder; or

(c) is disclosed pursuant to the requirements of a governmental authority or judicial order.

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

B6. ADDENDA

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

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

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

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

B6.2.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 8 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B7. SUBSTITUTES

B7.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.

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

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

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

- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
- (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
- (c) identify any anticipated cost or time savings that may be associated with the substitute;
- (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;
- (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.

B7.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his/her sole discretion grant approval for the use of a substitute as an "approved equal" or as an "approved alternative", or may refuse to grant approval of the substitute.

- B7.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, only to the Bidder who requested approval of the substitute.
- B7.6.1 The Bidder requesting and obtaining the approval of a substitute shall be entirely responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.
- B7.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B7.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B15.
- B7.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.
- B7.10 Notwithstanding B7.2 to B7.9, and in accordance with B8.7, deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B15.1(a).

B8. BID COMPONENTS

- B8.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
 - (b) Form B: Prices;
- B8.2 Further to B8.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B7.
- B8.3 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Bid.
- B8.4 The Bid Submission may be submitted by mail, courier or personal delivery, or by facsimile transmission.
- B8.5 If the Bid Submission is submitted by mail, courier or personal delivery, it shall be enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address, and shall be submitted to:
- The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg, MB R3B 1J1
- B8.5.1 Samples or other components of the Bid Submission which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid Submission.
- B8.6 Bidders are advised not to include any information/literature except as requested in accordance with B8.1.
- B8.7 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B15.1(a).
- B8.8 If the Bid Submission is submitted by facsimile transmission, it shall be submitted to 204 949-1178.

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

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

B9. BID

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

B9.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:

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

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

B9.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.

B9.4 Paragraph 10 of Form A: Bid shall be signed in accordance with the following requirements:

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

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

B9.4.2 All signatures shall be original.

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

B10. PRICES

B10.1 The Bidder shall state the lump sum price in Canadian funds for the Work on Form B: Prices.

B10.2 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B11. QUALIFICATION

B11.1 The Bidder shall:

- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba; and
- (b) be financially capable of carrying out the terms of the Contract; and

- (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.

B11.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

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

B11.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

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

B11.4 Further to B11.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractors has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

- (a) a valid COR certification number under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
- (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/> .

B11.5 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

B11.6 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B12. OPENING OF BIDS AND RELEASE OF INFORMATION

B12.1 Bids will not be opened publicly.

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

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

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

B13. IRREVOCABLE BID

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

B14. WITHDRAWAL OF BIDS

- B14.1 A Bidder may withdraw his/her Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.
- B14.1.1 Notwithstanding C23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.
- B14.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid, and only such person, has authority to give notice of withdrawal.
- B14.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:
- (a) retain the Bid until after the Submission Deadline has elapsed;
 - (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid; and
 - (c) if the notice has been given by any one of the persons specified in B14.1.3(b), declare the Bid withdrawn.
- B14.2 A Bidder who withdraws his/her Bid after the Submission Deadline but before his/her Bid has been released or has lapsed as provided for in B13.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law.

B15. EVALUATION OF BIDS

- B15.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Bid Opportunity or acceptable deviation there from (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B11 (pass/fail);
 - (c) Total Bid Price;
 - (d) economic analysis of any approved alternative pursuant to B7.
- B15.2 Further to B15.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.
- B15.3 Further to B15.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is responsible and qualified.
- B15.4 Further to B15.1(c), the Total Bid Price shall be the lump sum price shown on Form B: Prices.

B16. AWARD OF CONTRACT

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

- B16.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.
- B16.2.1 Without limiting the generality of B16.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Work;
 - (b) the prices are materially in excess of the prices received for similar work in the past;
 - (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
 - (d) only one Bid is received; or
 - (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.
- B16.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B15.
- B16.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.
- B16.4 Notwithstanding C4, the City will issue a Purchase Order to the successful Bidder in lieu of the execution of a Contract.
- B16.5 The Contract, as defined in C1.1, in its entirety shall be deemed to be incorporated in and to form a part of the Purchase Order notwithstanding that it is not necessarily attached to or accompany said Purchase Order.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

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

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

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

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of the supply of labour, material, supervision and equipment to construct four (4) bored cast-in-place piles at the NEWPCC.

D2.2 The cast-in-place piles will serve as legal survey control monuments.

D2.3 The survey monuments shall be located away from trees and shrubs. A drawing showing the locations of the monuments is specified in Part E – Specifications. Detail specifications of the work are indicated in Part E – Specifications

D2.4 The exact location of the monuments shall be confirmed with the contract administrator before the monuments are installed.

D2.5 The major components of the work are as follows:

- (a) Drilling of the pile shafts;
- (b) Placing of the reinforcing cages and concrete; and
- (c) Finishing of the pile top including installing brass survey monument caps which will be provided by the City.

D3. DEFINITIONS

D3.1 When used in this Bid Opportunity:

- (a) "**NEWPCC**" means North End Water Pollution Control Center;

D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is:

Remi Adedapo, M.A.Sc., P.Eng.
Senior Project Engineer
Water and Waste Department
City of Winnipeg

Telephone No. 204 986-5496
Facsimile No. 204 224-0032

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

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

D5. CONTRACTOR'S SUPERVISOR

D5.1 At the pre-construction meeting, the Contractor shall identify his/her designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D6. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE

- D6.1 The Contract, all deliverables produced or developed, and information provided to or acquired by the Contractor are the property of the City and shall not be appropriated for the Contractors own use, or for the use of any third party.
- D6.2 The Contractor shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Contract Administrator.
- D6.3 The following shall be confidential and shall not be disclosed by the Contractor to the media or any member of the public without the prior written authorization of the Contract Administrator;
- (a) information provided to the Contractor by the City or acquired by the Contractor during the course of the Work;
 - (b) the Contract, all deliverables produced or developed; and
 - (c) any statement of fact or opinion regarding any aspect of the Contract.
- D6.4 A Contractor who violates any provision of D6 may be determined to be in breach of Contract.

D7. NOTICES

- D7.1 Except as provided for in C23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.
- D7.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D7.3, D7.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the facsimile number identified in D4.1.
- D7.3 Notwithstanding C21., all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:
- The City of Winnipeg
Chief Financial Officer
Facsimile No.: 204 949-1174
- D7.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following facsimile number:
- The City of Winnipeg
Legal Services Department
Attn: Director of Legal Services
Facsimile No.: 204 947-9155

SUBMISSIONS

D8. AUTHORITY TO CARRY ON BUSINESS

- D8.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

D9. SAFE WORK PLAN

- D9.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.
- D9.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgmt/Safety/default.stm>

D10. INSURANCE

- D10.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
 - (b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence;
 - (c) all risks installation floater, carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.
- D10.2 Deductibles shall be borne by the Contractor.
- D10.3 The Contractor shall provide the Contract Administrator with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than seven (7) Calendar Days from notification of the award of Contract by Purchase Order.
- D10.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D11. PERFORMANCE SECURITY

- D11.1 If the Contract Price exceeds twenty-five thousand dollars (\$25,000.00), the Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:
- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or
 - (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
 - (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.
- D11.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.

D11.2 The Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of Purchase Order and prior to the commencement of any Work on the Site.

SCHEDULE OF WORK

D12. COMMENCEMENT

D12.1 The Contractor shall not commence any Work until he/she is in receipt of a Purchase Order from the Award Authority authorizing the commencement of the Work.

D12.2 The Contractor shall not commence any Work on the Site until:

- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D8;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the Safe Work Plan specified in D9;
 - (iv) evidence of the insurance specified in D10; and
 - (v) the performance security specified in D11;
- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.

D12.3 The City intends to award this Contract within two (2) weeks of the closing date.

D12.3.1 If the actual date of award is later than the intended date, the dates specified for Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D13. SUBSTANTIAL PERFORMANCE

D13.1 The Contractor shall achieve Substantial Performance by September 26, 2013.

D13.2 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.

D13.3 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.

D14. TOTAL PERFORMANCE

D14.1 The Contractor shall achieve Total Performance by September 26, 2013.

D14.2 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.

D14.3 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.

D15. LIQUIDATED DAMAGES

- D15.1 If the Contractor fails to achieve 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 Working Day for each and every Working Day following the days fixed herein for same during which such failure continues:
- (a) Substantial Performance – Two hundred and fifty dollars (\$250);
 - (b) Total Performance - Two hundred and fifty dollars (\$250).
- D15.2 The amounts specified for liquidated damages in D15.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve Substantial Performance or Total Performance by the days fixed herein for same.
- D15.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

CONTROL OF WORK

D16. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

- D16.1 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).

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

- D17.1 Further to B11.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B11.4.

MEASUREMENT AND PAYMENT

D18. INVOICES

- D18.1 Further to C12, the Contractor shall submit an invoice for each portion of Work performed. to:
- The City of Winnipeg
Corporate Finance - Accounts Payable
4th Floor, Administration Building, 510 Main Street
Winnipeg MB R3B 1B9
- Facsimile No.: 204-949-0864
Email: CityWpgAP@winnipeg.ca
- D18.2 Invoices must clearly indicate, as a minimum:
- (a) the City's purchase order number;
 - (b) date of delivery;
 - (c) delivery address;
 - (d) type and quantity of work performed;
 - (e) the amount payable with GST and MRST shown as separate amounts; and
 - (f) the Contractor's GST registration number.
- D18.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.
- D18.4 Bids Submissions must be submitted to the address in B8.5.

D19. PAYMENT

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

WARRANTY

D20. WARRANTY

D20.1 Warranty is as stated in C13.

FORM H1: PERFORMANCE BOND
(See D11)

KNOW ALL MEN BY THESE PRESENTS THAT

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

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

_____ dollars (\$_____)

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

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

BID OPPORTUNITY NO. 581-2013

INSTALLATION OF SURVEY MONUMENTS AT NEWPCC

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

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

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

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

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

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

_____ day of _____, 20____ .

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

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

**FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT
(PERFORMANCE SECURITY)**
(See D11)

(Date)

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

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 581-2013
INSTALLATION OF SURVEY MONUMENTS AT NEWPCC

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

(Name of Contractor)

(Address of Contractor)

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

_____ Canadian dollars.

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

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

Partial drawings are permitted.

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

(Address)

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

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

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

(Date)

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

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

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

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

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

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
Drawing 1.	Location of Survey Monuments

E2. BORED CAST-IN-PLACE CONCRETE PILES

- E2.1 Work Included
- Excavate and grade for equipment support at pile locations.
 - Machine Drill Pile shafts.
 - Dewatering.
 - Place concrete and reinforcement and prepare piles for capping.
 - Finish all pile top including the installation of City supplied survey monument brass caps.
 - Remove all excavated materials and deposit on-site where directed by Contract Administrator.
- E2.2 Quality Assurance
- Construct piles in accordance with CAN/CSA-A23.1-00.
- E2.3 Qualifications
- If required by Contract Administrator, produce satisfactory proof of successful installation experience with this type of foundation, in similar conditions, and with piles of similar capacities.
- E2.4 Pile Design
- Cast-in-place reinforced concrete type piles for friction resistance.
 - The piles shall be 600 millimetres in diameter, 12 metres in length and have a finished top 300 millimetres above the existing ground elevation. The pile reinforcing shall consist of 6-20M vertical bars having a length of 10 metres, complete with 10M ties at 500 millimetres on centre and the first 3 ties at 150 millimetres on centre.
- E2.5 Shop Drawings
- Submit detailed Shop Drawings for review in accordance with Clause E5 – Submittals

- (b) Clearly identify pile lengths, diameters, reinforcement, steel casings, drilling, and concrete placement techniques, sequence, and related scheduling.

E2.6 Inspection and Testing

- (a) Submit concrete mix design as per Clause E4 – Cast-In-Place Concrete.
- (b) Inspection and testing of concrete will be conducted as per Clause E4 – Cast-In-Place Concrete.
- (c) Provide free access to all portions of Work and cooperate with inspection and testing personnel.
- (d) Inspection and testing firm engaged and paid by the City will inspect soil conditions prior to placement of concrete or reinforcement. Cooperate and schedule inspections visits.

E2.7 Field Records

- (a) Contractor shall cooperate with the Contract Administrator and shall allow access during the pile installation operations so that all the field measurements can be performed expeditiously.

E2.8 Materials

- (a) Provide materials for concrete as per Clause E4 – Cast-In-Place Concrete.
- (b) Provide steel reinforcement as per Clause E3 – Concrete Reinforcement.
- (c) Provide concrete mix statement as per Clause E4 – Cast-In-Place Concrete

E2.9 Condition of Site

- (a) Ensure that Site conditions at each pile location are adequate to support piling equipment to properly install piles.
- (b) Keep drilled holes free of water at all times, until concrete is placed.
- (c) Provide necessary equipment including pumps, piping, and temporary drains and trenches.
- (d) Do not discharge drainage water into municipal sewers without municipal approval.

E2.10 Drilling

- (a) Drill for piles where and as indicated on the Drawing in the sequence as per reviewed Shop Drawings.
- (b) Ensure pile shafts are drilled vertically to depths indicated on E2.4. Piles are not to deviate from true vertical alignment more than 2% of pile length, nor more than 100 mm off centre from true location, with tops not more than 25 mm off finished top elevation.
- (c) Install steel casings in excavations if required to prevent cave-ins and water entry.

E2.11 Placing Piles

- (a) Arrange for review by inspection and testing firm of bored holes. Provide lighting necessary for review of shaft. Immediately after acceptance, place reinforcing steel and concrete. Perform these operations on the same day, for each pile.
- (b) Place reinforcing and secure in position. Provide concrete cover in accordance with CAN/CSA-A23.1-00.
- (c) Place concrete to prevent concrete from striking sides of shaft and to prevent any foreign material from falling into shaft. Vibrate concrete in top 3 metre of pile. Place concrete continuously from bottom to top.
- (d) Place concrete by means of a tremie should an inflow of water occur that cannot be removed by pumping. Place to a height sufficient to effect a seal. Notify Contract Administrator and submit placing procedures for review prior to carrying out this work.
- (e) Form pile tops at cut-off elevations.
- (f) During cold weather, provide concrete protection in accordance with CAN/CSA-A23.1-00

E2.12 Defective Piles

- (a) Contract Administrator may, at his discretion, reject any pile that is out of alignment, out of position, or otherwise fails to meet specified requirements.
- (b) Replace rejected piles with new piles as directed by the Contract Administrator at no additional cost to City.
- (c) Cut off rejected piles 1000 mm below design cut-off elevations.

E3. CONCRETE REINFORCEMENT

E3.1 Work Included

- (a) Reinforcing steel bars for cast-in-place concrete complete with tie wire.

E3.2 Quality Assurance

- (a) Perform concrete reinforcing Work in accordance with Canadian Standards Association CAN/CAS-A23.1-00.

E3.3 Inspection and Testing

- (a) If requested by Contract Administrator, submit three (3) certified copies of mill test report of reinforcement supplied, indicating physical and chemical analysis.

E3.4 Shop Drawings

- (a) Submit bar lists and placing drawings in accordance with Clause E5 – Submittals.
- (b) Clearly indicate bar sizes, spacings, locations, and quantities of reinforcing steel and wire fabric, bending and cutting schedules, and supporting and spacing devices.
- (c) Drawings and details to conform to CAN/CAS-A23.1-00, CAN/CSA-123.3, and RSIC Reinforcing Steel Manual of Standard Practice.
- (d) Detail placement of reinforcing where special conditions occur.
- (e) Detail lap lengths and bar development lengths to CAN/CAS-A23.1-00.

E3.5 Delivery and Storage

- (a) Deliver, handle, and store reinforcement in a manner to prevent damage and contamination.

E3.6 Reinforcing Materials

- (a) Reinforcing Steel: minimum 400 MPa yield grade; deformed billet steel bars conforming to CAN/CAS-G30.18; plain finish.

E3.7 Accessory Materials

- (a) Tie Wire: minimum 1.6 mm annealed type, or patented system accepted by Contract Administrator.
- (b) Chairs, Bolsters, Bar Supports, Spacers: adequately sized for strength and support of reinforcing steel during construction.

E3.8 Fabrication

- (a) Fabricate reinforcing steel in accordance with CAN/CAS-A23.1-00.
- (b) Fabricate within the following tolerances:
 - (i) Shared length: plus 0, minus 25 mm.
 - (ii) Stirrups, ties, and spirals: plus 0, minus 10 mm.
 - (iii) Other bends: plus 0, minus 25 mm.
- (c) All bending shall be done cold with a suitable machine accurately producing all lengths, depths, and radii shown on the bending details.
- (d) After initial fabrication, reinforcing steel shall not be re-bent or straightened.

- (e) Heating of reinforcing steel will not be permitted.

E3.9 Installation

- (a) Place reinforcing steel in accordance with CAN/CAS-A23.1-00. Tie reinforcing steel at maximum spacing 600 mm.
- (b) Adequately support reinforcing and secure against displacement within tolerances permitted.
- (c) Place reinforcing steel to provide concrete cover required by CAN/CAS-A23.1-00.
- (d) Maintain alignment as follows:
 - (i) Structural Members: ± 10 mm
 - (ii) Rebar Bends and Ends: ± 50 mm

E3.10 Cleaning

- (a) Ensure concrete reinforcing is clean and free from oil and deleterious matter.
- (b) Remove all loose scale, loose rust, concrete from prior pours, and other deleterious matter from surfaces of reinforcing prior to next adjacent concrete pour.
- (c) Remove concrete splatter on bars before concrete has hardened.

E4. CAST-IN-PLACE CONCRETE

E4.1 Work Included

- (a) All reinforced cast-in-place concrete.
- (b) Setting anchors, inserts, frames, sleeves, and other items supplied by other clauses.
- (c) Repairing concrete imperfections.
- (d) Finishing formed concrete surfaces.
- (e) Curing of concrete.

E4.2 Quality Assurance

- (a) Cast-in-place concrete shall conform to the CAN/CSA-A23.1-00.
- (b) Testing shall conform to CAN/CSA-A23.2-00.
- (c) These standards shall be available in the Contractor's Site office for the use of the Contractor, sub-grades, and Contract Administrator.

E4.3 Inspection and Testing

- (a) Notify the Contract Administrator at least 48 hours before concrete reinforcement is ready for review.
- (b) Allow ample time for notification, review, and corrective work, if required, before scheduling concrete placement.
- (c) Concrete sampling, inspection, and testing is to be performed by a CSA certified inspection and testing firm appointed and paid for by the City.
- (d) Provided unencumbered access to all portions of work and cooperate with appointed firm.
- (e) Submit proposed mix design of each class of concrete to the Contract Administrator for review two (2) weeks prior to commencement of the work.
- (f) Tests of cement and aggregates may be performed to ensure conformance with requirements stated herein.
- (g) Notify the Contract Administrator at least 24 hours in advance of any concrete placement.
- (h) At least three (3) concrete test cylinders will be taken for every 75 or less cubic metres of each class of concrete placed.
- (i) At least three (3) concrete cylinders will be taken daily for each class of concrete placed.

- (j) One (1) slump test and one (1) air content test will be taken for each set of test cylinders taken.
- (k) Additional slump and air content tests may be taken as necessary (up to every truck) to verify quality of concrete at the discretion of the Contract Administrator.
- (l) Testing of concrete will be performed in accordance with CAN/CAS-A23.2-00. Test results will be issued to the Contractor and the City.
- (m) The Contractor shall pay costs for required retesting due to defective materials or workmanship.
- (n) If accepted by the Contract Administrator, the Contractor may arrange and pay for additional tests for use as evidence to expedite construction.
- (o) To conform to the strength requirements, the average of all tests shall exceed the specified strength. When three (3) or more tests of the same class of concrete are available, the average of any 3 consecutive tests shall be equal to, or greater than the specified strength, and no strength test shall fall more than 3.5 MPa below the specified strength. If any of the criteria of the above clause are not met, the Contract Administrator shall have the right to require one or more of the following:
 - (i) Changes in mix proportions for the remainder of the work.
 - (ii) Cores drilled and tested from the areas in question as directed by the Contract Administrator and in accordance with CAN/CSA-A23.2-00. The test results shall be indicative of the strength of the in-place concrete.
 - (iii) Load testing of the structural elements.
 - (iv) The changes in the mix proportions, cores drilled and tested, and load testing shall be at the Contractor's expense.
 - (v) Concrete failing to meet the strength requirements of this Specification shall be strengthened or replaced at the Contractor's expense and to the satisfaction of the Contract Administrator.

E4.4 Concrete Materials

- (a) Cement: Normal Type 10 and Type 50 Portland Cement conforming to CSA-13000.
- (b) Fine Aggregate: conforming to the Normal-Density Fine Aggregate, CAN/CSA-23.1-00. If requested by the Contract Administrator, submit evidence at least two (2) weeks before use in concrete mix showing conformance to Normal-Density Fine Aggregate, CAN/CSA-A23.1-00, Table 4 and Table 6.
- (c) Coarse Aggregate: conforming to Normal-Density Coarse Aggregate, CAN/CSA-23.1-00, Group I, 40-5 mm, 20-5 mm, and 10 to 2.5 mm. If requested by the Contract Administrator, submit evidence at least two (2) weeks before use in concrete mix showing conformance to Normal-Density Coarse Aggregate, CAN/CSA-A23.1-00, Table 5 and Table 6. Group II may be used for special requirements such as gap trading, pumping, or for blending two (2) or more sizes to produce Group I gradings.
- (d) Ensure that no aggregates are used that may undergo volume change due to alkali reactivity, moisture retention, or other causes. Conform suitability of aggregate with a petrographic analysis if deemed necessary by the Contract Administrator.
- (e) Water: potable, clean, and free from injurious amounts of oil, alkali, organic matter, or other deleterious matter.
- (f) Materials are to be obtained from the same source of supply or Manufacturer for the duration of the project.
- (g) Pozzolans: Type C fly ash, conforming to CAN/CSA-A3000, source of material to be acceptable to the Contract Administrator.

E4.5 Admixtures

- (a) No admixtures other than air-entraining agent, water-reducing agent, and superplasticizer shall be used without the written authorization of the Contract Administrator, unless specified.

- (b) Air entrainment: conforming to ASTM Standard C260.
- (c) Water-reducing agent: Type WN conforming to ASTM Standard C494.
- (d) Superplasticizer: conforming to ASTM Standard C494.
- (e) General chemical Admixtures: conforming to ASTM Standard C494.
- (f) Calcium Chloride or admixtures containing calcium chloride shall not be used in concrete.

E4.6 Concrete Mixes

- (a) Pay all costs for mix design. Submit mix designs to the Contract Administrator for review a minimum of two (2) weeks prior to concrete pour.
- (b) Provide concrete mixed in accordance with requirements of CAN/CSA-A23.1-00.
- (c) Maximum allowable substitution of cement with fly ash material shall be 20% by weight when acceptable to the Contract Administrator.
- (d) Use accelerating admixtures in cold weather only when accepted by the Contract Administrator. If accepted, the use of admixtures will not relax cold weather placement requirements. Do not use calcium chloride.
- (e) Use set-retarding admixtures during hot weather only when accepted by the Contract Administrator.
- (f) All materials and admixtures must be compatible within the mix. Concrete with freezing and thawing exposure must satisfy the durability requirements of CAN/CSA-A23.1-00, Sections 14 and 15.
- (g) All admixtures are subject to acceptance by the Contract Administrator. List all proposed admixtures in mix design submission. Do not change or add admixtures to accepted design mixes without the Contract Administrator's review and acceptance.
- (h) The water : cementitious material ratio must be calculated and shown based on all available mixing water excluding aggregate absorption.
- (i) Concrete delivered to Site must be accompanied by a delivery slip indicating time of completion of mixing, design strength of concrete, air content, and actual water-cement ratio.
- (j) Patching Mortar:
 - (i) The patching mortar shall be made of the same material and of approximately the same proportions as used for the concrete, except that the coarse aggregate shall be omitted and the mortar shall consist of not more than one (1) part cementitious material to two and a half (2 ½) parts sand by damp loose volume.
 - (ii) White Portland Cement shall be substituted for a part of the grey Portland Cement on exposed concrete in order to produce a colour matching the colour of the surrounding concrete, as determined by a trial patch.
 - (iii) The quantity of mixing water shall be no more than necessary for handling or placing. Mixing water shall include one (1) part latex bonding agent to three (3) parts water. Maximum water:cementitious material ration shall be 0.40.
- (k) Self-compacting concrete mixes will not be permitted for use on this project.

E4.7 Placing Concrete

- (a) Place concrete in accordance with requirements of CAN/CSA-A23.1-00. Layout of the work and accuracy of same is the Contractor's sole responsibility.
- (b) Notify the Contract Administrator a minimum of 24 hours prior to pouring concrete. Under no circumstances shall concrete be poured without notifying Contract Administrator, or in his absence, arranging for review of the work and sampling of concrete.
- (c) The concrete shall be placed rapidly and evenly as near to its final position as possible to reduce the risk of segregation, flowlines, and cold joints. Concrete shall be placed within one and a half (1 ½) hours of mixing.

- (d) Ensure all anchor bolts, seats, plates, and other items to be cast into concrete are securely placed and will not interfere with concrete placement.
- (e) All equipment for transporting the concrete shall be cleaned of hardened concrete and foreign materials before placing concrete.
- (f) Immediately before concrete is placed, Contractor shall carefully inspect all forms to ensure that they are properly placed, sufficiently rigid and tight, and that all reinforcing steel and embedded parts are in the correct position and secured against movement during the placing operation. All forms shall be thoroughly cleaned and material removed.
- (g) Concrete shall be handled from the mixer to the place of final deposit as rapidly as practicable by methods, which will prevent the separation or loss of the ingredients. Concrete shall be deposited in the forms as nearly as practicable in its final position to avoid re-handling or flowing. Vibrators shall not be used to move concrete. Under no circumstances shall the concrete, which has partially hardened, be deposited in the forms.
- (h) Concrete shall be thoroughly compacted by mechanical vibrators during placing operations. Concrete shall be thoroughly worked around the reinforcement, embedded fixtures, and into the corners of the forms.
- (i) Vibrate concrete using the appropriate size equipment as placing proceeds, in accordance with CAN/CSA-A23.1-00. Check frequency and amplitude of vibrations prior to use. Provide additional standby vibrators in the event of equipment failure.
- (j) Prepare set of existing concrete by removing all laitance and loose of unsound materials and apply bonding agent in accordance with Manufacturer's recommendations.
- (k) Where placing operations would involve dropping the concrete more than 1500 mm, it shall be placed through canvas hoses or galvanized iron chutes. Concrete shall not be raised at a rate greater than that of which proper vibration may be affected.
- (l) Honeycomb or embedded debris is not acceptable.
- (m) Remove and replace defective concrete.
- (n) Maintain accurate records of cast-in-place concrete items. Record date, location of pour, quantity, air temperatures, and test samples taken.

E4.8 Cold Weather Concreting

- (a) The requirements of this Section shall be applied to all concreting operations during cold weather, i.e., if the mean daily temperature falls below 5°C during placing or curing.
- (b) Supplementary equipment as required below shall be at the job Site if concrete is likely to be placed in cold weather.
- (c) Formwork and reinforcing steel shall be heated to at least 5°C before concrete is placed.
- (d) The temperature of the concrete shall be maintained at not less than 10°C for seven (7) days. The concrete shall be kept above freezing temperature for at least a period of seven (7) days. In no case, shall the heating be removed until the concrete has reached a minimum compressive strength which will be specified by the Contract Administrator as determined from compressive strength tests on specimens cured under the same conditions as the concrete Works in question.
- (e) Aggregates shall be heated to a temperature of not less than 20°C and not more than 65°C. Water shall be heated to a temperature between 55°C and 65°C. The temperature of the concrete at the time of placing in the forms shall be within the range specified in CAN/CSA-A23.1-00 for the thickness of the section being placed.
- (f) When the mean daily temperature may fall below 5°C, a complete housing of the work, complete with heaters, fuel, maintenance, and attendants shall be provided.
- (g) Combustion-type heaters may be used if their exhaust gases are vented outside the enclosures and not allowed to come into contact with concrete surfaces. Fire extinguishers must be readily at hand wherever combustion-type heater are used.
- (h) When the ambient temperature is below -15°C, the housing shall be constructed so as to allow the concrete to be placed without the housing having to be opened. If the mixing is

done outside of the housing, the concrete shall be placed by means of hoppers installed through the housing. The hoppers are to be plugged when not in used.

- (i) When the ambient temperature is equal to or above -15°C , the Contractor will be permitted to open small portions of the housing for a limited time to facilitate the placing of the concrete.
- (j) Before depositing any of the concrete, the Contractor shall show that enough heating equipment is available to keep the air temperature surrounding the forms within the specified range. This shall be accomplished by bringing the temperature inside of the housing to the specified 10°C at least 12 hours prior to the start of the concrete placing.
- (k) The Contractor shall supply all required heating apparatuses and the necessary fuel. When dry heat is used, a means of maintaining atmospheric moisture shall be provided.
- (l) Sufficient standby heating equipment must be available to allow for any sudden drop in outside temperatures and any breakdowns which may occur in the equipment.
- (m) The Contractor shall keep a curing record of each concrete pour. The curing record shall include date and location of the pour, mean daily temperature, temperatures above and below the concrete within the enclosures, temperatures of the concrete surface at several points, and notes regarding the type of heating, enclosure, unusual weather conditions, etc. This record shall be available for review by the Contract Administrator at all times, and shall be turned over to the Contract Administrator at the end of the concreting operations.

E4.9 Hot Weather Concreting

(a) General

- (i) The requirements of this Clause shall be applied during hot weather, i.e., air temperatures above 25°C during placing.
- (ii) Concrete shall be placed at as low a temperature as possible, preferably below 15°C , but not above 27°C . Aggregate stockpiles may be cooled by water sprays and sun shades.
- (iii) Ice may be substituted for a portion of the mixing water provided the ice has melted by the time mixing is completed.
- (iv) Forms and conveying equipment shall be kept as cool as possible before concreting by shading them from the sun, painting their surfaces white, and/or the use of water sprays.
- (v) Sun shades and wind breaks shall be used as required during placing and finishing.
- (vi) Work shall be planned so that concrete can be placed as quickly as possible to avoid "cold joints".
- (vii) The Contract Administrator's acceptance is necessary before the Contractor may use admixtures such as retardants to delay setting, or water-reducing agents to maintain workability and strength, and these are to be included in the mix designs submitted to the Contract Administrator.
- (viii) Curing shall follow immediately after the finishing operation.

(b) Hot-Weather Curing

- (i) When the air temperature is at or above 25°C , curing shall be accomplished by water or by using saturated absorptive fabric, in order to achieve cooling by evaporation. Mass concrete shall be water cured for the basic curing period when the air temperature is at or above 20°C , in order to minimize the temperature rise of the concrete.

(c) Job Preparation

- (i) When the air temperature is at or above 25°C , or when there is the probability of its rising to 25°C during the placing period, facilities shall be provided for protection of the concrete in place from the effects of hot and/or drying weather conditions. Under severe drying conditions, as defined in E4.9(e)(ii) Clause 3.4.5.2 of this Specification Section, the formwork, reinforcement, and concreting equipment shall be protected from the direct rays of the sun or cooled by fogging and evaporation.

(d) Concrete Temperature

- (i) The temperature of the concrete as placed shall be as low as practicable and in no case greater than that shown below for the indicated size of the concrete section.

Thickness of Section (metres)	Temperatures (°C)	
	Minimum	Maximum
Less than 0.3	10	27
0.3 – 1	10	27
1.2	5	25

(e) Protection from Drying

- (i) Moderate Drying Conditions: When surface moisture evaporation exceeds 0.75 kg/m²/hr., windbreaks shall be erected around the sides of the structural element.
- (ii) Severe Drying Conditions: When surface moisture evaporation exceeds 1.0 kg/m²/hr., additional measures shall be taken to prevent rapid loss of moisture from the surface of the concrete. Such additional measure shall consist of the following:
 - (i) Erecting sunshades over the concrete during finishing and placing operations.
 - (ii) Lowering the concrete temperature.
 - (iii) Increasing humidity by applying fog spray immediately after placement and before finishing.
 - (iv) Care shall be taken to prevent accumulation of water that may reduce the quality of the cement paste.
 - (v) Beginning the concrete curing immediately after trowelling.
 - (vi) Application of moisture retention film.
- (iii) Surface Moisture Evaporation Rate
 - (i) The monograph, Figure D1, Appendix D of CAN/CSA-A23.1-00 shall be used to estimate surface moisture evaporation rates.

E4.10 Concrete Protection for Reinforcement

- (a) Ensure reinforcement is placed to provide minimum concrete cover in accordance with Clause E3 – Concrete Reinforcement.

E4.11 Construction Tolerance

- (a) The work shall be carefully and accurately set out; true to the positioning, levels, slopes, and dimensions conforming to Clause E2 – Bored Cast-in-place Concrete Piles.
 - (i) Sizes of Member or Thickness of Slabs: ±6 mm, -0 mm.
 - (ii) Cover of Concrete over Reinforcement: ±3 mm.
 - (iii) Variations from Plumb: 6 mm in 3.0m, 10 mm maximum.
 - (iv) Variations from Flat: 3 mm in 3.0m, 6 mm maximum.
- (b) If these tolerances are exceeded the Contractor may, at the discretion of the Contract Administrator, be required to remove and replace or to modify the placed concrete before acceptance. The costs incurred by the Contract Administrator for such investigation, testing or review of reconstruction and the cost of reconstruction shall be borne by the Contractor.

E4.12 Curing and Protection

- (a) Cure and protect freshly placed concrete in accordance with Clause 21 of CAN/CSA-A23.1-00.
- (b) All concrete shall receive moist curing for a period of at least seven (7) days. One (1) of the following methods shall be used as soon as the concrete has hardened sufficiently to prevent marring:

- (i) Surface covered with canvas or other satisfactory material and kept thoroughly and continuously wet with soaker hoses.
 - (ii) A liquid membrane forming curing sealer, applied at the rate recommended by the Manufacturer. Curing sealer shall not be used on a surface where bond is required for the finishes.
 - (iii) Surfaces of concrete, which are protected by formwork that is left in place for seven (7) days, shall not require any additional curing (except as specified for hot weather). If the formwork is removed in less than seven (7), the concrete shall receive moist curing as above.
- (c) No concreting will be allowed until all materials required for the curing phase are on Site and ready for use.
 - (d) At the end of the curing and protection period, the temperature of the concrete shall be reduced gradually at a rate not exceeding 10°C per day until the outside air temperature has been reached.
 - (e) Concrete that is allowed to freeze or attain insufficient curing conditions shall be subject to all necessary investigations and testing as deemed necessary by the Contract Administrator and all such concrete shall be removed and the portion reconstructed as directed by the Contract Administrator, at Contractor's cost.
 - (f) The supply (both quantity and time of supply) of water for curing concrete shall be the responsibility of the contractor.

E4.13 Defective Concrete

- (a) Concrete not meeting the requirements of the Specifications will be considered defective concrete.
- (b) Concrete not conforming to the lines, details, and grades specified herein or as shown on the Drawings shall be modified or replaced at the Contractor's expense and to the satisfaction of the Contract Administrator. Finished lines, dimensions, and surfaces shall be correct and true within tolerances specified herein and in Clause E2 – Bored Cast-in-Plane Concrete.
- (c) Concrete not properly placed resulting in honeycombing and other defects shall be repaired or replaced at the Contractor's expense and to the satisfaction of the Contract Administrator.

E4.14 Clean-Up

- (a) As work progresses and at the completion of work, remove from Site all debris, excess materials, and equipment.

E5. SUBMITTALS

E5.1 General

- (a) Arrange for the preparation of clearly identified Shop Drawings as specified or as the Contract Administrator may reasonably request. Shop Drawings are to clearly indicate materials, methods of construction, and attachment or anchorage, erection diagrams, connections, explanatory notes, and other information necessary for completion of the work. Where articles or equipment attach or connect to other articles or equipment, clearly indicate that all such attachments and connections have been properly coordinated, regardless of the trade under which the adjacent articles or equipment will be supplied and installed. Shop Drawings are to indicate their relationship to design Drawings and Specifications. Notify the Contract Administrator of any deviations in Shop Drawings from the requirements of the Contract Documents to allow the Contract Administrator to assess the deviations.
- (b) Where all or part of the Shop Drawings are to be prepared under the stamp and seal of a Professional Engineer registered in the Province of Manitoba, the Contract Administrator will limit that review to an assessment of the completeness of the part of the submission so stamped and sealed

E5.2 Submission Requirements

- (a) Coordinate each submission with requirements of the Work and Contract Documents. Individual submissions will not be reviewed until all related information is available.
- (b) Accompany submission with a transmittal letter, in duplicate, containing:
 - (i) Date.
 - (ii) Project title and number.
 - (iii) Contractor's name and address.
 - (iv) Identification and quantity of each Shop Drawing product.
 - (v) Other pertinent data.
- (c) Submissions shall include:
 - (i) Date and revision dates.
 - (ii) Project title and number.
 - (iii) Name and address of:
 - (i) Contractor.
 - (ii) Manufacturer.
 - (iv) Contractor's stamp, signed by Contractor's authorized representative, certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - (v) As required in the Specifications, the seal and signature of a Professional Engineer registered in the Province of Manitoba.
- (d) Details of appropriate portions of work as applicable:
 - (i) Fabrication.
 - (ii) Layout showing dimensions including identified field dimensions and clearances.
 - (iii) Setting or erection details.
 - (iv) Capacities.
 - (v) Performance characteristics.
 - (vi) Operating weight.

E5.3 Drawings

- (a) Original Drawings or modified standard Drawings provided by the Contractor to illustrate details of portions of work which are specific to project requirements.
- (b) Maximum sheet size: 850 x 1050 mm.
- (c) Submit four (4) prints and one (1) producible copy of Shop Drawings. The Contract Administrator will return the producible copy with comments transcribed
- (d) Cross-reference Shop Drawing information to applicable portions of Contract Documents.

E5.4 Product Data

- (a) Manufacturer's catalogue sheets, brochures, literature, performance charts, and diagrams used to illustrate standard manufactured products.
- (b) Submit four (4) copies of product data.
- (c) Sheet size: 215 x 280 mm.

E5.5 Electronic Submittals

- (a) Provide electronic copies of all submittals within 60 business days of stamped "Reviewed" or "Reviewed as Modified".

E5.6 Shop Drawing Review

- (a) Shop Drawing review by the Contract Administrator is solely to ascertain conformance with the general design concept. Responsibility for the approval of detail design inherent in

Shop Drawings rests with the Contractor and review by the Contract Administrator shall not imply such approval.

- (b) Review by the Contract Administrator shall not relieve the Contractor of his responsibility for errors or omissions in Shop Drawings or for proper completion of the work in Accordance with the Contract Documents.
- (c) Shop Drawings will be returned to the Contractor with one of the following notations:
 - (i) When stamped "REVIEWED", distribute additional copies as required for execution of the work.
 - (ii) When stamped "REVIEWED AS MODIFIED", ensure that all copies for use are modified and distributed, same as specified for "REVIEWED".
 - (iii) When stamped "REVISE AND RE-SUBMIT", make the necessary revisions, as indicated, consistent with the Contract Documents and submit again for review.
 - (iv) When stamped "NOT REVIEWED", submit other drawings, brochures, etc. for review consistent with the Contract Documents.
 - (v) Only Shop Drawings bearing "REVIEWED" or "REVIEWED AS MODIFIED" shall be used on the work unless otherwise authorized by the Contract Administrator.
- (d) After submittals are stamped "REVIEWED" or "REVIEWED AS MODIFIED", no further revisions are permitted unless re-submitted to the Contract administrator for further review.
- (e) Any adjustments made on Shop Drawings by the Contract Administrator are not intended to change the Contract Price. If it deemed that such adjustments affect the Contract Price, clearly state as such in writing prior to proceeding with fabrication and installation of work.
- (f) Make changes in Shop Drawings which the Contract Administrator may require consistent with Contract Documents. When re-submitting, notify the Contract Administrator in writing of any revisions other than those requested by the Contract Administrator.
- (g) Shop Drawings indicating design requirements not included in the Contract Documents require the seal of a Professional Engineer, registered in the Province of Manitoba. If requested, submit engineering calculations for review, sealed by a Professional Engineer

E6. QUALITY CONTROL

E6.1 Codes and Standards

- (a) In the case of a conflict or discrepancy between the Contract Documents and the governing standards, the more stringent requirements shall apply.
- (b) Unless the edition number and date are specified, the reference of the Manufacturer's and published codes, standards, and specifications are to the latest edition published by the issuing authority, current at the Submission Deadline.
- (c) Reference standards and Specifications are quoted in this specification to establish minimum standards. Work in quality exceeding these minimum standards conforms to the Contract.
- (d) Where reference is made to a Manufacturer's direction, instruction, or Specification it is deemed to include full information on storing, handling, preparing, mixing, installing, erecting, applying, or other matters concerning the products pertinent to their use and their relationship to the products with which they are incorporated.
- (e) Confine apparatus, the storage of products and the operations of workers to limits indicated by laws, ordinances, permits, and by directions of the Contract Administrator. Do not unreasonably encumber the premises with products.
- (f) Where reference is made to regulatory authorities, it includes all authorities who have, within their constituted powers, the right to enforce the laws of the Place of Work.

E6.2 Testing and Quality Control

- (a) Provide to the Contract Administrator, when requested and consistent with progress of the work, test results and designs specified in the Contract Documents or required by by-laws,

statutes, and regulations relating to the work and the preservation of public health, including the following:

- (i) Inspection and testing performed exclusively for the Contractor's convenience.
 - (ii) Mill tests and certificates of compliance.
 - (iii) Tests for reinforcing steel unidentified by mill test reports.
- (b) The City will select and pay for the services of a testing agency or laboratory for material quality control tests that are required but not specified. Test required by by-laws, statutes, and regulations applicable to the work are the responsibility of the Contractor.
 - (c) Compliance and performance testing of equipment, pipe, conduit, wiring, and other items covered in other Divisions of this Specification are the responsibility of the Contractor, unless specified otherwise. The City may replicate any series of tests to provide random checks on the compliance and performance tests at the City's cost.
 - (d) Remove and replace products indicate in inspection and test reports as failing to comply with the Contract Documents.
 - (e) Correct improper installation procedures reported in the inspection and test reports.
 - (f) Pay the costs for the re-inspection and re-testing of replaced work.
 - (g) It is not the responsibility of the inspection and testing agents to supervise, instruct in current methods or accept or reject a part of the work, but only the inspect, test, and to report conditions.
 - (h) Notify the Contract Administrator and the appropriate inspection and testing agent not less than 48 hours prior to the commencement of the part of the work to be inspected and tested.
 - (i) Ensure the presence of the authorized inspection and testing agent at the commencement of the part of the work specified to be inspected or tested.
 - (j) Ensure the inspection and testing reports are issued within 48 hours, and that the Contract Administrator is notified forthwith if the report indicates improper conditions or procedures.
 - (k) Cooperate with and provide facilities for the inspection and testing agents to perform their duties.
 - (l) Provide proper facilities for the storage of specimens or samples at correct temperature, free from vibration or damage in accordance with the instruction of the inspection and testing agent and the governing standard.
 - (m) Submit four (4) copies of each laboratory test report, unless specified otherwise, each copy signed by a responsible officer of the inspection and testing laboratory. Each report is to include:
 - (i) Date of issue.
 - (ii) Contract name and number.
 - (iii) Name and address of inspection and testing company.
 - (iv) Name and signature of inspector or tester.
 - (v) Date of inspection or test.
 - (vi) Identification of the product and Specification Section covering inspected or tested work.
 - (vii) Location of the inspection or the location from which the tested product was derived.
 - (viii) Type of the inspection or test.
 - (ix) The remarks and observations on compliance with the Contract Documents.
 - (n) Correct defective work within the Contract Time; the performing of such work is not a cause for an extension of the Contract Time.