



THE CITY OF WINNIPEG

TENDER

TENDER NO. 66-2022

2022 ASSINIBOINE PARK ASPHALT RESURFACING AND ASSOCIATED WORKS

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 2022 Assiniboine Park Asphalt Resurfacing and Associated Works

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, May 4, 2022.

B2.2 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. ENQUIRIES

B3.1 All enquiries shall be directed to the Contract Administrator identified in D4.1.

B3.2 If the Bidder finds errors, discrepancies or omissions in the Tender, 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.

B3.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Tender will be provided by the Contract Administrator to all Bidders by issuing an addendum.

B3.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Tender will be provided by the Contract Administrator only to the Bidder who made the enquiry.

B3.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B3 unless that response or interpretation is provided by the Contract Administrator in writing.

B3.6 Any enquiries concerning submitting through MERX should be addressed to:
MERX Customer Support
Phone: 1-800-964-6379
Email: merx@merx.com

B4. CONFIDENTIALITY

B4.1 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.

B4.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Tender to the media or any member of the public without the prior written authorization of the Contract Administrator.

B5. ADDENDA

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

- B5.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.
- B5.3 Addenda will be available on the MERX website at www.merx.com.
- B5.4 The Bidder is responsible for ensuring that he/she has received all addenda and is advised to check the MERX website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.
- B5.5 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid/Proposal. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.
- B5.6 Notwithstanding B3, enquiries related to an Addendum may be directed to the Contract Administrator indicated in D4.

B6. SUBSTITUTES

- B6.1 The Work is based on the Plant, Materials and methods specified in the Tender.
- B6.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B6.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.
- B6.4 The Bidder shall ensure that any and all requests for approval of a substitute:
- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
 - (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
 - (c) identify any anticipated cost or time savings that may be associated with the substitute;
 - (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;
 - (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.
- B6.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his/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.
- B6.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Bidder who requested approval of the substitute.
- B6.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.

- B6.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B6.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/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 B17.
- B6.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B7. BID COMPONENTS

- B7.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
 - (b) Form B: Prices;
 - (c) Form G1: Bid Bond and Agreement to Bond.
- B7.2 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.
- B7.3 The Bid shall be submitted electronically through MERX at www.merx.com.
- B7.3.1 Bids will **only** be accepted electronically through MERX.
- B7.4 Bidders are advised that inclusion of terms and conditions inconsistent with the Tender document, including the General Conditions, will be evaluated in accordance with B17.1(a).

B8. BID

- B8.1 The Bidder shall complete Form A: Bid/Proposal, making all required entries.
- B8.2 Paragraph 2 of Form A: Bid/Proposal 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.
- B8.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B8.2.
- B8.3 In Paragraph 3 of Form A: Bid/Proposal, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.
- B8.4 Paragraph 13 of Form A: Bid/Proposal 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.

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

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

B9. PRICES

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

B9.1.1 Prices stated on Form B: Prices shall not include any costs which may be incurred by the Contractor with respect to any applicable funding agreement obligations as outlined in D33. Any such costs shall be determined in accordance with D33.

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

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

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

B9.5 The Bidder shall enter the Total Bid Price from Form B: Prices into the Total Bid Price field in MERX.

B9.5.1 Bidders are advised that the calculation indicated in B17.4 will prevail over the Total Bid Price entered in MERX.

B10. DISCLOSURE

B10.1 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.

B10.2 The Persons are:

- (a) N/A

B11. CONFLICT OF INTEREST AND GOOD FAITH

B11.1 Further to C3.2, Bidders, by responding to this Tender, declare that no Conflict of Interest currently exists, or is reasonably expected to exist in the future.

B11.2 Conflict of Interest means any situation or circumstance where a Bidder or employee of the Bidder proposed for the Work has:

- (a) other commitments;
- (b) relationships;
- (c) financial interests; or
- (d) involvement in ongoing litigation;

that could or would be seen to:

- (i) exercise an improper influence over the objective, unbiased and impartial exercise of the independent judgment of the City with respect to the evaluation of Bids or award of the Contract; or
 - (ii) compromise, impair or be incompatible with the effective performance of a Bidder's obligations under the Contract;
- (e) has contractual or other obligations to the City that could or would be seen to have been compromised or impaired as a result of its participation in the Tender process or the Work; or
- (f) has knowledge of confidential information (other than confidential information disclosed by the City in the normal course of the Tender process) of strategic and/or material relevance to the Tender process or to the Work that is not available to other bidders and that could or would be seen to give that Bidder an unfair competitive advantage.

B11.3 In connection with its Bid, each entity identified in B11.2 shall:

- (a) avoid any perceived, potential or actual Conflict of Interest in relation to the procurement process and the Work;
- (b) upon discovering any perceived, potential or actual Conflict of Interest at any time during the Tender process, promptly disclose a detailed description of the Conflict of Interest to the City in a written statement to the Contract Administrator; and
- (c) provide the City with the proposed means to avoid or mitigate, to the greatest extent practicable, any perceived, potential or actual Conflict of Interest and shall submit any additional information to the City that the City considers necessary to properly assess the perceived, potential or actual Conflict of Interest.

B11.4 Without limiting B11.3, the City may, in its sole discretion, waive any and all perceived, potential or actual Conflicts of Interest. The City's waiver may be based upon such terms and conditions as the City, in its sole discretion, requires to satisfy itself that the Conflict of Interest has been appropriately avoided or mitigated, including requiring the Bidder to put into place such policies, procedures, measures and other safeguards as may be required by and be acceptable to the City, in its sole discretion, to avoid or mitigate the impact of such Conflict of Interest.

B11.5 Without limiting B11.3, and in addition to all contractual or other rights or rights at law or in equity or legislation that may be available to the City, the City may, in its sole discretion:

- (a) disqualify a Bidder that fails to disclose a perceived, potential or actual Conflict of Interest of the Bidder or any of its employees proposed for the Work;
- (b) require the removal or replacement of any employees proposed for the Work that has a perceived, actual or potential Conflict of Interest that the City, in its sole discretion, determines cannot be avoided or mitigated;
- (c) disqualify a Bidder or employees proposed for the Work that fails to comply with any requirements prescribed by the City pursuant to B11.4 to avoid or mitigate a Conflict of Interest; and
- (d) disqualify a Bidder if the Bidder, or one of its employees proposed for the Work, has a perceived, potential or actual Conflict of Interest that, in the City's sole discretion, cannot be avoided or mitigated, or otherwise resolved.

B11.6 The final determination of whether a perceived, potential or actual Conflict of Interest exists shall be made by the City, in its sole discretion.

B12. QUALIFICATION

B12.1 The Bidder shall:

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

- (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.
- B12.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:
- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <https://www.winnipeg.ca/matmgt/Templates/files/debar.pdf>
- B12.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:
- (a) have successfully carried out work similar in nature, scope and value to the Work; and
- (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
- (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);
- (d) have completed the Accessible Customer Service online training required by the Accessibility for Manitobans Act (AMA) (see B12.5 and D7)
- B12.4 Further to B12.3(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) Written confirmation of a safety and health certification meeting SAFE Work Manitoba's SAFE Work Certified Standard (e.g., COR™ and SECOR™) in the form of:
- (i) a copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
- (ii) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
- (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>).
- B12.5 Further to B12.3(d), the Bidder acknowledges they and all Subcontractors have obtained training required by the Accessibility for Manitobans Act (AMA) available at <http://www.accessibilitymb.ca/training.html> for anyone that may have any interaction with the public on behalf of the City of Winnipeg.
- B12.6 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.
- B12.7 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B13. BID SECURITY

- B13.1 The Bidder shall include in its Bid Submission bid security in the form of a digital bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in Form G1: Bid Bond and Agreement to Bond, available on The City of Winnipeg, Corporate Finance, Materials Management Division website at <https://www.winnipeg.ca/MatMgt/templates/files/eBidsecurity.pdf>.
- B13.2 Bid security shall be submitted in a digital format meeting the following criteria:
- (a) The version submitted by the Bidder must have valid digital signatures and seals;
 - (b) The version submitted by the Bidder must be verifiable by the City with respect to the totality and wholeness of the bond form, including: the content; all digital signatures and digital seals; with the surety company, or an approved verification service provider of the surety company.
 - (c) The version submitted must be viewable, printable and storable in standard electronic file formats compatible with the City, and in a single file. Allowable formats include pdf.
 - (d) The verification may be conducted by the City immediately or at any time during the life of the bond and at the discretion of the City with no requirement for passwords or fees.
 - (e) The results of the verification must provide a clear, immediate and printable indication of pass or fail regarding B13.2(a).
- B13.3 Bonds failing the verification process will not be considered to be valid and the bid shall be determined to be non-responsive in accordance with B17.1(a).
- B13.4 Bonds passing the verification process will be treated as original and authentic.
- B13.4.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.
- B13.5 The bid security of the successful Bidder and the next two lowest evaluated responsive and responsible Bidders will be released by the City when a Contract for the Work has been duly formed with the successful Bidder and the contract securities are furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.
- B13.6 The bid securities of all Bidders will be released by the City as soon as practicable following notification by the Contract Administrator to the Bidders that no award of Contract will be made pursuant to the Tender.

B14. OPENING OF BIDS AND RELEASE OF INFORMATION

- B14.1 Bids will not be opened publicly.
- B14.2 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 MERX website at www.merx.com.
- B14.3 After award of Contract, the name(s) of the successful Bidder(s) and their Contract amount(s) will be available on the MERX website at www.merx.com.
- B14.4 The Bidder is advised that any information contained in any Bid may be released if required by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law or by City policy or procedures (which may include access by members of City Council).
- B14.4.1 To the extent permitted, the City shall treat as confidential information, those aspects of a Bid Submission identified by the Bidder as such in accordance with and by reference to Part 2, Section 17 or Section 18 or Section 26 of The Freedom of Information and Protection of Privacy Act (Manitoba), as amended.

B15. IRREVOCABLE BID

- B15.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid/Proposal.
- B15.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work until a Contract for the Work has been duly formed and the contract securities have been furnished as herein provided, but any Bid shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 11 of Form A: Bid/Proposal.

B16. WITHDRAWAL OF BIDS

- B16.1 A Bidder may withdraw his/her Bid without penalty prior to the Submission Deadline.

B17. EVALUATION OF BIDS

- B17.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Tender, or acceptable deviation therefrom (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B12 (pass/fail);
 - (c) Total Bid Price;
 - (d) economic analysis of any approved alternative pursuant to B6.
- B17.2 Further to B17.1(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.
- B17.3 Further to B17.1(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 qualified.
- B17.4 Further to B17.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.
- B17.4.1 Further to B17.1(a), in the event that a unit price is not provided on Form B: Prices, the City may determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.
- B17.4.2 Bidders are advised that the calculation indicated in B17.4 will prevail over the Total Bid Price entered in MERX.

B18. AWARD OF CONTRACT

- B18.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B18.2 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 qualified, and the Bids are determined to be responsive.
- B18.2.1 Without limiting the generality of B18.2, 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.

- B18.3** If funding for the Work is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, Bidders are advised that the terms of D33 shall immediately take effect upon confirmation of such funding, regardless of when funding is confirmed.
- B18.4** Where an award of Contract is made by the City, the award shall be made to the qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B17.
- B18.4.1** Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2020-01-31) 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 Tender 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. FORM OF CONTRACT DOCUMENTS

D2.1 Notwithstanding C4.1(c) and C4.4, the Contract Documents will be provided to the Contractor electronically and there will be no requirement for execution and return to the City by the Contractor. Accordingly, the provisions under C4.4(a) and C4.4(b) are no longer applicable.

D3. SCOPE OF WORK

D3.1 The Work to be done under the Contract shall consist of:

- (a) Mill & Fill, Asphalt Pavement Rehabilitation and Associated Works
 - (i) Conservatory Drive from Roblin Boulevard to Conservatory Access
 - (ii) Locomotive Drive from Conservatory Drive to Formal Garden Parking Lot
 - (iii) Pavilion Crescent from Zoo Drive to Assiniboine Park Drive
 - (iv) Zoo Drive from Assiniboine Park Drive to Conservatory Drive
- (b) Intersection Improvements and Associated Works
 - (i) Corydon Avenue and Park Boulevard North Intersection

D3.2 The major components of the Work are as follows:

- (a) Mill & Fill, Asphalt Pavement Rehabilitation and Associated Works
 - (i) Ditching as required;
 - (ii) Removal and salvage of existing precast concrete parking curbs;
 - (iii) Planing of 25-75mm of existing asphalt pavement;
 - (iv) Removal of existing asphalt pavement as required;
 - (v) Regrading of existing base course material as required;
 - (vi) Removal of existing curb;
 - (vii) Removal of existing bullnose;
 - (viii) Removal of existing culverts;
 - (ix) Installation of corrugated steel pipe culverts;
 - (x) Installation of culvert end markers;
 - (xi) Excavation;
 - (xii) Compaction of existing sub-grade;
 - (xiii) Adjustment of existing pavement and boulevard structures;
 - (xiv) Placement of geotextile fabric;
 - (xv) Placement of sub-base material;
 - (xvi) Renewal of existing curb and gutter as required;
 - (xvii) Renewal of existing curb as required;
 - (xviii) Construction of curb ramp and gutter for asphalt pavement;
 - (xix) Construction of barrier curb and gutter for asphalt pavement;
 - (xx) Construction of modified barrier curb and gutter for asphalt pavement;
 - (xxi) Construction of barrier curb for asphalt pavement;
 - (xxii) Construction of modified barrier curb for asphalt pavement;

- (xxiii) Construction of monolithic concrete bullnose;
 - (xxiv) Placement of geogrid for new asphalt pathway;
 - (xxv) Placement of base course material;
 - (xxvi) Construction of concrete sidewalk;
 - (xxvii) Construction of curb ramp for asphalt pavement;
 - (xxviii) Installation of detectable warning surface tiles;
 - (xxix) Regrading of existing interlocking paving stones;
 - (xxx) Construction of asphalt patches;
 - (xxxi) Renewal of existing asphalt pathway as required;
 - (xxxii) Construction of new asphalt pathway;
 - (xxxiii) Placement of asphalt pavement (Type 1A, 80mm thickness);
 - (xxxiv) Placement of asphalt pavement at tie-ins and approaches as required;
 - (xxxv) Reinstallation of precast concrete parking curbs;
 - (xxxvi) Placement of limestone surface material;
 - (xxxvii) Boulevard restoration and sod.
- (b) Intersection Improvements and Associated Works
- (i) Removal of existing asphalt pavement as required;
 - (ii) Removal of existing curb, splash strip and sidewalk as required;
 - (iii) Removal of existing concrete bus pad;
 - (iv) Removal of precast sidewalk blocks;
 - (v) Excavation;
 - (vi) Stockpile suitable site material as required;
 - (vii) Placement of suitable site material as required;
 - (viii) Compaction of existing sub-grade;
 - (ix) Adjustment of existing pavement and boulevard structures;
 - (x) Placement of geotextile fabric;
 - (xi) Placement of sub-base material;
 - (xii) Placement of geogrid;
 - (xiii) Placement of base course material;
 - (xiv) Construction of concrete sidewalk;
 - (xv) Construction of curb ramp;
 - (xvi) Renewal of existing sidewalk as required;
 - (xvii) Renewal of curb ramp;
 - (xviii) Installation of detectable warning surface tiles;
 - (xix) Construction of barrier curb;
 - (xx) Construction of monolithic concrete splash strip;
 - (xxi) Construction of monolithic concrete bullnose;
 - (xxii) Renewal of existing curb as required;
 - (xxiii) Construction of new asphalt pathway;
 - (xxiv) Ditching as required;
 - (xxv) Boulevard restoration and sod.

D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is:

Erik Hansen, C.E.T.
Technologist III
Public Works, Engineering
Telephone No. 204-918-4367
Email Address EHansen@winnipeg.ca

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.

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.

D5.2 At least two (2) Business Days prior to the commencement of any Work on the site, the Contractor shall provide the Contract Administrator with a phone number where the supervisor identified in D5.1 or an alternate can be contacted twenty-four (24) hours a day to respond to an emergency.

D6. NOTICES

D6.1 Except as provided for in C22.4, 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/Proposal.

D6.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D6.3 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator identified in D4.

D6.3 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following facsimile number:

The City of Winnipeg
Legal Services Department
Attn: Director of Legal Services
Facsimile No.: 204-947-9155

D7. ACCESSIBLE CUSTOMER SERVICE REQUIREMENTS

D7.1 The Accessibility for Manitobans Act (AMA) imposes obligations on The City of Winnipeg to provide accessible customer service to all persons in accordance with the Customer Service Standard Regulation ("CSSR") to ensure inclusive access and participation for all people who live, work or visit Winnipeg regardless of their abilities.

D7.1.1 The Contractor agrees to comply with the accessible customer service obligations under the CSSR and further agrees that when providing the Goods or Services or otherwise acting on the City of Winnipeg's behalf, shall comply with all obligations under the AMA applicable to public sector bodies.

D7.1.2 The accessible customer service obligations include, but are not limited to:
(a) providing barrier-free access to goods and services;

- (b) providing reasonable accommodations
- (c) reasonably accommodating assistive devices, support persons, and support animals;
- (d) providing accessibility features e.g. ramps, wide aisles, accessible washrooms, power doors and elevators
- (e) inform the public when accessibility features are not available;
- (f) providing a mechanism or process for receiving and responding to public feedback on the accessibility of all goods and services; and
- (g) providing adequate training of staff and documentation of same.

D8. FURNISHING OF DOCUMENTS

- D8.1 Upon award of the Contract, the Contractor will be provided with 'issued for construction' Contract Documents electronically, including Drawings in PDF format only.

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 Documents, if applicable.
- D10.2 The Safe Work Plan shall be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/safety/default.stm>
- D10.3 Notwithstanding B12.4 at any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require an updated COR Certificate or Annual Letter of good Standing. A Contractor, who fails to provide a satisfactory COR Certificate or Annual Letter of good Standing, will not be permitted to continue to perform any Work.

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, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability, broad form property damage cover and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
 - (b) 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) an all risks Installation Floater carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.

D11.2 Deductibles shall be borne by the Contractor.

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

D11.4 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.

D12. CONTRACT SECURITY

D12.1 The Contractor shall provide and maintain the performance bond and the labour and material payment bond 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; and
- (b) a labour and material payment bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H2: Labour and Material Payment Bond), in an amount equal to fifty percent (50%) of the Contract Price.

D12.1.1 Where the contract security is a performance bond, it may be submitted in hard copy or digital format. If submitted in digital format the contract security must meet the following criteria:

- (a) the version submitted by the Contractor must have valid digital signatures and seals;
- (b) the version submitted by the Contractor must be verifiable by the City with respect to the totality and wholeness of the bond form, including: the content; all digital signatures and digital seals; with the surety company, or an approved verification service provider of the surety company.
- (c) the version submitted must be viewable, printable and storable in standard electronic file formats compatible with the City, and in a single file. Allowable formats include pdf.
- (d) the verification may be conducted by the City immediately or at any time during the life of the bond and at the discretion of the City with no requirement for passwords or fees.
- (e) the results of the verification must provide a clear, immediate and printable indication of pass or fail regarding D12.1(b).

D12.1.2 Digital bonds failing the verification process will not be considered to be valid and may be determined to be an event of default in accordance with C18.1. If a digital bond fails the verification process, the Contractor may provide a replacement bond (in hard copy or digital format) within seven (7) Calendar Days of the City's request or within such greater period of time as the City in its discretion, exercised reasonably, allows.

D12.1.3 Digital bonds passing the verification process will be treated as original and authentic.

D12.2 The Contractor shall provide the City Solicitor with the required performance and labour and material payment bonds within seven (7) Calendar Days of notification of the award of the Contract by way of an award letter and prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.

D12.3 The Contractor shall, as soon as practicable after entering into a contract with a Subcontractor:

- (a) give the Subcontractor written notice of the existence of the labour and material payment bond in D12.1(b); and
- (b) post a notice of the bond and/or a copy of that bond in a conspicuous location at the Site of the Work.

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 or prior to a pre-construction meeting, or at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the C4.1 for the return of the executed Contract Documents, if applicable.

D14. DETAILED WORK SCHEDULE

- D14.1 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 but in no event later than the date specified in the General Conditions for the return of the executed Contract Documents, as applicable.
- D14.2 The detailed work schedule shall consist of the following:
- (a) a Gantt chart for the Work acceptable to the Contract Administrator.
- D14.3 Further to D14.2(a), 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. REQUIREMENTS FOR SITE ACCESSIBILITY PLAN

- D15.1 The Contractor shall provide the Contract Administrator with an Accessibility 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 Documents, if applicable.
- D15.2 The Accessibility Plan shall demonstrate how the Contractor will accommodate the safe passage of pedestrians and cyclists in accordance with the Manual of Temporary Traffic Control, the Contract Drawings, Staging Plans, and Streets By-Law No. 1481/77 at all times for the duration of the Construction. Unless noted in the Contract, the Accessibility Plan must include a written plan for the following:
- (a) How the Contractor will maintain at least one crossing in each direction for each intersection (one north/south crosswalk and one east/west crosswalk).
 - (b) How the Contractor will maintain access to bus stops within the site.
 - (c) How the Contractor will maintain access to pedestrian corridors and half signals.
 - (d) How the Contractor will maintain cycling facilities.
 - (e) How the Contractor will maintain access to residents and businesses unless otherwise noted in the Contract.
 - (f) Any required detour signage at adjacent crossings to facilitate sidewalk or active transportation pathway closures.
- D15.3 The Accessibility Plan may also include figures, sketches, or drawings to demonstrate the proposed plan.
- D15.4 The Accessibility Plan shall include written details on how the Contractor intends to review, maintain, and document all items related to the Accessibility Plan on-site during Construction, including, but not limited to:
- (a) Signage

- (b) Temporary Ramping
- (c) Transit Stops
- (d) Detour Signage

- D15.5 At minimum, the Contractor shall review the site conditions on a daily basis to ensure that all features related to the Accessibility Plan are in place. The site review is intended to correct deficiencies as a result of unforeseen events such as wind, traffic, or the general public. Deficiencies that are direct result of the Contractors actions must be corrected immediately.
- D15.6 Any changes to the Accessibility Plan must be approved by the Contract Administrator.
- D15.7 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the site has been maintained.
- D15.8 Deficiencies as a direct result of actions by the Contractor that are not immediately corrected and/or failure to produce records that demonstrate that the site was maintained in compliance with the Accessibility Plan may result in a pay adjustment via the monthly Progress Payment. The rate of pay adjustment will be as per the following schedule:
- (a) First Offence – A warning will be issued and documented in the weekly or bi-weekly site meeting.
 - (b) Second Offence – A field instruction to immediately correct the site will be issued by the Contract Administrator.
 - (c) Third and subsequent Offences – A pay reduction will be issued in the amount of \$250.00 per instance and per day.

D16. ASSINIBOINE PARK CONSERVANCY (APC) WORK REQUIREMENTS

- D16.1 APC policy requires any individual working onsite to complete, for themselves, a Contractor Agreement form prior to attending site, which can be found via this link:
<https://form.jotform.com/82195858139268>
- D16.2 The contractor's supervisor must sign in/out daily at 30 Commissary Road and provide information related to the work activities for that day.
- D16.3 APC will continue to follow the direction given by the Government of Manitoba and Public Health; therefore policies may require amendments and adjustments based on most recent guidelines.

SCHEDULE OF WORK

D17. COMMENCEMENT

- D17.1 The Contractor shall not commence any Work until he/she is in receipt of an award letter from the Award Authority authorizing the commencement of the Work.
- D17.2 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 twenty-four (24) hour emergency response phone number specified in D5.2;
 - (iv) the Safe Work Plan specified in D10;
 - (v) evidence of the insurance specified in D11;
 - (vi) the contract security specified in D12;
 - (vii) the subcontractor list specified in D13;
 - (viii) the detailed work schedule specified in D14;

- (ix) the Requirements for Site Accessibility Plan specified in D15; and
 - (x) the direct deposit application form specified in D30.
- (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.

D17.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the award letter.

D17.4 The City intends to award this Contract by June 17, 2022.

D18. WORKING DAYS

D18.1 Further to C1.1(tt);

D18.1.1 The Contract Administrator will determine daily if a Working Day has elapsed and will record his/her assessment. On a weekly basis the Contract Administrator will provide the Contractor with a record of the Working Days assessed for the preceding week. The Contractor shall sign each report signifying that he/she agrees with the Contract Administrator's determination of the Working Days assessed for the report period.

D18.1.2 Work done to restore the Site to a condition suitable for Work, shall not be considered "work" as defined in the definition of a Working Day.

D18.1.3 When the Work includes two or more major types of Work that can be performed under different atmospheric conditions, the Contract Administrator shall consider all major types of Work in determining whether the Contractor was able to work in assessing Working Days.

D18.1.4 Saturdays and Sundays will be considered a Working Day if the Contractor is working at least seven (7) hours on Site and the Contract Administrator deems that the Contract Administrator's staff is also required on Site.

D19. RESTRICTED WORK HOURS

D19.1 Further to clause 3.10 of CW 1130, the Contractor shall require written permission forty-eight (48) hours in advance from the Contract Administrator for any work to be performed between 2000 hours and 0700 hours, or on Saturdays, Sundays, Statutory Holidays and or Civic Holidays.

D20. WORK BY OTHERS

D20.1 Further to C6.25, the Contractor's attention is directed to the fact that other Contractors, the personnel of Utilities and the staff of the City may be working within the project limit, approach roadway, adjacent roadways or right-of-way. The activities of these agencies may coincide with the Contractors execution of work and it will be the Contractor's responsibility to cooperate to the fullest extent with other personnel working in the area, and such cooperation is an obligation of the Contractor under the terms of Contract.

D20.2 Work by others on or near the Site will include but not necessarily be limited to:

- (a) City of Winnipeg Traffic Services – traffic diversion signing and line painting;
- (b) City of Winnipeg Traffic Signals – supply and installation of pedestrian corridor crossing at Corydon Avenue and Park Boulevard North Intersection;
- (c) Manitoba Hydro – relocation of street lighting on Conservatory Drive;
- (d) Assiniboine Park Conservancy – daily work activities; and
- (e) Bird Construction – construction works for The Leaf on Locomotive Drive.

D20.3 Further to D20.1 the Contractor shall cooperate and coordinate all activities with all parties performing required Work by Others. The Contractor must include and accommodate Work by Others identified in D20.2 or additional parties, in their construction schedule as per D14 and accommodate the necessary area on Site required for the Work by Others to complete the Work.

D21. SEQUENCE OF WORK

D21.1 Further to C6.1, the sequence of work shall be as follows:

D21.2 The Contractor shall refer to the applicable Temporary Traffic Signage & Staging Drawings for sequence of work.

D21.2.1 The Work shall be divided into 2 phases. Each Phase shall be subdivided into stages. Stages are further subdivided into major items of work.

D21.2.2 **Phase I** – Conservatory Drive from Roblin Boulevard to Conservatory Access, Pavilion Crescent from Assiniboine Park Drive to Cricket Drive, South lane of Pavilion Crescent from Cricket Drive to Zoo Drive, and Locomotive Drive from Conservatory Drive to Formal Garden Parking Lot

(a) **Stage I** – Southbound Conservatory Drive from Station 3+00 to Zoo Drive – Mill & Fill, Asphalt Pavement Rehabilitation and Associated Works

- (i) Ditching;
- (ii) Asphalt/concrete removals;
- (iii) Excavation;
- (iv) Sub-grade compaction;
- (v) Sub-base and base works;
- (vi) Concrete works;
- (vii) Boulevard grading;
- (viii) Asphalt planing;
- (ix) Asphalt paving operations;
- (x) Limestone shoulder work; and
- (xi) Topsoil and sodding/seeding.

(b) **Stage II** – Southbound Conservatory Drive from Zoo Drive to Roblin Boulevard and Westbound Pavilion Crescent from Assiniboine Park Drive to Station 3+05 – Mill & Fill, Asphalt Pavement Rehabilitation and Associated Works

- (i) Ditch grading;
- (ii) Asphalt/concrete removals;
- (iii) Excavation;
- (iv) Sub-grade compaction;
- (v) Adjustments;
- (vi) Sub-base and base works;
- (vii) Concrete works;
- (viii) Boulevard grading;
- (ix) Asphalt planing;
- (x) Asphalt paving operations;
- (xi) Limestone shoulder work; and
- (xii) Topsoil and sodding/seeding.

(c) **Stage III** – Northbound Conservatory Drive from Roblin Boulevard to Station 1+73 – Asphalt Pavement Rehabilitation and Associated Works

- (i) Asphalt/concrete removals;
- (ii) Excavation;

- (iii) Sub-grade compaction;
 - (iv) Sub-base and base works;
 - (v) Concrete works;
 - (vi) Boulevard grading;
 - (vii) Asphalt planing;
 - (viii) Asphalt paving operations;
 - (ix) Limestone shoulder work; and
 - (x) Topsoil and sodding/seeding.
- (d) **Stage IV** – Northbound Conservatory Drive from Station 1+73 to Station 2+24 and Eastbound Locomotive Drive from Conservatory Drive to Station 1+62 – Asphalt Pavement Rehabilitation and Associated Works
- (i) Ditch grading;
 - (ii) Underground works;
 - (iii) Asphalt/concrete removals;
 - (iv) Excavation;
 - (v) Sub-grade compaction;
 - (vi) Base works;
 - (vii) Concrete works;
 - (viii) Boulevard grading;
 - (ix) Asphalt planing;
 - (x) Asphalt paving operations;
 - (xi) Limestone shoulder work; and
 - (xii) Topsoil and sodding/seeding.
- (e) **Stage V** – Northbound Conservatory Drive from Station 2+24 to Station 3+00 and Westbound Locomotive Drive from Station 1+62 to Conservatory Drive – Mill & Fill, Asphalt Pavement Rehabilitation and Associated Works
- (i) Ditch grading;
 - (ii) Underground works;
 - (iii) Asphalt/concrete removals;
 - (iv) Excavation;
 - (v) Sub-grade compaction;
 - (vi) Base works;
 - (vii) Concrete works;
 - (viii) Boulevard grading;
 - (ix) Asphalt planing;
 - (x) Asphalt paving operations;
 - (xi) Limestone shoulder work; and
 - (xii) Topsoil and sodding/seeding.
- (f) **Stage VI** – Westbound Pavilion Crescent, South Lane from Station 3+05 to Zoo Drive, Southbound Zoo Drive, East Lane from Pavilion Crescent to Station 5+40, and Eastbound Pavilion Crescent from Station 3+43 to Assiniboine Park Drive – Mill & Fill, Asphalt Pavement Rehabilitation and Associated Works
- (i) Ditch grading;
 - (ii) Underground works;
 - (iii) Asphalt/concrete removals;
 - (iv) Excavation;
 - (v) Sub-grade compaction;
 - (vi) Adjustments;

- (vii) Base works;
 - (viii) Concrete works;
 - (ix) Boulevard grading;
 - (x) Asphalt planing;
 - (xi) Asphalt paving operations;
 - (xii) Limestone shoulder work; and
 - (xiii) Topsoil and sodding/seeding.
- (g) Asphalt planing and asphalt paving activities for all stages of Phase 1 are to be completed consecutively at the end of Phase 1.
- (h) limestone shoulder construction for all stages of Phase 1 is to be completed following the completion of asphaltting.
- (i) Temporary asphalt ramps are to be constructed at all pavement drop offs where traffic will be routed to an area that has been reconstructed.
- (j) Construction Works on Westbound Pavilion Crescent from Assiniboine Park Drive to Station 3+05 in Phase I – Stage II, may continue to run concurrently with Phase I – Stage III, Stage IV, Stage V or Locomotive Drive until completion.
- (k) Construction Works on Locomotive Drive from Station 1+62 to Formal Garden Parking Lot shall commence once the Work outlined in Phase I – Stage IV and Stage V is complete, and may run concurrently with Phase II.
- (l) Placing the topsoil and finished grading of all boulevard and median areas shall commence 14 days after construction of final lift asphalt pavement.

D21.2.3 Immediately following the completion of the asphaltic concrete works of Phase I, the Contractor shall clean up the Site and remove all plant, surplus material, waste and debris, other than that left by the City or other Contractors.

D21.2.4 **Phase II** – Pavilion Crescent (north lane) from Cricket Drive to Zoo Drive, Eastbound Pavilion Crescent from Cricket Drive to Assiniboine Park Drive and Zoo Drive from Assiniboine Park Drive to Conservatory Drive

- (a) **Stage I** – Westbound Pavilion Crescent (north lane) from Station 3+05 to Zoo Drive, and Northbound Zoo Drive (east lane) from Pavilion Crescent to Assiniboine Park Drive – Mill & Fill, Asphalt Pavement Rehabilitation and Associated Works
- (i) Ditch grading;
 - (ii) Asphalt/concrete removals;
 - (iii) Excavation;
 - (iv) Sub-grade compaction;
 - (v) Base works;
 - (vi) Concrete works;
 - (vii) Boulevard grading;
 - (viii) Asphalt planing;
 - (ix) Asphalt paving operations;
 - (x) Limestone shoulder work; and
 - (xi) Topsoil and sodding/seeding.
- (b) **Stage II** – Southbound Zoo Drive (west lane) from Assiniboine Park Drive to Station Conservatory Drive – Mill & Fill, Asphalt Pavement Rehabilitation and Associated Works
- (i) Ditch grading;
 - (ii) Asphalt/concrete removals;
 - (iii) Excavation;
 - (iv) Sub-grade compaction;
 - (v) Base works;

- (vi) Concrete works;
 - (vii) Boulevard grading;
 - (viii) Asphalt planing;
 - (ix) Asphalt paving operations;
 - (x) Limestone shoulder work; and
 - (xi) Topsoil and sodding/seeding.
- (c) Temporary pavement widening on Southbound Zoo Drive at Pavilion Crescent Junction shall be prepared and constructed prior to the commencement of Phase II – Stage I.
- (d) Temporary pavement widening on Southbound Zoo Drive at Pavilion Crescent Junction shall be removed and boulevard restored once all asphalt paving operations in Phase II – Stage III are complete.
- (e) Construction Works on Zoo Drive from Station 5+40 to Conservatory Drive may run concurrently with any Stage in either Phase, except other than Phase I – Stage I.
- (f) Construction Works in Phase II shall not commence prior to the completion of the Work in Phase I, as outlined in D20.1.2, unless otherwise directed by the Contract Administrator.
- (g) Asphalt planing and asphalt paving activities for all stages of Phase 2 are to be completed consecutively at the end of Phase 2.
- (h) limestone shoulder construction for all stages of Phase 2 is to be completed following the completion of asphaltting.
- (i) Placing the topsoil and finished grading of all boulevard and median areas shall commence 14 days after construction of final lift asphalt pavement.
- (j) Temporary asphalt ramps are to be constructed at all pavement drop offs where traffic will be routed to an area that has been reconstructed.

D21.2.5 Immediately following the completion of the asphaltic concrete works of Phase II, the Contractor shall clean up the Site and remove all plant, surplus material, waste and debris, other than that left by the City or other Contractors.

D21.2.6 During the course of construction, due to unforeseen events within the park, the Contract Administrator may permit to deviate from the Temporary Traffic Signage & Staging Drawings to construct any particular Stage in either Phase concurrently with each other upon review and approval from Assiniboine Park Conservancy.

D22. SUBSTANTIAL PERFORMANCE

D22.1 The Contractor shall achieve Substantial Performance within forty (40) consecutive Working Days of the commencement of the Work as specified in D17.

D22.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.

D22.3 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.

D23. TOTAL PERFORMANCE

D23.1 The Contractor shall achieve Total Performance within forty-five (45) consecutive Working Days of the commencement of the Work as specified in D17.

D23.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.

D23.3 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.

D24. LIQUIDATED DAMAGES

D24.1 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 –three thousand five hundred dollars (\$3,500.00);
- (b) Total Performance – one thousand dollars (\$1,000.00).

D24.2 The amounts specified for liquidated damages in D24.1 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.

D24.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D25. COVID-19 SCHEDULE DELAYS

D25.1 The City acknowledges that the schedule for this Contract may be impacted by the COVID-19 pandemic. Commencement and progress of the Work shall be performed by the Contractor with due consideration to the health and safety of workers and the public, directives from health authorities and various levels of government and in close consultation with the Contract Administrator.

D25.2 Further to D24.1, the contractor must adhere to the requirements as specified in Appendix 'A'.

D25.3 If the Contractor is delayed in the performance of the Work by reason of the COVID-19 pandemic, the Work schedule may be adjusted by a period of time equal to the time lost due to such delay and costs related to such delay will be determined as identified herein.

D25.4 A minimum of seven (7) Calendar Days prior to the commencement of Work, the Contractor shall declare whether COVID-19 will affect the start date. The Contractor shall provide sufficient evidence that the delay is directly related to COVID-19, including but not limited to evidence related to availability of staff, availability of Material or work by others.

D25.5 For any delay related to COVID-19 and identified after Work has commenced, the Contractor shall within seven (7) Calendar Days of becoming aware of the anticipated delay declare the additional delay and shall provide sufficient evidence as indicated in D25.4. Failure to provide this notice will result in no additional time delays being considered by the City.

D25.6 The Work schedule, including the durations identified in D19 to D23 where applicable, will be adjusted to reflect delays accepted by the Contract Administrator. No additional payment will be made for adjustment of schedules except where seasonal work, not previously identified in the Contract, is carried over to the following construction season.

D25.7 Where Work not previously identified is being carried over solely as a result of delays related to COVID-19, as confirmed by the Contract Administrator, the cost of temporary works to maintain the Work in a safe manner until Work recommences, will be considered by the Contract

Administrator. Where the Work is carried over only partially due to COVID-19, a partial consideration of the cost of temporary works will be considered by the Contract Administrator.

D25.8 Any time or cost implications as a result of COVID-19 and in accordance with the above, as confirmed by the Contract Administrator, shall be documented in accordance with C7.

D26. SCHEDULED MAINTENANCE

D26.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

- (a) Sod maintenance as specified in CW 3510-R10;
- (b) Seed maintenance as specified in CW 3520-R7; and
- (c) Reflective crack maintenance as specified in CW 3250-R7.

D26.2 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

D27. JOB MEETINGS

D27.1 Regular weekly job meetings will be held at the Site or location agreed to by the Contract Administrator and the Contractor. These meetings shall be attended by a minimum of one representative of the Contract Administrator and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator 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.

D27.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

D28. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

D28.1 Further to C6.26, 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).

D29. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

D29.1 Further to B12.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B12.4.

MEASUREMENT AND PAYMENT

D30. PAYMENT

D30.1 Further to C12, the City shall make payments to the Contractor by direct deposit to the Contractor's banking institution, and by no other means. Payments will not be made until the Contractor has made satisfactory direct deposit arrangements with the City. Direct deposit application forms are at https://winnipeg.ca/finance/files/Direct_Deposit_Form.pdf.

WARRANTY

D31. WARRANTY

- D31.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) year thereafter for asphalt pavement Mill & Fill works unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.
- D31.2 Notwithstanding C13.2 or D31.1, 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 use.

DISPUTE RESOLUTION

D32. DISPUTE RESOLUTION

- D32.1 The entire text of C21.4 is deleted, and amended to read: "Intentionally Deleted"
- D32.2 The entire text of C21.5 is deleted, and amended to read:
- (a) If Legal Services has determined that the Disputed Matter may proceed in the Appeal Process, the Contractor must, within ten (10) Business Days of the date of the Legal Services Response Letter, submit his written Appeal Form, in the manner and format set out on the City's Materials Management Website, to the Chief Administrative Officer, and to the Contract Administrator. The Contractor may not raise any other disputes other than the Disputed Matter in his Appeal Form.
- D32.3 Further to C21, prior to the Contract Administrator's issuance of a Final Determination, the following informal dispute resolution process shall be followed where the Contractor disagrees with any opinion, determination, or decision of the Contract Administrator ("Dispute"):
- (a) In the event of a Dispute, attempts shall be made by the Contract Administrator and the Contractor's equivalent representative to resolve Disputes within the normal course of project dealings between the Contract Administrator and the Contractor's equivalent representative.
 - (b) Disputes which in the reasonable opinion of the Contract Administrator or the Contractor's equivalent representative cannot be resolved within the normal course of project dealings as described above shall be referred to a without prejudice escalating negotiation process consisting of, at a minimum, the position levels as shown below and the equivalent Contractor representative levels:
 - (i) The Contract Administrator;
 - (ii) Supervisory level between the Contract Administrator and applicable Department Head;
 - (iii) Department Head.
- D32.3.1 Names and positions of Contractor representatives equivalent to the above City position levels shall be determined by the Contractor and communicated to the City at the pre-commencement or kick off meeting.
- D32.3.2 As these negotiations are not an adjudicative hearing, neither party may have legal counsel present during the negotiations.
- D32.3.3 Both the City and the Contractor agree to make all reasonable efforts to conduct the above escalating negotiation process within twenty (20) Business Days, unless both parties agree, in writing, to extend that period of time.
- D32.3.4 If the Dispute is not resolved to the City and Contractor's mutual satisfaction after discussions have occurred at the final escalated level as described above, or the time

period set out in D32.3.3, as extended if applicable, has elapsed, the Contract Administrator will issue a Final Determination as defined in C1.1(v), at which point the parties will be governed by the Dispute Resolution process set out in C21.

THIRD PARTY AGREEMENTS

D33. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS

- D33.1 In the event that funding for the Work of the Contract is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, the following terms and conditions shall apply, as required by the applicable funding agreements.
- D33.2 Further to D33.1, in the event that the obligations in D33 apply, actual costs legitimately incurred by the Contractor as a direct result of these obligations ("Funding Costs") shall be determined by the actual cost to the Contractor and not by the valuation method(s) outlined in C7.4. In all other respects Funding Costs will be processed in accordance with Changes in Work under C7.
- D33.3 For the purposes of D33:
- (a) "**Government of Canada**" includes the authorized officials, auditors, and representatives of the Government of Canada; and
 - (b) "**Government of Manitoba**" includes the authorized officials, auditors, and representatives of the Government of Manitoba.
- D33.4 Modified Insurance Requirements
- D33.4.1 If not already required under the insurance requirements identified in D11, the Contractor will be required to provide wrap-up liability insurance in an amount of no less than two million dollars (\$2,000,000) inclusive per occurrence. Such policy will be written in the joint names of the City, Contractor, Consultants and all sub-contractors and sub-consultants and include twelve (12) months completed operations. The Government of Manitoba and its Ministers, officers, employees, and agents shall be added as additional insureds.
- D33.4.2 If not already required under the insurance requirements identified in D11, the Contractor will be required to provide builders' risk insurance (including boiler and machinery insurance, as applicable) providing all risks coverage at full replacement cost, or such lower level of insurance that the City may identify on a case-by-case basis, such as an installation floater.
- D33.4.3 The Contractor shall obtain and maintain third party liability insurance with minimum coverage of two million dollars (\$2,000,000.00) per occurrence on all licensed vehicles operated at the Site. In the event that this requirement conflicts with another licensed vehicle insurance requirement in this Contract, then the requirement that provides the higher level of insurance shall apply.
- D33.4.4 Further to D11.3, insurers shall provide satisfactory Certificates of Insurance to the Government of Manitoba prior to commencement of Work as written evidence of the insurance required. The Certificates of Insurance must provide for a minimum of thirty (30) days' prior written notice to the Government of Manitoba in case of insurance cancellation.
- D33.4.5 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.
- D33.5 Indemnification By Contractor
- D33.5.1 In addition to the indemnity obligations outlined in C17 of the General Conditions for Construction, the Contractor agrees to indemnify and save harmless the Government of Canada and the Government of Manitoba and each of their respective Ministers, officers, servants, employees, and agents from and against all claims and demands, losses, costs, damages, actions, suit or other proceedings brought or pursued in any manner in respect of any matter caused by the Contractor or arising from this Contract or the Work, or from

the goods or services provided or required to be provided by the Contractor, except those resulting from the negligence of any of the Government of Canada's or the Government of Manitoba's Ministers, officers, servants, employees, or agents, as the case may be.

- D33.5.2 The Contractor agrees that in no event will Canada or Manitoba, their respective officers, servants, employees or agents be held liable for any damages in contract, tort (including negligence) or otherwise, for:
- (a) any injury to any person, including, but not limited to, death, economic loss or infringement of rights;
 - (b) any damage to or loss or destruction of property of any person; or
 - (c) any obligation of any person, including, but not limited to, any obligation arising from a loan, capital lease or other long term obligation;

in relation to this Contract or the Work.

D33.6 Records Retention and Audits

D33.6.1 The Contractor shall maintain and preserve accurate and complete records in respect of this Contract and the Work, including all accounting records, financial documents, copies of contracts with other parties and other records relating to this Contract and the Work during the term of the Contract and for at least six (6) years after Total Performance. Those records bearing original signatures or professional seals or stamps must be preserved in paper form; other records may be retained in electronic form.

D33.6.2 In addition to the record keeping and inspection obligations outlined in C6 of the General Conditions for Construction, the Contractor shall keep available for inspection and audit at all reasonable times while this Contract is in effect and until at least six (6) years after Total Performance, all records, documents, and contracts referred to in D33.6.1 for inspection, copying and audit by the City of Winnipeg, the Government of Manitoba and/or the Government of Canada and their respective representatives and auditors, and to produce them on demand; to provide reasonable facilities for such inspections, copying and audits, to provide copies of and extracts from such records, documents, or contracts upon request by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada and their respective representatives and auditors, and to promptly provide such other information and explanations as may be reasonably requested by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada from time-to-time.

D33.7 Other Obligations

D33.7.1 The Contractor consents to the City providing a copy of the Contract Documents to the Government of Manitoba and/or the Government of Canada upon request from either entity.

D33.7.2 If the Lobbyists Registration Act (Manitoba) applies to the Contractor, the Contractor represents and warrants that it has filed a return and is registered and in full compliance with the obligations of that Act, and covenants that it will continue to comply for the duration of this Contract.

D33.7.3 The Contractor shall comply with all applicable legislation and standards, whether federal, provincial, or municipal, including (without limitation) labour, environmental, and human rights laws, in the course of providing the Work.

D33.7.4 The Contractor shall properly account for the Work provided under this Contract and payment received in this respect, prepared in accordance with generally accepted accounting principles in effect in Canada, including those principles and standards approved or recommended from time-to-time by the Chartered Professional Accountants of Canada or the Public Sector Accounting Board, as applicable, applied on a consistent basis.

D33.7.5 The Contractor represents and warrants that no current or former public servant or public office holder, to whom the Value and Ethics Code for the Public Sector, the Policy on

Conflict of Interest and Post Employment, or the Conflict of Interest Act applies, shall derive direct benefit from this Contract, including any employment, payments, or gifts, unless the provision or receipt of such benefits is in compliance with such codes and the legislation.

D33.7.6 The Contractor represents and warrants that no member of the House of Commons or of the Senate of Canada or of the Legislative Assembly of Manitoba is a shareholder, director or officer of the Contractor or of a Subcontractor, and that no such member is entitled to any benefits arising from this Contract or from a contract with the Contractor or a Subcontractor concerning the Work.

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

TENDER NO. 66-2022

2022 Assiniboine Park Asphalt Resurfacing and Associated Works
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: LABOUR AND MATERIAL PAYMENT BOND
(See D12)

KNOW ALL MEN BY THESE PRESENTS THAT

his/its heirs, executors, administrators, successors or assigns (hereinafter called the "Principal"), and

his/its heirs, executors, administrators, successors or assigns (hereinafter called the "Surety"), are held and firmly bound unto **THE CITY OF WINNIPEG** (hereinafter called the "Obligee"), for the use and benefit of claimants as herein below defined, in the amount of

_____ dollars (\$_____)

of lawful money of Canada, for the payment whereof we, the Principal and the Surety jointly and severally bind ourselves firmly by these presents.

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

TENDER NO. 66-2022

2022 Assiniboine Park Asphalt Resurfacing and Associated Works

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 promptly make payment to all claimants as hereinafter defined, for all labour, service and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void, otherwise it shall remain in full force and effect subject, however, to the following conditions:

- (a) A claimant is defined as one having a direct contract with the Principal for labour, service and material, or any of them, used or reasonably required for use in the performance of the contract, labour, service and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment (but excluding rent of equipment where the rent pursuant to an agreement is to be applied towards the purchase price thereof) directly applicable to the Contract;
- (b) The above-named Principal and Surety hereby jointly and severally agree with the Obligee that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work, labour or service was done or performed, or materials were furnished by such claimant, may sue on this bond, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon;
- (c) No suit or action shall be commenced hereunder by any claimant
 - (i) unless claimant shall have given written notice to the Principal and the Surety above-named, within one hundred and twenty (120) days after such claimant did or performed the last of the work, labour or service, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work, labour or service was done or performed. Such notice shall be served by mailing the same by registered mail to the Principal, and Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the Province of Manitoba;

- (ii) after the expiration of one (1) year following the date on which Principal ceased work on said Contract; including work performed under the guarantees provided in the Contract;
 - (iii) other than in a court of competent jurisdiction in the Province of Manitoba.
- (d) The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics liens which may be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against this bond.
- (e) The Surety shall not be liable for a greater sum than the specified penalty of this bond.

The Principal and Surety hereby agree that The Guarantors' Liability Act (Manitoba) shall apply to this Bond.

IN TESTIMONY WHEREOF, the Principal has hereunto set its hand affixed its seal, and the Surety has caused these presents to be sealed and with its corporate seal duly attested by the authorized signature of its signing authority this

_____ 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 J: SUBCONTRACTOR LIST
 (See D13)

2022 Assiniboine Park Asphalt Resurfacing and Associated Works

<u>Portion of the Work</u>	<u>Name</u>	<u>Address</u>
SURFACE WORKS:		
<u>Supply of Materials:</u>		
Geotextile Fabric		
Geogrid		
Sub-Base Material		
Base Course Material		
Surface Material – Limestone		
Concrete		
Asphalt		
Topsoil and Sod		
<u>Installation and Placement:</u>		
Geotextile Fabric		
Geogrid		
Sub-Base Material		
Base Course Material		
Surface Material – Limestone		
Concrete		
Asphalt		
Topsoil and Sod		
UNDERGROUND WORKS:		

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 Tender shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 Bidders are reminded that requests for approval of substitutes as an approved equal or an approved alternative shall be made in accordance with B6. In every instance where a brand name or design specification is used, the City will also consider approved equals and/or approved alternatives in accordance with B6.
- E1.4 The following are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
	Cover Sheet	A1
SE-22-25	Conservatory Drive from Roblin Boulevard to Conservatory Access – Sta. 1+00 to 2+00	A1
SE-22-26	Conservatory Drive from Roblin Boulevard to Conservatory Access – Sta. 2+00 to 3+00	A1
SE-22-27	Locomotive Drive from Conservatory Drive to Formal Garden Parking Lot – Sta. 1+00 to 2+20	A1
SE-22-28	Locomotive Drive from Conservatory Drive to Formal Garden Parking Lot – Sta. 2+20 to 3+20	A1
SE-22-29	Locomotive Drive from Conservatory Drive to Formal Garden Parking Lot – Sta. 3+20 to 4+20	A1
SE-22-30	Locomotive Drive from Conservatory Drive to Formal Garden Parking Lot – Sta. 4+20 to 4+73	A1
SE-22-31	Pavilion Crescent from Zoo Drive to Assiniboine Park Drive – Sta. 1+00 to 2+30	A1
SE-22-32	Pavilion Crescent from Zoo Drive to Assiniboine Park Drive – Sta. 2+30 to 3+50	A1
SE-22-33	Pavilion Crescent from Zoo Drive to Assiniboine Park Drive – Sta. 3+50 to 4+70	A1
SE-22-34	Pavilion Crescent from Zoo Drive to Assiniboine Park Drive – Sta. 4+70 to 5+90	A1
SE-22-35	Pavilion Crescent from Zoo Drive to Assiniboine Park Drive – Sta. 5+90 to 7+00	A1
SE-22-36	Pavilion Crescent from Zoo Drive to Assiniboine Park Drive – Sta. 7+00 to 7+87	A1
SE-22-37	Zoo Drive from Assiniboine Park Drive to Conservatory Drive – Sta. 1+00 to 2+30	A1
SE-22-38	Zoo Drive from Assiniboine Park Drive to Conservatory Drive –	A1

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
	Sta. 2+30 to 3+50	
SE-22-39	Zoo Drive from Assiniboine Park Drive to Conservatory Drive – Sta. 3+50 to 4+70	A1
SE-22-40	Zoo Drive from Assiniboine Park Drive to Conservatory Drive – Sta. 4+70 to 5+90	A1
SE-22-41	Zoo Drive from Assiniboine Park Drive to Conservatory Drive – Sta. 5+90 to 7+10	A1
SE-22-42	Zoo Drive from Assiniboine Park Drive to Conservatory Drive – Sta. 7+10 to 8+20	A1
SE-22-43	Zoo Drive from Assiniboine Park Drive to Conservatory Drive – Sta. 8+20 to 9+20	A1
SE-22-44	Zoo Drive from Assiniboine Park Drive to Conservatory Drive – Sta. 9+20 to 10+20	A1
SE-22-45	Zoo Drive from Assiniboine Park Drive to Conservatory Drive – Sta. 10+20 to 11+20	A1
SE-22-46	Zoo Drive from Assiniboine Park Drive to Conservatory Drive – Sta. 11+20 to 12+20	A1
SE-22-47	Zoo Drive from Assiniboine Park Drive to Conservatory Drive – Sta. 12+20 to 12+97	A1
SE-22-48	Corydon Avenue and Park Boulevard North Intersection	A1
SE-22-104	Temporary Traffic Signage & Staging: Phase I – Stage I	A1
SE-22-105	Temporary Traffic Signage & Staging: Phase I – Stage II	A1
SE-22-106	Temporary Traffic Signage & Staging: Phase I – Stage II (Continued)	A1
SE-22-107	Temporary Traffic Signage & Staging: Phase I – Stage III	A1
SE-22-108	Temporary Traffic Signage & Staging: Phase I – Stage IV	A1
SE-22-109	Temporary Traffic Signage & Staging: Phase I – Stage V	A1
SE-22-110	Temporary Traffic Signage & Staging: Phase I – Stage VI	A1
SE-22-111	Temporary Traffic Signage & Staging: Phase I – Stage VI (Continued)	A1
SE-22-112	Temporary Traffic Signage & Staging: Phase II – Stage I	A1
SE-22-113	Temporary Traffic Signage & Staging: Phase II – Stage II	A1

E2. MOBILIZATION AND DEMOBILIZATION PAYMENT

DESCRIPTION

- E2.1 This Specification shall cover all operations relating to the mobilization and demobilization of the Contractor to the project location(s).
- E2.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as hereinafter specified.

E2.3 The inclusion of a payment item for the Work under this Specification shall not release or reduce the responsibilities of the Contractor under any other specification in this Contract.

SCOPE OF WORK

E2.4 Further to C12 of the General Conditions, where Mobilization and Demobilization is included as a bid item, it shall consist of the following, as applicable:

- (a) Mobilization shall include, but not be limited to:
 - (i) All activities and associated costs for transportation of the Contractor's personnel, equipment, and operating supplies to the site, and/or sites, and/or between sites;
 - (ii) Establishment of offices, buildings, other necessary general facilities and equipment parking/staging areas for the Contractor's operations at the site or sites;
 - (iii) Premiums paid for performance and payment bonds including coinsurance and reinsurance agreements as applicable;
 - (iv) General cleanup and housekeeping needed maintain a neat and orderly project site(s);
 - (v) Other job related items.
- (b) Demobilization shall include, but not be limited to:
 - (i) All activities and costs for transportation of personnel, equipment, and supplies not used in the project from the site, and/or sites, and/or between sites;
 - (ii) Disassembly, removal, and site cleanup and restoration of offices, buildings, and other facilities assembled on the site and/or sites;
 - (iii) Repair of access roads, temporary haul roads, and equipment parking areas leaving the project site in the same or better condition than at the start of the project;
 - (iv) General cleanup and housekeeping needed to restore a neat and orderly project site.

E2.5 Access to the site, equipment parking, and staging areas are limited to that shown on the drawings or as approved by the Contract Administrator.

MEASUREMENT AND PAYMENT

E2.6 The lump-sum price for the Mobilization and Demobilization bid item shall not exceed five percent (5.00%) of the total bid price for the Contract.

E2.6.1 Further to B9, B17, C12 and E2.6, should the lump sum price exceed 5% of the Total Bid Price the lump sum price will be reduced to 5% of the Total Bid Price, the Total Bid Price will be determined using the reduced lump sum price and payment will be based on the reduced lump sum price.

E2.7 Payment for Mobilization:

- (a) 60% of the lump-sum price will be paid to the contractor for Mobilization on the first Progress Estimate for the Contract.

E2.8 Payment for Demobilization:

- (a) The remaining 40% of the lump-sum price will be paid upon:
 - (i) Restoration of the site and/or sites to the satisfaction of the Contract Administrator;
and
 - (ii) Distribution of the Declaration of Total Performance.

E2.9 Pay Reduction for Accessibility Plan

- (a) The Demobilization payment will be reduced by the number of pay adjustments incurred in accordance with D15 and as determined by the Contract Administrator.

E2.10 Mobilization and Demobilization will be paid only once (to a maximum of 100%), regardless of the number of times the Contractor mobilizes to the site and/or sites.

E3. GEOTECHNICAL REPORT

E3.1 Further to C3.1, the geotechnical report is provided to aid the Contractor's evaluation of the pavement structure and/or existing soil conditions. The geotechnical report is contained in Appendix 'B'.

E4. OFFICE FACILITIES

E4.1 The Contractor shall supply office facilities meeting the following requirements:

- (a) The field office shall be for the exclusive use of the Contract Administrator.
- (b) The building shall be conveniently located near the site of the Work.
- (c) The building shall have a minimum floor area of 25 square metres, a height of 2.4m with two windows for cross ventilation and a door entrance with a suitable lock.
- (d) The building shall be suitable for all weather use. It shall be equipped with an electric heater and air conditioner so that the room temperature can be maintained between either 16-18°C or 24-25°C.
- (e) The building shall be adequately lighted with fluorescent fixtures and have a minimum of three wall outlets.
- (f) The building shall be furnished with one desk, two 3m X 1.2m tables and a minimum of 10 chairs.
- (g) A portable toilet shall be located near the field office building. The toilet shall have a locking door and be for the exclusive use of the Contract Administrator and other personnel from the City.
- (h) The field office building and the portable toilet shall be cleaned on a weekly basis immediately prior to each site meeting. The Contract Administrator may request additional cleaning when he/she deems it necessary.

E4.2 The Contractor shall be responsible for all installation and removal costs, all operating costs, and the general maintenance of the office facilities.

E4.3 The office facilities will be provided from the date of the commencement of the Work to the date of Substantial Performance.

E4.4 On a one time basis, where directed by the Contract Administrator, the Contractor shall relocate the office facilities to a location more convenient for the remaining Work.

E5. PROTECTION OF EXISTING TREES

E5.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities to existing boulevard trees within the limits of the construction area:

- (a) The Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.
- (b) Trees identified to be at risk by the Contract Administrator are to be strapped with 25 x 100 x 2400mm wood planks, or suitably protected as approved by the Contract Administrator.
- (c) Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the excavation shall be a minimum of 1.5 times the diameter (measured in inches), 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 dripline of the trees shall be kept to the minimum required to perform the work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of trees. The dripline of a tree shall be considered to be the ground surface

directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.

- (e) Work on-site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to branches does occur, they shall be neatly pruned.

E5.2 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or his/her designate.

E5.3 No separate measurement or payment will be made for the protection of trees.

E5.4 Except as required in clause E5.1(c) and E5.1(e), Elm trees shall not be pruned at any time between April 1 and July 31.

E6. TRAFFIC CONTROL

E6.1 Further to clauses 3.6, 3.7 and 3.8 of CW 1130:

- (a) Where directed by the Contract Administrator, the Contractor shall construct and maintain temporary asphalt ramps to alleviate vertical pavement obstructions such as manholes and planing drop-offs to the satisfaction of the Contract Administrator. Payment shall be in accordance with CW3410.
- (b) In accordance with the Manual of Temporary Traffic Control on City Streets (MTTC), the Contractor ("Construction Agency" in the Manual) shall be responsible for placing, maintaining and removing the appropriate temporary traffic control devices as specified by the MTTC, the Contract Drawings, Staging Plans and Traffic Management Plans or by the Traffic Management Branch of the City of Winnipeg Public Works Department. The Contractor shall bear all costs associated with the placement of temporary traffic control devices by their own forces or Subcontractor.
- (c) In addition, the Contractor shall be responsible for removing, placing and maintaining all regulatory signing including but not limited to:
 - (i) Parking restrictions;
 - (ii) Stopping restrictions;
 - (iii) Turn restrictions;
 - (iv) Diamond lane removal;
 - (v) Full or directional closures on a Regional Street;
 - (vi) Traffic routed across a median;
 - (vii) Full or directional closure of a non-regional street where there is a requirement for regulatory signs (turn restrictions, bus stop relocations, etc.) to implement the closure.
- (d) The Contractor shall remove and stockpile any regulatory signage not required during construction such as, but not limited to, parking restrictions, turn restrictions and loading restrictions.

E6.2 Further to E6.1(c), the Contractor shall make arrangement with the Contract Administrator to supply regulatory signs as required.

- E6.3 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the site has been maintained.
- E6.4 Further to E6.1(c) and E6.1(d) the Contractor shall make arrangements with the Traffic Services Branch of the City of Winnipeg to reinstall the permanent regulatory signs after the Contract Work is complete. The Contractor shall make arrangements to drop off the stockpiled materials to Traffic Services at 495 Archibald Street.
- E6.5 Any changes to the approved Traffic Management Plan must be submitted to the Contract Administrator a minimum of five (5) Working Days prior to the required change for approval.
- E6.6 If the Contract Administrator determines that the Contractor is not performing Traffic Control in accordance with this specification, Traffic Services may be engaged to perform the Traffic Control. In this event the Contractor shall bear costs charged to the project by the Traffic Services Branch of the City of Winnipeg in connection with the required Works.

E7. TRAFFIC MANAGEMENT

- E7.1 Further to clause 3.7 of CW 1130:
- E7.1.1 The Contractor shall refer to the applicable Temporary Traffic Signage & Staging Drawings for traffic management.
- E7.1.2 The Contractor shall schedule construction activities to meet the following:
- (a) **Phase I – Stage I** – Southbound Conservatory Drive from Station 3+00 to Zoo Drive
 - (i) Southbound Conservatory Drive intersection will be closed to all traffic. The Contractor shall sign the streets “Road Closed – No Exit” in accordance with the Manual of Temporary Traffic Control.
 - (ii) Left turns are prohibited on Northbound Conservatory Drive at the intersection of Conservatory Drive and Zoo Drive.
 - (iii) All traffic travelling on Westbound Locomotive Drive must turn right onto Northbound Conservatory Drive at the intersection of Locomotive Drive and Conservatory Drive.
 - (iv) All traffic travelling on Zoo Drive is to be routed onto Cricket Drive.
 - (b) **Phase I – Stage II** – Southbound Conservatory Drive from Zoo Drive to Roblin Boulevard and Westbound Pavilion Crescent from Assiniboine Park Drive to Station 3+05
 - (i) Southbound Conservatory Drive must be constructed lane at a time and maintained for through traffic.
 - (ii) Eastbound Pavilion Crescent from Zoo Drive must be maintained for through traffic.
 - (iii) No Left Turn sign from northbound Conservatory Drive at Pavilion Crescent.
 - (c) **Phase I – Stage III** – Northbound Conservatory Drive from Roblin Boulevard to Station 1+73
 - (i) Closed to all traffic. The Contractor shall sign the street “Road Closed” in accordance with the Manual of Temporary Traffic Control.
 - (ii) The west entrance/exit of the parking lot South of Locomotive Drive shall remain closed at all times.
 - (iii) Right turns are prohibited on Westbound Corydon Avenue at the intersection of Corydon Avenue and Conservatory Drive.
 - (iv) Left turns are prohibited on Eastbound Roblin Boulevard at the intersection of Roblin Boulevard and Conservatory Drive.
 - (v) All traffic travelling on Northbound Shaftesbury Boulevard, in the curb lane, must turn right onto Eastbound Corydon Avenue at the intersection of Shaftesbury Boulevard and Corydon Avenue.

- (d) **Phase I – Stage IV** – Northbound Conservatory Drive from Station 1+73 to Station 2+24 and Eastbound Locomotive Drive from Conservatory Drive to Station 1+62
- (i) Closed to all traffic. The Contractor shall sign the streets “Road Closed” in accordance with the Manual of Temporary Traffic Control.
 - (ii) Left turns are prohibited on Southbound Conservatory Drive at the intersection of Conservatory Drive and Locomotive Drive.
 - (iii) All traffic travelling on Eastbound Zoo Drive must turn right onto Southbound Conservatory Drive at the intersection of Zoo Drive and Conservatory Drive.
- (e) **Phase I – Stage V** – Northbound Conservatory Drive from Station 2+24 to Station 3+00, Westbound Locomotive Drive from Station 1+62 to Conservatory Drive, and Southeast corner of Conservatory Drive and Pavilion Crescent.
- (i) Northbound Conservatory from Locomotive Drive Closed to all traffic. The Contractor shall sign the streets “Road Closed” in accordance with the Manual of Temporary Traffic Control.
 - (ii) Left turns are prohibited on Southbound Conservatory Drive at the intersection of Conservatory Drive and Locomotive Drive.
 - (iii) Right turns are prohibited on Northbound Conservatory Drive at the intersection of Conservatory Drive and Locomotive Drive.
 - (iv) All traffic travelling on Northbound Conservatory Drive must turn left onto Westbound Zoo Drive at the intersection of Conservatory Drive and Zoo Drive.
 - (v) All traffic travelling on Eastbound Zoo Drive must turn right onto Southbound Conservatory Drive at the intersection of Zoo Drive and Conservatory Drive.
- (f) **Locomotive Drive from Station 1+62 to Formal Garden Parking Lot**
- (i) Westbound and Eastbound lanes must be maintained for through traffic at all times, vehicles shall be required to yield to oncoming traffic when necessary.
 - (ii) Parking lot South of Locomotive Drive shall be completely closed during the construction Works of the parking lot East access realignment.
- (g) **Phase I – Stage VI** – Westbound Pavilion Crescent, South Lane from Station 3+05 to Zoo Drive, Southbound Zoo Drive, East Lane from Pavilion Crescent to Station 5+40 and Eastbound Pavilion Crescent from Station 3+43 to Assiniboine Park Drive
- (i) Westbound Pavilion Crescent, North lane and Southbound Zoo Drive, West lane must be maintained for through traffic.
 - (ii) All traffic travelling on Westbound Assiniboine Park Drive must turn right onto Northbound Assiniboine Park Drive at the Pavilion Crescent and Assiniboine Park Drive Junction.
 - (iii) All traffic travelling on Northbound Conservatory Drive must either turn left onto Westbound Pavilion Crescent to maintain Westbound through traffic, or turn right and be temporarily redirected to the North lane on Pavilion Crescent to maintain Eastbound through traffic.
 - (iv) Access to Westbound Pavilion Crescent from Cricket Drive to be maintained at all times other than during milling and asphaltting operations.
 - (v) Access to Eastbound Pavilion Crescent from Northbound Cricket Drive to be closed.
- (h) **Phase II – Stage I** – Westbound Pavilion Crescent, North Lane from Station 3+05 to Zoo Drive and Northbound Zoo Drive, East Lane from Pavilion Crescent to Assiniboine Park Drive
- (i) Westbound Pavilion Crescent, South Lane and Southbound Zoo Drive must be maintained for through traffic.
- (i) **Phase II – Stage II** – Southbound Zoo Drive, West lane and Northbound Zoo Drive, Left Turning Lane from Assiniboine Park Drive to Station 5+40
- (i) All traffic travelling on Westbound Pavilion Crescent must turn left onto Southbound Zoo Drive, East lane at the Zoo Drive and Pavilion Crescent Junction.

- (ii) All traffic on Assiniboine Park Drive travelling towards Southbound Zoo Drive must be temporarily redirected to the most East lane on Zoo Drive to maintain Southbound through traffic.
 - (iii) Access to Westbound Assiniboine Park Drive at Zoo Drive to be maintained at all times other than during milling and asphaltting operations.
 - (j) **Zoo Drive from Station 5+40 to Conservatory Drive**
 - (i) Zoo Drive must be constructed lane at a time and maintained for through traffic.
 - (ii) Left turns are prohibited from Northbound Conservatory Drive during construction of Westbound Zoo Drive from Cricket Drive to Conservatory Drive.
 - (iii) Right turns are prohibited on Southbound Conservatory Drive during construction of Westbound Zoo Drive from Cricket Drive to Conservatory Drive.
 - (iv) During construction of Westbound Zoo Drive from Cricket Drive to Conservatory Drive, all traffic travelling on Westbound Locomotive Drive must turn left onto Southbound Conservatory Drive or turn right onto Northbound Conservatory Drive at the intersection of Locomotive Drive and Conservatory Drive.
 - (k) Where applicable, intersecting streets and approach access shall be maintained at all times.
- E7.1.3 Single lane closures on Corydon Avenue and Park Boulevard North shall only be permitted during non-peak periods when required for construction activities when approved by the Traffic Management Branch. Storage/parking of materials, equipment or vehicles is not permitted on Corydon Avenue at any time unless approved by the Contract Administrator, in consultation with the Traffic Management Branch.
- E7.1.4 Maintain one lane of traffic Westbound Corydon Avenue and one lane of traffic Eastbound Corydon Avenue during their respective construction times. Maintain traffic Northbound Park Boulevard North at Corydon Avenue and Park Boulevard North Intersection during Southbound construction. When no work is being performed on site, non-essential lane closures will not be permitted.
- E7.1.5 Flag persons may be necessary to maintain the flow of traffic during certain work operations. No additional payment shall be made for the use of flag persons.
- E7.1.6 Should the Contractor be unable to maintain an existing access to a residence or business, he/she shall review the planned disruption with the business or residence and the Contract Administrator, and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of 24 hours notification to the affected residence or business and the Contract Administrator, prior to disruption of access.
- E7.1.7 Pedestrian and ambulance/emergency vehicle access must be maintained at all times.
- E8. PEDESTRIAN SAFETY**
- E8.1 During the project, a temporary snow fence shall be installed where required, as directed by the Contract Administrator. The Contractor shall be responsible for maintaining the snow fence in a proper working condition. No measurement for payment shall be made for this work.
- E9. WATER OBTAINED FROM THE CITY**
- E9.1 Further to clause 3.7 of CW 1120, the Contractor shall pay for all costs, including sewer charges, associated with obtaining water from the City in accordance with the Waterworks and Sewer By-laws.
- E10. SURFACE RESTORATIONS**
- E10.1 Further to clause 3.3 of CW 1130, when Total Performance is not achieved in the year the Contract is commenced, the Contractor shall temporarily repair any Work commenced and not

completed to the satisfaction of the Contract Administrator. The Contractor shall maintain the temporary repairs in a safe condition as determined by the Contract Administrator until permanent repairs are completed. The Contractor shall bear all costs associated with temporary repairs and their maintenance.

E11. INFRASTRUCTURE SIGNS

E11.1 The Contractor shall obtain infrastructure signs from the Traffic Services Sign Shop at 421 Osborne Street. The Contractor shall mount each sign securely to a rigid backing material approved by the Contract Administrator. The Contractor shall fasten each sign to a suitable support and erect and maintain one sign at each street as directed by the Contract Administrator. When the Contract Administrator considers the Work on the street complete, the Contractor shall remove and dispose of the signs and supports. No measurement for payment will be made for performing all operations herein described and all other items incidental to the work described

E12. SOFT EXCAVATION TO EXPOSE UNDERGROUND UTILITIES

DESCRIPTION

E12.1 This Specification covers the soft excavation to expose underground utilities to determine the depth of the underground utility and whether it will interfere with installation of proposed Works on site.

E12.2 These underground utilities include, but are not limited to, City of Winnipeg Traffic Signal cables, Manitoba Hydro cables, Manitoba Hydro gas pipes, MTS cables, existing sewers, and existing watermains.

MATERIALS

E12.3 Backfill Material

(a) Backfill material for backfill of shafts after hydro-excavation has been completed shall consist of sand in accordance with Specification CW 2030.

CONSTRUCTION METHODS

E12.4 Prior to commencement of any construction Works adjacent to underground utilities, the Contractor shall use soft digging or hand excavation to expose underground utilities.

E12.5 Once the elevation of the top of pipe or duct has been determined the resulting excavation shall be backfilled with bedding sand to the elevation of existing ground.

MEASUREMENT AND PAYMENT

E12.6 Soft excavation to expose underground utilities will be considered incidental to the Work. No measurement and payment will be made within this section.

E13. CONCRETE CONSTITUENT MATERIALS, MIX DESIGN REQUIREMENTS, AND HOT AND COLD WEATHER CONCRETING

E13.1 This Specification covers Portland cement concrete constituent materials and design requirements for the preparation of Portland Cement Concrete for all concreting operations relating to the construction of pavements, curbs, gutters, private approaches, bull-noses, median slabs, median, safety median and boulevard splash strips, sidewalk and other related concrete works and is contained in Appendix 'C'.

E13.2 This Specification also covers hot and cold weather concreting.

E14. SALVAGE AND REINSTALLATION OF EXISTING PRECAST CONCRETE PARKING CURBS

DESCRIPTION

E14.1 General

- E14.1.1 This specification shall cover the removal, salvage and reinstallation of existing Precast Concrete Parking Curbs as indicated on the construction drawings or identified by the Contract Administrator.
- E14.1.2 The Contractor shall provide all labour, methods, equipment, tools and supplies for the Salvage and Reinstallation of Existing Precast Concrete Parking Curbs.

CONSTRUCTION

- E14.2 Remove and salvage existing Precast Concrete Parking Curbs without damaging them, prior to the planing or removal of existing asphalt pavement.
- E14.3 Any parking curbs and materials damaged, stolen or lost shall be replaced by the Contractor at their own expense.
- E14.4 The Contractor shall confirm with the Contract Administrator, the location and orientation of each parking curb prior to their reinstallation and securement with anchoring pins.

MEASUREMENT AND PAYMENT

- E14.5 Precast Concrete Parking Curbs will be measured on a unit basis and paid for at the Contract Unit Price per unit as "Salvage and Reinstallation of Existing Precast Concrete Parking Curbs" in accordance with this specification and accepted by the Contract Administrator.
- E14.6 No additional payment will be made for anchoring pins used to secure parking curbs and shall be considered incidental to the Work.

**APPENDIX 'A' – ASSINIBOINE PARK CONSERVANCY: COVID-19 MANDATORY
CONTRACTOR VACCINATION POLICY**

 Assiniboine Park Conservancy	Document Type: Human Resources	
	Document No:	HR – ALL – 29
	Original Issue Date:	December 1, 2021
	Current Revision No	n/a
	Date of Last Issue:	n/a
COVID-19 Mandatory Contractor Vaccination Policy	Supersedes:	n/a
	Date of Last Review:	n/a
	Issued by	Covid-19 Response Team
	Approved by	Executive Team
	Page 1 of 4	

1.0 Policy Statement

At Assiniboine Park Conservancy (APC), our philosophy is that the well-being of our company is dependent on the health and safety of our workforce. The Leadership at APC promise that every precaution reasonable, in all circumstances, will be taken for the protection of our employees and animals in our care. APC is committed to taking all measures necessary to minimize the risk and impact of COVID-19.

To safeguard the health and safety of our workforce and animals in our care, APC requires that all staff, volunteers, and contractor adhere to all APC COVID-19 protocols, and must be fully vaccinated against COVID-19 or must have an approved exemption in accordance with this Policy. APC will follow strict safety protocol recommended by Government of Manitoba and Public Health and overseen by APC’s COVID-19 Response Team.

Safety is a condition of employment. Employees at every level, including management are responsible and will be held accountable for the implementation and upkeep of the health and safety program. Complete and active participation of every employee, including management, contractors, and volunteers that may be working on site at APC is necessary to achieve excellence in our health and safety program.

2.0 Purpose

The purpose of this policy is to ensure all APC contractors adhere to all APC COVID-19 protocols to minimize the risk and impact of COVID-19 and maintain a safe work environment as legislated in the *Manitoba Workplace Safety and Health Act and Regulation 2020*. This policy outlines the requirements for COVID-19 Vaccinations at APC.

Current APC health and safety protocols will be continually reviewed and adjusted as per Manitoba Public Health guidelines.

3.0 Scope:

The COVID-19 Vaccination Policy applies to all APC contractors for the purposes of providing guidance and direction relating to the requirement to be fully vaccinated against COVID-19. This policy aims to ensure all stakeholders and animals entrusted in our care are protected against COVID-19 and ensure APC can sustain a safe work environment during the COVID-19 pandemic. “Contractor” is defined as a person who is either a paid, unpaid (intern/ student) working with or on behalf of APC.

	COVID-19 Mandatory Contractor Vaccination Policy	Document Type: Human Resources	
		Document No.	HR- ALL- 29
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4.0 Policy:

- 4.1 All contractors will be required to provide proof of COVID-19 Fully Vaccinated status daily after **December 13, 2021** to work on APC premises. Proof of status to be verified by APC point of contact.
- 4.2 Contractors who cannot provide COVID-19 Fully Vaccinated status will be subject to COVID-19 testing requirement [refer to Section 6] starting **December 13, 2021** through to **January 31, 2022**.
- 4.3 This Policy and associated documents shall, at a minimum, comply with all applicable provincial laws including The Personal Health Information Act (PHIA), The Freedom of Information and Protection of Privacy Act (FIPPA), recommendations and Orders under The Public Health Act, The Workplace Safety and Health Act and Regulations, and The Human Rights Code.

5.0 Vaccination Requirements

5.1 COVID-19 Approved Vaccines / Fully Vaccinated

“Fully vaccinated” for the purposes of this policy shall mean an employee fourteen (14) days after receipt of **a full series of a vaccine or a combination of vaccines accepted by the Government of Canada** (Pfizer-BioNTech (Comirnaty, tozinameran, BNT162b2), Moderna (Spikevax, mRNA-1273), AstraZeneca (Vaxzevria, COVISHIELD, ChAdOx1-S, AZD1222), Bharat Biotech (Covaxin, BBV152 A, B, C); Sinopharm (Beijing) BBIBP-CorV (Vero Cells); Sinovac (CoronaVac, PiCoVacc), Janssen/Johnson & Johnson (Ad26.COV2.S); *and also includes any applicable waiting period, subsequent dose, booster and/or boosters that may be required by Public Health or Government of Manitoba/Canada.* Fully Vaccinated definitions and/or requirements may be subject to change as per the Government of Manitoba / Government of Canada.

[See Appendix A for details]

5.2 Proof of COVID-19 Fully Vaccinated Status

All contractors who fail to meet COVID-19 fully Vaccinated status from **December 13, 2021** to **January 31, 2021** will be subject to meet APC’s COVID-19 testing requirements.

Acceptable forms of proof of vaccination include: Manitoba Immunization QR Code, Manitoba Immunization Cards, Manitoba Immunization Records, or proof from other jurisdictions along with Government Issued photo ID.

5.3 Failure to Disclose COVID-19 Fully Vaccinated Status

Contracts who fail to disclose COVID-19 Fully Vaccinated status will not be permitted on APC premises after **December 13, 2021**.

6.0 COVID-19 Testing Requirement

	COVID-19 Mandatory Contractor Vaccination Policy	Document Type: Human Resources	
		Document No.	HR- ALL- 29
		Page 3 of 4	

All contractors who cannot provide proof of COVID-19 Fully Vaccinated status will be subject to meet APC’s COVID-19 testing protocol. The requirements are as follows:

- Contractors must demonstrate all COVID-19 testing is conducted at Government approved testing location starting **December 13, 2021** through to **January 31, 2022**;
- COVID-19 testing will be required every 48 hours; and test results must be verified by APC’s point of contact prior to reporting on site for work.
- All costs associated with COVID-19 testing will be at the contractor’s expense.
- Failure to provide proof of COVID-19 test results will be denied access to APC premises/ worksites.

7.0 Refusal to Comply with Policy

Contractors who refuse to follow the COVID-19 Mandatory Contractor Vaccination Policy will be refused entry to work on site and will be subject to contract termination.

8.0 Falsification of Documents

Contractors who provide false or misleading information/documents regarding COVID-19 vaccination status and COVID-19 testing will be subject to contract termination.

9.0 Related Policies and Documents

- COVID-19 Screening Tool Policy.
- APC Health & Safety Statement & Responsibilities Policy.
- Personal Health Information Act (“PHIA”).
- Freedom of Information and Protection of Privacy Act.
- Manitoba Public Health Act.
- Manitoba Workplace Safety and Health Act.
- Manitoba Human Rights Code.

The undersigned acknowledges that, the policy has been read and reviewed (*COVID-19 Mandatory Contractor Vaccination Policy*), you have agreed that you understood this document and had the opportunity to ask or clarify any questions you may have had.

Signature: _____ Print name: _____ Date: _____

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Appendix A: Government of Canada approved fully vaccinated details:

a) Individuals that have received at least 2 doses of a Government of Canada-accepted COVID-19 vaccine or a mix of 2 accepted vaccines at least 14 full days prior will be considered fully vaccinated:

- I. Pfizer-BioNTech (Comirnaty, tozinameran, BNT162b2)
- II. Moderna (Spikevax, mRNA-1273)
- III. AstraZeneca (Vaxzevria, COVISHIELD, ChAdOx1-S, AZD1222)
Or
- IV. at least one (1) dose of the Janssen/Johnson & Johnson vaccine

b) Starting November 30 2021, the following COVID-19 vaccines authorized by the World Health Organization (WHO) will be accepted by the Government of Canada for travel:

- I. Bharat Biotech (Covaxin, BBV152 A, B, C)
- II. Sinopharm (Beijing) BBIBP-CorV (Vero Cells)
- III. Sinovac (CoronaVac, PiCoVacc)

To qualify as a fully vaccinated individual in Canada, you must have received at least 2 doses of an accepted vaccine or a mix of 2 accepted vaccines listed above, or at least 1 dose of the Janssen/Johnson & Johnson vaccine, at least 14 full days prior to the day you travel.

c) What is not accepted as a fully vaccinated individual:

Vaccines not currently accepted:

- I. Partial vaccination
- II. Recovered from COVID-19 with only one dose

Note: for Foreign visitors to Canada: Proof of vaccination can be uploaded in ArriveCAN or visitors can show an ArriveCAN receipt with letter V or I beside their name.

Fully Vaccinated requirements are subject to change as per the Government of Canada and Manitoba Public Health.

<https://travel.gc.ca/travel-covid/travel-restrictions/covid-vaccinated-travellers-entering-canada>

APPENDIX 'B' – GEOTECHNICAL REPORT

GEOTECHNICAL REPORT FOR:

- I. Locomotive Drive from Conservatory Drive to Formal Garden Parking Lot

PAVEMENT CORES FOR:

- I. Conservatory Drive from Roblin Boulevard to Conservatory Access
- II. Pavilion Crescent from Zoo Drive to Assiniboine Park Drive
- III. Zoo Drive from Assiniboine Park Drive to Conservatory Drive

The geotechnical report is provided to aid in the Contractor's evaluation of the existing pavement structure and/or soil conditions. The information presented is considered accurate at the locations shown on the Drawings and at the time of drilling. However, variations in pavement structure and/or soil conditions may exist between test holes and fluctuations in groundwater levels can be expected seasonally and may occur as a result of construction activities. The nature and extent of variations may not become evident until construction commences.



Quality Engineering | Valued Relationships

City of Winnipeg

2022 Assiniboine Park Street Renewals Report 22-PR-01

Prepared for:

Erik Hansen

City of Winnipeg

Engineering Public Works

106-1155 Pacific Ave,

Winnipeg, MB R3E

Project Number: 1000-049-08

Date: January 10, 2022



Quality Engineering | Valued Relationships

January 10, 2022

Our File No. 1000-049-08

Erik Hansen
City of Winnipeg
Engineering Public Works
106-1155 Pacific Ave,
Winnipeg, MB R3E

RE: 2022 Assiniboine Park Street Renewals Report 22-PR-01

TREK Geotechnical Inc. is pleased to submit our Final Report for the geotechnical investigation for the above noted project.

Please contact the undersigned should you have any questions.

Sincerely,

TREK Geotechnical Inc.

Per:

A handwritten signature in blue ink, appearing to read "N. Ferreira", is written over the typed name.

Nelson John Ferreira, Ph.D., P.Eng.
Senior Geotechnical Engineer

Encl.

Revision History

Revision No.	Author	Issue Date	Description
0	AD	January 10, 2022	Final Report

Authorization Signatures

Prepared By:

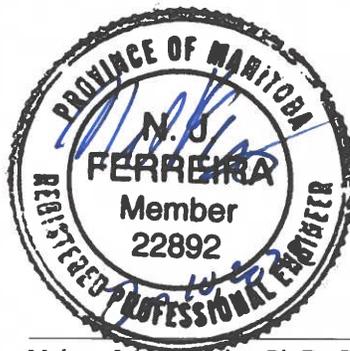
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Geotechnical Engineering Technologist

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Manager of Laboratory and Field
Services

Senior Reviewed By:



Nelson John Ferreira, Ph.D., P.Eng.
Senior Geotechnical Engineer





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- Appendix B Summary Tables and Pavement Core Photos – Conservatory Dr., Pavilion Cres., and Zoo Dr.



1.0 Introduction

This report summarizes the results of the road investigation completed for the 2022 Assiniboine Park Street Renewals 22-PR-01 project. The project included drilling test holes along Locomotive Rd, and collecting pavement cores along Conservatory Dr, Pavilion Cres, and Zoo Dr. The test hole information collected describes the pavement structure of the existing road as well as the soil stratigraphy beneath the pavement structure. The investigation was carried out following the City of Winnipeg geotechnical investigation requirements (Site Investigation Requirements For Public Works Street Projects, Effective Date: January 2021).

2.0 Road Investigation

The investigation included coring of pavement at 10 locations on 4 different local streets with drilling of test holes at 2 locations along one street. City of Winnipeg selected the investigation locations as shown on Figure 01 (attached) and the table below summarizes the investigation program per street.

Table 1: Road Investigation Program

Street	# of Locations	Investigation
Conservatory Dr (Between Corydon Ave. and Locomotive Dr.)	1	Pavement Core
Pavilion Cres (Between Memorial Blvd. and Portage Ave.)	3	Pavement Cores
Zoo Dr (Between St. Conservatory Dr. and Assiniboine Park Dr.)	4	Pavement Cores
Locomotive Dr (Between Conservatory Dr. and Assiniboine Park Dr)	2	Pavement Cores and Sub-surface

The road investigation was conducted between December 15th and 20th, 2021. The pavement structure (asphalt) was cored by Naimu Mujyambere of TREK Geotechnical Inc. (TREK) using a portable coring press equipped with a hollow 150 mm diameter diamond core drill bit. The test holes were drilled by Asad Dustmamatov to a depth of 3.0 m below road surface by Maple Leaf Drilling Ltd. using a truck mounted drill rig equipped with 125 mm diameter solid stem augers. The sub-surface conditions were observed during drilling and visually classified by Asad Dustmamatov of TREK. Other pertinent information such as groundwater and drilling conditions were also recorded during the drilling investigation. Disturbed (auger cuttings) samples and bulk samples retrieved during the sub-surface investigation were transported to TREK’s material testing laboratory for further testing. Core samples were also retrieved and logged at TREK’s material testing laboratory

Core and test hole logs noted on the summary tables and test hole locations are based on UTM coordinates obtained using a hand-held GPS, and their location relative to the nearest address or intersection, measured distance from the edge of pavement, or other permanent features.

The laboratory testing program consisted of moisture content determination on all samples, as well as Atterberg limits, and grain size analysis (hydrometer methods) on select samples between 0.6 and 1.1 m below pavement as well as Standard Proctor and CBR testing. Information gathered for each street package is included in separate appendices (Appendices A and B). The information provided in the Appendices includes test hole logs, laboratory testing summary tables and results, and photos of the concrete cores.

One CBR was completed on bulk samples of the soil units present below the pavement. Only silt and clay were encountered within the prescribed sample depth for CBR testing and the results are shown in the table below.

Table 2: CBR Testing Summary

Sample Description	Street	Depth (m)	SPMDD (kg/m ³)	Opt. Moisture (%)	Percent Proctor (%)	Moisture Content (%)	CBR Value at 2.54 mm	CBR Value at 5.08 mm
Clay and Silt	Locomotive Dr	0.3-1.5	1615	20.5	95.9	23.8	4.4%	3.6%

* Testing completed on combined grab samples from the top 1.5 m of each test hole.

The test hole logs include a description of the soil units encountered during drilling and other pertinent information such as groundwater conditions and a summary of the laboratory testing results. The soils were classified in general accordance with the Unified Soil Classification System (USCS) and the AASHTO soil classification system (American Association of state highway and transportation officials). The AASHTO system classifies soils based on laboratory testing results from Atterberg Limits and grain size testing methods (hydrometer and mechanical sieve method). Where laboratory testing was not conducted, the AASHTO classification of the soils were interpreted based on a visual assessment as indicated with a (I) on the test hole logs and attached tables. For cohesive soils, the AASHTO system uses a combination of testing results to determine the Group Index of the soils and thus, were only determined where sufficient laboratory test data was available.

3.0 Closure

The information provided in this report is in accordance with current engineering principles and practices (Standard of Practice). The findings of this report were based on information provided (field investigation, laboratory testing, geometries). Soil conditions are natural deposits that can be highly variable across a site. If sub-surface conditions are different than the conditions previously encountered on-site or those presented here, we should be notified to adjust our findings if necessary.

All information provided in this report is subject to our standard terms and conditions for engineering services, a copy of which is provided to each of our clients with the original scope of work, or a mutually executed standard engineering services agreement. If these conditions are not attached, and you are not already in possession of such terms and conditions, contact our office and you will be promptly provided with a copy.

This report has been prepared by TREK Geotechnical Inc. (the Consultant) for the exclusive use of City of Winnipeg (the Client) and their agents for the work product presented in the report. Any findings or recommendations provided in this report are not to be used or relied upon by any third parties, except as agreed to in writing by the Client and Consultant prior to use.

Figures



1000-049-08 COW AP Street Renewals Fig 01 CT.dwg, 2022-01-04 4:40:25 PM

0 50 100 150 m
SCALE = 1 : 3 500 (279 mm x 432 mm)

LEGEND:
 TEST HOLE (TREK, 2021)
 PAVEMENT CORE (TREK, 2021)

NOTES: 1. AERIAL IMAGERY FROM CITY OF WINNIPEG (2016).

Figure 01
Pavement Core and Test Hole Location Plan

Appendix A

Test Hole Logs, Summary Table & Lab Testing Results and Pavement Core Photos – Locomotive Rd.

GENERAL NOTES

- Classifications are based on the United Soil Classification System and include consistency, moisture, and color. Field descriptions have been modified to reflect results of laboratory tests where deemed appropriate.
- Descriptions on these test hole logs apply only at the specific test hole locations and at the time the test holes were drilled. Variability of soil and groundwater conditions may exist between test hole locations.
- When the following classification terms are used in this report or test hole logs, the primary and secondary soil fractions may be visually estimated.

Major Divisions	USCS Classification	Symbols	Typical Names	Laboratory Classification Criteria		Particle Size	Material					
Coarse-Grained soils (More than half the material is larger than No. 200 sieve size)	Gravels (More than half of coarse fraction is larger than 4.75 mm)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel from grain size curve, depending on percentage of fines (fraction smaller than No. 200 sieve) coarse-grained soils are classified as follows: Less than 5 percent..... GW, GP, SW, SP More than 12 percent..... GM, GC, SM, SC 6 to 12 percent..... Borderline cases requiring dual symbols*	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	mm	Sand					
		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines		Not meeting all gradation requirements for GW							
		GM	Silty gravels, gravel-sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4			Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols				
		GC	Clayey gravels, gravel-sand-silt mixtures		Atterberg limits above "A" line or P.I. greater than 7							
	Sands (More than half of coarse fraction is smaller than 4.75 mm)	Clean sands (Little or no fines)	SW		Well-graded sands, gravelly sands, little or no fines	$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	mm	Coarse Medium Fine				
			SP		Poorly-graded sands, gravelly sands, little or no fines	Not meeting all gradation requirements for SW						
		Sands with fines (Appreciable amount of fines)	SM		Silty sands, sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4			Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols			
			SC		Clayey sands, sand-clay mixtures	Atterberg limits above "A" line or P.I. greater than 7						
			Fine-Grained soils (More than half the material is smaller than No. 200 sieve size)		Sils and Clays (Liquid limit less than 50)	ML			Inorganic silts and very fine sands, rock floor, silty or clayey fine sands or clayey silts with slight plasticity		Von Post Classification Limit	Strong colour or odour, and often fibrous texture
						CL			Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
OL	Organic silts and organic silty clays of low plasticity											
Sils and Clays (Liquid limit greater than 50)	MH	Inorganic silts, micaceous or distomaceous fine sandy or silty soils, organic silts										
	CH	Inorganic clays of high plasticity, fat clays										
	OH	Organic clays of medium to high plasticity, organic silts										
	Highly Organic Soils	Pt		Peat and other highly organic soils								
		Material		Particle Size	ASTM Sieve Sizes							
Boulders		> 300 mm		> 12 in.								
Cobbles	75 to 300 mm	3 in. to 12 in.										
Gravel	Coarse	19 to 75 mm	3/4 in. to 3 in.									
	Fine	4.75 to 19 mm	#4 to 3/4 in.									

* Borderline classifications used for soils possessing characteristics of two groups are designated by combinations of groups symbols. For example; GW-GC, well-graded gravel-sand mixture with clay binder.

Other Symbol Types

	Asphalt		Bedrock (undifferentiated)		Cobbles
	Concrete		Limestone Bedrock		Boulders and Cobbles
	Fill		Cemented Shale		Silt Till
			Non-Cemented Shale		Clay Till

LEGEND OF ABBREVIATIONS AND SYMBOLS

LL - Liquid Limit (%)	▽ Water Level at Time of Drilling
PL - Plastic Limit (%)	▼ Water Level at End of Drilling
PI - Plasticity Index (%)	▽ Water Level After Drilling as Indicated on Test Hole Logs
MC - Moisture Content (%)	
SPT - Standard Penetration Test	
RQD- Rock Quality Designation	
Qu - Unconfined Compression	
Su - Undrained Shear Strength	
VW - Vibrating Wire Piezometer	
SI - Slope Inclinometer	

FRACTION OF SECONDARY SOIL CONSTITUENTS ARE BASED ON THE FOLLOWING TERMINOLOGY

TERM	EXAMPLES	PERCENTAGE
and	and CLAY	35 to 50 percent
"y" or "ey"	clayey, silty	20 to 35 percent
some	some silt	10 to 20 percent
trace	trace gravel	1 to 10 percent

TERMS DESCRIBING CONSISTENCY OR COMPACTION CONDITION

The Standard Penetration Test blow count (N) of a non-cohesive soil can be related to compactness condition as follows:

<u>Descriptive Terms</u>	<u>SPT (N) (Blows/300 mm)</u>
Very loose	< 4
Loose	4 to 10
Compact	10 to 30
Dense	30 to 50
Very dense	> 50

The Standard Penetration Test blow count (N) of a cohesive soil can be related to its consistency as follows:

<u>Descriptive Terms</u>	<u>SPT (N) (Blows/300 mm)</u>
Very soft	< 2
Soft	2 to 4
Firm	4 to 8
Stiff	8 to 15
Very stiff	15 to 30
Hard	> 30

The undrained shear strength (Su) of a cohesive soil can be related to its consistency as follows:

<u>Descriptive Terms</u>	<u>Undrained Shear Strength (kPa)</u>
Very soft	< 12
Soft	12 to 25
Firm	25 to 50
Stiff	50 to 100
Very stiff	100 to 200
Hard	> 200



Sub-Surface Log

Test Hole TH21-01

1 of 1

Client: City of Winnipeg Project Number: 1000-049-08
 Project Name: 2022 Assiniboine Park Street Renewals 22-PR-01 Location: UTM N-5525507, E-627305
 Contractor: Maple Leaf Drilling Ltd. Ground Elevation: Top of Pavement
 Method: 125mm Solid Stem Auger, B40 Mobile Truck Mount Date Drilled: December 20, 2021

Sample Type: Grab (G) Shelby Tube (T) Split Spoon (SS) / SPT Split Barrel (SB) / LPT Core (C)

Particle Size Legend: Fines Clay Silt Sand Gravel Cobbles Boulders

Depth (m)	Soil Symbol	MATERIAL DESCRIPTION	Sample Type	Sample Number	Bulk Unit Wt (kN/m ³)						Undrained Shear Strength (kPa)					
					16	17	18	19	20	21	Test Type					
					Particle Size (%)											
					0	20	40	60	80	100						
					PL _____ MC _____ LL _____ 0 20 40 60 80 100											
					0	20	40	60	80	100	0	50	100	150	200	250
0.0 - 0.1		ASPHALT - 170 mm thick		PC21-09												
0.1 - 1.2		CLAY - silty, some sand, trace gravel (<10 mm diam.), trace organics - black - frozen to 1.2 m depth, moist and stiff to very stiff when thawed - intermediate to high plasticity - AASHTO: A-7-6 (I)		G01												
				G02												
				G03												
1.2 - 1.5		SILT - clayey, trace sand - light brown - moist, soft - low to intermediate plasticity - AASHTO: A-6 (20)		G04												
				G05												
1.5 - 2.0		CLAY - silty - brown - moist, stiff - high plasticity - AASHTO: A-7-6 (I)		G06												
				G07												
				G08												

END OF TEST HOLE AT 3.0 m IN CLAY
 1) No seepage or sloughing observed.
 2) Test hole open to 3.0 m immediately after drilling.
 3) Test hole backfilled with auger cuttings, granular fill and cold patch asphalt.
 4) Test hole located 98 m East of Locomotive rd and Conservatory dr intersection, Westbound lane, 1.5 m South of North curb.

Logged By: Asad Dustmammatov Reviewed By: Angela Fidler-Kliewer Project Engineer: Nelson Ferreira

SUB-SURFACE LOG LOGS 2021-12-22, 2022 ASSINIBOINE PARK STREET RENEWALS 22-PR-01, 1000-049-08, A, AD, GP, J, TREK, GDT, 1/5/22



Sub-Surface Log

Test Hole TH21-02

1 of 1

Client: City of Winnipeg Project Number: 1000-049-08
 Project Name: 2022 Assiniboine Park Street Renewals 22-PR-01 Location: UTM N-5525460, E-627536
 Contractor: Maple Leaf Drilling Ltd. Ground Elevation: Top of Pavement
 Method: 125mm Solid Stem Auger, B40 Mobile Truck Mount Date Drilled: December 20, 2021

Sample Type: Grab (G) Shelby Tube (T) Split Spoon (SS) / SPT Split Barrel (SB) / LPT Core (C)

Particle Size Legend: Fines Clay Silt Sand Gravel Cobbles Boulders

Depth (m)	Soil Symbol	MATERIAL DESCRIPTION	Sample Type	Sample Number	Bulk Unit Wt (kN/m ³)		Particle Size (%)		Undrained Shear Strength (kPa)								
					16	17	18	19	20	21	0	50	100	150	200	250	
0.0 - 0.1		ASPHALT - 120 mm thick		PC21-10													
0.1 - 1.5		CLAY - silty, some sand, trace gravel (<10 mm diam.), trace organics - black - frozen to 1.2 m depth, moist and stiff when thawed - intermediate to high plasticity - AASHTO: A-7-6 (22)		G09													
0.5				G10													
1.0				G11													
1.5		SILT - some clay, trace sand - light brown, moist, soft, low to intermediate plasticity - AASHTO: A-6 (I)		G12													
1.5 - 3.0		CLAY - silty, trace sand - brown - moist, firm to stiff - high plasticity - AASHTO: A-7-6 (I)		G13													
2.0				G14													
2.5				G15													
3.0				G16													

END OF TEST HOLE AT 3.0 m IN CLAY
 1) No seepage or sloughing observed.
 2) Test hole open to 3.0 m immediately after drilling.
 3) Test hole backfilled with auger cuttings, granular fill and cold patch asphalt.
 4) Test hole located 154 m South of Locomotive rd and West Side dr intersection, Westbound lane, 5 m Northwest of Southeast curb.

Logged By: Asad Dustmamatov Reviewed By: Angela Fidler-Kliewer Project Engineer: Nelson Ferreira

SUB-SURFACE LOG LOGS 2021-12-22, 2022 ASSINIBOINE PARK STREET RENEWALS 22-PR-01, 1000-049-08, A, AD, GP, J, TREK, GDT, 1/5/22



2022 Assiniboine Park Street Renewals 22-PR-01
Sub-Surface Investigation
Locomotive Road: between Conservatory Drive and Assiniboine Park Drive

Test Hole No.	Test Hole Location	Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Depth (m)		Moisture Content (%)	Grain Size Analysis				Atterberg Limits		
		Type	Thickness (mm)	Type	Thickness (mm)		Top (m)	Bottom (m)		Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Plastic	Liquid	Plasticity Index
TH20-01	UTM : 14U 5525507 N, 627305E Located 98 m East of Locomotive rd and Conservatory dr intersection, Westbound lane, 1.5 m South of North curb.	Asphalt	170	Concrete	-	Clay; AASHTO: A-7-6 (I)	0.3	0.5	19							
						Clay; AASHTO: A-7-6 (I)	0.6	0.8	24							
						Clay; AASHTO: A-7-6 (I)	0.9	1.1	23							
						Silt; AASHTO: A-6 (20)	1.2	1.4	22	26	70	4	0	15	36	21
						Silt; AASHTO: A-6 (20)	1.5	1.7	20							
						Clay; AASHTO: A-7-6 (I)	1.8	2.0	38							
						Clay; AASHTO: A-7-6 (I)	2.1	2.3	33							
TH20-02	UTM : 14U 5525460 N, 627536 E Located 154 m South of Locomotive rd and West Side dr intersection, Westbound lane, 5 m Northwest of Southeast curb.	Asphalt	120	Concrete	-	Clay; AASHTO: A-7-6 (22)	0.3	0.5	31							
						Clay; AASHTO: A-7-6 (22)	0.6	0.8	20							
						Clay; AASHTO: A-7-6 (22)	0.9	1.1	22	29	50	18	3	21	49	28
						Silt; AASHTO: A-6 (I)	1.2	1.4	21							
						Clay; AASHTO: A-7-6 (I)	1.5	1.7	32							
						Clay; AASHTO: A-7-6 (I)	1.8	2.0	44							
						Clay; AASHTO: A-7-6 (I)	2.1	2.3	49							
				Clay; AASHTO: A-7-6 (I)	2.7	2.9	55									

(I) - AASHTO classification was interpreted based on visual classification.



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Moisture Content Report ASTM D2216-10

Project No. 1000-049-08
Client City of Winnipeg
Project 2022 Assiniboine Park Street Renewals 22-PR-01

Sample Date 20-Dec-21
Test Date 23-Dec-21
Technician AD

Test Hole	TH21-01	TH21-01	TH21-01	TH21-01	TH21-01	TH21-01
Depth (m)	0.3 - 0.5	0.6 - 0.8	0.9 - 1.1	1.2 - 1.4	1.5 - 1.7	1.8 - 2.0
Sample #	G01	G02	G03	G04	G05	G06
Tare ID	AA13	A30	W07	K20	F32	Z136
Mass of tare	6.6	8.2	8.4	8.4	8.4	8.6
Mass wet + tare	230.8	212.5	162.9	429.6	217.4	214.8
Mass dry + tare	194.8	172.8	134.3	353.2	182.4	158.3
Mass water	36.0	39.7	28.6	76.4	35.0	56.5
Mass dry soil	188.2	164.6	125.9	344.8	174.0	149.7
Moisture %	19.1%	24.1%	22.7%	22.2%	20.1%	37.7%

Test Hole	TH21-01	TH21-01	TH21-02	TH21-02	TH21-02	TH21-02
Depth (m)	2.1 - 2.3	2.7 - 2.9	0.3 - 0.5	0.6 - 0.8	0.9 - 1.1	1.2 - 1.4
Sample #	G07	G08	G09	G10	G11	G12
Tare ID	F88	F86	Z67	AB08	N114	Z34
Mass of tare	8.5	8.2	8.4	6.9	8.6	8.5
Mass wet + tare	258.1	181.3	181.2	212.7	444.9	228.1
Mass dry + tare	196.1	128.1	140.4	177.9	365.8	190.0
Mass water	62.0	53.2	40.8	34.8	79.1	38.1
Mass dry soil	187.6	119.9	132.0	171.0	357.2	181.5
Moisture %	33.0%	44.4%	30.9%	20.4%	22.1%	21.0%

Test Hole	TH21-02	TH21-02	TH21-02	TH21-02		
Depth (m)	1.5 - 1.7	1.8 - 2.0	2.1 - 2.3	2.7 - 2.9		
Sample #	G13	G14	G15	G16		
Tare ID	W02	W103	P13	F41		
Mass of tare	8.3	8.7	8.7	8.4		
Mass wet + tare	204.2	236.4	211.8	146.3		
Mass dry + tare	157.2	167.3	145.1	97.5		
Mass water	47.0	69.1	66.7	48.8		
Mass dry soil	148.9	158.6	136.4	89.1		
Moisture %	31.6%	43.6%	48.9%	54.8%		



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Atterberg Limits
ASTM D4318-10e1

Project No. 1000-049-08
Client City of Winnipeg
Project 2022 Assiniboine Park Street Renewals 22-PR-01

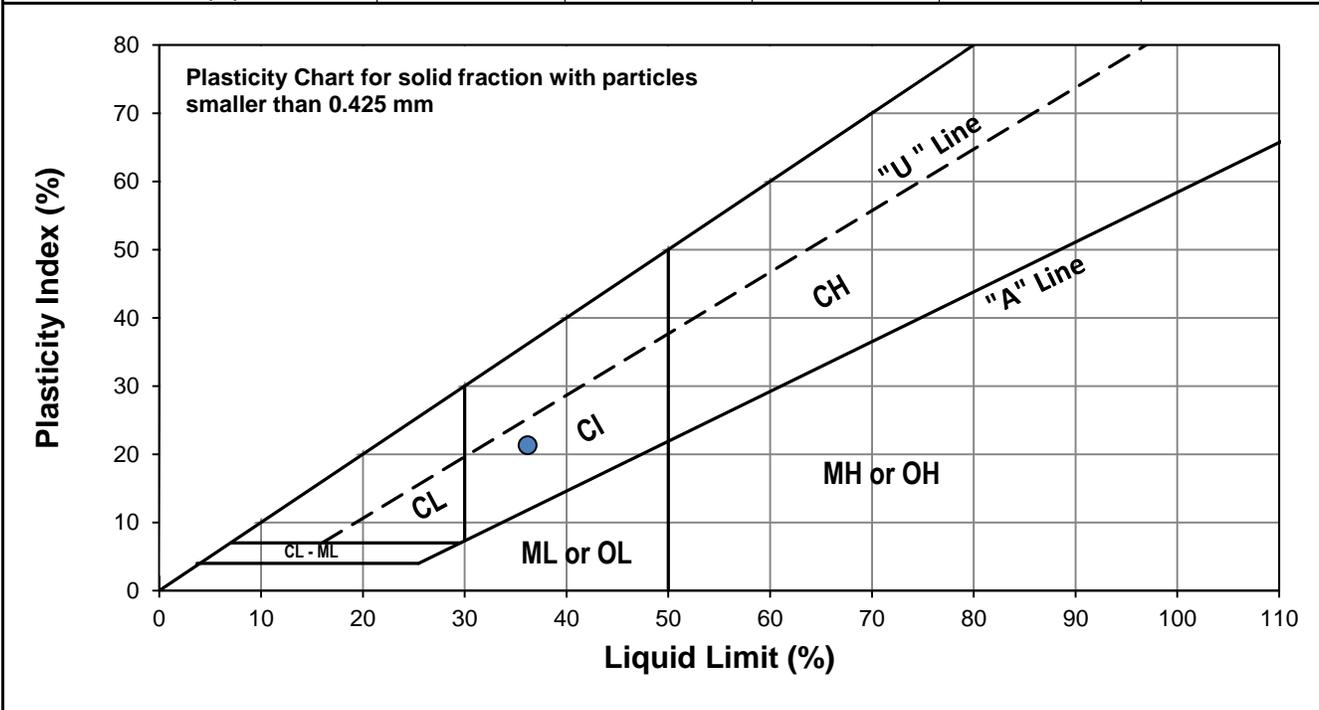
Test Hole TH21-01
Sample # G04
Depth (m) 1.2 - 1.4
Sample Date 20-Dec-21
Test Date 26-Dec-21
Technician HS



Liquid Limit	36
Plastic Limit	15
Plasticity Index	21

Liquid Limit

Trial #	1	2	3
Number of Blows (N)	17	23	34
Mass Tare (g)	14.043	13.999	14.198
Mass Wet Soil + Tare (g)	25.964	23.229	26.070
Mass Dry Soil + Tare (g)	22.671	20.755	23.020
Mass Water (g)	3.293	2.474	3.050
Mass Dry Soil (g)	8.628	6.756	8.822
Moisture Content (%)	38.166	36.619	34.573



Plastic Limit

Trial #	1	2	3	4	5
Mass Tare (g)	14.180	14.341			
Mass Wet Soil + Tare (g)	22.289	21.810			
Mass Dry Soil + Tare (g)	21.237	20.842			
Mass Water (g)	1.052	0.968			
Mass Dry Soil (g)	7.057	6.501			
Moisture Content (%)	14.907	14.890			



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Project No. 1000-049-08
Client City of Winnipeg
Project 2022 Assiniboine Park Street Renewals 22-PR-01

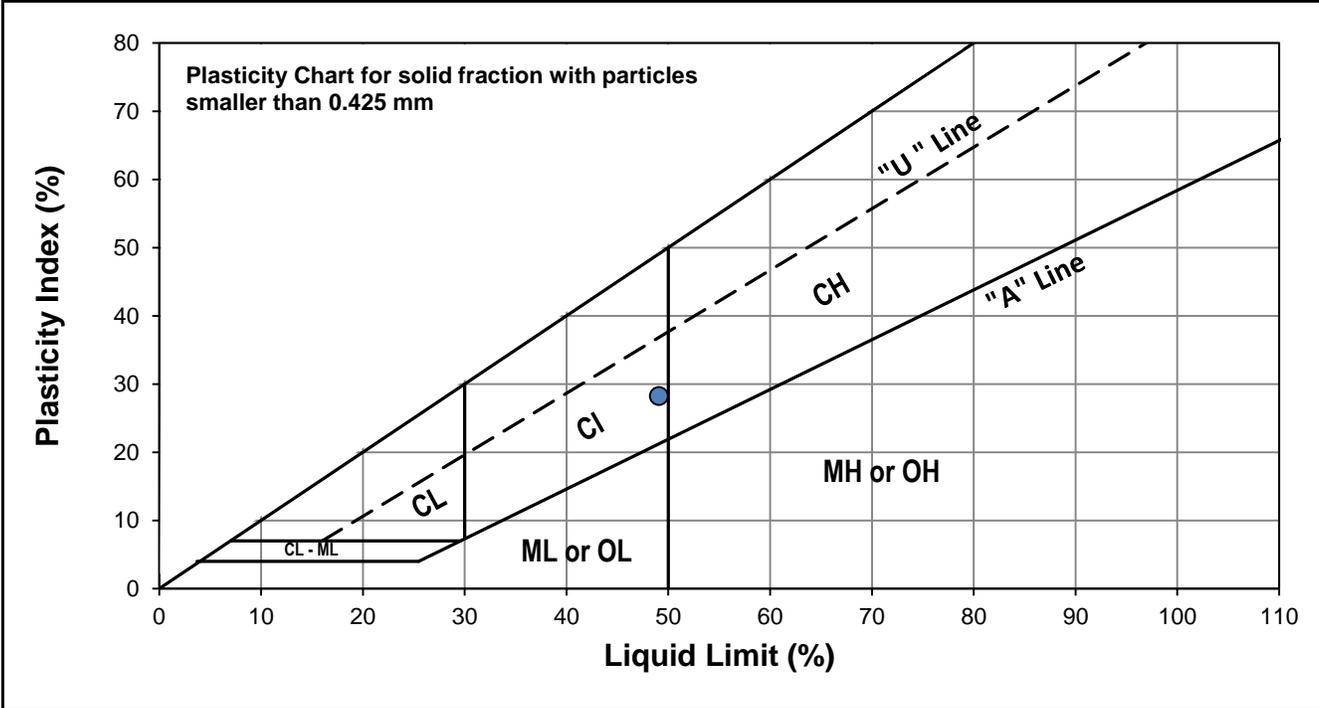
Test Hole TH21-02
Sample # G11
Depth (m) 0.9 - 1.1
Sample Date 20-Dec-21
Test Date 26-Dec-21
Technician HS



Liquid Limit	49
Plastic Limit	21
Plasticity Index	28

Liquid Limit

Trial #	1	2	3
Number of Blows (N)	22	28	34
Mass Tare (g)	14.125	14.057	13.926
Mass Wet Soil + Tare (g)	25.311	27.806	26.387
Mass Dry Soil + Tare (g)	21.589	23.322	22.398
Mass Water (g)	3.722	4.484	3.989
Mass Dry Soil (g)	7.464	9.265	8.472
Moisture Content (%)	49.866	48.397	47.085



Plastic Limit

Trial #	1	2	3	4	5
Mass Tare (g)	14.239	14.179			
Mass Wet Soil + Tare (g)	20.587	21.593			
Mass Dry Soil + Tare (g)	19.484	20.324			
Mass Water (g)	1.103	1.269			
Mass Dry Soil (g)	5.245	6.145			
Moisture Content (%)	21.030	20.651			



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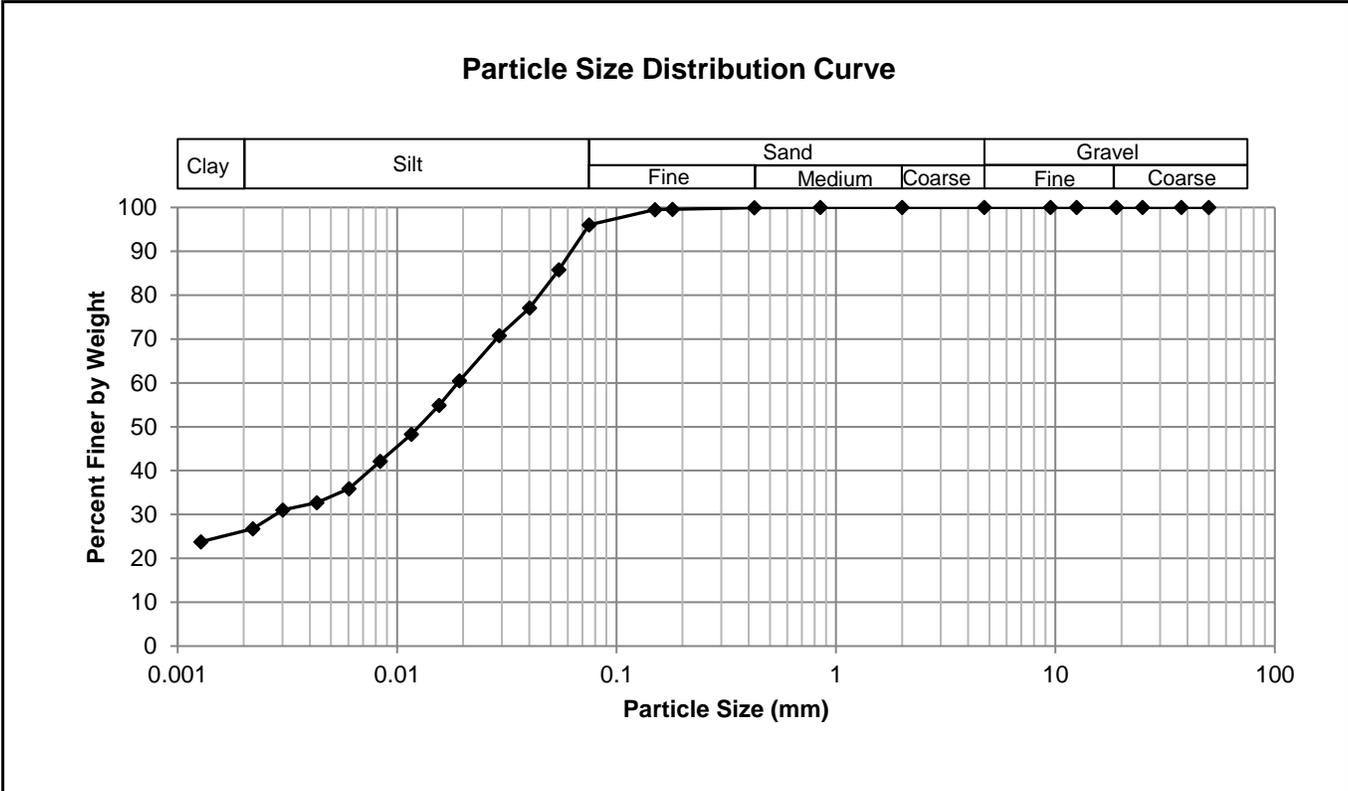
Grain Size Analysis (Hydrometer Method)
AASHTO T 88

Project No. 1000-049-08
Client City of Winnipeg
Project 2022 Assiniboine Park Street Renewals 22-PR-01



Test Hole TH21-01
Sample # G04
Depth (m) 1.2 - 1.4
Sample Date 20-Dec-21
Test Date 26-Dec-21
Technician HS

Gravel	0.0%
Sand	4.0%
Silt	69.9%
Clay	26.1%



Gravel		Sand		Silt and Clay	
Particle Size (mm)	Percent Passing	Particle Size (mm)	Percent Passing	Particle Size (mm)	Percent Passing
50.0	100.00	4.75	100.00	0.0750	96.02
37.5	100.00	2.00	100.00	0.0547	85.82
25.0	100.00	0.850	99.99	0.0402	77.06
19.0	100.00	0.425	99.98	0.0292	70.81
12.5	100.00	0.180	99.58	0.0192	60.49
9.50	100.00	0.150	99.48	0.0155	54.87
4.75	100.00	0.075	96.02	0.0116	48.30
				0.0084	42.11
				0.0060	35.86
				0.0043	32.73
				0.0030	31.05
				0.0022	26.73
				0.0013	23.79



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Grain Size Analysis (Hydrometer Method)
AASHTO T 88

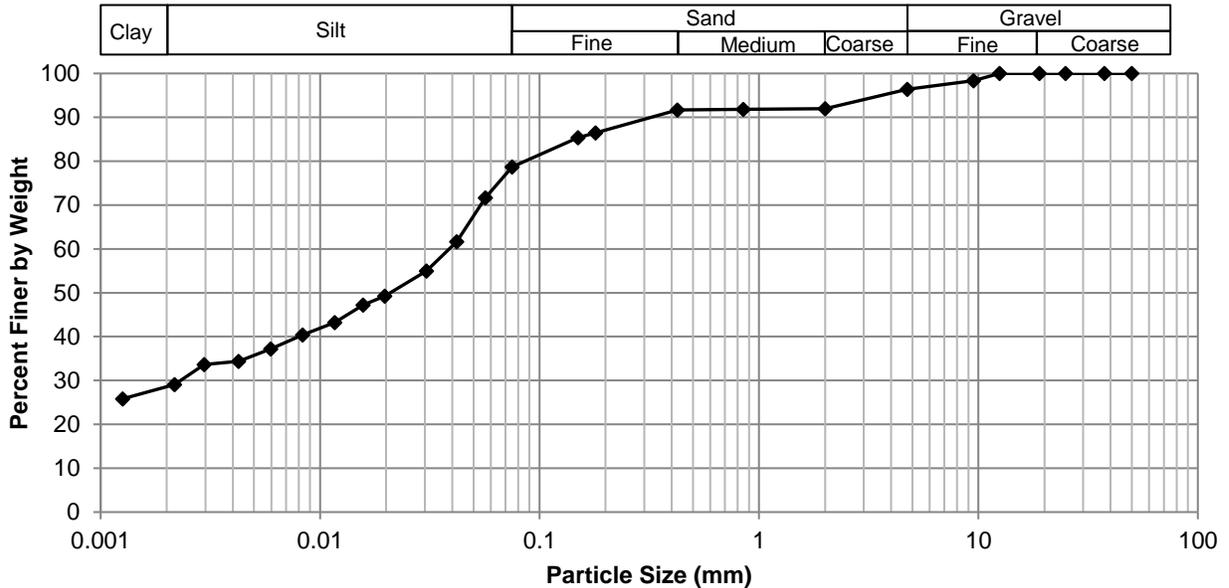
Project No. 1000-049-08
Client City of Winnipeg
Project 2022 Assiniboine Park Street Renewls 22-PR-01



Test Hole TH21-02
Sample # G11
Depth (m) 0.9 - 1.1
Sample Date 20-Dec-21
Test Date 26-Dec-21
Technician HS

Gravel	3.6%
Sand	17.7%
Silt	50.2%
Clay	28.5%

Particle Size Distribution Curve



Gravel		Sand		Silt and Clay	
Particle Size (mm)	Percent Passing	Particle Size (mm)	Percent Passing	Particle Size (mm)	Percent Passing
50.0	100.00	4.75	96.37	0.0750	78.71
37.5	100.00	2.00	91.97	0.0567	71.67
25.0	100.00	0.850	91.80	0.0419	61.61
19.0	100.00	0.425	91.69	0.0305	55.00
12.5	100.00	0.180	86.45	0.0197	49.25
9.50	98.36	0.150	85.34	0.0157	47.23
4.75	96.37	0.075	78.71	0.0117	43.21
				0.0083	40.38
				0.0060	37.22
				0.0043	34.35
				0.0030	33.67
				0.0022	29.07
				0.0013	25.82



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Standard Proctor Compaction Test ASTM D698-12e2

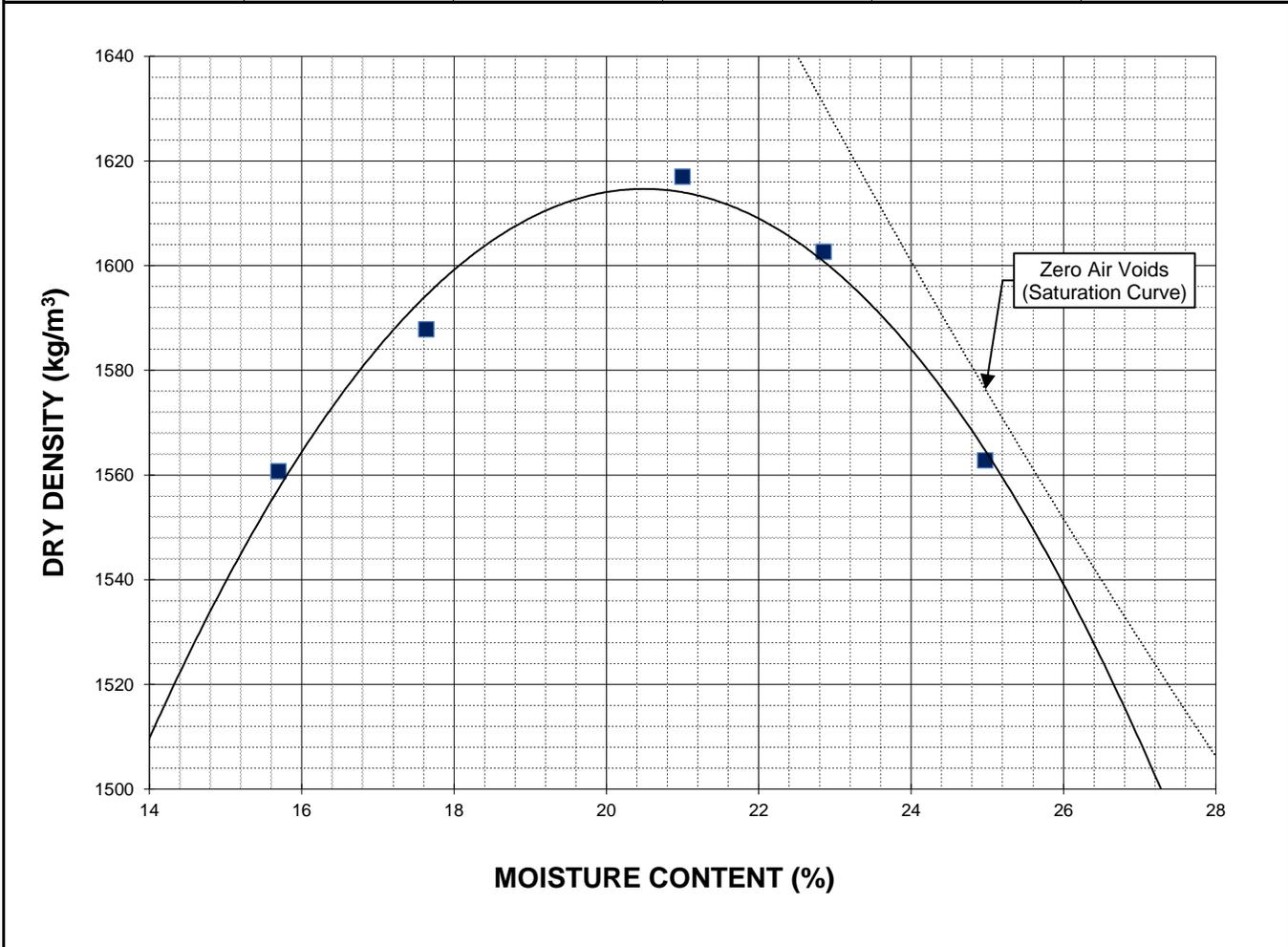
Project No. 1000-049-08
Client City of Winnipeg
Project 2022 Assiniboine Park Street Renewals 22-PR-01



Location Locomotive Drive
Source TH21-01 and TH21-02 combined
Material Clay Subgrade Material
Sample Date 20-Dec-21
Test Date 24-Dec-21
Technician HS

Maximum Dry Density (kg/m³)	1615
Optimum Moisture (%)	20.5

Trial Number	1	2	3	4	5
Wet Density (kg/m³)	1806	1868	1957	1969	1953
Dry Density (kg/m³)	1561	1588	1617	1603	1563
Moisture Content (%)	15.7	17.6	21.0	22.9	25.0





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California Bearing Ratio Test Data Sheet
ASTM D1883-16

Project No.	1000-049-08	Source	Locomotive Drive
Client	City of Winnipeg	Material	Clay
Project	2022 Assiniboine Park Renewal	Sample Date	2021-12-20
Sample #	TH21-01 and 02 combined	Test Date	2021-12-28
		Technician	DJ

Proctor Results (ASTM D698)

Maximum Dry Density	1615 kg/m ³
Optimum Moisture Content	20.5 %
Material Retained on 19 mm Sieve	0.0 %

CBR Sample Compaction

Dry Density	1549 kg/m ³
Initial Moisture Content	23.8 %
Relative Density	95.9 % SPMD

Soaking Results

Surcharge	4.54 kg
Swell	0.2 %
Moisture Content in top 25 mm	25.4 %
Immersion Period	96 h

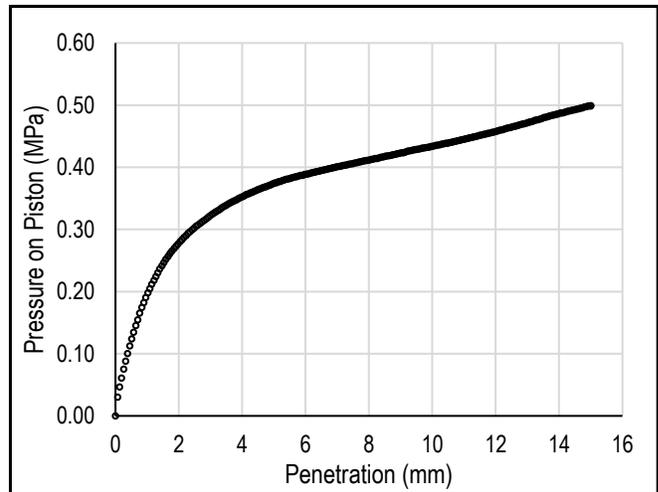
CBR Results

CBR at 2.54 mm	4.4 %
CBR at 5.08 mm	3.6 %
Zero Correction	0 mm

Test Data

Penetration (mm)	Measured Pressure (MPa)	Corrected Pressure (MPa)
0.64	0.15	0.15
1.27	0.22	0.22
1.91	0.27	0.27
2.54	0.31	0.31
3.18	0.33	0.33
3.81	0.35	0.35
4.45	0.36	0.36
5.08	0.38	0.38
7.62	0.41	0.41
10.16	0.44	0.44
12.70	0.47	0.47

Load/Penetration Curve



Comments:

Appendix B

Summary Table and Pavement Core Photos - Conservatory Dr., Pavilion Cres., and Zoo Dr.



2022 Assiniboine Park Street Renewals 22-PR-01
Conservatory Drive: between Roblin Blvd and Zoo Drive

Pavement Core No.	Pavement Core Location	Pavement Surface		Pavement Structure Material		
		Type	Thickness (mm)	Type	Thickness (mm)	Corrected Compressive Strength (Mpa)
PC21-01	UTM : 5525398 m N, 627234 m E; Located 35 m North of of Roblin Blvd North curb, Northbound lane, 5 m West of East curb.	Asphalt	160	Concrete	N/A	-



Photo 1: Pavement Core Sample at PC21-01



2022 Assiniboine Park Street Renewals 22-PR-01
Pavillion Crescent: between Zoo Drive and Assiniboine Park Drive

Pavement Core No.	Pavement Core Location	Pavement Surface		Pavement Structure Material		
		Type	Thickness (mm)	Type	Thickness (mm)	Corrected Compressive Strength (Mpa)
PC21-02	UTM : 5525757 m N, 626810 m E; Located 80 m East of Pavillion Crescent And Zoo Drive intersection, Westbound lane, 5 m North of South curb.	Asphalt	170	Concrete	N/A	-
PC21-03	UTM : 5525787 m N, 627032 m E; Located 60 m East of Pavillion Crescent And Cricket Drive intersection, Westbound lane, 3 m South of North curb.	Asphalt	170	Concrete	N/A	-
PC21-04	UTM : 5525910 m N, 627322 m E; Located 36 m West of Pavillion Crescent And Assiniboine Park Drive intersection, Eastbound lane, 3 m North of South curb.	Asphalt	210	Concrete	N/A	-

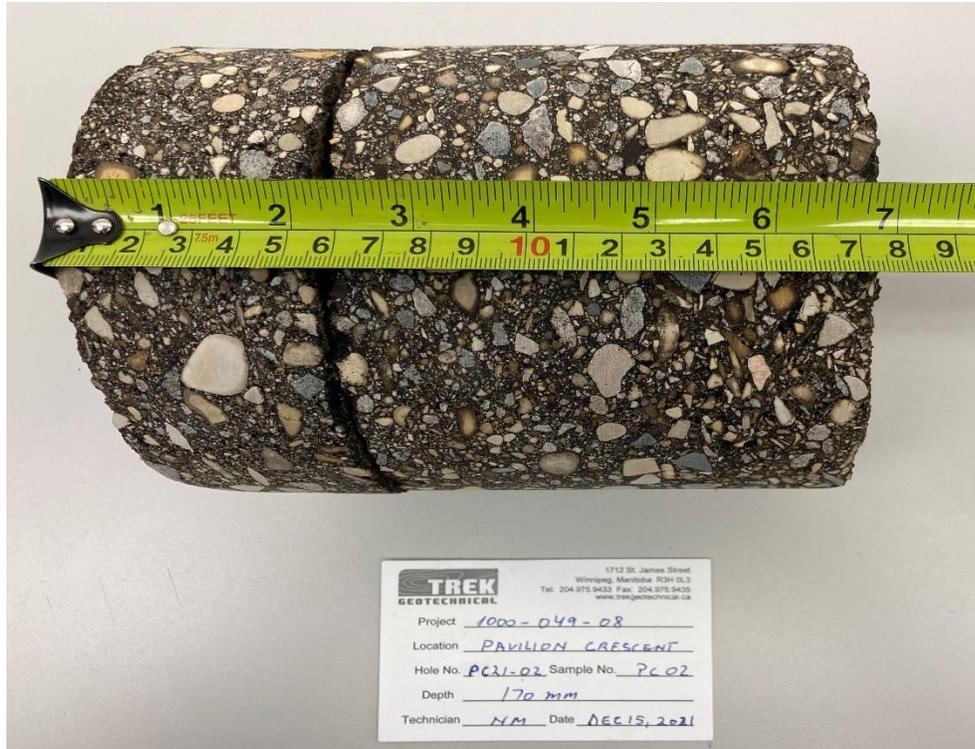


Photo 1: Pavement Core Sample at PC21-02



Photo 2: Pavement Core Sample at PC21-03



Photo 3: Pavement Core Sample at PC21-04



2022 Assiniboine Park Street Renewals 22-PR-01
Zoo Drive: between Conservatory Drive and Assiniboine Park Drive

Pavement Core No.	Pavement Core Location	Pavement Surface		Pavement Structure Material		
		Type	Thickness (mm)	Type	Thickness (mm)	Corrected Compressive Strength (Mpa)
PC21-05	UTM : 5525991 m N, 626848 m E; Located 45 m Southwest of park Café sign, Southbound lane, 5 m East of west curb.	Asphalt	90	Concrete	N/A	-
PC21-06	UTM : 5525685 m N, 626685 m E; Located 33 m South of Stream Train Sign , Southbound lane, 4 m West of East curb.	Asphalt	190	Concrete	N/A	-
PC21-07	UTM : 5525440 m N, 626803 m E; Located 9 m North of South curb Zoo Drive, Eastbound lane, 2 m South of North curb.	Asphalt	130	Concrete	N/A	-
PC21-08	UTM : 5525457 m N, 627082 m E; Located 20 m East of Zoo Drive and Cricket Drive intersection, Eastbound lane, 6 m South of North curb.	Asphalt	190	Concrete	N/A	-



Photo 1: Pavement Core Sample at PC21-05



Photo 2: Pavement Core Sample at PC21-06



Photo 3: Pavement Core Sample at PC21-07

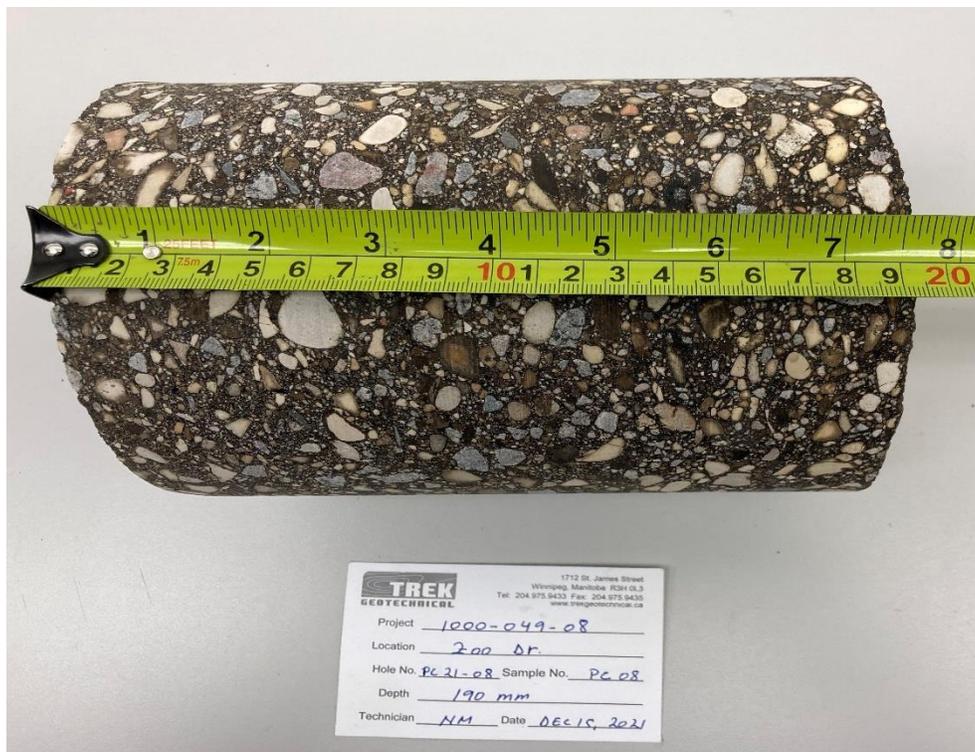


Photo 4: Pavement Core Sample at PC21-08

**APPENDIX 'C' – CONCRETE CONSTITUENT MATERIALS, MIX DESIGN
REQUIREMENTS, AND HOT AND COLD WEATHER CONCRETING**

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E-Spec	Concrete Constituent Materials, Mix Design Requirements, and Hot and Cold Weather Concreting

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1.0 DESCRIPTION

1.1 General

- 1.1.1 PORTLAND CEMENT CONCRETE PAVEMENT WORKS shall be in accordance with CW3310-R17, PORTLAND CEMENT CONCRETE PAVEMENT WORKS, except as otherwise specified herein.
- 1.1.2 This specification covers Portland cement concrete constituent materials and design requirements for the preparation of Portland Cement Concrete for all concreting operations relating to the construction of pavements, curbs, gutters, private approaches, bull-noses, median slabs, median, safety median and boulevard splash strips, sidewalk and other related concrete works.
- 1.1.3 This specification also covers hot and cold weather concreting.
- 1.1.4 Replace 2.0 Definitions of CW 3310-R17, PORTLAND CEMENT CONCRETE PAVEMENT WORKS with 1.2 of this specification.
- 1.1.5 Replace 5.3 Portland Cement Concrete Constituent Materials of CW 3310-R17, PORTLAND CEMENT CONCRETE PAVEMENT WORKS with 2.0 MATERIALS of this specification.
- 1.1.6 Replace 6.0 Design Requirements of CW 3310-R17, PORTLAND CEMENT CONCRETE PAVEMENT WORKS with 3.0 DESIGN REQUIREMENTS of this specification.
- 1.1.7 Replace 9.8. Weather Conditions of CW 3310-R17, PORTLAND CEMENT CONCRETE PAVEMENT WORKS with 4.0 HOT AND COLD WEATHER CONCRETING of this specification.
- 1.1.8 Replace 13.0 Basis of Payment of CW 3310-R17, PORTLAND CEMENT CONCRETE PAVEMENT WORKS with 5.1 BASIS OF PAYMENT FOR CW 3310-R17 of this specification.
- 1.1.9 Replace 13.0 Basis of Payment of CW 3230-R8, FULL-DEPTH PATCHING OF EXISTING PAVEMENT SLABS AND JOINTS with 5.2 BASIS OF PAYMENT FOR CW 3230-R8 of this specification.
- 1.1.10 Replace 13.0 Measurement and Payment for CW 3235-R9, RENEWAL OF EXISTING MISCELLANEOUS CONCRETE SLABS with 5.3 MEASUREMENT AND PAYMENT FOR CW 3235-R9 of this specification.
- 1.1.11 Replace 4.0 Measurement and Payment for CW 3240-R10, RENEWAL OF EXISTING CURBS with 5.4 MEASUREMENT AND PAYMENT FOR CW 3240-R10 of this specification.
- 1.1.12 Replace 13.0 Basis of Payment for CW 3325-R5, PORTLAND CEMENT CONCRETE SIDEWALK with 5.5 BASIS OF PAYMENT FOR CW 3325-R5 of this specification.
- 1.1.13 This specification also replaces 2.0 Definitions, 5.3 Portland Cement Concrete Constituent Materials, 6.0 Design Requirements, 9.8. Weather Conditions, and 13.0 Basis of Payment of CW3310-R17, PORTLAND CEMENT CONCRETE PAVEMENT WORKS where other

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specifications (e.g. CW3230-R8, CW3235-R9, CW3240-R10, CW3325-R5) reference CW3310-R17, PORTLAND CEMENT CONCRETE PAVEMENT WORKS.

- 1.1.14 All requirements and tests shall be in accordance with the latest edition of CSA A23.1-19/CSA A23.2-19, except as otherwise specified herein.

1.2 **Definitions**

- 1.2.1 Reinforced Concrete Pavement - A Portland Cement Concrete pavement with distributed steel reinforcement in the pavement slab and with deformed tie bars across longitudinal joints and smooth dowels across transverse contraction joints. Distributed steel reinforcement consists of smooth or deformed bars.
- 1.2.2 Plain-Dowelled Pavement - A Portland Cement Concrete pavement with no reinforcing steel in the pavement slab and with deformed tie bars across longitudinal joints and smooth dowels across transverse contraction joints.
- 1.2.3 Type 1 Concrete shall be used for expressways, major arterials, minor arterials, industrial/commercial collectors, residential major collectors, residential minor collectors, and industrial/commercial local pavements.
- 1.2.4 Type 2 Concrete shall be used for residential roads and alleys, curb and gutter sections, curbs, commercial approaches, residential approaches, miscellaneous concrete slab and splash strips. Type 1 Concrete can be used instead of Type 2 Concrete.
- 1.2.5 Type 3 is early opening concrete and shall be used for 24 hours early opening after placement.
- 1.2.6 Type 4 is early opening concrete and shall be used for 72 hours early opening after placement.
- 1.2.7 Type 5 Concrete shall be used for Sidewalks. Type 1 or Type 2 Concrete can be used instead of Type 5 Concrete.
- 1.2.8 Type 6 Concrete is cold weather concreting and shall replace all other concrete types for all applications when cold weather exists, except Type 8.
- 1.2.9 Type 7 is concrete for restoration of utility pavement cuts.
- 1.2.10 Type 8 is concrete for temporary restoration.
- 1.2.11 Coarseness Factor - A measure of the coarseness of the combined aggregate materials being incorporated into the concrete mix, defined as the percentage of all plus 2 500 sieve particles, which are also retained on the 10 000 sieve. Coarseness Factor = 100 (cumulative % retained on 10 000 Sieve divided by the cumulative % retained on 2 500 Sieve).
- 1.2.12 Hot weather is defined as one or a combination of the ambient air temperature being at or above 27 °C, or when there is a probability of the temperature rising above 27 °C during the concrete placing period (as forecast by the nearest official meteorological office), or the evaporation rate that exceeds 0.75 kg/m² /h due to high concrete temperature (maximum temperature of 32 °C for fresh concrete), low relative humidity and high wind speed that tends to impair the quality of freshly mixed or hardened concrete by accelerating the rate of moisture loss and rate of cement hydration, or otherwise causing detrimental results.

1.2.13 Cold weather is defined as a period when there is a probability of the ambient air temperature falling below 5 °C within 24 hours of placing or the average daily temperature for three consecutive days has fallen to, or is expected to fall, below 5°C as forecast by the nearest official meteorological office. The daily temperature is the mean temperature which is the average of the maximum and minimum temperature during the period from midnight to midnight.

1.2.14 The protection period is the time required to prevent concrete from being affected by exposure to cold weather and to develop a minimum compressive strength of 24 MPa. Concrete compressive strength shall be determined by maturity meters and field cured cylinders. In no case shall the protection period be less than seven (7) days.

2.0 MATERIALS

2.1 Concrete Constituent Materials

2.1.1 Aggregates

2.1.1.1 Aggregate shall consist of crushed stone or gravel or a combination of these materials conforming to the requirements of this Specification.

2.1.1.2 Each of the fine- and coarse-fractions of the combined aggregate shall meet all the requirements of CSA A23.1, Table 10 (FA1) and Table 11, respectively and shall be handled and weighed separately to maintain uniformity. The supplier shall provide the City of Winnipeg, Research and Standards Engineer with test data in accordance with CSA A23.2-30A to demonstrate that the material will produce concrete of acceptable quality that meets all the relevant requirements of this Specification.

2.1.1.3 The combined aggregate gradation and allowable deviations shall comply with the requirements in Table CW 3310.1.

TABLE CW 3310.1 - Combined Aggregate Gradation Limits and Allowable Deviations

Sieve Size	Percent of Total Dry Weight Passing Each Sieve	Allowable Deviation From The Job Mix Formula, % By Mass Passing Sieve
28 000	100%	-
20 000	90% - 100%	± 2%
14 000	75% - 95%	± 2%
10 000	60% - 75%	± 3%
5 000	35% - 50%	± 3%
2 500	27% - 35%	± 2%
1 250	20% - 30%	± 2%
630	10% - 20%	± 2%
315	5% - 10%	± 2%
160	1% - 4%	± 1%
80	0% - 2%	± 1%

2.1.1.4 The fineness modulus of fine aggregate shall be not less than 2.3 nor more than 3.1.

2.1.1.5 Aggregates shall conform to CSA-A23.1, Clauses 4.2.3.1 to 4.2.3.6. Each of the fine- and coarse-fractions shall comply with the physical requirements in Table CW 3310.2 and the test results shall be provided with the mix design submittal.

TABLE CW 3310.2 - Limits for Deleterious Substances and Physical Properties of Aggregates

Material	Parameter	Test Method	Maximum Limits	Frequency of Test
coarse aggregate	Clay lumps	CSA A23.2-3A	0.25%	2 years
	Low density granular material	CSA A23.2-4A	0.5%	2 years
	Material finer than 80 µm	CSA A23.2-5A	1.0%	1 year
	Relative density and absorption	CSA A23.2-12A	Note*	1 year
	Flat and elongated particles	CSA A23.2-13B	25% 40%	1 year
	- Flat particles			
	- Elongated particles			
	Petrographic examination** – PN	CSA A23.2-15A	125	1 year
	Unconfined freeze-thaw	CSA A23.2 24A	6%	Twice per season
	Alkali-silica reactivity	CSA A23.2-25A	0.15%	2 years
Alkali-carbonate reactivity	CSA A23.2-26A	Note*	1 year	
Micro-Deval	CSA A23.2-29A	17%	Twice per season	
fine aggregate	Clay lumps	CSA A23.2-3A	1%	2 years
	Low density granular material	CSA A23.2-4A	0.5%	2 years
	Material finer than 80 µm	CSA A23.2-5A	3.0%	1 year
	Organic impurities	CSA A23.2-7A	free from injurious amounts	2 years
	Petrographic examination**	CSA A23.2-15A	Note**	1 year
	Micro-Deval	CSA A23.2-23A	20%	1 year
	Alkali-silica reactivity	CSA A23.2-25A	0.15%	2 years

- *No acceptance/rejection values; however, the results shall be submitted.
- **Petrographic examinations shall be used to calculate the petrographic number (PN), to provide an appraisal of the physical-mechanical quality of coarse aggregate. Determination of PNs applies solely to coarse aggregates and should not be used for fine aggregates. The petrographic report for the fine aggregate shall include a comment on the suitability of the material for use in the production of concrete mix.
- The Coarseness Factor of the combined aggregate shall be between 45 and 65.
- Quarried limestone and dolomite shall not be acceptable as concrete aggregate materials.

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2.2 Hydraulic Cement

2.2.1 Hydraulic Cement shall be either General Use (GU) or General Use Limestone (GUL) conforming to the requirements of the latest edition of CSA A3001. High-early-strength Portland cement (HE) may also be used for cold weather concreting only. Cement shall be kept in weather tight storage that will protect it from moisture and contamination, and in such a manner as to permit inspection, sampling and identification, where required, of each lot.

2.3 Supplementary Cementing Materials

2.3.1 Fly ash shall conform to the requirements of CSA A3001 Class F. Fly ash shall be added to concrete mixtures as a separate constituent material. The use of blended hydraulic cement is not permitted.

2.4 Water

2.4.1 Potable water, which is water suitable for human consumption, is permitted to be used as mixing water in concrete without testing. Non-potable water and combined water shall conform to ASTM C1602M, Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete. The concrete supplier shall maintain documentation on the characteristics of the mixing water in compliance with the requirements of Tables 1 and 2 in ASTM C1602M. Testing to verify compliance with the requirements in Table 1 shall be conducted on the Type 1 hand placement paving mix with fly ash. The testing frequency for mixing water shall be in accordance with Appendix X1 of ASTM C1602M. Information on the testing frequency of the concrete mixing water shall be included in the concrete suppliers' quality control program. The source(s) of concrete mixing water and test data indicating compliance with ASTM C1602M shall be provided with the Mix Design Statement submitted to the City of Winnipeg, Research and Standards Engineer.

2.5 Admixtures

2.5.1 Air-Entraining Admixture

2.5.1.1 The air-entraining admixture shall conform to the requirements of ASTM C260, Standard Specification for Air-Entraining Admixtures for Concrete.

2.5.2 Chemical Admixtures

2.5.2.1 Chemical admixtures shall conform to the requirements of ASTM C494, Standard Specification for Chemical Admixtures for Concrete. Chloride-based chemical admixtures will not be permitted under any circumstances.

2.5.3 Cold-Weather Admixture Systems

2.5.3.1 Cold-weather admixture systems shall conform to the requirements of ASTM C1622, Standard Specification for Cold-Weather Admixture Systems.

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3.0 DESIGN REQUIREMENTS

3.1 Concrete Suppliers

- 3.1.1 The City of Winnipeg, Research and Standards Engineer will maintain a list of approved concrete suppliers. To obtain approval, concrete suppliers must annually submit the following information to the Research and Standards Engineer prior to April 1st:
- 3.1.1.1 Concrete suppliers Approval Guidelines and Application is available at the City of Winnipeg, Corporate Finance, Material Management Division website at: <https://www.winnipeg.ca/matmgt/Spec/Default.stm>
 - 3.1.1.2 Names of suppliers and sources for all materials and admixtures
 - 3.1.1.3 Concrete mix designs with unique mix design codes signed and dated by person selecting the mix proportions
 - 3.1.1.4 Copy of valid Concrete Manitoba certificate for concrete batch plant
 - 3.1.1.5 Copies of valid scale calibration reports for the concrete batch plant
 - 3.1.1.6 Test data for aggregates (in accordance with clause 2.1.1)
 - 3.1.1.7 The mill certificate for the cement and fly ash including chemical and physical composition and analysis, fly ash source and name of supplier.
 - 3.1.1.8 Sieve analysis test reports for the individual aggregates and the combined aggregate gradations to be used in the concrete. The sieve analysis test reports shall be representative of the material to be used during concrete production.
 - 3.1.1.9 Performance data from trial batches prior to construction to demonstrate the concrete mix will achieve the performance criteria in Table CW 3310.3.



Table CW 3310.3: Performance Criteria and Testing

	Time (day)	Type 1	Type 2	Type 3, and Type 6	Type 4	Type 5	Type 7**	Type 8
A minimum of one (1) set* of concrete compressive strength tests for the slipform paving mix with and without fly ash according to CSA A23.2-9C	@ 1	--	--	20 MPa	--	--	--	--
	@ 3	15 MPa	15 MPa	--	20 MPa	--	--	--
	@ 7	20 MPa	20 MPa	--	--	--	--	--
	@ 28	35 MPa	32 MPa	35 MPa	35 MPa	--	--	--
A minimum of two (2) sets* of concrete compressive strength tests for the hand placement paving mix with and without fly ash according to CSA A23.2-9C	@ 1	--	--	20 MPa	--	--	--	--
	@ 3	15 MPa	15 MPa	24 MPa	20 MPa	12 MPa	20 MPa	12 MPa
	@ 7	20 MPa	20 MPa	--	--	--	--	--
	@ 28	35 MPa	32 MPa	35 MPa	35 MPa	30 MPa	35 MPa	30 MPa
Air-void test according to ASTM C457	@ 28	See Note***						
Rapid chloride penetrability test (RCPT) according to CSA A23.2-23C	@ 56	See Note ****						

*Each set contains at least three (3) cylinders at each specified date. The average of each set shall be equal to or greater than the specified strength, with no single result less than 85% of the specified strength.

** Type 7 is concrete for restoration of utility pavement cuts and shall be adjusted to meet the specified strength for other types based on the application and shall include set retarders or hydration stabilizers to extend the discharge time to 150 min.

***A minimum of one sample for air-void test at 28 days shall be performed for each cement for Type 1, Type 2, and Type 3 with fly ash, and Type 6. The air-void test shall meet the following requirements:

- Spacing factor shall not exceed 230 µm, with no single value greater than 260 µm; and,
- Air content shall be greater than or equal to 5.0% and less than 8.0%.

****A minimum of two samples for rapid chloride penetrability test shall be performed for Type 1, Type 2 and Type 3 for mixes with and without fly ash. For Type 1 and Type 3, the average penetrability shall be equal to or less than 1250 coulombs at 56 days based on the charge passed, with no single result greater than 1500 coulombs for mixes with and without fly ash. For Type 2, the average of chloride ion penetrability shall be equal to or less than 1500 coulombs at 56 days based on the charge passed, with no single result greater than 1750 coulombs.

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- 3.1.1.10 Quality control program for all materials, including a proposed sampling and testing plan with minimum sampling and testing frequencies;
- 3.1.1.11 The laboratory(s) to be used and its credentials;
- 3.1.1.12 The quality control personnel and their qualifications; and,
- 3.1.1.13 Frequency of production equipment inspection, verification of calibration, and any certification of the production facility.
- 3.1.2 The City of Winnipeg, Research and Standards Engineer will conduct inspections at least once a year during production. Samples of materials may be taken and tested.
- 3.1.3 Testing for qualification or acceptance purposes shall be done in accordance with this Specification and the applicable test procedures and standard practices of CSA A23.2. There shall be no charge for any materials taken for testing purposes.
- 3.1.4 Changes in the source of any concrete constituent materials will not be permitted without approval of the City of Winnipeg, Research and Standards Engineer. For new sources, all materials shall be tested.
- 3.1.5 Once approved, all concrete shall be supplied in accordance with the approved Mix Design Statement. No changes in the concrete mix designs will be permitted without written permission from the City of Winnipeg, Research and Standards Engineer.



3.2 Concrete Properties

3.2.1 The Mix Design Statements for all concrete types shall be submitted to the City of Winnipeg, Research and Standards Engineer for approval. The concrete mix shall be proportioned such as to yield concrete having the required workability, strength and durability in Table CW 3310.4.

Table CW 3310.4: Concrete Properties

	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7	Type 8
Minimum Cementitious Content (kg/m ³)	360	340	360	360	320	400	340	300
Maximum Supplementary Cementing Materials – Fly Ash** (%) (see Note 2)	20%	20%	15%	20%	15%	0%	20%	20%
Maximum Water/Cementitious Ratio								
- Slip form paving	0.4	0.4	0.4	0.4	-	0.35	-	-
- Hand placement	0.42	0.42	0.42	0.42	0.42	0.36	0.42	0.45
Slump (mm)								
- Slip form paving	50 ± 20	50 ± 20	50 ± 20	50 ± 20	-	50 ± 20	-	-
- Hand placement	70 ± 20	70 ± 20	70 ± 20	70 ± 20	80 ± 20	70 ± 20	100 ± 20	100 ± 20
Nominal Maximum Aggregate Size (mm)	20	20	20	20	20	20	20	20
Air Content (%)	5-8	5-8	5-8	5-8	5-8	5-8	5-8	5-8
Minimum Compressive Strength (MPa)								
- @ 1 days	-	-	20	-	-	20	Note 1*	-
- @ 3 days	15	15	-	20	-	24		-
- @ 7 days	-	-	-	-	-	-		-
- @ 28 days	35	32	Note 1*	Note 1*	30	Note 1*		30
Maximum Rapid Chloride Penetrability Test*** (coulombs) @ 56 days. (see Note 3)	1500	1750	Note 1*	Note 1*	-	Note 1*	-	-

*The concrete shall meet Type 1 or Type 2 based on the application.

**The use of fly ash in concrete mix will be permitted. The Contractor will have the option to replace cement up to but not exceeding the above limits, by weight of total cementitious materials, depending on the concrete type. The use of fly ash will be permitted when the average daily temperature is 10°C and rising for the next five (5) consecutive days of placement as forecast by the nearest official meteorological office. The use of fly ash will not be permitted when the average daily temperature is below 10°C and the average daily temperature for more than five (5) consecutive days has fallen to, or is expected to fall, below 10°C within fourteen (14) days of placement as forecast by the nearest official meteorological office unless authorized in writing by the City of Winnipeg, Research and Standards Engineer.

***The concrete supplier shall develop and submit maturity relationships for Type 1 and Type 6 mixes.

***Rapid chloride penetrability test will be required where there is evidence of concrete damage as a result of inadequate curing and adverse weather conditions, including hot weather, wind, rain, sleet, snow and cold weather. The Contract Administrator shall be allowed access to all sampling locations and reserves the right to take samples for testing at any time.

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3.3 Plant Quality Control

- 3.3.1 The concrete supplier shall provide quality control for the plant to ensure all materials meet the approved mix designs. This information shall be submitted bi-weekly and will be monitored by the City of Winnipeg, Research and Standards Engineer. Failure to submit the quality control results shall be cause for immediate suspension of the concrete supplier.
- 3.3.2 A new mill certificate for cement and fly ash shall be provided monthly during production.
- 3.3.3 Check tests of any concrete constituent materials may be undertaken by a Testing Laboratory designated by the City of Winnipeg, Research and Standards Engineer. The concrete supplier shall be equipped with a suitable means or device for obtaining a representative sample of the cement and fly ash. The device shall enable the sample to be readily taken in proximity to the cement or fly ash weigh hopper and from a container or conveyor holding only cement or fly ash to prevent contamination. Any materials which fails to comply with the requirements of CSA A3001 will be rejected, notwithstanding any certificate of acceptance that may have been previously given. Materials that has been rejected must be removed immediately by the concrete supplier.

4.0 HOT AND COLD WEATHER CONCRETING

- 4.1 The Contractor shall be responsible for taking all necessary measures to protect freshly laid concrete from adverse weather conditions, including hot weather, wind, rain, sleet, snow and cold weather, except as otherwise specified herein.
- 4.1.1 Hot weather concreting
- 4.1.1.1 When the ambient air temperature is at or above 27 °C, or when there is a probability of the temperature rising above 27 °C during the placing period (as forecast by the nearest official meteorological office), the Contractor shall provide-protection for the concrete from the effects of hot and/or drying weather conditions.
- 4.1.1.2 When drying conditions are greater than or equal to 0.75 kg/m²/hr as estimated by use of Figure D1, Appendix D, Guidelines for Curing and Protection of CSA A23.1, the plastic concrete surface shall be protected from drying by application of an evaporation retardant. The evaporation retardant shall be applied according to the manufacturer's recommendations.
- 4.1.2 Cold weather concreting
- 4.1.2.1 When there is a probability of the air temperature falling below 5 °C within 24 h of placing or the average daily temperature for more than three successive days is fallen to, or is expected to fall, below 5°C as forecast by the nearest official meteorological office, cold weather concreting requirements shall apply.
- 4.1.2.2 Concrete shall be placed on unfrozen base material, free of water, snow, and ice. Frozen base material will be identified by measuring the surface temperature using infrared thermometers or similar devices. If the surface temperature is less than or equal to 0°C, the base will be considered frozen. The Contractor shall use suitable heating methods to maintain the base temperature above 0°C. Salt shall not be used to thaw ice, snow, or frost.

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- 4.1.2.3 Type 6 Concrete shall be used for cold weather concreting.
- 4.1.2.4 Where less than 30 cubic meters of concrete will be placed, the Contractor shall protect the concrete using a minimum of one layer of insulated tarp with R-value more than 5 for a minimum of seven (7) days after completion of placing operations unless otherwise specified by the Contract Administrator.
- 4.1.2.5 Where 30 cubic meters of concrete or more will be placed, a minimum of three maturity meters shall be used. One maturity meter shall be placed in the final 4 m of paving, and the two other maturity meters shall be placed at locations designated by the Contract Administrator. Each maturity meter shall be capable of recording the time and temperature at three depths, ½ inch below the surface, mid slab and ½ inch above the bottom of the pavement. Locations where the maturity meters are placed shall be protected in the same manner as the rest of the concrete.
- 4.1.2.6 The Contract Administrator shall provide all necessary wires and connectors for maturity meters. The Contractor shall be responsible for the placement, protection, and maintenance of all wires and connectors. No additional measurement or payment will be made for the placement, protection, and maintenance of all wires and connectors.
- 4.1.2.7 The Contractor shall maintain the internal concrete temperature above 10 °C during the protection period, a minimum of seven (7) days after completion of placing operations, and until the concrete has developed a minimum compressive strength of 24 MPa. Temperature and concrete compressive strength shall be determined by maturity meters and field cured cylinders. A minimum of four (4) readings for temperature shall be collected in the first three (3) days and then two times daily thereafter.
- 4.1.2.8 The Contractor shall provide suitable protection methods to the Contract Administrator for approval such as insulation (blankets and boards), heating systems such as electric blankets and hydronic heating systems, unheated or heated enclosures, or a combination of the methods to maintain the internal concrete temperature above 10 °C. In no case shall the protection method be less than one layer of insulated tarp with R-value more than 5.
- 4.1.2.9 If the internal concrete temperature at any location in the concrete falls below 10 °C but not less than 5°C during the curing period, supplemental heat shall be introduced immediately.
- 4.1.2.10 If the internal concrete temperature at any location in the concrete falls below 5 °C during the curing period, cores shall be collected and tested at 28 days. The cores will be tested in accordance with ASTM C856, Standard Practice for Petrographic Examination of Hardened Concrete and CSA A23.2-14C, Obtaining and testing drilled cores for compressive strength testing. Concrete damaged by frost, as determined by the compressive strength test or Petrographic analysis, shall be removed and replaced at the Contractor's expense. All costs associated with coring, transmittal of cores, and petrographic examination and compressive testing shall be borne by the Contractor regardless of the outcome of the examination.
- 4.1.2.11 If the internal concrete temperature at any location in the concrete falls below 0 °C during the curing period, concrete shall be removed and replaced by the Contractor at his own expense.
- 4.1.2.12 The protection method shall not be completely removed until the concrete has cooled to the

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temperature differential given in CSA A23.2, Table 20. The Contractor shall provide suitable methods for gradual cooling to the Contract Administrator for approval such as loosening the forms while maintaining cover with plastic sheeting or insulation, gradual decrease in heating inside an enclosure, or turning off the heat and allowing the enclosure to slowly equilibrate to ambient temperature. If the concrete cracks due to a sudden temperature change, concrete shall be removed and replaced by the Contractor at his own expense.

4.1.2.13 Concrete damaged as a result of inadequate protection against weather conditions shall be removed and replaced by the Contractor at his own expense.

4.1.2.14 No additional measurement or payment will be made for cold weather concreting

5.0 BASIS OF PAYMENT

5.1 BASIS OF PAYMENT FOR CW 3310-R17

5.1.1 Concrete Pavements, Median Slabs, Bull-noses and Safety Median

5.1.1.1 Construction of concrete pavements, median slabs, bull-noses and safety median will be paid for at the Contract Unit Price per square metre for the "Items of Work" listed here below, measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the work included in this Specification. The unit price shall be reduced for deficiencies in pavement thickness as per Clause 5.3 of this Specification.

Items of Work:

- i. "Construction of 250 mm Type (*) Concrete Pavement (**)(****)"
- ii. "Construction of 230 mm Type (*) Concrete Pavement (**)(****)"
- iii. "Construction of 200 mm Type (*) Concrete Pavement (**)(****)"
- iv. "Construction of 150 mm Type (*) Concrete Pavement (**)(****)"
- v. "Construction of Type (*) Concrete Median Slabs (****)"
- vi. "Construction of Monolithic Type (*) Concrete Median Slabs (****)"
- vii. "Construction of Type (*) Concrete Safety Medians (****)"
- viii. "Construction of Monolithic Type (*) Concrete Curb and Sidewalk (****)"
- ix. "Construction of Monolithic Type (*) Concrete Bull-noses"

* Specify the Concrete Type

** Specify either Reinforced or Plain-Dowelled

*** Specify Slip Form Paving if required

**** Specify referenced Standard Detail

5.1.2 Concrete Pavements for Early Opening

5.1.2.1 Construction of concrete pavements for early opening will be paid for at the Contract Unit Price per square metre for the "Items of Work" listed here below, measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the work included in this Specification. The unit price shall be reduced for deficiencies in pavement thickness as per Clause 5.3 of this Specification.

Items of Work:

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- i. "Construction of 250 mm Type (*) Concrete Pavement for Early Opening (**)(***)"
- ii. "Construction of 230 mm Type (*) Concrete Pavement for Early Opening (**)(***)"
- iii. "Construction of 200 mm Type (*) Concrete Pavement for Early Opening (**)(***)"
- iv. "Construction of 150 mm Type (*) Concrete Pavement for Early Opening (**)(***)"

* Specify either Type 3 or Type 4

** Specify either Reinforced or Plain-Dowelled

*** Specify Slip Form Paving if required

5.1.3 Pavement Thickness Tolerances

5.1.3.1 At the option of the Contract Administrator, pavement thickness may be determined by coring pavement sections representing each day's pour and determining the pavement thickness by averaging the depth of the cores.

5.1.3.2 Pavement found deficient in thickness by more than five (5%) percent shall be paid for at the reduced price. The reduced price = P_R x contract price;

P_R is in % and T_D is in %

Where: $P_R = 100 - [(T_D - 5) / 5] \times 25$

Where: T_D = thickness deficiency greater than or equal to 5%, up to 10%.

5.1.3.3 When the pavement thickness is deficient by more than ten (10%) percent and the judgement of the Contract Administrator is that the area of such deficiency should not be removed and replaced, payment will be fifty (50%) percent of Contract Unit Price.

5.1.3.4 The cost of initial cores will not be paid for by the Contractor. Additional cores requested by the Contractor to determine the extent of areas deficient in thickness, shall be paid for by the Contractor.

5.1.4 Concrete Curbs, Curb and Gutter, and Splash Strips

5.1.4.1 Construction of concrete curbs, curb and gutter, and splash strips will be paid for at the Contract Unit Price per metre for the "Items of Work" listed here below, measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the work included in this Specification.

Items of Work:

- i. "Construction of Type (*) Concrete Barrier Curb (**)"
- ii. "Construction of Type (*) Concrete Modified Barrier Curb (**)"
- iii. "Construction of Type (*) Concrete Curb and Gutter (**)"
- iv. "Construction of Type (*) Concrete Mountable Curb (**)"
- v. "Construction of Type (*) Concrete Lip Curb (**)"
- vi. "Construction of Type (*) Concrete Curb Ramp (**)"
- vii. "Construction of Type (*) Concrete Safety Curb (**)"
- viii. "Construction of Type (*) Concrete Splash Strips (***)"

* Specify the Concrete Type

** Specify height, type and Referenced Standard Detail

***Specify height, monolithic or separate, type, width, and referenced Standard Detail

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5.1.4.2 No measurement or payment shall be made for supply or placement of bonding grout for concrete curbs.

5.1.4.3 Drilled curb ramp tie bars are to be paid in accordance with CW 3230.

5.1.5 Dowel Assemblies

5.1.5.1 Supply and installation of dowel assemblies will be paid for at the Contract unit Price per metre for "Supply and Installation of Dowel Assemblies", measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the work included in this Specification.

5.1.6 Drilled Tie Bars and Dowels

5.1.6.1 Supply and installation shall be in accordance with clause 9.2.3 of CW 3310-R17.

5.2 **BASIS OF PAYMENT FOR CW 3230-R8**

5.2.1 Full Slab Replacement

5.2.1.1 Replacement of complete slabs will be paid for at the Contract Unit Price per square metre for the "Items of Work" listed here below, measured as specified herein, which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the work included in this Specification.

Items of Work: Slab Replacement

- i. 250mm Type (*) Concrete Pavement (**)
- ii. 230mm Type (*) Concrete Pavement (**)
- iii. 200mm Type (*) Concrete Pavement (**)
- iv. 150mm Type (*) Concrete Pavement (**)

* Specify the Concrete Type

** Specify either Reinforced or Plain-Dowelled

5.2.2 Full Depth Partial Slab Patches

5.2.2.1 Full-depth partial slab patches will be paid for at the Contract Unit Price per square metre for "Items of Work", listed here below, measured as specified herein, which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the work included in this Specification.

Items of Work: Partial Slab Patches

- i. 250mm Type (*) Concrete Pavement (**)
- ii. 230mm Type (*) Concrete Pavement (**)
- iii. 200mm Type (*) Concrete Pavement (**)
- iv. 150mm Type (*) Concrete Pavement (**)

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- * Specify the Concrete Type
- ** Specify class of patch

5.2.3 Dowels in Drilled Holes

5.2.3.1 Installation of dowels into hardened concrete will be paid for at the Contract Unit Price for "Drilled Dowels", measured as specified herein, which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the work included in this Specification.

*Specify diameter(s) of dowels

5.2.4 Tie Bars in Drilled Holes

5.2.4.1 Installation of tie bars into hardened concrete will be paid for at the Contract Unit Price for "Drilled Tie Bars"* measured as specified herein, which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the work included in this Specification.

*Specify size(s) of tie bars.

5.3 MEASUREMENT AND PAYMENT FOR CW 3235-R9

5.3.1 Removal of Miscellaneous Concrete Slabs

5.3.1.1 Removal of miscellaneous concrete slabs will be measured on an area basis and paid for at the Contract Unit Price per square metre for the "Items of Work" listed here below. The area to be paid for will be the total number of square metres of existing miscellaneous concrete slabs removed in accordance with this specification, accepted and measured by the Contract Administrator.

Items of Work:

Miscellaneous Concrete Slab Removal

- i.) Median Slab
- ii.) Monolithic Median Slab
- iii.) Safety Median
- iv.) 100mm Sidewalk
- v.) 150mm Reinforced Sidewalk
- vi.) Bullnose
- vii.) Monolithic Curb and Sidewalk

5.3.2 Installation of Miscellaneous Concrete Slabs

5.3.2.1 Installation of miscellaneous concrete slabs will be measured on an area basis and paid for at the Contract Unit Price per square metre for the "Items of Work" listed here below. The area to be paid for will be the total number of square metres of miscellaneous concrete slabs installed in accordance with this specification, accepted and measured by the Contract Administrator.

Items of Work:



Miscellaneous Concrete Slab Installation

- i.) Type (*) Concrete Median Slab**
- ii.) Type (*) Concrete Monolithic Median Slab**
- iii.) Type (*) Concrete Safety Median**
- iv.) Type (*) Concrete 100mm Sidewalk**
- v.) Type (*) Concrete 150mm Reinforced Sidewalk***
- vi.) Type (*) Concrete Bullnose**
- vii.) Type (*) Concrete Monolithic Curb and Sidewalk**

* Specify the Concrete Type

** referenced Standard Detail to be specified

*** renewal area to be specified

5.3.2.2 All costs for installing sign support clamps and constructing isolations for boulevard and median appurtenances will be included in the payment for the "Items of Work" listed for miscellaneous concrete slab installation.

5.3.2.3 All costs for excavation, sub-grade compaction, placement of sub-base, placement of leveling course and backfill materials, slabs installation and boulevard grading to the limits as identified in Section 3.2 of this specification will be included in the payment for the "Items of Work" listed for Installation of Miscellaneous Concrete Slabs.

5.3.2.4 Additional base course over and above leveling course material will be paid in accordance with CW 3110.

5.3.3 Miscellaneous Concrete Slab Renewal

5.3.3.1 Miscellaneous concrete slab renewal will be measured on an area basis and paid for at the Contract Unit Price per square metre for the "Items of Work" listed here below. The area to be paid for will be the total number of square metres of existing miscellaneous concrete slabs removed and installed in accordance with this specification, accepted and measured by the Contract Administrator.

Items of Work:

Miscellaneous Concrete Slab Renewal

- i.) Type (*) Concrete Median Slab**
- ii.) Type (*) Concrete Monolithic Median Slab**
- iii.) Type (*) Concrete Safety Median**
- iv.) Type (*) Concrete 100mm Sidewalk* (***)
- v.) Type (*) Concrete 150mm Reinforced Sidewalk (***)
- vi.) Type (*) Concrete Bullnose**
- vii.) Type (*) Concrete Monolithic Curb and Sidewalk**

* Specify the Concrete Type

** referenced Standard Details to be specified.

*** renewal area to be specified.

- a.) Less than 5 sq. m
- b.) 5 sq. m to 20 sq. m
- c.) Greater than 20 sq. m

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5.3.3.2 All costs for the slab removal, excavation, sub-grade compaction, placement of leveling course and backfill materials, slabs installation and boulevard grading to the limits as identified in Section 3.3 of this specification will be included in the payment for the “Items of Work” listed for Miscellaneous Concrete Slab Renewal.

5.3.3.3 Additional base course over and above leveling course material will be paid in accordance with CW 3110.

5.3.3.4 All costs for installing sign support clamps and constructing isolations for boulevard and median appurtenances will be included in the payment for the “Items of Work” listed for Miscellaneous Concrete Slab Renewal.

5.3.4 Adjustment of Precast Concrete Sidewalk Blocks

5.3.4.1 Adjustment of precast concrete sidewalk blocks will be measured on an area basis and paid at the Contract Unit Price per square metre for “Adjustment of Precast Sidewalk Blocks”. The area to be paid for will be the total number of square metres of precast concrete sidewalk blocks adjusted to grade in accordance with this specification, accepted and measured by the Contract Administrator.

5.3.4.2 No measurement or payment will be made for any precast sidewalk blocks damaged or lost during replacement.

5.3.5 Supply of Precast Concrete Sidewalk Blocks

5.3.5.1 Supply of precast concrete sidewalk blocks will be measured on an area basis and paid at the Contract Unit Price per square metre for “Supply of Precast Sidewalk Blocks”. The area to be paid for will be the total number of square metres of precast concrete sidewalk blocks supplied in accordance with this specification, accepted and measured by the Contract Administrator.

5.3.6 Removal of Precast Concrete Sidewalk Blocks

5.3.6.1 Removal of precast concrete sidewalk blocks will be measured on an area basis and paid at the Contract Unit Price per square metre for “Removal of Precast Sidewalk Blocks”. The area to be paid for will be the total number of square metres of precast concrete sidewalk blocks removed in accordance with this specification, accepted and measured by the Contract Administrator.

5.4 MEASUREMENT AND PAYMENT FOR CW 3240-R10

5.4.1 Concrete Curb Removal

5.4.1.1 Concrete curb removal will be measured on a length basis and paid for at the Contract Unit Price per metre for the “Items of Work” listed here below. The length to be paid for will be the total number of metres of concrete curb removed in accordance with this specification, accepted and measured by the Contract Administrator.

Items of Work:

Concrete Curb Removal

i.) Barrier*

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- ii.) Modified Barrier*
- iii.) Curb and Gutter
- iv.) Mountable Curb
- v.) Lip Curb
- vi.) Modified Lip Curb
- vii.) Curb Ramp
- viii.) Safety Curb
- ix.) Splash Strips**

* Integral or Separate to be specified.

** Monolithic or Separate.

5.4.1.2 Removal of existing asphalt material immediately in front of the curb that is required for installation will be included in the payment for the "Items of Work" listed for Concrete Curb Removal when the asphalt overlay is not identified to be removed.

5.4.2 Concrete Curb Installation

5.4.2.1 Concrete curb installation will be measured on a length basis and paid for at the Contract Unit Price per metre for the "Items of Work" listed here below. The length to be paid for will be the total number of metres of concrete curb or splash strip installed in accordance with this specification, accepted and measured by the Contract Administrator.

Items of Work:

Concrete Curb Installation

- i.) Type (*) Concrete Barrier**
- ii.) Type (*) Concrete Modified Barrier**
- iii.) Type (*) Concrete Curb and Gutter**
- iv.) Type (*) Concrete Mountable Curb**
- v.) Type (*) Concrete Lip Curb**
- vi.) Type (*) Concrete Modified Lip Curb**
- vii.) Type (*) Concrete Curb Ramp**
- viii.) Type (*) Concrete Safety Curb**
- ix.) Type (*) Concrete Splash Strips***

* Specify the Concrete Type

** reveal height, type and reference to Standard Detail to be specified.

*** reveal height, monolithic or separate, type, width and reference to Standard Detail to be specified.

5.4.2.2 The placement and compaction of asphalt material immediately in front of the curb will be included in the payment for the "Items of Work" listed for Concrete Curb Installation when the asphalt overlay is not identified to be removed.

5.4.2.3 No payment will be made for leveling course.

5.4.2.4 Base course will be paid in accordance with CW 3110.

5.4.2.5 Supply and placement of bonding grout for concrete curbs will not be measured for payment.

5.4.3 Concrete Curb Renewal

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5.4.3.1 Concrete curb renewal will be measured on a length basis and paid for at the Contract Unit Price per metre for the "Items of Work" listed here below. The length to be paid for will be the total number of metres of concrete curb or splash strip removed and installed in accordance with this specification, accepted and measured by the Contract Administrator.

Items of Work:

Concrete Curb Renewal

- i.) Type (*) Concrete Barrier** (***)
- ii.) Type (*) Concrete Modified Barrier**
- iii.) Type (*) Concrete Curb and Gutter** (***)
- iv.) Type (*) Concrete Mountable Curb**
- v.) Type (*) Concrete Lip Curb**
- vi.) Type (*) Concrete Modified Lip Curb**
- vii.) Type (*) Concrete Curb Ramp**
- viii.) Type (*) Concrete Safety Curb**
- ix.) Type (*) Concrete Splash Strips (***) (****)

* Specify the Concrete Type

* reveal height, type and referenced Standard Detail to be specified.

** renewed length to be specified.

- a.) Less than 3 m
- b.) 3 m to 30 m
- c.) Greater than 30 m

*** reveal height, monolithic or separate, type, width and reference to Standard Detail to be specified.

5.4.3.2 All costs for removal, excavation, sub-grade compaction, leveling course and backfill materials, curb installation and boulevard grading to the limits as identified in Section 3.4 of this specification will be included in the payment for the "Items of Work" listed for Concrete Curb Renewal.

5.4.3.3 Base course will be paid in accordance with CW 3110.

5.4.3.4 For installation lengths greater than 30 metres, the length will include breaks for approaches, isolations or fixed obstacles such as light standards or poles.

5.4.3.5 Curb ramp tie bars are to be paid in accordance with CW 3230.

5.4.3.6 Supply and placement of bonding grout for concrete curbs will not be measured for payment.

5.5 BASIS OF PAYMENT FOR CW 3325-R5

5.5.1 Concrete Sidewalks

5.5.1.1 Construction of concrete sidewalks will be paid for at the Contract Unit Price per square metre for "100 mm Type (*) Concrete Sidewalk", measured as specified herein, which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the work included in this Specification.

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5.5.2 Leveling Course

5.5.2.1 No payment shall be made for leveling course.

5.5.3 Excavation, Sub-grade Compaction, and Base Course

5.5.3.1 Excavation, sub-grade compaction, and additional base course shall be paid for in accordance with Specification CW 3110.