



THE CITY OF WINNIPEG

TENDER

TENDER NO. 107-2020

**2020 LOCAL STREET RENEWAL PROGRAM – BOOTH DRIVE, WOLEVER
AVENUE AND VARIOUS OTHER LOCATIONS**

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 2020 LOCAL STREET RENEWAL PROGRAM – BOOTH DRIVE, WOLEVER AVENUE AND VARIOUS OTHER LOCATIONS

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, May 1, 2020.

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 D3.1.

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 D3.

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/Proposal;
 - (b) Form B: Prices;
 - (c) Form G1: Bid Bond and Agreement to Bond.
- B7.2 Further to B7.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B6.
- B7.3 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely.
- B7.4 The Bid shall be submitted electronically through MERX at www.merx.com.
- B7.4.1 Bids will **only** be accepted electronically through MERX.
- B7.5 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/PROPOSAL

- 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 D29. Any such costs shall be determined in accordance with D29.

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);

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

B12.6 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B13. BID SECURITY

- B13.1 A sample Bid Bond and Agreement to Bond are available on The City of Winnipeg, Corporate Finance, Materials Management Division website at <https://www.winnipeg.ca/MatMgt/templates/files/eBidsecurity.pdf>.
- B13.2 The Bidder shall provide digital bid security in the form of a bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in the form included in the Bid Submission (Form G1: Bid Bond and Agreement to Bond).
- B13.3 Bid security shall be submitted in an electronic or digital format meeting the following criteria:
- (a) 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; all digital seals; with the surety company, or an approved verification service provider of the surety company.
 - (b) 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.
 - (c) 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.
 - (d) The results of the verification must provide a clear, immediate and printable indication of pass or fail regarding B13.3(a).
- B13.4 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).
- B13.5 Bonds passing the verification process will be treated as original and authentic.
- B13.5.1 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.
- B13.6 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.
- B13.7 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 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 D29 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. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of:

- (a) Asphalt Pavement Reconstruction
 - (i) Wolever Avenue – Wall Street to Minto Street
- (b) Pavement Rehabilitation
 - (i) Booth Drive – Portage Avenue to Bruce Avenue
 - (ii) Colchester Bay – Holland Boulevard to Holland Boulevard
 - (iii) Minto Street – St. Matthews Avenue to Armoury Avenue
 - (iv) Stewart Street – Allard Avenue to Portage Avenue
 - (v) Sharp Boulevard – Bruce Avenue to Ness Avenue
 - (vi) Stockton Place – Colchester Bay to End

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

- (a) Asphalt Pavement Reconstruction
 - (i) Installation of catch basins and sewer service pipe
 - (ii) Removal of existing composite pavement
 - (iii) Excavation
 - (iv) Installation of subdrains
 - (v) Compaction of existing subgrade
 - (vi) Placement of separation/filtration geotextile fabric
 - (vii) Placement of sub-base and base course materials
 - (viii) Construction of curb and gutter utilizing slip-form paving equipment
 - (ix) Construction of 150/200 mm reinforced concrete pavement approaches
 - (x) Adjustment to existing manholes
 - (xi) Placement of asphalt pavement (50 mm Type IA and 75 mm Type III)
 - (xii) Renewal of sidewalk
 - (xiii) Boulevard Restoration
- (b) Pavement Rehabilitation
 - (i) Planing of existing asphalt pavement (Booth Drive, Minto Street, Sharp Boulevard)
 - (ii) Renewal of miscellaneous pavement slabs (150 mm reinforced concrete pavement (all streets except Booth Drive) and 200 mm reinforced concrete pavement (Booth Drive))
 - (iii) Placement of pavement repair fabric at various locations
 - (iv) Renewal of existing curb
 - (v) Renewal of existing sidewalk
 - (vi) Adjustment of catch basins and manholes
 - (vii) Installation of new catch basins/catch pits and sewer service/drainage connection pipe
 - (viii) Placement of asphalt overlay (Average Thickness 85 mm)

- (ix) Adjustment of paving stones at various locations
- (x) Boulevard restoration

D3. CONTRACT ADMINISTRATOR

D3.1 The Contract Administrator is AECOM Canada Ltd., represented by:

Blair Cockrell
Project Coordinator

Telephone No. (204) 928-8431
Email Address blair.cockrell@aecom.com

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

D4. CONTRACTOR'S SUPERVISOR

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

D4.2 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 D4.1 or an alternate can be contacted twenty-four (24) hours a day to respond to an emergency.

D5. NOTICES

D5.1 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.

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

D5.3 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

D6. FURNISHING OF DOCUMENTS

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

SUBMISSIONS

D7. AUTHORITY TO CARRY ON BUSINESS

D7.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly

registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

D8. SAFE WORK PLAN

- D8.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.
- D8.2 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>
- D8.3 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.

D9. INSURANCE

- D9.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability, broad form property damage cover and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
 - (b) 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.
- D9.2 Deductibles shall be borne by the Contractor.
- D9.3 The Contractor shall provide the City Solicitor with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in the C4.1 for the return of the executed Contract Documents, as applicable.
- D9.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D10. CONTRACT SECURITY

- D10.1 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.

- D10.2 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.
- D10.3 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 D10.1(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.

D11. SUBCONTRACTOR LIST

- D11.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at 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.

D12. DETAILED WORK SCHEDULE

- D12.1 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.
- D12.2 The detailed work schedule shall consist of the following:
- (a) a Gantt chart for the Work;
acceptable to the Contract Administrator.
- D12.3 Further to D12.2(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.

SCHEDULE OF WORK

D13. COMMENCEMENT

- D13.1 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.
- D13.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D7;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the twenty-four (24) hour emergency response phone number specified in D4.2.
 - (iv) the Safe Work Plan specified in D8;
 - (v) evidence of the insurance specified in D9;
 - (vi) the contract security specified in D10;
 - (vii) the subcontractor list specified in D11; and
 - (viii) the detailed work schedule specified in D12.

- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.

D13.3 The Contractor shall not commence the Work on the Site before June 22, 2020, and shall commence the Work on Site no later than June 29, 2020, as directed by the Contract Administrator and weather permitting.

D13.4 The City intends to award this Contract by May 29, 2020.

D13.4.1 If the actual date of award is later than the intended date, the dates specified for Critical Stages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D14. WORKING DAYS

D14.1 Further to C1.1(tt);

D14.1.1 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.

D14.1.2 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.

D14.1.3 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.

D15. RESTRICTED WORK HOURS

D15.1 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.

D16. WORK BY OTHERS

D16.1 Work by others on or near the Site will include but not necessarily be limited to:

- (a) City of Winnipeg, Traffic Signals Branch – Reinstallation of loops on the south side of the Ness Avenue and Sharp Boulevard intersection;
- (b) Manitoba Hydro Gas Division – Lowering and/or rock wrapping of gas main and services on an as required basis;
- (c) Shaw Cable – Adjustment of handhole on Booth Drive;
- (d) Canada Post – Adjusting/relocating community mailboxes on Colchester Bay.

D17. SEQUENCE OF WORK

D17.1 Further to C6.1, the sequence of work shall comply with the following:

D17.1.1 Providing that the Work on each street is completed in a similar order to the order that the Work was commenced in, the Contractor will be permitted to have a maximum of four (4) streets under construction at any one time. Completion of a street means that all of the necessary concrete, asphalt including approaches and landscaping Work is completed to the satisfaction of the Contract Administrator.

- D17.1.2 Where the Contractor utilizes two (2) or more crews that work independently on the same major component of the Work as identified in D2, the Contract Administrator may approve an increase to the maximum number of streets under construction at any time.
- D17.1.3 Placing the topsoil and finished grading of all boulevard and median areas shall be completed prior to commencing construction of asphaltic concrete overlays, including scratch courses.
- D17.1.4 The Work on Booth Drive shall be completed in four stages. The first lift of asphalt shall be placed in each lane before proceeding to the next stage. The staging breakdown is as follows:
- (a) Stage 1 – Work in west two lanes from Portage Avenue to Lodge Avenue and west lane from Lodge Avenue to Bruce Avenue, excluding the new bumpouts on the west side of Booth Drive at Lodge Avenue.
 - (b) Stage 2 – Work in lane east of centreline from Portage Avenue to Lodge Avenue and centre lane from Lodge Avenue to Bruce Avenue.
 - (c) Stage 3 – Work in east lane from Portage Avenue to Bruce Avenue, including renewal of east side sidewalk.
 - (d) Stage 4 – Construction of new bumpouts on the west side of Booth Drive at Lodge Avenue.
- D17.1.5 The Work on each side of Sharp Boulevard shall be completed in accordance with the following:
- (a) Planing of asphalt pavement shall be completed following curb, sidewalk and 150mm reinforced concrete pavement renewal on the side of Sharp Boulevard under construction.
 - (b) To accommodate renewal of curb prior to planing of pavement, asphalt may be removed up to a maximum of 200mm from the face of the curb.
 - (c) Traffic will not be permitted to travel on a planed surface.
 - (d) Construction equipment travelling on a planed surface shall be kept to a minimum.

D18. CRITICAL STAGES

- D18.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:
- (a) Work on Booth Drive from Portage Avenue to Bruce Avenue shall commence no later than June 29, 2020 and be totally completed by August 28, 2020.
- D18.2 When the Contractor considers the Work associated with Booth Drive to be totally completed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Completion. 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.
- D18.3 The date on which the Booth Drive Work has been accepted by the Contract Administrator as being totally completed to the requirements of the Contract is the date on which total completion of Booth Drive has been achieved.

D19. SUBSTANTIAL PERFORMANCE

- D19.1 The Contractor shall achieve Substantial Performance within forty-five (45) consecutive Working Days of the commencement of the Work as specified in D13.
- D19.2 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.

- D19.3 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.

D20. TOTAL PERFORMANCE

- D20.1 The Contractor shall achieve Total Performance within fifty (50) consecutive Working Days of the commencement of the Work as specified in D13.
- D20.2 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.
- D20.3 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.

D21. LIQUIDATED DAMAGES

- D21.1 If the Contractor fails to achieve Critical Stages, Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Working Day for each and every Working Day following the days fixed herein for same during which such failure continues:
- (a) Booth Drive from Portage Avenue to Sturgeon Road – Three Thousand dollars (\$3,000.00);
 - (b) Substantial Performance – Three Thousand dollars (\$3,000.00);
 - (c) Total Performance – One Thousand dollars (\$1,000.00).
- D21.2 The amounts specified for liquidated damages in D21.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve critical stages, Substantial Performance or Total Performance by the days fixed herein for same.
- D21.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D22. COVID-19 SCHEDULE DELAYS

- D22.1 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 and directives from health authorities and various levels of government, and in close consultation with the Contract Administrator.
- D22.2 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.
- D22.3 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. If the Contractor declares that 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.

- D22.4 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 D22.3. Failure to provide this notice will result in no additional time delays being considered by the City.
- D22.5 The Work schedule, including the durations identified in D18 to D20 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.
- D22.6 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.
- D22.7 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.

D23. SCHEDULED MAINTENANCE

- D23.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:
- (a) Reflective Crack Maintenance as specified in CW 3250-R7;
 - (b) Sod Maintenance as specified in CW 3510-R9.
- D23.2 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

D24. JOB MEETINGS

- D24.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.
- D24.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

D25. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

- D25.1 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).

D26. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

- D26.1 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

D27. PAYMENT

D27.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

WARRANTY

D28. WARRANTY

D28.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) years thereafter for pavement rehabilitation works, and two (2) years thereafter for pavement reconstruction works, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

D28.2 Notwithstanding C13.2 or D28.1, 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.

D28.2.1 In such case the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

THIRD PARTY AGREEMENTS

D29. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS

D29.1 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.

D29.2 Further to D29.1, in the event that the obligations in D29 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.

D29.3 For the purposes of D29:

- (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.

D29.4 Modified Insurance Requirements

D29.4.1 If not already required under the insurance requirements identified in D9, 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.

- D29.4.2 If not already required under the insurance requirements identified in D9, 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.
- D29.4.3 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.
- D29.4.4 Further to D9.3, 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.
- D29.4.5 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.
- D29.5 Indemnification By Contractor
- D29.5.1 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.
- D29.6 Records Retention and Audits
- D29.6.1 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.
- D29.6.2 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 D29.6.1 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.
- D29.7 Other Obligations
- D29.7.1 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.
- D29.7.2 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.

D29.7.3 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.

D29.7.4 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.

FORM H1: PERFORMANCE BOND
(See D10)

KNOW ALL MEN BY THESE PRESENTS THAT

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

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

_____ dollars (\$_____)

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

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

TENDER NO. 107-2020

2020 LOCAL STREET RENEWAL PROGRAM – BOOTH DRIVE, WOLEVER AVENUE AND VARIOUS OTHER LOCATIONS

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 D10)

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. 107-2020

2020 LOCAL STREET RENEWAL PROGRAM – BOOTH DRIVE, WOLEVER AVENUE AND VARIOUS OTHER LOCATIONS

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 D11)

**2020 LOCAL STREET RENEWAL PROGRAM – BOOTH DRIVE, WOLEVER AVENUE AND VARIOUS
OTHER LOCATIONS**

<u>Portion of the Work</u>	<u>Name</u>	<u>Address</u>
SURFACE WORKS:		
Supply of Materials:		
Concrete		
Asphalt		
Base Course and Sub-base		
Separation/Filtration Geotextile Fabric and Geogrid		
Pavement Repair Fabric		
Sod		
Installation/Placement:		
Concrete		
Asphalt		
Base Course and Sub-base		
Separation/Filtration Geotextile Fabric and Geogrid		
Pavement Repair Fabric		
Sod		
Joint Sealant		
UNDERGROUND WORKS		
Supply of Materials:		
Sewer Service/Drainage Connection Pipe		
Subdrains		
Catch Basins/Catch Pits		
Frames and Covers		
Installation/Placement:		
Catch Basins/Catch Pits		

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>
CT-00	Cover Page and Location Plan	A1
CT-01	Stewart Street – Allard Ave to Station 0+220	A1
CT-02	Stewart Street – Station 0+220 to Portage Ave	A1
CT-03	Colchester Bay – Holland Blvd to Station 0+210	A1
CT-04	Colchester Bay – Station 0+210 to Station 0+300	A1
CT-05	Colchester Bay – Station 0+300 to Station 0+430	A1
CT-06	Colchester Bay – Station 0+430 to Station 0+520	A1
CT-07	Colchester Bay – Station 0+520 to Station 0+630	A1
CT-08	Colchester Bay – Station 0+630 to Holland Blvd	A1
CT-09	Stockton Place – Colchester Bay to Station 0+169	A1
CT-10	Booth Drive – Portage Ave to Station 0+230	A1
CT-11	Booth Drive – Station 0+230 to Station 0+350	A1
CT-12	Booth Drive – Station 0+350 to Station 0+470	A1
CT-13	Booth Drive – Station 0+470 to Station 0+590	A1
CT-14	Sharp Boulevard – Bruce Ave to Station 0+200	A1
CT-15	Sharp Boulevard – Station 0+200 to Station 0+320	A1
CT-16	Sharp Boulevard – Station 0+320 to Ness Ave	A1
CT-17	Wolever Avenue – Wall St to Station 0+190	A1
CT-18	Wolever Avenue – Station 0+190 to Minto St	A1
CT-19	Minto Street – St. Matthews Ave to Armoury Ave	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 and/or sites;
 - (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;
 - (ii) Distribution of the Declaration of Total Performance.

- E2.9 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 'A'.

E4. PROTECTION OF EXISTING TREES

- E4.1 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.
- E4.2 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.
- E4.3 No separate measurement or payment will be made for the protection of trees.
- E4.4 Except as required in clause E4.1(c) and E4.1(e), Elm trees shall not be pruned at any time between April 1 and July 31.

E5. TRAFFIC CONTROL

- E5.1 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 CW 3410.
 - (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 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.
- E5.2 Notwithstanding E5.1, in accordance with the MTTC, the Contract Administrator shall make arrangements with the **Traffic Services Branch of the City of Winnipeg** to place, maintain, and remove all **regulatory signs** and traffic control devices authorized and/or required by the Traffic Management Branch in the following situations:
- (a) Parking restrictions,

- (b) Stopping restrictions,
- (c) Turn restrictions,
- (d) Diamond lane removal,
- (e) Full or directional closures on a Regional Street,
- (f) Traffic routed across a median,
- (g) 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.
- (h) Approved Designated Construction Zones with a temporary posted speed limit reduction. Traffic Services will be responsible for placing all of the advance signs and 'Construction Ends' (TC-4) signs. The Contractor is still responsible for all other temporary traffic control including but not limited to barricades, barrels and tall cones.

E5.2.1 An exception to E5.2 is the 'KEEP RIGHT/KEEP LEFT' sign (RB-25 / RB-25L) which shall be supplied, installed, and maintained by the Contractor at their own expense.

E5.2.2 Further to E5.2, where the Contract Administrator has determined that the services of the Traffic Services Branch are required, the City shall bear the costs associated with the placement of temporary traffic control devices by the Traffic Services Branch of the City of Winnipeg in connection with the works undertaken by the Contractor.

E6. TRAFFIC MANAGEMENT

E6.1 Further to clause 3.7 of CW 1130:

E6.1.1 The Contractor shall schedule construction activities to meet the following:

- (a) On Colchester Bay, Minto Street, Sharp Boulevard, Stewart Street and Stockton Place at least one lane for local access traffic shall be maintained along each street during construction.
- (b) On Booth Drive, traffic management shall be as follows:
 - (i) Stage 1 – maintain two-way traffic in the east two lanes from Portage Avenue to Lodge Avenue and in the centre and east gutter lane from Lodge Avenue to Bruce Avenue; maintain two-way traffic in the north/east lanes from Bruce Avenue to Sturgeon Road.
 - (ii) Stage 2 – maintain two-way traffic in the lane west of the centreline and the east gutter lane from Portage Avenue to Lodge Avenue and in the west gutter lane and east gutter lane from Lodge Avenue to Bruce Avenue.
 - (iii) Stage 3 – maintain two-way traffic in the lanes east and west of the centreline from Portage Avenue to Lodge Avenue and in the west gutter lane and centre lane from Lodge Avenue to Bruce Avenue.
 - (iv) Stage 4 – maintain two-way traffic on Booth Drive at Lodge Avenue.
 - (v) Traffic will not be permitted to travel on a planed pavement surface.
- (c) Winnipeg Transit bus service shall be maintained on Booth Drive (northbound and southbound) at all times.
- (d) Wolever Avenue will be closed to all traffic, except access across Wolever Avenue at the Wall Street/Goulding Street alley and at the Goulding Street/Minto Street Alley shall be provided by the Contractor on residential and commercial garbage and recycling pickup days. The Contractor shall sign the street "Road Closed – No Exit" in accordance with the Manual of Temporary Traffic Control.

E6.1.2 Flag persons may be necessary to maintain the flow of traffic during certain work operations.

E6.1.3 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.

E6.1.4 Pedestrian and ambulance/emergency vehicle access must be maintained at all times, including uninterrupted access to Grace Hospital.

E7. REFUSE AND RECYCLING COLLECTION

E7.1 If access to refuse and/or recycling collection vehicles is restricted, on collection day(s) the Contractor shall move all of the affected property owners refuse and/or recycling materials to a nearby common area, prior to an established time, in accordance with E7.2 to permit the normal collection vehicles to collect the materials. Immediately following refuse and recycling collection the Contractor shall return refuse and recycling receptacles to the addresses marked on the receptacles. At all other times, the Contractor shall allow access for refuse and recycling collection vehicles.

E7.2 Collection Schedule:

Booth Drive from Portage Avenue to Sturgeon Road

<i>Collection Day(s):</i>	No residential collection, Day varies for commercial pickup (maintain access to commercial properties for pickup)
<i>Collection Time:</i>	Time varies for commercial pickup
<i>Common Collection Area:</i>	N/A

Colchester Bay from Holland Boulevard to Holland Boulevard

<i>Collection Day(s):</i>	Monday, front street
<i>Collection Time:</i>	7:00 a.m. to 6:00 p.m.
<i>Common Collection Area:</i>	N/A

Minto Street from St. Matthews Avenue to Armoury Avenue

<i>Collection Day(s):</i>	Friday, west rear alley
<i>Collection Time:</i>	7:00 a.m. to 6:00 p.m.
<i>Common Collection Area:</i>	N/A

Sharp Boulevard from Bruce Avenue to Ness Avenue

<i>Collection Day(s):</i>	Tuesday, rear alleys
<i>Collection Time:</i>	7:00 a.m. to 6:00 p.m.
<i>Common Collection Area:</i>	N/A

Stewart Street from Allard Avenue to Portage Avenue

<i>Collection Day(s):</i>	Thursday, front street
<i>Collection Time:</i>	7:00 a.m. to 6:00 p.m.
<i>Common Collection Area:</i>	N/A

Stockton Place from Colchester Bay to End

Collection Day(s): **Monday, front street**

Collection Time: **7:00 a.m. to 6:00 p.m.**

Common Collection Area: **N/A**

Wolever Avenue from Wall Street to Minto Street

Collection Day(s): **Friday (Residential) for both alleys intersecting Wolever Avenue, Day varies for commercial pickup in Wall Street/Goulding Street alley north and south of Wolever Avenue. The Contractor and Contract Administrator shall coordinate with the Wall St businesses to determine commercial bin pickup day and time for the Wall Street/Goulding alley.**

Collection Time: **7:00 a.m. to 6:00 p.m (Residential), Time varies for commercial pickup in Wall Street/Goulding Street alley north and south of Wolever Avenue**

Common Collection Area: **N/A**

E7.3 No measurement or payment will be made for the work associated with this specification.

E8. WATER OBTAINED FROM THE CITY

E8.1 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.

E9. SURFACE RESTORATIONS

E9.1 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.

E10. SUPPLY AND INSTALLATION OF PAVEMENT REPAIR FABRIC

DESCRIPTION

E10.1 General

E10.1.1 This specification covers the supply and installation of pavement repair fabric.

E10.1.2 Referenced Standard Construction

(a) CW 3130 – Supply and Installation of Geotextile Fabrics.

MATERIALS

E10.2 Storage and Handling

E10.2.1 Store and handle material in accordance with Section 2 of CW 3130.

E10.3 Pavement Repair Fabric

E10.3.1 Pavement repair fabric will be Glas Grid Road Reinforcement Mesh - Style 8501.

CONSTRUCTION METHODS

E10.4 General

E10.4.1 Install pavement repair fabric at random locations as directed by the Contract Administrator.

- E10.4.2 The extent of the placement limits and quantities required will be determined by the Contract Administrator and provided 48 hours prior to the placement of asphalt.
- E10.4.3 Proceed with installation upon completion and acceptance of the asphalt levelling course.
- E10.4.4 Install fabric in accordance with the manufacturer's specifications and recommendations.
- E10.4.5 Only construction equipment required to place the final asphalt surface course will be allowed to travel on the exposed fabric.
- E10.4.6 Replace damaged or improperly placed fabric.
- E10.4.7 Ensure temperature of the asphalt material does not exceed the melting point of the fabric.

MEASUREMENT AND PAYMENT

E10.5 Pavement Repair Fabric

- E10.5.1 The supply and installation of the pavement repair fabric will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Pavement Repair Fabric". The area to be paid for will be the total number of square metres of pavement repair fabric supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

E11. REMOVAL OF EXISTING INTERLOCKING PAVING STONES

DESCRIPTION

E11.1 General

- E11.1.1 This specification covers the removal of existing interlocking paving stones.

CONSTRUCTION METHODS

E11.2 General

- E11.2.1 Remove and dispose of existing interlocking paving stones at locations shown on the drawings or as identified by the Contract Administrator.

MEASUREMENT AND PAYMENT

E11.3 Removal of Existing Interlocking Paving Stones

- E11.3.1 The removal of existing interlocking paving stones will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Removal of Existing Interlocking Paving Stones". The area to be paid for will be the total number of square metres of interlocking paving stones removed in accordance with this specification, accepted and measured by the Contract Administrator.

APPENDIX 'A'

GEOTECHNICAL REPORT

APPENDIX 'A' - GEOTECHNICAL REPORT

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.

AECOM Canada Ltd.

GENERAL STATEMENT

NORMAL VARIABILITY OF SUBSURFACE CONDITIONS

The scope of the investigation presented herein is limited to an investigation of the subsurface conditions as to suitability for the proposed project. This report has been prepared to aid in the evaluation of the site and to assist the engineer in the design of the facilities. Our description of the project represents our understanding of the significant aspects of the project relevant to the design and construction of earth work, foundations and similar. In the event of any changes in the basic design or location of the structures as outlined in this report or plan, we should be given the opportunity to review the changes and to modify or reaffirm in writing the conclusions and recommendations of this report.

The analysis and recommendations presented in this report are based on the data obtained from the borings and test pit excavations made at the locations indicated on the site plans and from other information discussed herein. This report is based on the assumption that the subsurface conditions everywhere are not significantly different from those disclosed by the borings and excavations. However, variations in soil conditions may exist between the excavations and, also, general groundwater levels and conditions may fluctuate from time to time. The nature and extent of the variations may not become evident until construction. If subsurface conditions differ from those encountered in the exploratory borings and excavations, are observed or encountered during construction, or appear to be present beneath or beyond excavations, we should be advised at once so that we can observe and review these conditions and reconsider our recommendations where necessary.

Since it is possible for conditions to vary from those assumed in the analysis and upon which our conclusions and recommendations are based, a contingency fund should be included in the construction budget to allow for the possibility of variations which may result in modification of the design and construction procedures.

In order to observe compliance with the design concepts, specifications or recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated, we recommend that all construction operations dealing with earth work and the foundations be observed by an experienced soils engineer. We can be retained to provide these services for you during construction. In addition, we can be retained to review the plans and specifications that have been prepared to check for substantial conformance with the conclusions and recommendations contained in our report.

EXPLANATION OF FIELD & LABORATORY TEST DATA

The field and laboratory test results, as shown for each hole, are described below.

1. NATURAL MOISTURE CONTENT

The relationship between the natural moisture content and depth is significant in determining the subsurface moisture conditions. The Atterberg Limits for a sample should be compared to its natural moisture content and plotted on the Plasticity Chart in order to determine the soil classification.

2. SOIL PROFILE AND DESCRIPTION

Each soil stratum is classified and described noting any special conditions. The Modified Unified Classification System (MUCS) is used. The soil profile refers to the existing ground level at the time the hole was done. Where available, the ground elevation is shown. The soil symbols used are shown in detail on the soil classification chart.

3. TESTS ON SOIL SAMPLES

Laboratory and field tests are identified by the following and are on the logs:

- N - Standard Penetration Test (SPT) Blow Count. The SPT is conducted in the field to assess the in-situ consistency of cohesive soils and the relative density of non-cohesive soils. The N value recorded is the number of blows from a 63.5 kg hammer dropped 760 mm which is required to drive a 51 mm split spoon sampler 300 mm into the soil.
- SO₄ - Water Soluble Sulphate Content. Expressed in percent. Conducted primarily to determine requirements for the use of sulphate resistant cement. Further details on the water-soluble sulphate content are given in Section 6.
- γ_D - Dry Unit Weight. Usually expressed in kN/m³.
- γ_T - Total Unit Weight. Usually expressed in kN/m³.
- Q_u - Unconfined Compressive Strength. Usually expressed in kPa and may be used in determining allowable bearing capacity of the soil.

- C_u - Undrained Shear Strength. Usually expressed in kPa. This value is determined by either a direct shear test or by an unconfined compression test and may also be used in determining the allowable bearing capacity of the soil.
- C_{PEN} - Pocket Penetrometer Reading. Usually expressed in kPa. Estimate of the undrained shear strength as determined by a pocket penetrometer.

The following tests may also be performed on selected soil samples and the results are given on separate sheets enclosed with the logs:

- Grain Size Analysis
- Standard or Modified Proctor Compaction Test
- California Bearing Ratio Test
- Direct Shear Test
- Permeability Test
- Consolidation Test
- Triaxial Test

4. SOIL DENSITY AND CONSISTENCY

The SPT test described above may be used to estimate the consistency of cohesive soils and the density of cohesionless soils. These approximate relationships are summarized in the following tables:

Table 1 Cohesive Soils

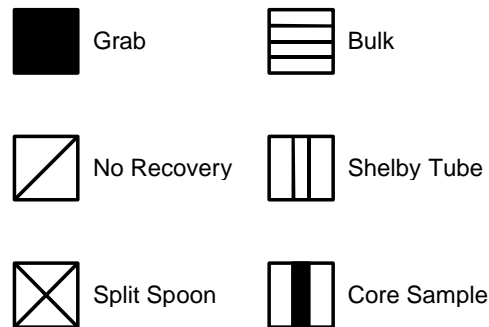
N	Consistency	C _u (kPa) approx.
0 - 1	Very Soft	<10
1 - 4	Soft	10 - 25
4 - 8	Firm	25 - 50
8 - 15	Stiff	50 - 100
15 - 30	Very Stiff	100 - 200
30 - 60	Hard	200 - 300
>60	Very Hard	>300

Table 2 Cohesionless Soils

N	Density
0 - 5	Very Loose
5 - 10	Loose
10 - 30	Compact
30 - 50	Dense
>50	Very Dense

5. SAMPLE CONDITION AND TYPE

The depth, type, and condition of samples are indicated on the logs by the following symbols:



6. WATER SOLUBLE SULPHATE CONCENTRATION

The following table, from CSA Standard A23.1-14, indicates the requirements for concrete subjected to sulphate attack based upon the percentage of water-soluble sulphate as presented on the logs. CSA Standard A23.1-14 should be read in conjunction with the table.

Table 3 Requirements for Concrete Subjected to Sulphate Attack*

Class of exposure	Degree of exposure	Water-soluble sulphate (SO ₄) [†] in soil sample, %	Sulphate (SO ₄) [‡] in groundwater samples, mg/L [‡]	Water soluble sulphate (SO ₄) in recycled aggregate sample, %	Cementing materials to be used ^{§††}	Performance requirements ^{§,§§}		
						Maximum expansion when tested using CSA A3004-C8 Procedure A at 23 °C, %		Maximum expansion when tested using CSA A3004-C8 Procedure B at 5 °C, % ^{†††}
						At 6 months	At 12 months ^{††}	At 18 months ^{‡‡}
S-1	Very severe	> 2.0	> 10 000	> 2.0	HS ^{**} , HSb, HSLb ^{***} or HSe	0.05	0.10	0.10
S-2	Severe	0.20–2.0	1500–10 000	0.60–2.0	HS ^{**} , HSb, HSLb ^{***} or HSe	0.05	0.10	0.10
S-3	Moderate (including seawater exposure*)	0.10–0.20	150–1500	0.20–0.60	MS, MSb, MSe, MSLb ^{***} , LH, LHb, HS ^{**} , HSb, HSLb ^{***} or HSe	0.10		0.10

*For sea water exposure, also see Clause 4.1.1.5.

[†]In accordance with CSA A23.2-3B.

[‡]In accordance with CSA A23.2-2B.

[§]Where combinations of supplementary cementing materials and portland or blended hydraulic cements are to be used in the concrete mix design instead of the cementing materials listed, and provided they meet the performance requirements demonstrating equivalent performance against sulphate exposure, they shall be designated as MS equivalent (MSe) or HS equivalent (HSe) in the relevant sulphate exposures (see Clauses 4.1.1.6.2, 4.2.1.1, and 4.2.1.3, and 4.2.1.4).

^{**}Type HS cement shall not be used in reinforced concrete exposed to both chlorides and sulphates, including seawater. See Clause 4.1.1.6.3.

††The requirement for testing at 5 °C does not apply to MS, HS, MSb, HSb, and MSe and HSe combinations made without portland limestone cement.

‡‡ If the increase in expansion between 12 and 18 months exceeds 0.03%, the sulphate expansion at 24 months shall not exceed 0.10% in order for the cement to be deemed to have passed the sulphate resistance requirement.

§§For demonstrating equivalent performance, use the testing frequency in Table 1 of CSA A3004-A1 and see the applicable notes to Table A3 in A3001 with regard to re-establishing compliance if the composition of the cementing materials used to establish compliance changes.

***Where MSLb or HSLb cements are proposed for use, or where MSe or HSe combinations include Portland-limestone cement, they must also contain a minimum of 25% Type F fly ash or 40% slag or 15% metakaolin (meeting Type N pozzolan requirements) or a combination of 5% Type SF silica fume with 25% slag or a combination of 5% Type SF silica fume with 20% Type F fly ash. For some proposed MSLb, HSLb, and MSe or HSe combinations that include Portland-limestone cement, higher SCM replacement levels may be required to meet the A3004-C8 Procedure B expansion limits. Due to the 18-month test period, SCM replacements higher than the identified minimum levels should also be tested. In addition, sulphate resistance testing shall be run on MSLb and HSLb cement and MSe or HSe combinations that include Portland-limestone cement at both 23 °C and 5 °C as specified in the table.

†††If the expansion is greater than 0.05% at 6 months but less than 0.10% at 1 year, the cementing materials combination under test shall be considered to have passed.

7. SOIL CORROSIVITY

The following table, from the Handbook of Corrosion Engineering (Roberge, 1999) indicates the corrosivity rating can be obtained from the soil resistivity, presented on the logs.

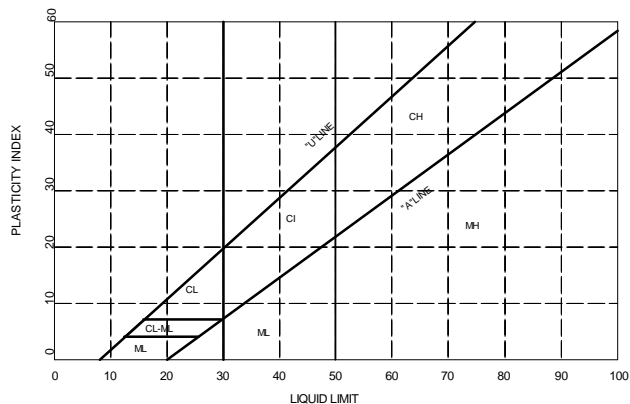
Table 4 Corrosivity Ratings Based on Soil Resistivity

Soil Resistivity (ohm-cm)	Corrosivity Rating
>20,000	Essentially non-corrosive
10,000 – 20,000	Mildly corrosive
5,000 – 10,000	Moderately corrosive
3,000 – 5,000	Corrosive
1,000 – 3,000	Highly corrosive
<1,000	Extremely corrosive

8. GROUNDWATER TABLE

The groundwater table is indicated by the equilibrium level of water in a standpipe installed in a testhole or test pit. This level is generally taken at least 24 hours after installation of the standpipe. The groundwater level is subject to seasonal variations and is usually highest in the spring. The symbol on the logs indicating the groundwater level is an inverted solid triangle (▼).

MAJOR DIVISION		LOG SYMBOLS	UCS	TYPICAL DESCRIPTION	LABORATORY CLASSIFICATION CRITERIA
COARSE GRAINED SOILS	GRAVELS (MORE THAN HALF COARSE GRAINS LARGER THAN 4.75 mm)	CLEAN GRAVELS (LITTLE OR NO FINES)	GW	WELL GRADED GRAVELS, LITTLE OR NO FINES	$C_u - \frac{D_{60}}{D_{10}} > 4$ $C_c - \frac{(D_{30})^2}{D_{10} \times D_{60}} = 1$ to 3
		GRAVELS WITH FINES	GP	POORLY GRADED GRAVELS AND GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	NOT MEETING ABOVE REQUIREMENTS
			GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES	CONTENT OF FINES EXCEEDS 12%
		GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES	ATTERBERG LIMITS BELOW 'A' LINE W_p LESS THAN 4 ATTERBERG LIMITS ABOVE 'A' LINE W_p MORE THAN 7	
	SANDS (MORE THAN HALF COARSE GRAINS SMALLER THAN 4.75 mm)	CLEAN SANDS (LITTLE R NO FINES)	SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	$C_u - \frac{D_{60}}{D_{10}} > 6$ $C_c - \frac{(D_{30})^2}{D_{10} \times D_{60}} = 1$ to 3
			SP	POORLY GRADED SANDS, LITTLE OR NO FINES	NOT MEETING ABOVE REQUIREMENTS
		SANDS WITH FINES	SM	SILTY SANDS, SAND-SILT MIXTURES	CONTENT OF FINES EXCEEDS 12%
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES	
FINE GRAINED SOILS	SILTS (BELOW 'A' LINE NEGLIGIBLE ORGANIC CONTENT)	$W_L < 50$	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY SANDS OF SLIGHT PLASTICITY	CLASSIFICATION IS BASED UPON PLASTICITY CHART (SEE BELOW) WHENEVER THE NATURE OF THE FINE CONTENT HAS NOT BEEN DETERMINED, IT IS DESIGNATED BY THE LETTER 'F'. E.G. SF IS A MIXTURE OF SAND WITH SILT OR CLAY
		$W_L > 50$	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS	
	CLAYS (ABOVE 'A' LINE NEGLIGIBLE ORGANIC CONTENT)	$W_L < 30$	CL	INORGANIC CLAYS OF LOW PLASTICITY, GRAVELLY, SANDY, OR SILTY CLAYS, LEAN CLAYS	
		$30 < W_L < 50$	CI	INORGANIC CLAYS OF MEDIUM PLASTICITY, SILTY CLAYS	
		$W_L > 50$	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
	ORGANIC SILTS & CLAYS (BELOW 'A' LINE)	$W_L < 50$	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
		$W_L > 50$	OH	ORGANIC CLAYS OF HIGH PLASTICITY	
	HIGHLY ORGANIC SOILS			Pt	
BEDROCK			BR	SEE REPORT DESCRIPTION	
FILL			FILL	SEE REPORT DESCRIPTION	



NOTE:
1. BOUNDARY CLASSIFICATION POSSESSING CHARACTERISTICS OF TWO GROUPS ARE GIVEN GROUP SYMBOLS, E.G. GW-GC IS A WELL GRADED GRAVEL MIXTURE WITH CLAY BINDER BETWEEN 5% AND 12%

SOIL COMPONENTS					
FRACTION		SIEVE SIZE (mm)		DEFINING RANGES OF PERCENTAGE BY WEIGHT OF MINOR COMPONENTS	
		PASSING	RETAINED	PERCENT	IDENTIFIER
GRAVEL	COARSE	75	19	50 - 35	AND
	FINE	19	4.75		
SAND	COARSE	4.75	2.00	35 - 20	Y
	MEDIUM	2.00	0.425		
	FINE	0.425	0.080		
SILT (non-plastic) or CLAY (plastic)		0.080		20 - 10	SOME
				10 - 1	TRACE
OVERSIZE MATERIALS					
ROUNDED OR SUB-ROUNDED COBBLES 75 mm TO 200 mm BOULDERS >200 mm			ANGULAR ROCK FRAGMENTS ROCKS > 0.75 m3 IN VOLUME		

MODIFIED UNIFIED SOIL CLASSIFICATION SYSTEM
August 2015

Not used to classify subgrade. Refer to City of Winnipeg Specifications for Geotechnical Investigation Requirements for Public Works Projects (September 2015)

F2. SEWER TELEVISION GUIDELINES FOR PUBLIC WORKS PROJECTS (JANUARY 2009)

- F2.1 The Consultant is required to assess the extent of Closed Circuit Television (CCTV) inspection for all combined, wastewater, land drainage and storm relief sewers to confirm any sewer repairs required in the right-of-way within the limits of the street renewal.
- F2.2 The criteria provided are general guidelines and are not intended to replace sound municipal engineering judgement specific to the individual Project scope and/or location.
- F2.3 The available sewer televising information is contained within the City of Winnipeg's Sewer Management System (SMS) application.
- F2.4 Confirm televising requirements with Project Manager.
- F2.5 CCTV inspection general guidelines:
- (a) Confirm CCTV requirements with Water & Waste Department for sewers 1050 mm and larger in diameter;
 - (b) Televising if no previous CCTV inspections have been completed;
 - (c) Re-televising sewers in Categories A/B/C/X with a Structural Performance Grade (SPG) of 3 or higher that have not been televised in the previous 5 years;
 - (d) Sewers located more than two metres from the curb line (i.e. not located under pavement) do not need to be re-televised if previous CCTV inspection data exist. If a sewer repair or renewal requiring excavation is noted, contact the WWD;
 - (e) On all street reconstructions, regardless of location of the sewer (within the right-of-way);
 - (f) If the street exhibits obvious distress at/along the underground plant;
 - (g) Of all CB leads to be reused, as part of a street reconstruction or major rehabilitation.
- F2.6 For any uncertain situations and/or locations, contact the Project Manager.
- F2.7 The Consultant is required to coordinate the sewer-televising contract and communicate the results to the Water & Waste Department. Any repairs or other activities deemed necessary from these inspections must be coordinated with the Water & Waste Department.

F3. GEOTECHNICAL INVESTIGATION REQUIREMENTS FOR PUBLIC WORKS PROJECTS (OCTOBER 2008)

- F3.1 Fieldwork
- (a) Clear all underground services at each test-hole location.
 - (b) As this street project is greater than 500 metres, test holes may be taken every 100 m. More or fewer test-holes may be required depending upon Site conditions – confirm with the Project Manager.
 - (c) Record location of test-hole (offset from curb, distance from cross street and house number).
 - (d) Drill 150 mm-diameter cores in pavement.
 - (e) Drill 125 mm-diameter test-holes into fill materials and subgrade.
 - (f) If a service trench backfilled with granular materials is encountered, another hole shall be drilled to define the existing sub-surface conditions.
 - (g) Test-holes shall be drilled to depth of 2 m \pm 150 mm below surface of the pavement.
 - (h) Recover pavement core sample and representative samples of soil (fill materials, pavement structure materials and subgrade).
 - (i) Measure and record pavement section exposed in the test-hole (thickness of concrete or asphalt and different types of pavement structure materials).

- (j) Pavement structure materials to be identified as crushed limestone or granular fill and the maximum aggregate size of the material (20 mm, 50 mm or 150 mm).
- (k) Log soil profile for the subgrade.
- (l) Representative samples of soil must be obtained at the following depths below the bottom of the pavement structure materials – 0.1 m, 0.4 m, 0.7 m, 1.0 m, 1.3 m, 1.6 m, etc. Ensure a sample is obtained from each soil type encountered in the test-hole.
- (m) Make note of any water seepage into the test-hole.
- (n) Backfill test-hole with native materials and additional granular fill, if required. Patch pavement surface with hot mix asphalt or high strength durable concrete mix.
- (o) Return core sample from the pavement and soil samples to the laboratory.

F3.2 Lab Work

- (a) Test all soil samples for moisture content.
- (b) Photograph core samples recovered from the pavement surface.
- (c) Conduct tests for plasticity index and hydrometer analysis on selected soil samples which are between 0.5 m and 1 m below top of pavement (this is the sub-grade on which the pavement and sub-base will be built). The selection will be based upon visual classification and moisture content test results, with a minimum of one sample of each soil type per street to be tested.
- (d) Prepare test-hole logs and classify subgrade (based on hydrometer) as follows:
 - < 30% silt - classify as clay
 - 30% - 50% silt - classify as silty clay
 - 50% - 70% silt - classify as clayey silt
 - > 70% silt - classify as silt
- (e) For any uncertain situations and/or locations, or clarification of these requirements, contact the Project Manager.

PROJECT: Local Streets Package - 20-R-02	CLIENT: City of Winnipeg	TESTHOLE NO: TH20-01
LOCATION: Wolever Ave., 2.0 m S of N curb, 15 m W of Minto St.		PROJECT NO.: 60623030
CONTRACTOR: Maple Leaf Drilling Ltd.	METHOD: Mobile B-40LX Truck Rig, 125 mm SSA	ELEVATION (m): N/A
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	PENETRATION TESTS		UNDRAINED SHEAR STRENGTH	COMMENTS	DEPTH
						* Becker * ◇ Dynamic Cone ◇ ◆ SPT (Standard Pen Test) ◆ (Blows/300mm) ■ Total Unit Wt (kN/m ³)	+ Torvane + × QU/2 × □ Lab Vane □ △ Pocket Pen. △ ● Field Vane ● (kPa)			
0		ASPHALT - 50 mm CONCRETE - 150 mm								
		CLAY (Fill) - silty, trace to some sand, trace gravel - dark grey, frozen		G1						
		SAND (Fill) - silty, some gravel, trace clay - light brown, dry to moist		G2						
				G3					(G3): Gravel 20.3%, Sand 47.6%, Silt 26.6%, Clay 5.5%	
1		SILT - some clay, trace sand - light brown, soft to firm, moist - low plasticity		G4						
				G5					(G5): Gravel 0.0%, Sand 7.7%, Silt 79.7%, Clay 12.6%	
		CLAY - silty, trace sand, trace gravel - brown, firm, moist - high plasticity		G6						
		END OF TEST HOLE AT 2.44 m IN CLAY Notes: 1. No seepage observed during drilling. 2. No sloughing observed during drilling. 3. Test hole backfilled with drill cuttings and bentonite and patched with asphalt upon completion.								

LOG OF TEST HOLE TEST HOLE LOGS - LOCAL STREETS.GPJ UMA WINN.GDT 2/26/20



LOGGED BY: Enrico Manimbao	COMPLETION DEPTH: 2.44 m
REVIEWED BY: Ryan Harras	COMPLETION DATE: 1/29/20
PROJECT ENGINEER: Ryan Cunningham	Page 1 of 1

PROJECT: Local Streets Package - 20-R-02	CLIENT: City of Winnipeg	TESTHOLE NO: TH20-02
LOCATION: Wolever Ave., 2.0 m N of S curb, 15 m E of Goulding St.		PROJECT NO.: 60623030
CONTRACTOR: Maple Leaf Drilling Ltd.	METHOD: Mobile B-40LX Truck Rig, 125 mm SSA	ELEVATION (m): N/A
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	PENETRATION TESTS	UNDRAINED SHEAR STRENGTH	COMMENTS	DEPTH
0		ASPHALT - 50 mm CONCRETE - 150 mm							
		CLAY - silty, some sand, trace gravel - brown, frozen to 0.6 m - high plasticity		G7		●		(G7): Gravel 1.5%, Sand 20.8%, Silt 33.1%, Clay 44.6%	
		- firm, moist below 0.6 m		G8		●			
				G9		●			
				G10		●		(Bulk) Soaked CBR: 5.5, SPMDD: 1538 kg/m3, OMC: 23.9%	
				G11		●			
		SILT - clayey, some sand - light brown, firm, moist - intermediate plasticity		G11		●			
		CLAY - silty, trace sand - brown, firm, moist - high plasticity		G12		●			
		END OF TEST HOLE AT 2.44 m IN CLAY Notes: 1. No seepage observed during drilling. 2. No sloughing observed during drilling. 3. Test hole backfilled with drill cuttings and bentonite and patched with asphalt upon completion.							

LOG OF TEST HOLE TEST HOLE LOGS - LOCAL STREETS.GPJ UMA WINN.GDT 2/26/20



LOGGED BY: Enrico Manimbao	COMPLETION DEPTH: 2.44 m
REVIEWED BY: Ryan Harras	COMPLETION DATE: 1/29/20
PROJECT ENGINEER: Ryan Cunningham	Page 1 of 1

PROJECT: Local Streets Package - 20-R-02	CLIENT: City of Winnipeg	TESTHOLE NO: TH20-03
LOCATION: Wolever Ave., 2.0 m S of N curb, 10 m W of Goulding St.		PROJECT NO.: 60623030
CONTRACTOR: Maple Leaf Drilling Ltd.	METHOD: Mobile B-40LX Truck Rig, 125 mm SSA	ELEVATION (m): N/A
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	PENETRATION TESTS		UNDRAINED SHEAR STRENGTH	COMMENTS	DEPTH
						* Becker * ◇ Dynamic Cone ◇ ◆ SPT (Standard Pen Test) ◆ (Blows/300mm) Total Unit Wt (kN/m³)	+ Torvane + X QU/2 X □ Lab Vane □ △ Pocket Pen. △ ● Field Vane ● (kPa)			
0		ASPHALT - 25 mm CONCRETE - 125 mm								
		SAND and GRAVEL (Fill) - 50 mm SAND (Fill) - silty, some clay, trace gravel - dark grey, frozen to 0.6 m								
		- firm, moist, intermediate to high plasticity below 0.6 m		G13						
				G14						
				G15						
				G16						
				G17						
		CLAY - silty, trace sand - brown, firm, moist - high plasticity								
				G18						
		END OF TEST HOLE AT 2.44 m IN CLAY Notes: 1. No seepage observed during drilling. 2. No sloughing observed during drilling. 3. Test hole backfilled with drill cuttings and bentonite and patched with asphalt upon completion.								

LOG OF TEST HOLE TEST HOLE LOGS - LOCAL STREETS.GPJ UMA WINN.GDT 2/26/20



LOGGED BY: Enrico Manimbao	COMPLETION DEPTH: 2.44 m
REVIEWED BY: Ryan Harras	COMPLETION DATE: 1/29/20
PROJECT ENGINEER: Ryan Cunningham	Page 1 of 1

PROJECT: Local Streets Package - 20-R-02	CLIENT: City of Winnipeg	TESTHOLE NO: TH20-04
LOCATION: Wolever Ave., 2.0 m S of N curb, 20 m E of Wall St.		PROJECT NO.: 60623030
CONTRACTOR: Maple Leaf Drilling Ltd.	METHOD: Mobile B-40LX Truck Rig, 125 mm SSA	ELEVATION (m): N/A
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input type="checkbox"/> BULK <input type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE	

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	PENETRATION TESTS		UNDRAINED SHEAR STRENGTH	COMMENTS	DEPTH
						* Becker * ◇ Dynamic Cone ◇ ◆ SPT (Standard Pen Test) ◆ (Blows/300mm) ■ Total Unit Wt (kN/m³)	+ Torvane + × QU/2 × □ Lab Vane □ △ Pocket Pen. △ ● Field Vane ● (kPa)			
0		ASPHALT - 25 mm CONCRETE - 125 mm								
		SAND (Fill) - silty, some clay, trace gravel - dark grey, frozen to 0.6 m - intermediate plasticity		G19	~45					
		- moist below 0.6 m		G20	~45					
				G21	~45				(G21): Gravel 3.2%, Sand 46.9%, Silt 31.9%, Clay 18.0%	1
				G22	~45					
		CLAY - silty, trace sand - brown, firm, moist - high plasticity		G23	~45					
				G24	~45					2
		END OF TEST HOLE AT 2.44 m IN CLAY Notes: 1. No seepage observed during drilling. 2. No sloughing observed during drilling. 3. Test hole backfilled with drill cuttings and bentonite and patched with asphalt upon completion.								3

LOG OF TEST HOLE TEST HOLE LOGS - LOCAL STREETS.GPJ UMA WINN.GDT 2/26/20



LOGGED BY: Enrico Manimbao	COMPLETION DEPTH: 2.44 m
REVIEWED BY: Ryan Harras	COMPLETION DATE: 1/29/20
PROJECT ENGINEER: Ryan Cunningham	Page 1 of 1

Geotechnical Investigation

Table 01- Summary of Laboratory Soil Test Results

Test Hole No.	Test Hole Location	Pavement Structure		Subgrade Description *	Sample Depth (m)	Moisture Content (%)	Hydrometer Analysis				Atterberg Limits		
		Type	Thickness (mm)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Index
CH20-01	Minto Street - 2.0 m E of W curb, 25 m S of Armoury Ave.	Asphalt	45										
		Concrete	185										
CH20-02	Minto Street - 2.0 m W of E curb, 50 m N of St. Matthews Ave.	Asphalt	45										
		Concrete	160										
CH20-03	Sharp Boulevard - 2.0 m E of W curb, 80 m S of Ness Ave.	Asphalt	55										
		Concrete	150										
CH20-04	Sharp Boulevard - 2.0 m W of E curb, 125 m S of Ness Ave.	Asphalt	100										
		Concrete	105										
CH20-05	Sharp Boulevard - 2.0 m E of W curb, 135 m N of Bruce Ave.	Asphalt	45										
		Concrete	160										

* Note – Subgrade Description based on City of Winnipeg Specifications for Geotechnical Investigation Requirements for Public Works Projects (September 2015) ; NR = No Recovery

Test Hole No.	Test Hole Location	Pavement Structure		Subgrade Description *	Sample Depth (m)	Moisture Content (%)	Hydrometer Analysis				Atterberg Limits		
		Type	Thickness (mm)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Index
CH20-06	Sharp Boulevard - 2.0 m W of E curb, 95 m N of Bruce Ave.	Asphalt	90										
		Concrete	170										
CH20-07	Sharp Boulevard - 2.0 m E of W curb, 30 m N of Bruce Ave.	Asphalt	50										
		Concrete	180										
CH20-08	Stewart Street - 2.0 m W of E curb, 40 m N of Allard Ave.	Asphalt	0										
		Concrete	175										
CH20-09	Stewart Street - 1.5 m E of W curb, 90 m N of Allard Ave.	Asphalt	0										
		Concrete	150										
CH20-10 (NR)	Stewart Street - 1.5 m W of E curb, 100 m S of Portage Ave.	Asphalt	0										
		Concrete	150										
CH20-11	Stewart Street - 1.5 m E of W curb, 50 m S of Portage Ave.	Asphalt	0										
		Concrete	190										

* Note – Subgrade Description based on City of Winnipeg Specifications for Geotechnical Investigation Requirements for Public Works Projects (September 2015); NR = No Recovery

Test Hole No.	Test Hole Location	Pavement Structure		Subgrade Description *	Sample Depth (m)	Moisture Content (%)	Hydrometer Analysis				Atterberg Limits		
		Type	Thickness (mm)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Index
CH20-12	Colchester Bay - 1.5 m N of S curb, 45 m E of Holland Blvd. (N intersection)	Asphalt	0										
		Concrete	240										
CH20-13	Colchester Bay - 1.5 m S of N curb, 110 m E of Holland Blvd. (N Intersection)	Asphalt	0										
		Concrete	165										
CH20-14	Colchester Bay - 2.0 m N of S curb, 160 m E of Holland Blvd. (N Intersection)	Asphalt	0										
		Concrete	145										
CH20-15	Colchester Bay - 2.0 m W of E curb, 215 m SE of Holland Blvd. (N Intersection) measured along Colchester centerline	Asphalt	0										
		Concrete	140										
CH20-16 (NR)	Colchester Bay - 2.0 m E of W curb, 275 m SE of Holland Blvd. (N Intersection) measured along Colchester centerline	Asphalt	-										
		Concrete	-										
CH20-17	Colchester Bay - 1.5 m W of E curb, 335 m SE of Holland Blvd. (N Intersection) measured along Colchester centerline	Asphalt	0										
		Concrete	150										

* Note – Subgrade Description based on City of Winnipeg Specifications for Geotechnical Investigation Requirements for Public Works Projects (September 2015) ; NR = No Recovery

Test Hole No.	Test Hole Location	Pavement Structure		Subgrade Description *	Sample Depth (m)	Moisture Content (%)	Hydrometer Analysis				Atterberg Limits		
		Type	Thickness (mm)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Index
CH20-18	Colchester Bay - 2.0 m S of N curb, 185 m E of Holland Blvd. (S intersection)	Asphalt	0										
		Concrete	180										
CH20-19	Colchester Bay - 2.0 m N of S curb, 135 m E of Holland Blvd. (S intersection)	Asphalt	0										
		Concrete	170										
CH20-20	Colchester Bay - 2.0 m S of N curb, 55 m E of Holland Blvd. (S intersection)	Asphalt	0										
		Concrete	170										
CH20-21	Stockton Place - 1.5 m E of W curb, 30 m S of Colchester Bay	Asphalt	0										
		Concrete	160										
CH20-22	Stockton Place - 1.5 m E of W curb, 60 m S of Colchester Bay	Asphalt	0										
		Concrete	170										
CH20-23	Stockton Place - 2.0 m W of E curb, 60 m S of Colchester Bay	Asphalt	0										
		Concrete	160										

* Note – Subgrade Description based on City of Winnipeg Specifications for Geotechnical Investigation Requirements for Public Works Projects (September 2015) ; NR = No Recovery

Test Hole No.	Test Hole Location	Pavement Structure		Subgrade Description *	Sample Depth (m)	Moisture Content (%)	Hydrometer Analysis				Atterberg Limits		
		Type	Thickness (mm)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Index
CH20-24	Booth Drive - 4.0 m W of E curb, 100 m N of Portage Ave.	Asphalt	45										
		Concrete	215										
CH20-25	Booth Drive - 2.0 m W of E curb, 40 m N of Lodge Ave.	Asphalt	45										
		Concrete	215										
CH20-26	Booth Drive - 2.0 m W of E curb, 40 m N of Athlone Dr.	Asphalt	50										
		Concrete	205										
CH20-27	Booth Drive - 2.0 m W of E curb, 40 m S of Bruce Ave.	Asphalt	50										
		Concrete	210										
CH20-28	Booth Drive - 2.0 m E of W curb, 100 m S of Bruce Ave.	Asphalt	55										
		Concrete	210										
CH20-29	Booth Drive - 2.5 m E of W curb, 10 m S of Athlone Dr.	Asphalt	65										
		Concrete	200										

* Note – Subgrade Description based on City of Winnipeg Specifications for Geotechnical Investigation Requirements for Public Works Projects (September 2015) ; NR = No Recovery

Test Hole No.	Test Hole Location	Pavement Structure		Subgrade Description *	Sample Depth (m)	Moisture Content (%)	Hydrometer Analysis				Atterberg Limits		
		Type	Thickness (mm)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Index
CH20-30	Booth Drive - 2.0 m E of W curb, 40 m N of Portage Ave.	Asphalt	45										
		Concrete	190										
CH20-31 (NR)	Aikins Street - 1.0 m E of W curb, 25 m SW of Enniskillen Ave.	Asphalt	-										
		Concrete	-										
CH20-32	Aikins Street - 1.0 m W of E curb, 100 m SW of Enniskillen Ave.	Asphalt	25										
		Concrete	140										
CH20-33	Aikins Street - 1.0 m E of W curb, 175 m SW of Enniskillen Ave.	Asphalt	0										
		Concrete	150										
CH20-34	Aikins Street - 1.0 m W of E curb, 75 m NE of McAdam Ave.	Asphalt	0										
		Concrete	160										
CH20-35	Aikins Street - 1.0 m E of W curb, 15 m NE of McAdam Ave.	Asphalt	0										
		Concrete	160										

* Note – Subgrade Description based on City of Winnipeg Specifications for Geotechnical Investigation Requirements for Public Works Projects (September 2015) ; NR = No Recovery

Test Hole No.	Test Hole Location	Pavement Structure		Subgrade Description *	Sample Depth (m)	Moisture Content (%)	Hydrometer Analysis				Atterberg Limits			
		Type	Thickness (mm)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Index	
CH20-54	Tanner Street - 1.5 m S of N curb, 20 m SW of Margaret Ave.	Asphalt	0											
		Concrete	160											
CH20-55	Tanner Street - 1.5 m N of S curb, 65 m SW of Margaret Ave.	Asphalt	0											
		Concrete	130											
CH20-56 (NR)	Tanner Street - 1.5 m S of N curb, 120 m SW of Margaret Ave.	Asphalt	0											
		Concrete	140											
CH20-57	Tanner Street - 1.5 m N of S curb, 160 m SW of Margaret Ave.	Asphalt	0											
		Concrete	160											
TH20-01	Wolever Avenue - 2.0 m S of N curb, 15 m W of Minto St.	Asphalt	50	CLAY (FILL)	0.3	29.2								
				SAND (FILL)	0.6	15.8								
				SAND (FILL)	0.9	16.4	20.3	47.6	26.6	5.5				
		Concrete	150	SILT	1.2	22.9								
				SILT	1.5	20.9	0.0	7.7	79.7	12.6	33	18	15	
CLAY	2.1	48.4												
TH20-02	Wolever Avenue - 2.0 m N of S curb, 15 m E of Goulding St.	Asphalt	50	SILTY CLAY	0.3	26.0	1.5	20.8	33.1	44.6	57	17	40	
				SILTY CLAY	0.6	32.3								
				SILTY CLAY	0.9	34.1								
		Concrete	150	SILTY CLAY	1.2	33.5								
				CLAYEY SILT	1.5	24.1								
				SILTY CLAY	2.1	46.1								

* Note – Subgrade Description based on City of Winnipeg Specifications for Geotechnical Investigation Requirements for Public Works Projects (September 2015) ; NR = No Recovery

Test Hole No.	Test Hole Location	Pavement Structure		Subgrade Description *	Sample Depth (m)	Moisture Content (%)	Hydrometer Analysis				Atterberg Limits			
		Type	Thickness (mm)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Index	
TH20-03	Wolever Avenue - 2.0 m S of N curb, 10 m W of Goulding St.	Asphalt	25	SAND (FILL)	0.3	16.6								
				SAND (FILL)	0.6	15.3								
				SAND (FILL)	0.9	18.1								
		Concrete	125	SAND (FILL)	1.2	19.5								
				SAND (FILL)	1.5	16.4								
				SILTY CLAY	2.1	26.7								
TH20-04	Wolever Avenue - 2.0 m S of N curb, 20 m E of Wall St.	Asphalt	25	SAND (FILL)	0.3	19.7								
				SAND (FILL)	0.6	20.0								
				SAND (FILL)	0.9	18.3	3.2	46.9	31.9	18	43	19	24	
		Concrete	125	SAND (FILL)	1.2	17.8								
				SILTY CLAY	1.5	31.0								
				SILTY CLAY	2.1	25.7								

* Note – Subgrade Description based on City of Winnipeg Specifications for Geotechnical Investigation Requirements for Public Works Projects (September 2015) ; NR = No Recovery

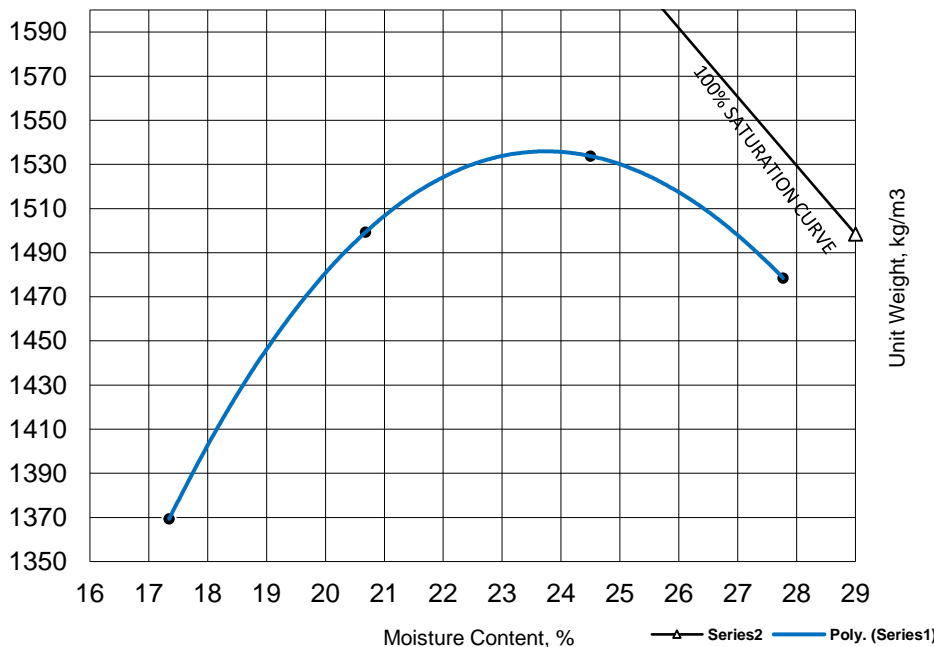
MAXIMUM DRY DENSITY AND MOISTURE CONTENT - Proctor Method (ASTM D698)

CLIENT	AECOM	PROJECT NO.:	112-2002
	99 Commerce Drive	TEST NO.:	1
	Winnipeg MB R3P 0Y7	LAB No.:	HM 19
ATTENTION:	Ryan Harras		
PROJECT:	2020 City Streets (Wolever Avenue)		
	Winnipeg, MB		

Date Sampled	29-Jan-20	Date Received:	31-Jan-20	PROCEDURE	A
Sampled By:	Client	Date Tested	13-Feb-20	PREPARATION	Dry
MATERIAL INFORMATION				COMPACTION METHOD	Manual
Material Type:	Clay			BLOWS PER LAYER	25
Material Use:	N/A	Material Supplier:	in-situ	NO. OF LAYERS	3
Maximum Size:	<5mm	Material Source:	in-situ	MOLD SIZE	100 mm
Sampled ID:	TH2-B1 (2' - 5')			MOLD VOLUME	929
				WEIGHT OF HAMMER	2.5 kg

	Test No.	1	2	3	4	5
Wet Density		1607	1809	1910	1889	0
Moisture Content		17.3	20.7	24.5	27.8	0.0
Dry Density		1369	1499	1534	1479	0

Moisture - Density Relationship



Maximum Dry Density (MDD):
1538 kg/m³

Optimum Moisture Content
23.9 %

STONE CORRECTION (ASTM D 4718)

Retained on 19 mm sieve:
 %

Corrected Moisture:
23.9 %

Corrected Maximum Dry Density:
1538 kg/m³

Remarks:

P. Bevel

Tested by: IA

Reviewed By: Paul Bevel

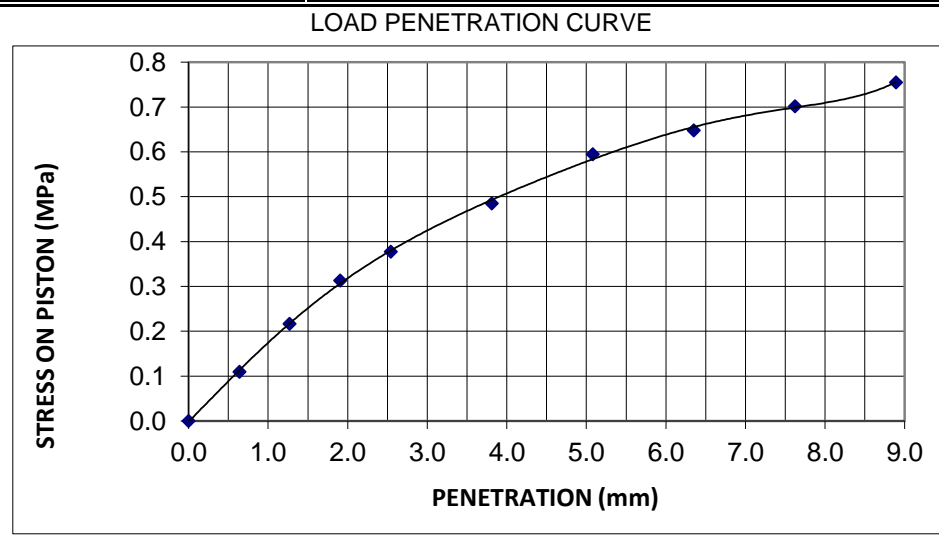
CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: AECOM
 99 Commerce Drive
 Winnipeg MB R3P 0Y7
 Project : 2020 City Streets (Wolever Avenue)
 Location: Winnipeg, MB
 Attention: Ryan Harras

Project No: 112-2002
 Lab No.: HM19
 Date Received : 31-Jan-20
 Date Tested /By: 19-Feb-20 / IA

SAMPLE DATA		SPECIMEN DATA		
Sample Type: Clay		DESCRIPTION	Before Soaking	After Testing
Sample ID: TH2-B1 (2' - 5')		Moisture Content (MC), %	24.0	
Sampled by: Client		MC of top 25mm layer, %		29.1
Optimum Moisture Content: 23.9%		Dry Density, kg/m ³	1540	
Maximum Dry Density: 1538		Compaction,%	-	-
Method of Compaction: Standard Proctor		Surcharge Weight, grams		4546
Tested by: IA	Date Tested: 19-Feb-20	Swell, %		3.972

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.11
1.27	0.22
1.91	0.31
2.54	0.38
3.81	0.48
5.08	0.59
6.35	0.65
7.62	0.70
8.89	0.75



PENETRATION mm	STANDARD LOAD MPa	TEST LOAD		BEARING RATIO (soaked)	
		ACTUAL MPa	CORRECTED MPa	at 2.5 mm penetration	at 5.1 mm penetration
2.54	6.9	0.38	0.38	5.5	-
5.08	10.3	0.59	0.58	-	5.6

Remarks: 4 days soaked, 100 % compaction

Reviewed by: P. Bevel
 Paul Bevel



Photograph 1: Core Hole CH20-01 – Minto Street



Photograph 2: Core Hole CH20-02 – Minto Street



Photograph 3: Core Hole CH20-03 – Sharp Boulevard



Photograph 4: Core Hole CH20-04 – Sharp Boulevard – Concrete not recovered



Photograph 5: Core Hole CH20-05 – Concrete partially recovered



Photograph 6: Core Hole CH20-06 – Sharp Boulevard



Photograph 7: Core Hole CH20-07 – Sharp Boulevard – Concrete partially recovered



Photograph 8: Core Hole CH20-08 – Stewart Street



Photograph 9: Core Hole CH20-09 – Stewart Street



Photograph 10: Core Hole CH20-11 – Stewart Street



Photograph 11: Core Hole CH20-12 – Colchester Bay



Photograph 12: Core Hole CH20-13 – Colchester Bay



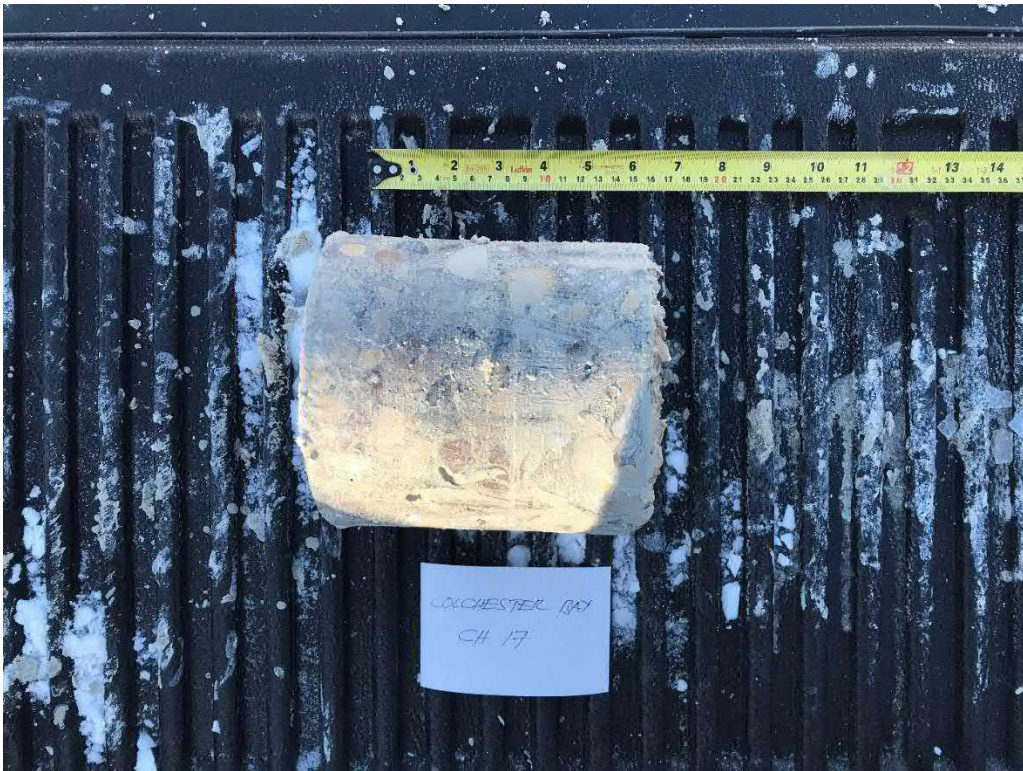
Photograph 13: Core Hole CH20-14 – Colchester Bay



Photograph 14: Core Hole CH20-15 – Colchester Bay



Photograph 15: Core Hole CH20-16 – Colchester Bay – Concrete not recovered, no measurements



Photograph 16: Core Hole CH20-17 – Colchester Bay



Photograph 17: Core Hole CH20-18 – Colchester Bay



Photograph 18: Core Hole CH20-19 – Colchester Bay



Photograph 19: Core Hole CH20-20 – Colchester Bay



Photograph 20: Core Hole CH20-21 – Stockton Place



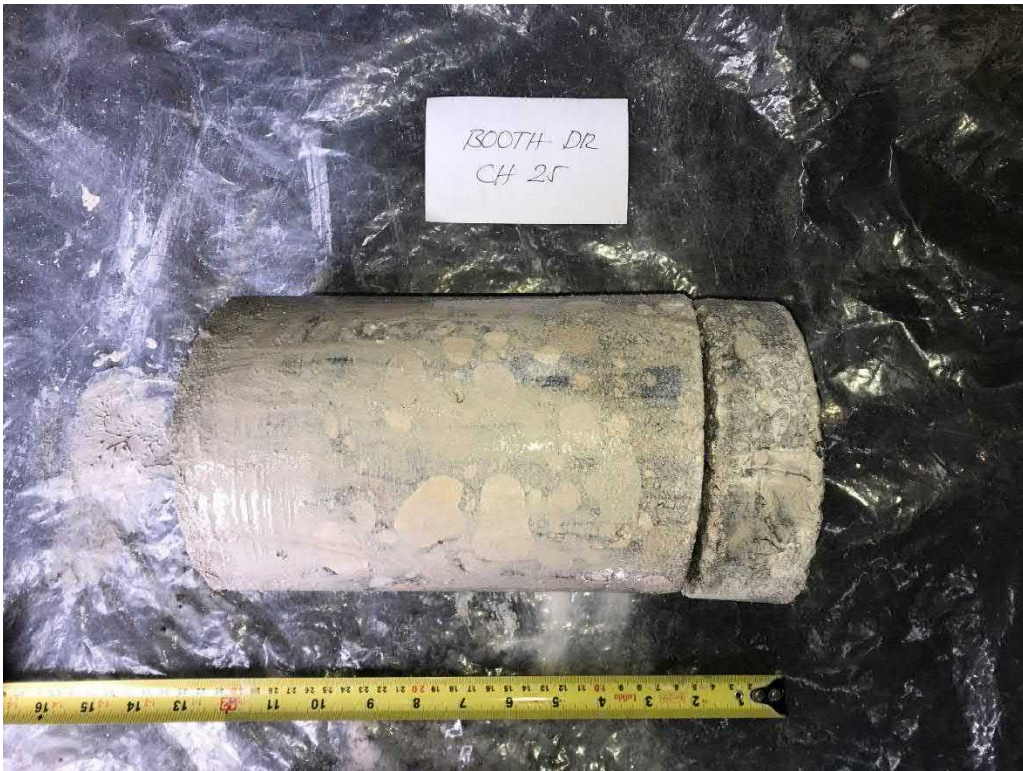
Photograph 21: Core Hole CH20-22 – Stockton Place



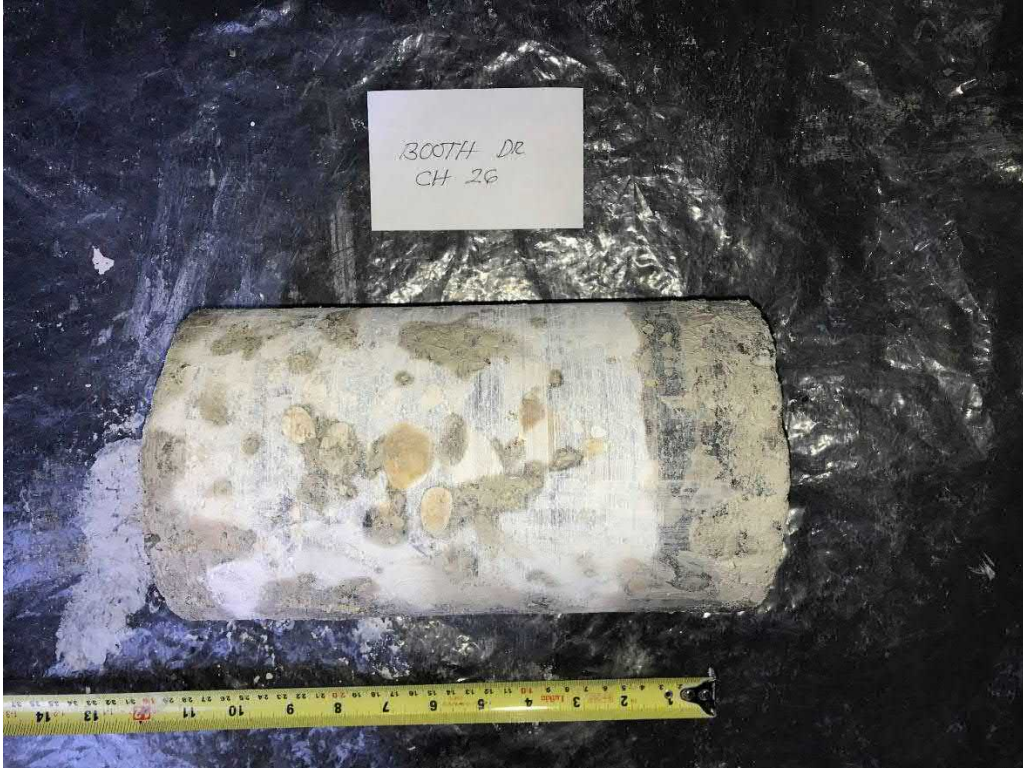
Photograph 22: Core Hole CH20-23 – Stockton Place



Photograph 23: Core Hole CH20-24 – Booth Drive



Photograph 24: Core Hole CH20-25 – Booth Drive



Photograph 25: Core Hole CH20-26 – Booth Drive



Photograph 26: Core Hole CH20-27 – Booth Drive



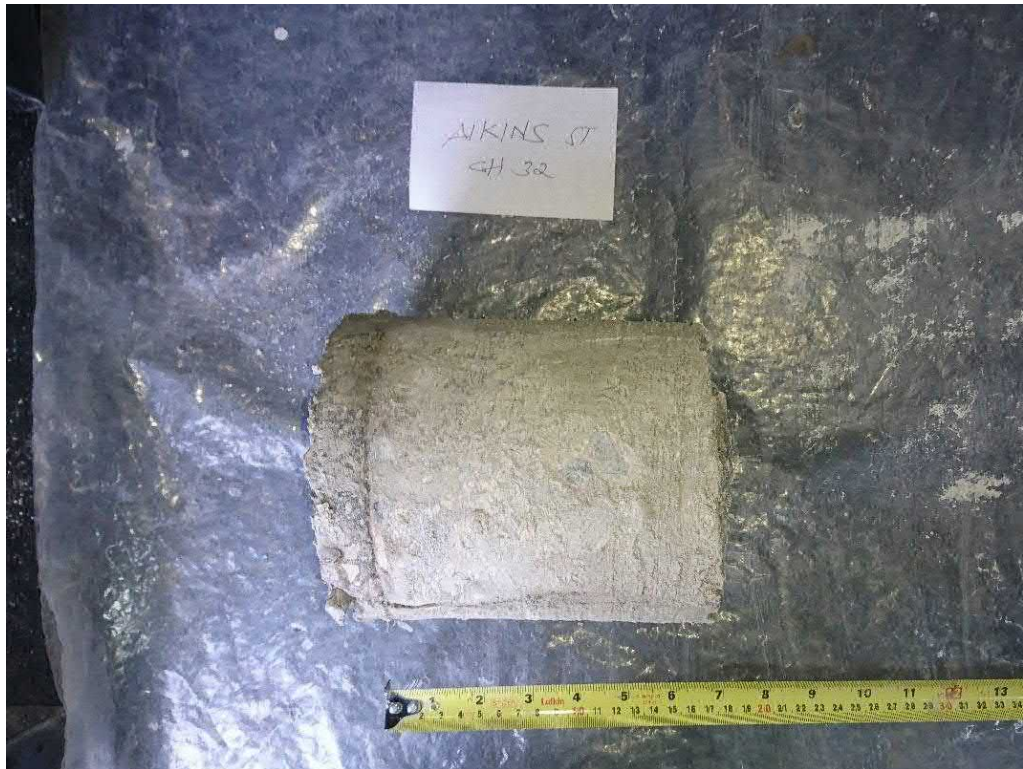
Photograph 27: Core Hole CH20-28 – Booth Drive



Photograph 28: Core Hole CH20-29 – Booth Drive



Photograph 29: Core Hole CH20-30 – Booth Drive



Photograph 30: Core Hole CH20-32 – Aikins Street