



THE CITY OF WINNIPEG

TENDER

TENDER NO. 4-2020

**2020 LOCAL STREET RENEWAL PROGRAM: BURROWS AVENUE AND VARIOUS
OTHER LOCATIONS**

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 2020 Local Street Renewal Program: Burrows Avenue and Various Other Locations

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, March 13, 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;
 - (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

- 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 D28. Any such costs shall be determined in accordance with D28.

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 B17.3 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 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://winnipeg.ca/finance/findata/matmgt/listing/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(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.
- B17.3.1 Bidders are advised that the calculation indicated in B17.3 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 The Work of this Contract is contingent upon Council approval of sufficient funding in the 2020 Capital Budget. If the Capital Budget approved by Council does not include sufficient funding for the Work, the City will have no obligation to award a Contract.
- B18.4 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 D28 shall immediately take effect upon confirmation of such funding, regardless of when funding is confirmed.
- B18.5 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.
- B18.5.1 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) Concrete Pavement Rehabilitation
 - (i) Burrows Avenue – Powers Street to Main Street
 - (ii) Caslon Place – Councillor Bay to Councillor Bay
 - (iii) Councillor Bay – Manila Road to Manila Road
 - (iv) Forest Cove – Garton Avenue to Jonathon Crescent
 - (v) Malden Close – Mannerly Way to Mannerly Way
 - (vi) Marlow Court – Mapleglen Drive to Mapleglen Drive
 - (vii) Morrison Street – Buttercup Avenue to Arrowwood Drive North
 - (viii) Powers Street – Leila Avenue to Partridge Avenue
 - (ix) Selkirk Avenue from Buller Street to Sheppard Street
- (b) Concrete Pavement Reconstruction
 - (i) Salter Street/Weinberg Road Alley – Leila Avenue to Armstrong Avenue to Weinberg Road

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

- (a) Concrete Pavement Rehabilitation
 - (i) Removal of existing asphalt
 - (ii) Renewal of existing sidewalk as required
 - (iii) Installation of detectable warning surface tiles
 - (iv) Removal of existing curb where required
 - (v) Replacing existing catch basins where required
 - (vi) Installing catch pits and drainage connection/sewer service pipes
 - (vii) Partial depth milling and asphalt patching of existing joints
 - (viii) Full depth concrete repairs of existing slabs and joints
 - (ix) Adjustment of existing pavement and boulevard structures
 - (x) Construction of new curb
 - ◆ Mountable curb (Caslon PI & Forest Cove Dr)
 - ◆ Slip form barrier curb (All others)
 - (xi) Boulevard restoration
 - (xii) Installation of pavement repair fabric
 - (xiii) Construction of asphalt overlay
 - ◆ Thickness approximately 40mm (Caslon PI & Forest Cove Dr)
 - ◆ Thickness approximately 80mm (All others)
- (b) Concrete Pavement Reconstruction
 - (i) Removal of existing pavement
 - (ii) Replace existing catch basin
 - (iii) Installation of sub drains

- (iv) Excavation
- (v) Compaction of existing subgrade
- (vi) Adjustment of existing pavement and boulevard structures
- (vii) Placement of geotextile fabric and geogrid
- (viii) Placement of sub-base material
- (ix) Placement of base course material
- (x) Construction of 150mm concrete reinforced pavement using slip form paving equipment
- (xi) Construct curb where required
- (xii) Renewal of sidewalks where required
- (xiii) Boulevard restoration and sod where required

D3. CONTRACT ADMINISTRATOR

D3.1 The Contract Administrator is:

Cory Humbert
Technologist 3

Telephone No. 204 986 3249

Email Address chumbert@winnipeg.ca

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

D4. 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 C22.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid/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 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.

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.

D12.2 The detailed work schedule shall consist of the following:

- (a) a Gantt chart for the Work

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;
 - (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 May 19, 2020, and shall commence the Work on Site no later than May 29, 2020, as directed by the Contract Administrator and weather permitting.
- D13.4 The City intends to award this Contract by April 14, 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(II);
- 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 Geomatics Branch – Various work on survey monuments;
 - (b) Manitoba Hydro;
 - (c) Bell MTS.

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 three (3) 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 Construction activities on Caslon Place from Councillor Bay to Councillor Bay and Councillor Bay from Manila Road to Manila Road shall not occur at the same time. One street must be opened to traffic completely before the other may be commenced.

D18. CRITICAL STAGES

D18.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:

(a) Morrison Street – Buttercup Avenue to Arrowwood Drive North

(i) The Contractor shall not commence the Work on the Site before July 2, 2020 and shall complete all Work on Site as outlined in D2.2 no later than August 28, 2020, as directed by the Contract Administrator

(b) Councillor Bay – Manila Road to Manila Road

(i) The Contractor shall not commence the Work on the Site before July 2, 2020 and shall complete all Work on Site as outlined in D2.2 no later than August 28, 2020 as directed by the Contract Administrator

D18.2 When the Contractor considers the Work associated with D18.1 to be 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 Work associated with D18.1 has been accepted by the Contract Administrator as being completed to the requirements of the Contract is the date on which completion of Critical Stages has been achieved.

D19. SUBSTANTIAL PERFORMANCE

D19.1 The Contractor shall achieve Substantial Performance within eighty five (85) 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 ninety (90) 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) Critical Stage: Morrison Street – Buttercup Avenue to Arrowwood Drive North – Five thousand dollars (\$5,000.00);
 - (b) Critical Stage: Councillor Bay – Manila Road to Manila Road - – Five thousand dollars (\$5,000.00);
 - (c) Substantial Performance – Four thousand dollars (\$4,000.00);
 - (d) 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. SCHEDULED MAINTENANCE

- D22.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:
- (a) Sod Maintenance as specified in CW 3510-R9;
 - (b) Reflective Crack Maintenance as specified in CW 3250-R7;
- D22.2 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

D23. JOB MEETINGS

- D23.1 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 and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator and the Contractor respectively on any matter discussed

at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.

D23.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

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

D24.1 Further to C6.24, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

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

D25.1 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

D26. PAYMENT

D26.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

WARRANTY

D27. WARRANTY

D27.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) year thereafter for pavement rehabilitations, and two (2) years forthereafter 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.

THIRD PARTY AGREEMENTS

D28. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS

D28.1 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.

D28.2 Further to D28.1, in the event that the obligations in D28 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.

D28.3 For the purposes of D28:

- (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.

D28.4 Modified Insurance Requirements

- D28.4.1 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.
- D28.4.2 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.
- D28.4.3 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.
- D28.4.4 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.
- D28.4.5 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.
- D28.5 Indemnification By Contractor
- D28.5.1 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.
- D28.6 Records Retention and Audits
- D28.6.1 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.
- D28.6.2 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 D28.6.1 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.
- D28.7 Other Obligations

- D28.7.1 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.
- D28.7.2 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.
- D28.7.3 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.
- D28.7.4 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. 4-2020

2020 Local Street Renewal Program: Burrows 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. 4-2020

2020 Local Street Renewal Program: Burrows 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: Burrows Avenue and Various Other Locations

<u>Portion of the Work</u>	<u>Name</u>	<u>Address</u>
SURFACE WORKS:		
<u>Supply of Materials:</u>		
Concrete		
Asphalt		
Base Course & Sub-Base		
Topsoil/Sod		
Geotextile Fabrics		
<u>Installation/Placement:</u>		
Geotextile Fabrics		
Sub-base and Base Course		
Concrete		
Asphalt		
Topsoil/Sod		
Joint Sealant		
UNDERGROUND WORKS:		
<u>Supply of Materials:</u>		
Pre-cast concrete Catch Pit/Catch Basin		
Catch Pit/Catch Basin/Manhole Frames, Covers and Boxes		
Drainage Connection Pipes/Sewer Service Pipes		
Watermain Valve/Service Boxes		
Subdrains		
<u>Installation/Placement:</u>		
Pre-cast Concrete Catch Pit/Catch Basin/Risers		
Catch Pit/Catch Basin/Manhole Frames, Covers and Boxes		
Drainage Connection Pipes/Sewer Service Pipes		

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4(d), Specifications included in the Tender shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 Bidders are reminded that requests for approval of substitutes as an approved equal or an approved alternative shall be made in accordance with B6. In every instance where a brand name or design specification is used, the City will also consider approved equals and/or approved alternatives in accordance with B6.
- E1.4 The following are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
	Cover Sheet	A1
SE-20-01	SALTER STREET/WEINBERG ROAD ALLEY 0+94 TO 2+00	A1
SE-20-02	SALTER STREET/WEINBERG ROAD ALLEY 2+00 TO 2+65	A1
SE-20-03	SALTER STREET/WEINBERG ROAD ALLEY 1+00 TO 1+45	A1
SE-20-04	BURROWS AVENUE 1+10 TO 2+20	A1
SE-20-05	BURROWS AVENUE 2+20 TO 3+40	A1
SE-20-06	BURROWS AVENUE 3+40 TO 4+60	A1
SE-20-07	BURROWS AVENUE 4+60 TO 5+80	A1
SE-20-08	BURROWS AVENUE 5+80 TO 7+00	A1
SE-20-09	BURROWS AVENUE 7+00 TO 8+20	A1
SE-20-10	BURROWS AVENUE 8+20 TO 9+09	A1
SE-20-11	CASLON PLACE 1+00 TO 2+00	A1
SE-20-12	CASLON PLACE 2+00 TO 2+99	A1
SE-20-13	COUNCILLOR BAY 1+00 TO 2+00	A1
SE-20-14	COUNCILLOR BAY 2+00 TO 3+00	A1
SE-20-15	COUNCILLOR BAY 3+00 TO 4+05	A1
SE-20-16	COUNCILLOR BAY 4+05 TO 5+00	A1
SE-20-17	COUNCILLOR BAY 5+00 TO 5+75	A1
SE-20-18	FOREST COVE DRIVE 1+00 TO 2+00	A1
SE-20-19	FOREST COVE DRIVE 2+00 TO 2+95	A1
SE-20-20	FOREST COVE DRIVE 2+95 TO 4+00	A1
SE-20-21	FOREST COVE DRIVE 4+00 TO 5+20	A1
SE-20-22	FOREST COVE DRIVE 5+20 TO 6+00	A1
SE-20-23	FOREST COVE DRIVE 6+00 TO 6+74	A1
SE-20-24	MALDEN CLOSE 0+92 TO 1+80	A1
SE-20-25	MALDEN CLOSE 1+80 TO 2+80	A1
SE-20-26	MALDEN CLOSE 2+80 TO 3+80	A1
SE-20-27	MALDEN CLOSE 3+80 TO 4+60	A1
SE-20-28	MARLOW COURT 1+00 TO 2+10	A1
SE-20-29	MARLOW COURT 2+10 TO 3+30	A1

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
SE-20-30	MARLOW COURT 3+30 TO 4+50	A1
SE-20-31	MARLOW COURT 4+50 TO 5+04	A1
SE-20-32	MORRISON STREET 1+00 TO 2+00	A1
SE-20-33	MORRISON STREET 2+00 TO 3+25	A1
SE-20-34	POWERS STREET 1+00 TO 1+91	A1
SE-20-35	SELKIRK AVENUE 1+00 TO 2+20	A1
SE-20-36	SELKIRK AVENUE 2+20 TO 3+80	A1
SE-20-37	SELKIRK AVENUE 3+80 TO 5+20	A1
SE-20-38	SELKIRK AVENUE 5+20 TO 6+80	A1
SE-20-39	SELKIRK AVENUE 6+80 TO 7+25	A1

E2. GEOTECHNICAL REPORT

- E2.1 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'.

E3. PROTECTION OF EXISTING TREES

- E3.1 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.
- E3.2 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.
- E3.3 No separate measurement or payment will be made for the protection of trees.
- E3.4 Except as required in clause E3.1(c) and E3.1(e), Elm trees shall not be pruned at any time between April 1 and July 31.

E4. TRAFFIC CONTROL

E4.1 Further to clauses 3.6, 3.7 and 3.8 of CW 1130:

- (a) Where directed by the Contract Administrator, the Contractor shall construct and maintain temporary asphalt ramps to alleviate vertical pavement obstructions such as manholes and planing drop-offs to the satisfaction of the Contract Administrator. Payment shall be in accordance with CW3410.
- (b) In accordance with the Manual of Temporary Traffic Control on City Streets (MTTC), the Contractor ("Construction Agency" in the manual) shall be responsible for placing, maintaining and removing the appropriate temporary traffic control devices as specified by the MTTC 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.

E4.2 Notwithstanding E4.1, 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.

E4.2.1 An exception to E4.2 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.

E4.2.2 Further to E4.2, 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.

E5. TRAFFIC MANAGEMENT

E5.1 Further to clause 3.7 of CW 1130:

E5.1.1 The Contractor shall schedule construction activities to meet the following:

- (a) Burrows Avenue, Caslon Place, Councillor Bay, Forest Cove Drive, Malden Close, Marlow Court, Morrison Street, Powers Street and Selkirk Avenue
 - (i) At least one lane for local access traffic shall be maintained along this street during construction. At least one intersection on adjacent bays shall be open at a time.
- (b) Salter Street/Weinberg Road Alley will be closed to all traffic. The Contractor shall sign the street "Road Closed – No Exit" in accordance with the Manual of Temporary Traffic Control.

E5.1.2 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.

E5.1.3 Pedestrian and ambulance/emergency vehicle access must be maintained at all times.

E6. REFUSE AND RECYCLING COLLECTION

E6.1 While 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 E6.2 to permit the normal collection vehicles to collect the materials. Immediately following recycling collection the Contractor shall return recycling receptacles to the addresses marked on the receptacles.

E6.2 Collection Schedule:

Burrows Avenue from Powers Street to Main Street.

Collection Day(s): **Thursday**

Collection Time: **7am-7pm**

Common Collection Area: **Back lane**

Caslon Place from Councillor Bay to Councillor Bay

Collection Day(s): **Wednesday**

Collection Time: **7am-7pm**

Common Collection Area **Back lane and street front**

Councillor Bay from Manila Road to Manila Road.

Collection Day(s): **Wednesday**

Collection Time: **7am-7pm**

Common Collection Area: **Back lane and street front**

Forest Cove Drive from Garton Avenue and Jonathon Crescent

Collection Day(s): **Wednesday**

Collection Time: **7am-7pm**

Common Collection Area **Street front**

Malden Close from Mannerly Way to Mannerly Way.

Collection Day(s): **Wednesday**

Collection Time: **7am-7pm**

Common Collection Area: **Street front**

Marlow Court from Mapleglen Drive to Mapleglen Drive

Collection Day(s): **Wednesday**

Collection Time: **7am-7pm**

Common Collection Area **Street front**

Morrison Street from Arrowwood Drive North to Buttercup Avenue.

Collection Day(s): **Thursday**
Collection Time: **7am-7pm**
Common Collection Area: **Street front**

Powers Street from Partridge Avenue to Leila Avenue

Collection Day(s): **Wednesday**
Collection Time: **7am-7pm**
Common Collection Area **Back lane and front of street**

Selkirk Avenue from Buller Street to Sheppard Street.

Collection Day(s): **Wednesday**
Collection Time: **7am-7pm**
Common Collection Area: **Back lane**

Salter Street/Weinberg Road Alley from Leila Avenue to Armstrong Avenue to Weinberg Road

Collection Day(s): **Wednesday**
Collection Time: **7am-7pm**
Common Collection Area **Back lane**

E6.3 No measurement or payment will be made for the work associated with this specification.

E7. WATER OBTAINED FROM THE CITY

E7.1 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.

E8. SURFACE RESTORATIONS

E8.1 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.

E9. INFRASTRUCTURE SIGNS

E9.1 The Contractor shall obtain infrastructure signs from the Traffic Services Sign Shop at 421 Osborne Street. The Contractor shall mount each sign securely to a rigid backing material approved by the Contract Administrator. The Contractor shall fasten each sign to a suitable support and erect and maintain one sign at each street as directed by the Contract Administrator. When the Contract Administrator considers the Work on the street complete, the Contractor shall remove and dispose of the signs and supports. No measurement for payment will be made for performing all operations herein described and all other items incidental to the work described

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. PARTIAL DEPTH PATCHING OF EXISTING JOINTS

DESCRIPTION

E11.1 General

E11.1.1 This specification covers the Partial Depth Patching of existing concrete pavement joints.

E11.2 Referenced Standard Construction Specifications

(a) CW 3230 – Full-Depth Patching of Existing Slabs and Joints

(b) CW 3410 – Asphalt Concrete Pavement Works

MATERIALS

E11.3 Asphalt Materials

E11.3.1 Asphalt material will be Type 1A supplied in accordance with Sections 5 and 6 of CW 3410.

E11.4 Tack Coat

E11.4.1 Tack Coat will be undiluted SS-1 emulsified asphalt.

CONSTRUCTION METHODS

E11.5 Planing of Joints

E11.5.1 Plane existing joints designated by the Contract Administrator to a minimum depth of 50 mm and a maximum of depth 90 mm to remove ravelled or deteriorated concrete. Width of joint to be planed will vary with depth.

E11.5.2 Should the depth of joint deterioration exceed the maximum indicated, as determined by the Contract Administrator, the entire joint shall be renewed and paid for in accordance with CW 3230 as a full depth joint repair. Planing completed shall be paid for in accordance with Section E11.7 of this specification.

E11.5.3 Dispose of material in accordance with Section 3.4 of CW 1130.

E11.6 Placement of Asphalt Material

E11.6.1 Prior to placement of asphalt material, the planed joint shall be swept or blow clean of any loose material.

E11.6.2 Apply Tack Coat uniformly on the entire surface of the planed joint. The application rate shall not exceed 0.23 litres per square metre. The planed joint shall be dry prior to applying the tack coat.

E11.6.3 Place and compact asphalt material in accordance with Section 9.3 of CW 3410 to the satisfaction of the Contract Administrator. The finished elevation of the patch shall be flush with surrounding pavement surface.

E11.6.4 Compact the asphalt material to an average 95% of the 75 blow Marshall Density of the paving mixture with no individual test being less than 90 %.

E11.6.5 Ensure that no traffic is allowed to travel over the patched area until the asphalt has cooled to atmospheric temperature.

MEASUREMENT AND PAYMENT

E11.7 Partial Depth Planing of Existing Joints

E11.7.1 Partial Depth Planing of Existing Joints will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Partial Depth Planing of Existing Joints". The area to be paid for will be the total number of square metres of joints planed in accordance with this specification, accepted and measured by the Contract Administrator.

E11.8 Asphalt Patching of Partial Depth Joints

E11.9 Asphalt Patching of Partial Depth Joints will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Asphalt Patching of Partial Depth Joints". The area to be paid for will be the total number of square metres of joints patched in accordance with this

E12. REMOVAL OF CURB INLETS

DESCRIPTION

E12.1 General

E12.1.1 This specification covers the removal of any curb inlet frames and related connection pipe between curb inlet and existing catch basin or catch pit.

E12.1.2 The removal of curb inlets shall be included with concrete curb removal/renewal and/or pavement removal.

E12.2 Referenced Standard Construction Specifications

(a) CW 3110 – Pavement Removal

(b) CW 3240 – Concrete Curb Renewal

MEASUREMENT AND PAYMENT

E12.3 There will be no payment for this work. All work is to be incidental to CW 3110 - Concrete Curb Renewal and/or CW 3240 - Pavement Removal.

E13. CATCH BASIN LEAD REMOVAL

E13.1 Removal of existing catch basin lead will be incidental to installation of new catch basin lead and will not be paid for as a separate item.

E14. MOBILIZATION AND DEMOBILIZATION PAYMENT

DESCRIPTION

E14.1 This Specification shall cover all operations relating to the mobilization and demobilization of the Contractor to the project location(s).

E14.2 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.

E14.3 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

E14.4 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.

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

- E14.5 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.
- E14.5.1 Further to B9. Prices, B17. Evaluation, C12 and E14.5, 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.
- E14.6 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.
- E14.7 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.
- E14.8 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.

E15. WORK WITHIN THE CANADIAN PACIFIC RAILWAY RIGHT OF WAY

- E15.1 Description
 - E15.1.1 This specification shall cover working with in Canadian Pacific Railway right of way.
- E15.2 General
 - E15.2.1 A Canadian Pacific Railway Flag person must be present while any work is being done within 15.25m of Canadian Pacific Railway tracks.
 - E15.2.2 For any work done within the Canadian Pacific Railway right of way, the Contractor must give two (2) weeks notice to the Contract Administrator. A minimum of two (2) weeks is needed to schedule a Canadian Pacific Railway Flag person.

APPENDIX 'A'

GEOTECHNICAL REPORT



Quality Engineering | Valued Relationships

City of Winnipeg
2020 Local Streets Renewal – Group I

Prepared for:

Cory Humbert, C.E.T.
Technologist III
City of Winnipeg,
Public Works Department
106-1155 Pacific Ave
Winnipeg, MB R3E 3P1

Project Number:

1000 049 04 400

Date:

January 27, 2020
Final Report



Quality Engineering | Valued Relationships

January 27, 2020

Our File No. 1000 049 04 400

Cory Humbert, C.E.T.
City of Winnipeg,
Public Works Department
106-1155 Pacific Ave
Winnipeg, MB R3E 3P1

**RE: Road Investigation Report for
2020 Local Streets Renewal – Group 1**

TREK Geotechnical Inc. is pleased to submit our report for the road investigations for the 2020 Local Streets Renewal – Group 1 project.

Please contact the undersigned if you have any questions. Thank you for the opportunity to serve you on this assignment.

Sincerely,

TREK Geotechnical Inc.
Per:



Nelson John Ferreira, Ph.D., P. Eng.
Geotechnical Engineer, Principal
Tel: 204.975.9433 ext. 103

cc: Angela Fidler-Kliewer C.Tech. (TREK Geotechnical)

Revision History

Revision No.	Author	Issue Date	Description
0	AFK	January 27, 2020	Final Report

Authorization Signatures

Prepared By:



Angela Fidler-Kliewer, C. Tech
Manager of Laboratory and Field Services



Reviewed By:

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



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Figure 02 Pavement Core Location Plan –Councillor Bay and Caslon Place

List of Appendices

Appendix A Summary Table and Photographs of Pavement Core Samples – Morrison Street

Appendix B Summary Table and Photographs of Pavement Core Samples – Councillor Bay

Appendix C Summary Table and Photographs of Pavement Core Samples – Caslon Place

1.0 Introduction

This report summarizes the results of the road investigation completed for the 2020 Local Street Renewal Program project 20-R-01. The streets included Morrison St., Councillor Bay and Caslon Place. The information collected describes the pavement structure of the existing road.

2.0 Road Investigation

The investigation included coring of pavement at 12 locations. The City of Winnipeg selected the investigation locations as shown on Figure 01 and Figure 02 (attached) and the table below summarizes the investigation program per street.

Road Investigation Program

Street	# of Locations	Investigation
Morrison Street – Buttercup Ave to Arrowwood Drive N. (Group 1)	5	Pavement Cores
Councillor Bay – Manila Rd to Manila Rd (Group 1)	5	Pavement Cores
Caslon Place – Councillor Bay to Councillor Bay (Group 1)	2	Pavement Cores

The pavement coring was conducted between January 2, 2020 and January 3, 2020. The pavement structure (asphalt and/or concrete) was cored by Harsimran Singh of TREK Geotechnical Inc. (TREK) using a portable coring press equipped with a hollow 150 mm diameter diamond core drill bit. Core samples were also retrieved and logged at TREK’s material testing laboratory. A summary table and asphalt and concrete pavement core photographs are included in Appendices A to C

The locations noted on the summary tables are based on the core locations relative to the nearest address, and measured distances from the edge of pavement or other permanent features. UTM coordinates measured using a handheld GPS unit are also provided.

3.0 Closure

The information provided in this report is in accordance with current engineering principles and practices (Standard of Practice). The findings of this report were based on information provided (field investigation).

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

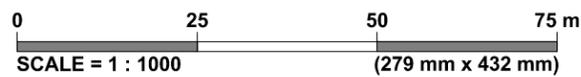
provided with a copy.

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

Figures

ANSI full bleed B (11.00 x 17.00 inches)

Z:\Projects\1000 Soils Lab\Projects\1000-049 City of Winnipeg\1000 049 04 2020 Local Street-St. Vital Park Road\3 Survey and Dwg\3.4 CAD\3.4.3 Working Folder\20.01.23 TH.LOCATIONS - MORRISON.dwg - 1/24/2020 2:07:45 PM



LEGEND:  PAVEMENT CORE (TREK, 2020)

NOTES:

1. AERIAL IMAGE FROM GOOGLE EARTH (2020)
2. COORDINATES FROM HAND HELD GPS UNIT.

Figure 01
PAVEMENT CORE LOCATION PLAN

ANSI full bleed B (11.00 x 17.00 inches)

Z:\Projects\1000 Soils Lab\Projects\1000-049 City of Winnipeg\1000 049 04 2020 Local Street-St. Vital Park Road\3 Survey and Dwg\3.4 CAD\3.4.3 Working Folder\20.01.23 TH.LOCATIONS - COUNCILLOR_CASLON.dwg, 1/24/2020 2:08:41 PM



LEGEND: PAVEMENT CORE (TREK, 2020)

NOTES:
1. AERIAL IMAGE FROM GOOGLE EARTH (2020)
2. COORDINATES FROM HAND HELD GPS UNIT.

Figure 02
PAVEMENT HOLE LOCATION PLAN

Appendix A

Summary Table and Photographs of Pavement Core Samples Morrison Street



**2020 Local Street Renewal Program Group 1 Road Investigation
Morrison Street**

Pavement Core No.	Pavement Core Location	Pavement Surface		Pavement Structure Material	
		Type	Thickness (mm)	Type	Thickness (mm)
PC20-01	Located at 34 Morrison Street, 1 m East of West curb UTM N-5534398 E-632881	Asphalt	25	Concrete	135
PC20-02	Located at 26 Morrison Street, 3.5 m East of West curb UTM N-5534352 E-632862	Asphalt	80	Concrete	150
PC20-03	Located at 16 Morrison Street, 1.5 m West of East curb UTM N-5534309 E-632842	Asphalt	65	Concrete	160
PC20-04	Located at 2 Morrison Street, 1.5 m East of West curb UTM N-5534266 E-632821	Asphalt	125	Concrete	195
PC20-05	Located at 46 Morrison Street, 1.2 m West of East curb UTM N-5534433 E-632905	Asphalt	25	Concrete	160



Photo 1: Pavement Core Sample at Pavement Hole PC20-01



Photo 2: Pavement Core Sample at Pavement Hole PC20-02



Photo 3: Pavement Core Sample at Pavement Hole PC20-03



Photo 4: Pavement Core Sample at Pavement Hole PC20-04



Photo 5: Pavement Core Sample at Pavement Hole 20-05

Appendix B

Summary Table and Photographs of Pavement Core Samples Councillor Bay



**2020 Local Street Renewal Program Group 1 Road Investigation
Councillor Bay**

Pavement Core No.	Pavement Core Location	Pavement Surface		Pavement Structure Material	
		Type	Thickness (mm)	Type	Thickness (mm)
PC20-06	Located at 26 Councillor Bay, 1 m North of South curb UTM N-5535315 E-630945	Asphalt	N/A	Concrete	150
PC20-07	Located at 70 Councillor Bay, 2 m East of West curb UTM N-5535395 E-631001	Asphalt	N/A	Concrete	150
PC20-08	Located at 89 Councillor Bay, 1.2 m West of East curb UTM N-5535465 E-631027	Asphalt	N/A	Concrete	160
PC20-09	Located at 126 Councillor Bay, 2 m North of South curb UTM N-5535522 E-630932	Asphalt	N/A	Concrete	135
PC20-10	Located at 6 Councillor Bay, 1.7 m South of North curb UTM N-5535314 E-630877	Asphalt	N/A	Concrete	160



Photo 1: Pavement Core Sample at Pavement Hole PC20-06



Photo 2: Pavement Core Sample at Pavement Hole PC20-07



Photo 3: Pavement Core Sample at Pavement Hole PC20-08



Photo 4: Pavement Core Sample at Pavement Hole PC20-09



Photo 5: Pavement Core Sample at Pavement Hole PC20-10

Appendix C

**Summary Table and Photographs of Pavement Core Samples
Caslon Place**



**2020 Local Street Renewal Program Group 1 Road Investigation
Caslon Place**

Pavement Core No.	Pavement Core Location	Pavement Surface		Pavement Structure Material	
		Type	Thickness (mm)	Type	Thickness (mm)
PC20-11	Located at 26 Caslon Place, 1.4 m East of West curb UTM N-5535444 E-630932	Asphalt	N/A	Concrete	150
PC20-12	Located at 10 Caslon Place, 1.6 m West of East curb UTM N-5535368 E-630924	Asphalt	N/A	Concrete	140



Photo 1: Pavement Core Sample at Pavement Hole PC20-11



Photo 2: Pavement Core Sample at Pavement Hole PC20-12



Quality Engineering | Valued Relationships

City of Winnipeg
2019 Local Street Renewal Program

Prepared for:

Cory Humbert, C.E.T.
Technologist III
City of Winnipeg,
Public Works Department
106-1155 Pacific Ave
Winnipeg, MB R3E 3P1

Project Number:

0015 029 00

Date:

January 25, 2019
Final Report



Quality Engineering | Valued Relationships

January 25, 2019

Our File No. 0015 029 00

Cory Humbert, C.E.T.
City of Winnipeg,
Public Works Department
106-1155 Pacific Ave
Winnipeg, MB R3E 3P1

**RE: Sub-Surface Investigation Report for
2019 Local Street Renewal Program**

TREK Geotechnical Inc. is pleased to submit our report for the sub-surface investigations for the 2019 Local Street Renewal Program.

Please contact the undersigned if you have any questions. Thank you for the opportunity to serve you on this assignment.

Sincerely,

TREK Geotechnical Inc.
Per:

A handwritten signature in blue ink, appearing to read "Nelson John Ferreira". The signature is fluid and cursive, written over a light blue horizontal line.

Nelson John Ferreira, Ph.D., P. Eng.
Geotechnical Engineer, Principal
Tel: 204.975.9433 ext. 103

cc: Angela Fidler-Kliewer C.Tech. (TREK Geotechnical)

Revision History

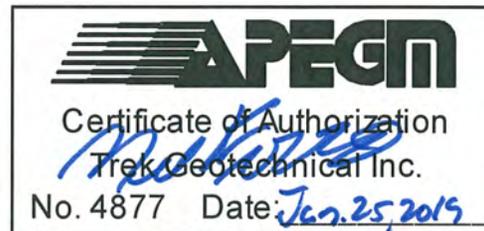
Revision No.	Author	Issue Date	Description
0	AFK	January 25, 2019	Final Report

Authorization Signatures

Prepared By:



Angela Fidler-Kliewer C.Tech.



Reviewed By:

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

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- Appendix F Summary Table & Pavement Core Photographs – Powers Street
- Appendix G Summary Table & Pavement Core Photographs – Burrows Avenue
- Appendix H Summary Table & Pavement Core Photographs – Andrews Street
- Appendix I Summary Table & Pavement Core Photographs – Forest Cove Drive
- Appendix J Summary Table & Pavement Core Photographs – Selkirk Avenue

1.0 Introduction

This report summarizes the results of the sub-surface investigation completed for the 2019 Local Streets Renewal Package project. The streets included; Cork Avenue, Alley West of Salter, Kairistine Lane, Palms Boulevard, Garden Grove Drive, Powers Street, Burrows Avenue, Andrews Street, Forest Cove Drive and Selkirk Avenue. The information collected describes the pavement structure of the existing road as well as the soil stratigraphy beneath the pavement structure.

2.0 Sub-Surface Investigation and Laboratory Program

The investigation included coring of pavement or a combination of coring and drilling test holes. The City of Winnipeg selected the investigation locations as shown on Figure 01 to Figure 11 (attached). The test holes were drilled in order to determine sub-surface conditions for the reconstruction of the road segment. Table 01 below summarizes the investigation program for each street.

Table 01: Road Investigation Program

Local Street or Alley	# of Locations	Investigation
Cork Avenue	6	Test Hole
Alley West of Salter	4	Test Hole
Kairistine Lane	5	Test Hole
Palms Boulevard	5	Test Hole
Garden Grove Drive	2	Test Hole
Powers Street	3	Pavement Core Only
Burrows Avenue (WB)	8	Pavement Core Only
Andrews Street	8	Pavement Core Only
Forest Cove Drive	6	Pavement Core Only
Selkirk Avenue	6	Pavement Core Only

The sub-surface investigation was conducted between December 14, 2018 and December 20, 2018. The test holes were drilled to a depth of 3.0 m below road surface by Maple Leaf Drilling Ltd. using their B40 Mobile truck mounted drill rig equipped with 125 mm diameter solid stem augers. Test hole TH18-21 was terminated at 1.5 m in bedding sand due to suspected underground utility. The pavement

structure (asphalt or concrete) was cored by Jashandeep Bhullar of TREK Geotechnical Inc. (TREK) using a portable coring press equipped with a hollow 150 mm diameter diamond core drill bit. The sub-surface conditions were observed during drilling and visually classified by Bryan Hiebert of TREK. Other pertinent information such as groundwater and drilling conditions were also recorded during the drilling investigation. Disturbed (auger cuttings) samples retrieved during the sub-surface investigation were transported to TREK's material testing laboratory for further testing. Core samples were also retrieved and logged at TREK's material testing laboratory.

The laboratory testing program consisted of moisture content determination, Atterberg limits, and grain size analysis (mechanical sieve and hydrometer methods) on select samples between 0.5 and 1.0 m below pavement. Information gathered for each street is included in separate appendices (Appendices A to E). The information provided in the Appendices includes test hole logs, laboratory testing summary tables and results, and photos of the concrete cores. Summary table and photos of additional asphalt and concrete pavement cores only are included in Appendices F to J.

Core and test hole and locations noted on the summary tables test hole logs and shown on Figure 01 to Figure 10 are based on their location relative to the nearest address and measured distances from the edge of pavement or other permanent features.

3.0 Closure

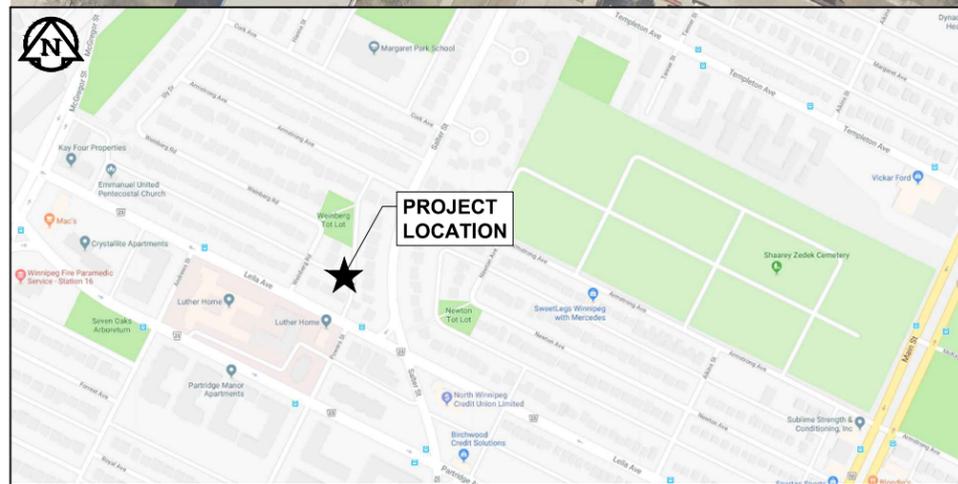
The information provided in this report is in accordance with current engineering principles and practices (Standard of Practice). The findings of this report were based on information provided (field investigation, laboratory testing, geometries). Soil conditions are natural deposits that can be highly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

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

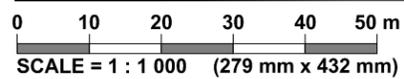
This report has been prepared by TREK Geotechnical Inc. (the Consultant) for the exclusive use of City of Winnipeg (the Client) and their agents for the work product presented in the report. Any findings or recommendations provided in this report are not to be used or relied upon by any third parties,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

Figures

Z:\Projects\0015 City of Winnipeg\0015 029 00 - 2019 Local St Package\3 Survey and Dwg\3.4 CAD\3.4.3 Working Folder\Fig 1-11_2019-01-25-LOCAL ST RENEWAL_0_A_DW_0015-029-00.dwg, 1/25/2019 10:59:02 AM (11.00 x 17.00 inches)



KEY PLAN
SCALE : N.T.S.



LEGEND:  TEST HOLE (TREK, 2018)

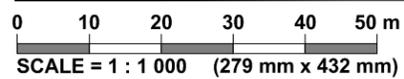
NOTES: 1. AERIAL IMAGE FROM CITY OF WINNIPEG 2016

Figure 02
TEST HOLE LOCATION PLAN

Z:\Projects\0015 City of Winnipeg\0015 029 00 2019 Local St Package\3 Survey and Dwg\3.4 CAD\3.4.3 Working Folder\Fig 1-11_2019-01-25-LOCAL ST RENEWAL_0_A_DW_0015-029-00.dwg, 1/25/2019 5:00:46 AM (11.00 x 17.00 inches)



KEY PLAN
SCALE : N.T.S.



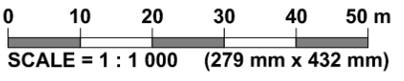
LEGEND: PAVEMENT CORE (TREK, 2018)

NOTES: 1. AERIAL IMAGE FROM CITY OF WINNIPEG 2016

MATCHLINE
FIGURE 06

Figure 05
PAVEMENT CORE LOCATION PLAN

Z:\Projects\0015 City of Winnipeg\0015 029 00 2019 Local St Renewal\3 Survey and Dwg\3.4 CAD\3.4.3 Working Folder\Fig 1-11_2019-01-25-LOCAL ST RENEWAL_0_A_DW_0015-029-00.dwg, 1/25/2019 10:05:00 AM (11.00 x 17.00 inches)

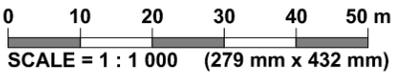


LEGEND: ◆ PAVEMENT CORE (TREK, 2018)

NOTES: 1. AERIAL IMAGE FROM CITY OF WINNIPEG 2016

Figure 06
PAVEMENT CORE LOCATION PLAN

Z:\Projects\0015 City of Winnipeg\0015 029 00 2019 Local St Package\3 Survey and Dwg\3.4 CAD\3.4.3 Working Folder\Fig 1-11_2019-01-25-LOCAL ST RENEWAL_0_A_DW_0015-029-00.dwg, 1/25/2019 5:00:46 AM (11.00 x 17.00 inches)



LEGEND: PAVEMENT CORE (TREK, 2018)

NOTES: 1. AERIAL IMAGE FROM CITY OF WINNIPEG 2016

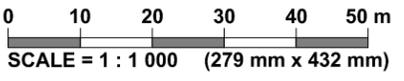
MATCHLINE
FIGURE 08

Figure 07
PAVEMENT CORE LOCATION PLAN

Z:\Projects\0015 City of Winnipeg\0015 029 00 2019 Local St Package\3 Survey and Dwg\3.4 CAD\3.4.3 Working Folder\Fig 1-11_2019-01-25-LOCAL ST RENEWAL_0_A_DW_0015-029-00.dwg, 1/25/2019 10:46:08 AM (11.00 x 17.00 Inches)



FIGURE 07
MATCHLINE

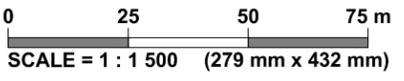
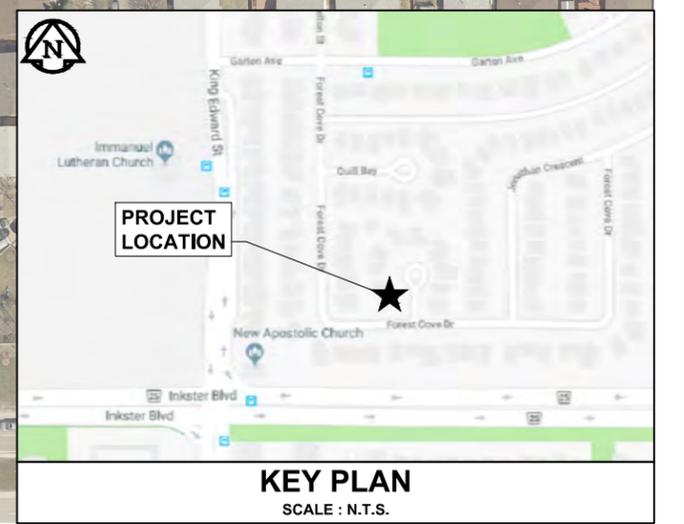


LEGEND: PAVEMENT CORE (TREK, 2018)

NOTES: 1. AERIAL IMAGE FROM CITY OF WINNIPEG 2016

Figure 08
PAVEMENT CORE LOCATION PLAN

Z:\Projects\0015 City of Winnipeg\0015 029 00 2019 Local St Package\3 Survey and Dwg\3.4 CAD\3.4.3 Working Folder\Fig 1-11_2019-01-25-LOCAL ST RENEWAL_0_A_DW_0015-029-00.dwg, 1/25/2019 11:02:46 AM (11.00 x 17.00 inches)



LEGEND: ◆ PAVEMENT CORE (TREK, 2018)

NOTES: 1. AERIAL IMAGE FROM CITY OF WINNIPEG 2016

Figure 11
PAVEMENT CORE LOCATION PLAN

Appendix B

Alley West of Salter – Leila Avenue to Armstrong Avenue

Test Hole Logs, Summary Table, Lab Data and Photographs of Pavement Core Samples

GENERAL NOTES

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

Major Divisions	USCS Classification	Symbols	Typical Names	Laboratory Classification Criteria		Particle Size			
Coarse-Grained soils (More than half the material is larger than No. 200 sieve size)	Gravels (More than half of coarse fraction is larger than 4.75 mm)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel from grain size curve, depending on percentage of fines (fraction smaller than No. 200 sieve) coarse-grained soils are classified as follows: Less than 5 percent..... GW, GP, SW, SP More than 12 percent..... GM, GC, SM, SC 6 to 12 percent..... Borderline cases requiring dual symbols*	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	ASTM Sieve sizes #10 to #4 #40 to #10 #200 to #40 < #200			
		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines		Not meeting all gradation requirements for GW				
		GM	Silty gravels, gravel-sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols			
		GC	Clayey gravels, gravel-sand-silt mixtures		Atterberg limits above "A" line or P.I. greater than 7				
	Sands (More than half of coarse fraction is smaller than 4.75 mm)	Clean sands (Little or no fines)	SW		Well-graded sands, gravelly sands, little or no fines	$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	mm 2.00 to 4.75 0.425 to 2.00 0.075 to 0.425 < 0.075		
			SP		Poorly-graded sands, gravelly sands, little or no fines	Not meeting all gradation requirements for SW			
		Sands with fines (Appreciable amount of fines)	SM		Silty sands, sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols		
			SC		Clayey sands, sand-clay mixtures	Atterberg limits above "A" line or P.I. greater than 7			
			Fine-Grained soils (More than half the material is smaller than No. 200 sieve size)		Silt and Clays (Liquid limit less than 50)	ML	Inorganic silts and very fine sands, rock floor, silty or clayey fine sands or clayey silts with slight plasticity		Material Sand Coarse Medium Fine Silt or Clay
						CL	Inorganic clays of low to medium plasticity, gravelly clays, silty clays, lean clays		
OL	Organic silts and organic silty clays of low plasticity								
Silt and Clays (Liquid limit greater than 50)	MH	Inorganic silts, micaceous or distomaceous fine sandy or silty soils, organic silts							
	CH	Inorganic clays of high plasticity, fat clays							
	OH	Organic clays of medium to high plasticity, organic silts							
	Pt	Peat and other highly organic soils		Von Post Classification Limit	Strong colour or odour, and often fibrous texture				

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

Other Symbol Types

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

LEGEND OF ABBREVIATIONS AND SYMBOLS

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

FRACTION OF SECONDARY SOIL CONSTITUENTS ARE BASED ON THE FOLLOWING TERMINOLOGY

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

TERMS DESCRIBING CONSISTENCY OR COMPACTION CONDITION

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

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

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

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

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

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



Sub-Surface Log

Test Hole TH18-07

1 of 1

Client: City of Winnipeg Project Number: 0015-029-00
 Project Name: 2019 Local Street Renewal Program - Salter / Weinberg Alley Location: UTM-14U, 5534428N, 634889E
 Contractor: Maple Leaf Drilling Ltd. Ground Elevation: Top of Pavement
 Method: 125 mm Solid Stem Geoprobe 782207 Track-Mount Date Drilled: December 19, 2018

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

Particle Size Legend: Fines Clay Silt Sand Gravel Cobbles Boulders

Depth (m)	Soil Symbol	MATERIAL DESCRIPTION	Sample Type	Sample Number	Bulk Unit Wt (kN/m ³)						Undrained Shear Strength (kPa)					
					16	17	18	19	20	21	Test Type					
					Particle Size (%)											
					0	20	40	60	80	100						
					PL MC LL											
					0	20	40	60	80	100	0	50	100	150	200	250
0.0		CONCRETE - 135 mm thick														
0.0		SAND (FILL) - silty, trace gravel (<10 mm diam.), light brown, frozen, moist and compact when thawed, poorly graded, sub-angular to angular	G	G50												
0.0		CLAY - silty, trace sand, trace gravel (<15 mm diam.), trace organics - mottled black and brown - frozen to 0.8 m, moist and stiff when thawed - high plasticity	T	G51												
0.5			T	G52												
1.0		SILT AND CLAY - brown - moist, firm - intermediate plasticity	T	G53												
1.0			T	G54												
1.5		SILT - trace clay, trace sand - light brown - moist, firm - low plasticity - soft below 1.5 m	T	G55												
1.5			T	G56												
2.5		CLAY - silty - mottled brown and grey - moist, firm to stiff - high plasticity	T	G57												
3.0			T	G58												

END OF TEST HOLE AT 3.1 m DEPTH IN CLAY

- 1) No seepage or sloughing observed.
- 2) Test hole backfilled with auger cuttings, bentonite chips, sand and cement grout.
- 3) Test hole located at House #1126, 1.9 m West of backyard fence.

Logged By: Nuno Mendonca Reviewed By: Nelson Ferreira Project Engineer: Nelson Ferreira

SUB-SURFACE LOG LOGS 2019-01-02 LOCAL STREET PACKAGES SALTER STREET - WEINBERG ROAD ALLEY 0015-029-00 0 A NM GP J TREK GEOTECHNICAL GDT 1/25/19



Sub-Surface Log

Test Hole TH18-08

1 of 1

Client: City of Winnipeg Project Number: 0015-029-00
 Project Name: 2019 Local Street Renewal Program - Salter / Weinberg Alley Location: UTM-14U, 5534314N, 634809E
 Contractor: Maple Leaf Drilling Ltd. Ground Elevation: Top of Pavement
 Method: 125 mm Solid Stem Geoprobe 782207 Track-Mount Date Drilled: December 19, 2018

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

Particle Size Legend: Fines Clay Silt Sand Gravel Cobbles Boulders

Depth (m)	Soil Symbol	MATERIAL DESCRIPTION	Sample Type	Sample Number	Bulk Unit Wt (kN/m ³)		Particle Size (%)		Undrained Shear Strength (kPa)								
					16	17	18	19	20	21	0	50	100	150	200	250	
0.0 - 0.1		CONCRETE - 140 mm thick															
0.1 - 0.4		CLAY - silty, trace gravel (<15 mm diam.), trace organics - mottled black and brown - frozen to 0.8 m, moist and stiff when thawed - high plasticity		G59													
0.4 - 0.6				G60													
0.6 - 1.0				G61													
1.0 - 1.4		SILT AND CLAY - brown - moist, firm to stiff - intermediate to high plasticity		G62													
1.4 - 2.2		SILT - trace clay, trace sand - light brown - moist, soft - low plasticity		G63													
2.2 - 2.7		CLAY - silty - mottled brown and grey - moist, stiff to very stiff - high plasticity		G64													
2.7 - 3.1		- firm below 2.7 m		G65													
3.1 - 3.3				G66													

END OF TEST HOLE AT 3.1 m DEPTH IN CLAY

- 1) No seepage or sloughing observed.
- 2) Test hole backfilled with auger cuttings, bentonite chips, sand and cement grout.
- 3) Test hole located at House #1114, 3.0 m West of backyard fence.

Logged By: Nuno Mendonca Reviewed By: Nelson Ferreira Project Engineer: Nelson Ferreira

SUB-SURFACE LOG LOGS 2019-01-02 LOCAL STREET PACKAGES SALTER STREET - WEINBERG ROAD ALLEY 0015-029-00 0 A NM GPJ TREK GEOTECHNICAL GDT 1/25/19



Sub-Surface Log

Test Hole TH18-09

1 of 1

Client: City of Winnipeg Project Number: 0015-029-00
 Project Name: 2019 Local Street Renewal Program - Salter / Weinberg Alley Location: UTM-14U, 5534259N, 634805E
 Contractor: Maple Leaf Drilling Ltd. Ground Elevation: Top of Pavement
 Method: 125 mm Solid Stem Geoprobe 782207 Track-Mount Date Drilled: December 19, 2018

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

Particle Size Legend: Fines Clay Silt Sand Gravel Cobbles Boulders

Depth (m)	Soil Symbol	MATERIAL DESCRIPTION	Sample Type	Sample Number	Bulk Unit Wt (kN/m ³)		Particle Size (%)		Undrained Shear Strength (kPa)									
					16	17	18	19	20	21	0	50	100	150	200	250		
0.0 - 0.1		CONCRETE - 150 mm thick																
0.1 - 0.8		CLAY - silty, trace gravel (<15 mm diam.), trace organics - mottled black and brown - frozen to 0.8 m, moist and stiff when thawed - high plasticity		G67														
0.8 - 1.0		- no gravel below 0.8 m		G68														
1.0 - 1.5		SILT - trace clay, trace sand - light brown - moist, very soft to soft - low plasticity		G69														
1.5 - 2.3		- moist to wet below 1.5 m		G70														
2.3 - 2.5		- some clay, moist, firm, low to intermediate plasticity below 2.3 m		G71														
2.5 - 3.0		CLAY - silty - mottled brown and grey - moist, stiff - high plasticity		G72														
3.0 - 3.1				G73														
3.1 - 3.2				G74														

END OF TEST HOLE AT 3.1 m DEPTH IN CLAY
 1) No seepage or sloughing observed.
 2) Test hole backfilled with auger cuttings, bentonite chips, sand and cement grout.
 3) Test hole located 2.0 m East and 1.0 m North of hydro pole by house # 369.

Logged By: Nuno Mendonca Reviewed By: Nelson Ferreira Project Engineer: Nelson Ferreira

SUB-SURFACE LOG LOGS 2019-01-02 LOCAL STREET PACKAGES SALTER STREET - WEINBERG ROAD ALLEY_0015-029-00_0_A_NM.GPJ_TREK GEOTECHNICAL.GDT_1/25/19



Sub-Surface Log

Test Hole TH18-10

1 of 1

Client: City of Winnipeg Project Number: 0015-029-00
 Project Name: 2019 Local Street Renewal Program - Salter / Weinberg Alley Location: UTM-14U, 5534252N, 634777E
 Contractor: Maple Leaf Drilling Ltd. Ground Elevation: Top of Pavement
 Method: 125 mm Solid Stem Geoprobe 782207 Track-Mount Date Drilled: December 19, 2018

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

Particle Size Legend: Fines Clay Silt Sand Gravel Cobbles Boulders

Depth (m)	Soil Symbol	MATERIAL DESCRIPTION	Sample Type	Sample Number	Bulk Unit Wt (kN/m ³)		Particle Size (%)		Undrained Shear Strength (kPa)									
					16	17	18	19	20	21	0	50	100	150	200	250		
0.0 - 0.1		CONCRETE - 155 mm thick																
0.1 - 0.8		CLAY - silty, trace gravel (<15 mm diam.), trace organics - mottled black and brown - frozen to 0.8 m, moist and stiff when thawed - high plasticity		G75														
0.8 - 1.0		- no gravel, stiff to very stiff below 0.8 m		G76														
1.0 - 1.5		SILT - trace clay, trace sand - light brown - moist, soft - low plasticity		G77														
1.5 - 2.0		CLAY - silty - greyish brown - moist, stiff - high plasticity		G78														
2.0 - 2.5		SILT - some clay, trace sand - light brown - moist, firm - intermediate plasticity		G79														
2.5 - 3.0		CLAY - silty - greyish brown - moist, stiff - high plasticity		G80														
3.0 - 3.1		SILT - some clay, trace sand - light brown - moist, firm - intermediate plasticity		G81														
3.1 - 3.2		CLAY - silty - greyish brown - moist, stiff - high plasticity		G82														

END OF TEST HOLE AT 3.1 m DEPTH IN CLAY
 1) No seepage or sloughing observed.
 2) Test hole backfilled with auger cuttings, bentonite chips, sand and cement grout.
 3) Test hole located at House #365, 1.2 m East of backyard fence.

Logged By: Nuno Mendonca Reviewed By: Nelson Ferreira Project Engineer: Nelson Ferreira

SUB-SURFACE LOG LOGS 2019-01-02 LOCAL STREET PACKAGES SALTER STREET - WEINBERG ROAD ALLEY 0015-029-00 0 A NM GP J TREK GEOTECHNICAL GDT 1/25/19



Project No. 0015-029-00
Client City of Winnipeg
Project 2019 Local Street Renewal Program - Alley West of Salter

Sample Date 19-Dec-18
Test Date 03-Jan-19
Technician HS

Test Hole	TH18-07	TH18-07	TH18-07	TH18-07	TH18-07	TH18-07
Depth (m)	0.1 - 0.2	0.2 - 0.3	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2	1.4 - 1.5
Sample #	G50	G51	G52	G53	G54	G55
Tare ID	W27	E27	F75	AC34	Z25	F91
Mass of tare	8.3	8.6	8.6	6.7	8.4	8.3
Mass wet + tare	556.3	164.9	133.3	182.7	241.8	142.6
Mass dry + tare	472.8	133.3	105.0	136.0	186.9	118.0
Mass water	83.5	31.6	28.3	46.7	54.9	24.6
Mass dry soil	464.5	124.7	96.4	129.3	178.5	109.7
Moisture %	18.0%	25.3%	29.4%	36.1%	30.8%	22.4%

Test Hole	TH18-07	TH18-07	TH18-07	TH18-08	TH18-08	TH18-08
Depth (m)	1.7 - 1.8	2.3 - 2.4	2.9 - 3.0	0.2 - 0.3	0.5 - 0.6	0.8 - 0.9
Sample #	G56	G57	G58	G59	G60	G61
Tare ID	K17	K22	Z94	E41	AB90	W92
Mass of tare	8.8	8.4	8.4	8.4	6.7	8.5
Mass wet + tare	189.6	196.1	165.9	218.8	412.3	138.5
Mass dry + tare	155.9	147.9	120.4	158.2	294.1	102.9
Mass water	33.7	48.2	45.5	60.6	118.2	35.6
Mass dry soil	147.1	139.5	112.0	149.8	287.4	94.4
Moisture %	22.9%	34.6%	40.6%	40.5%	41.1%	37.7%

Test Hole	TH18-08	TH18-08	TH18-08	TH18-08	TH18-08	TH18-09
Depth (m)	1.1 - 1.2	1.4 - 1.5	1.7 - 1.8	2.1 - 2.3	2.9 - 3.0	0.2 - 0.3
Sample #	G62	G63	G64	G65	G66	G67
Tare ID	F63	W01	Z140	AB54	Z18	N59
Mass of tare	8.7	8.6	8.8	6.8	8.9	8.6
Mass wet + tare	188.5	116.1	204.5	219.6	138.0	266.8
Mass dry + tare	148.4	92.7	168.6	165.0	94.4	208.2
Mass water	40.1	23.4	35.9	54.6	43.6	58.6
Mass dry soil	139.7	84.1	159.8	158.2	85.5	199.6
Moisture %	28.7%	27.8%	22.5%	34.5%	51.0%	29.4%



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**Moisture Content Report
 ASTM D2216-10**

Project No. 0015-029-00
Client City of Winnipeg
Project 2019 Local Street Renewal Program - Alley West of Salter

Sample Date 19-Dec-18
Test Date 03-Jan-19
Technician HS

Test Hole	TH18-09	TH18-09	TH18-09	TH18-09	TH18-09	TH18-09
Depth (m)	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2	1.4 - 1.5	1.7 - 1.8	2.3 - 2.4
Sample #	G68	G69	G70	G71	G72	G73
Tare ID	E6	E108	H73	F37	A104	W89
Mass of tare	8.6	8.6	8.5	8.5	8.5	8.6
Mass wet + tare	163.4	418.8	193.4	194.8	211.8	326.2
Mass dry + tare	129.1	311.4	159.6	160.7	176.1	264.1
Mass water	34.3	107.4	33.8	34.1	35.7	62.1
Mass dry soil	120.5	302.8	151.1	152.2	167.6	255.5
Moisture %	28.5%	35.5%	22.4%	22.4%	21.3%	24.3%

Test Hole	TH18-09	TH18-10	TH18-10	TH18-10	TH18-10	TH18-10
Depth (m)	2.7 - 2.9	0.2 - 0.3	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2	1.4 - 1.5
Sample #	G74	G75	G76	G77	G78	G79
Tare ID	W09	AB11	AB16	K39	W55	AC06
Mass of tare	8.6	6.7	6.6	8.4	8.5	6.8
Mass wet + tare	176.2	167.4	256.9	432.1	212.0	129.4
Mass dry + tare	131.6	127.8	194.4	336.8	170.1	106.8
Mass water	44.6	39.6	62.5	95.3	41.9	22.6
Mass dry soil	123.0	121.1	187.8	328.4	161.6	100.0
Moisture %	36.3%	32.7%	33.3%	29.0%	25.9%	22.6%

Test Hole	TH18-10	TH18-10	TH18-10			
Depth (m)	1.7 - 1.8	2.0 - 2.1	2.6 - 2.7			
Sample #	G80	G81	G82			
Tare ID	AB47	F95	F11			
Mass of tare	6.8	8.6	8.7			
Mass wet + tare	167.2	292.5	171.3			
Mass dry + tare	122.7	236.1	128.6			
Mass water	44.5	56.4	42.7			
Mass dry soil	115.9	227.5	119.9			
Moisture %	38.4%	24.8%	35.6%			



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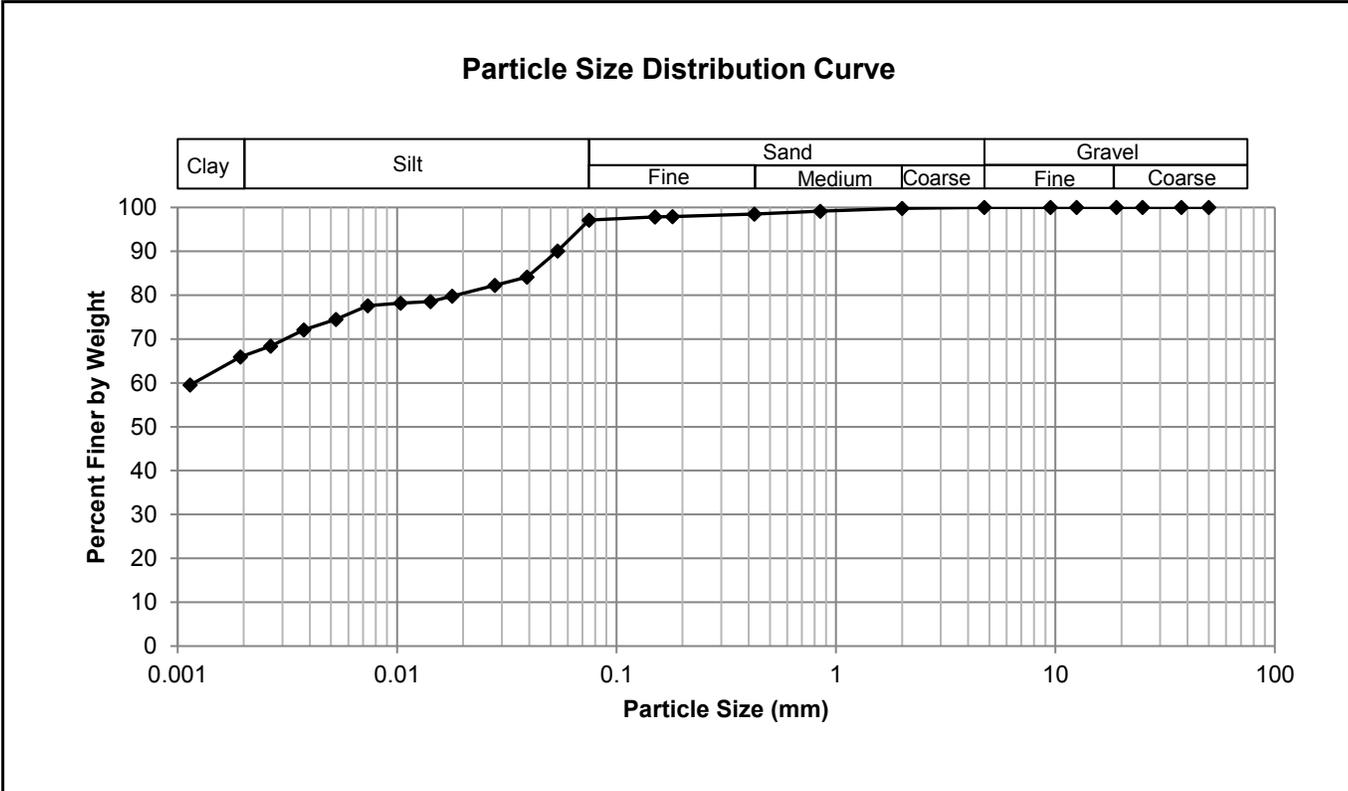
Grain Size Analysis (Hydrometer Method)
ASTM D422

Project No. 0015-029-00
Client City of Winnipeg
Project 2019 Local Street Renewal Program - Alley West of Salter

Test Hole TH18-08
Sample # G60
Depth (m) 0.5 - 0.6
Sample Date 19-Dec-18
Test Date 9-Jan-19
Technician DS



Gravel	0.0%
Sand	2.9%
Silt	30.8%
Clay	66.3%



Gravel		Sand		Silt and Clay	
Particle Size (mm)	Percent Passing	Particle Size (mm)	Percent Passing	Particle Size (mm)	Percent Passing
50.0	100.00	4.75	100.00	0.0750	97.11
37.5	100.00	2.00	99.82	0.0538	90.07
25.0	100.00	0.850	99.13	0.0391	84.14
19.0	100.00	0.425	98.53	0.0279	82.26
12.5	100.00	0.180	97.93	0.0179	79.77
9.50	100.00	0.150	97.83	0.0142	78.52
4.75	100.00	0.075	97.11	0.0104	78.21
				0.0074	77.58
				0.0053	74.52
				0.0038	72.07
				0.0027	68.42
				0.0019	65.92
				0.0011	59.53



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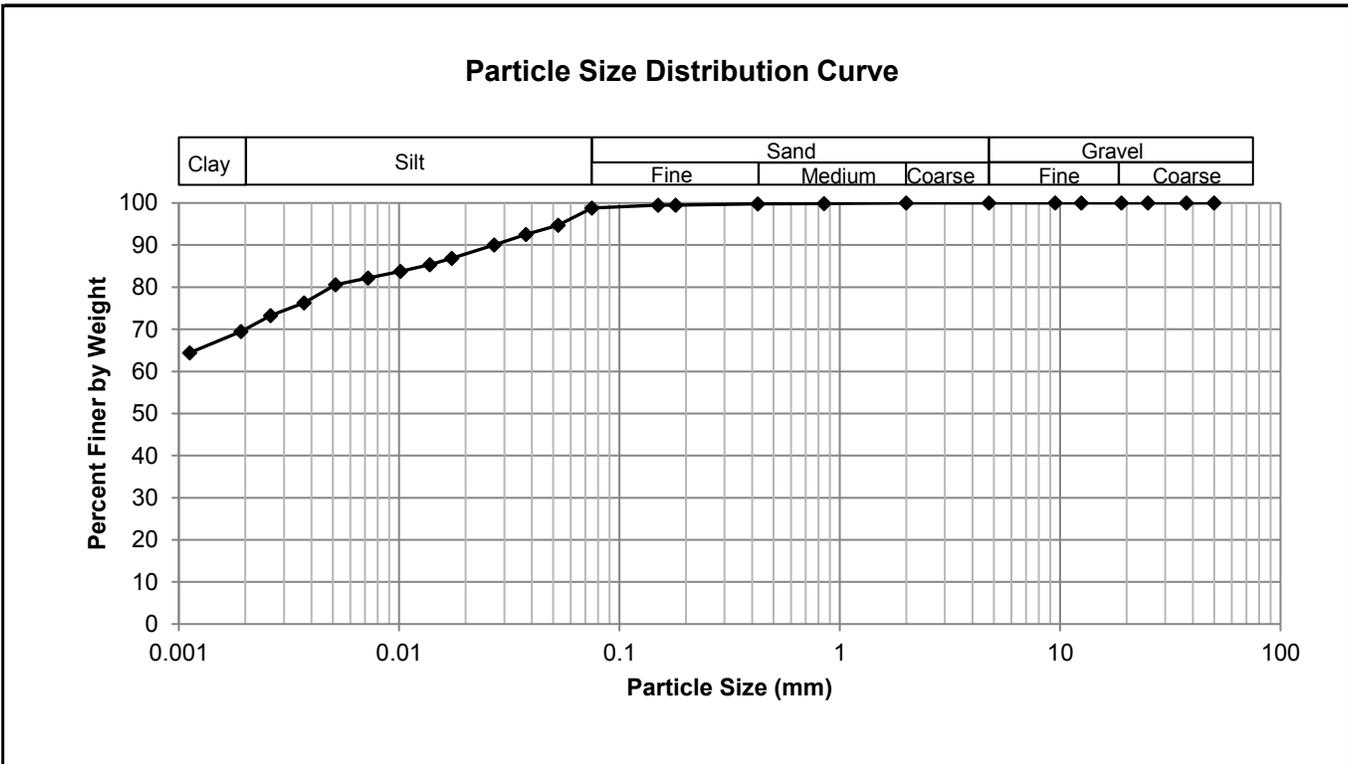
Grain Size Analysis (Hydrometer Method)
ASTM D422

Project No. 0015-029-00
Client City of Winnipeg
Project 2019 Local Street Renewal Program - Alley West of Salter



Test Hole TH18-09
Sample # G69
Depth (m) 0.8 - 0.9
Sample Date 19-Dec-18
Test Date 15-Jan-19
Technician BMH

Gravel	0.0%
Sand	1.2%
Silt	28.8%
Clay	70.0%



Gravel		Sand		Silt and Clay	
Particle Size (mm)	Percent Passing	Particle Size (mm)	Percent Passing	Particle Size (mm)	Percent Passing
50.0	100.00	4.75	100.00	0.0750	98.83
37.5	100.00	2.00	100.00	0.0527	94.69
25.0	100.00	0.850	99.89	0.0377	92.51
19.0	100.00	0.425	99.76	0.0270	90.00
12.5	100.00	0.180	99.51	0.0173	86.88
9.50	100.00	0.150	99.51	0.0138	85.31
4.75	100.00	0.075	98.83	0.0102	83.75
				0.0072	82.19
				0.0051	80.62
				0.0037	76.25
				0.0026	73.29
				0.0019	69.46
				0.0011	64.44



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Grain Size Analysis (Hydrometer Method)
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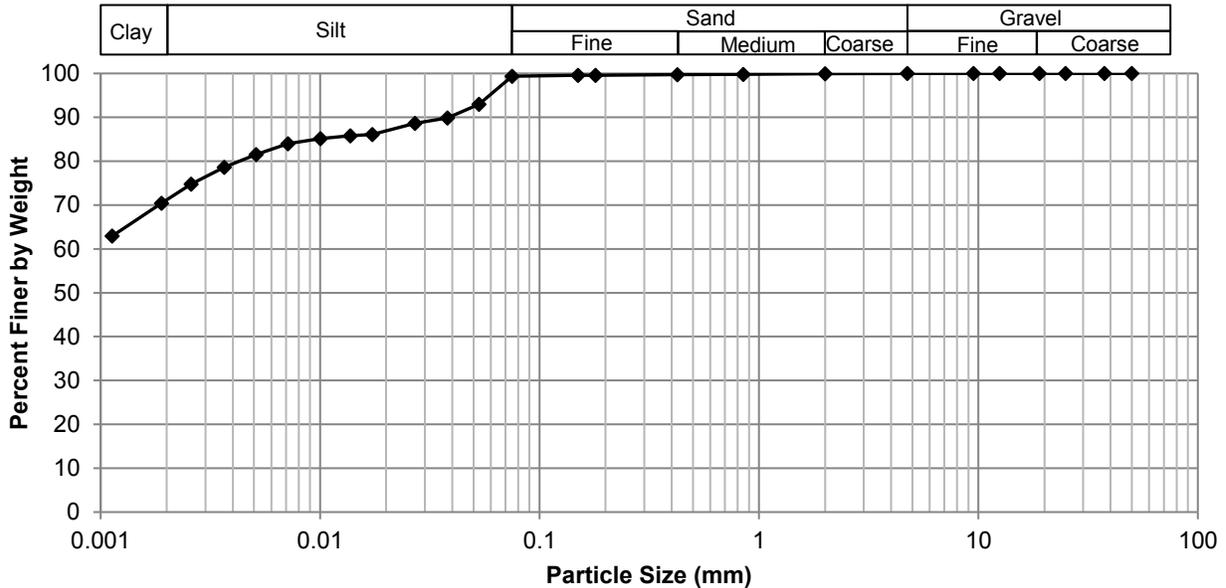
Project No. 0015-029-00
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Project 2019 Local Street Renewal Program - Alley West of Salter

Test Hole TH18-10
Sample # G77
Depth (m) 0.8 - 0.9
Sample Date 19-Dec-18
Test Date 10-Jan-19
Technician DS



Gravel	0.0%
Sand	0.6%
Silt	28.2%
Clay	71.2%

Particle Size Distribution Curve



Gravel		Sand		Silt and Clay	
Particle Size (mm)	Percent Passing	Particle Size (mm)	Percent Passing	Particle Size (mm)	Percent Passing
50.0	100.00	4.75	100.00	0.0750	99.37
37.5	100.00	2.00	99.97	0.0530	92.99
25.0	100.00	0.850	99.82	0.0381	89.87
19.0	100.00	0.425	99.72	0.0271	88.62
12.5	100.00	0.180	99.59	0.0173	86.12
9.50	100.00	0.150	99.59	0.0137	85.80
4.75	100.00	0.075	99.37	0.0100	85.18
				0.0071	83.99
				0.0051	81.49
				0.0037	78.62
				0.0026	74.80
				0.0019	70.42
				0.0011	62.92



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Atterberg Limits
ASTM D4318-10e1

Project No. 0015-0029-00
Client City of Winnipeg
Project 2019 Local Street Renewal Program - Alley West of Salter

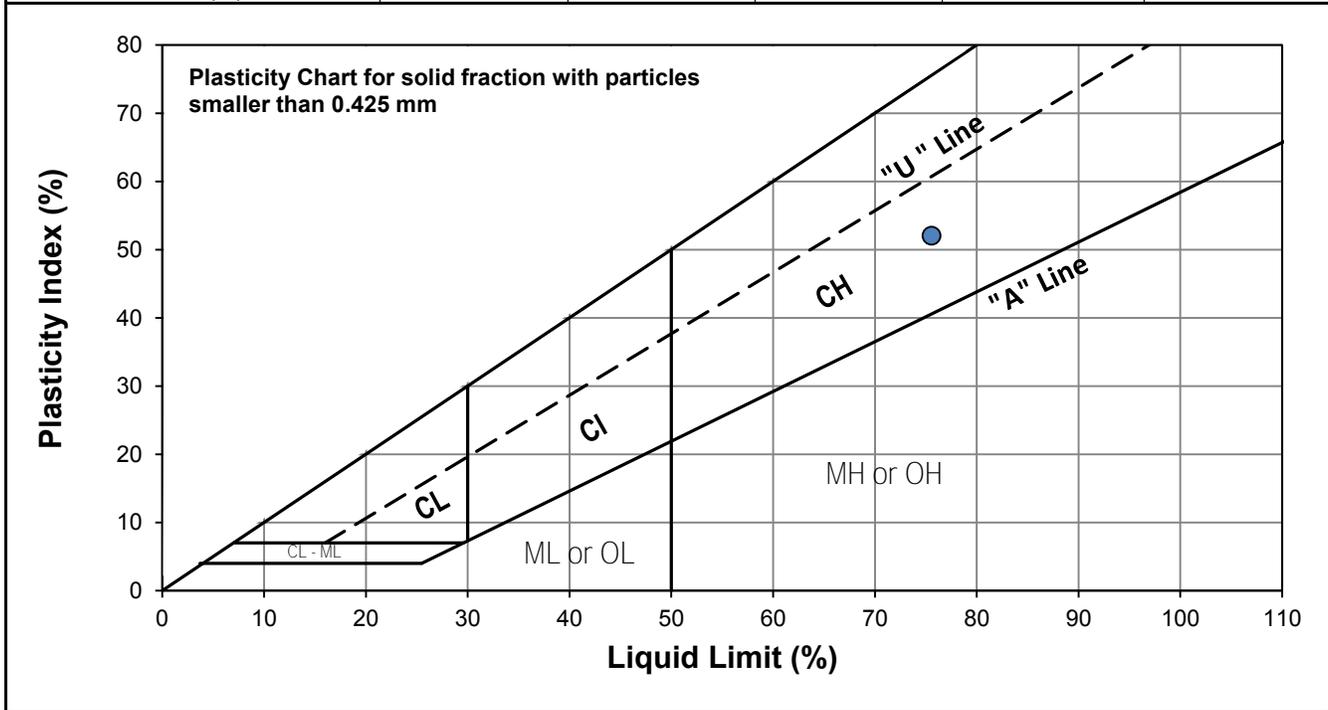


Test Hole TH18-08
Sample # G60
Depth (m) 0.5 - 0.6
Sample Date 19-Dec-18
Test Date 8-Jan-19
Technician DS

Liquid Limit	76
Plastic Limit	24
Plasticity Index	52

Liquid Limit

Trial #	1	2	3
Number of Blows (N)	18	26	35
Mass Wet Soil + Tare (g)	23.208	23.082	22.599
Mass Dry Soil + Tare (g)	19.193	19.227	19.013
Mass Tare (g)	13.995	14.116	14.151
Mass Water (g)	4.015	3.855	3.586
Mass Dry Soil (g)	5.198	5.111	4.862
Moisture Content (%)	77.241	75.426	73.756



Plastic Limit

Trial #	1	2	3	4	5
Mass Tare (g)	22.702	21.740			
Mass Wet Soil + Tare (g)	21.047	20.266			
Mass Dry Soil + Tare (g)	14.093	13.923			
Mass Water (g)	1.655	1.474			
Mass Dry Soil (g)	6.954	6.343			
Moisture Content (%)	23.799	23.238			



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Atterberg Limits
ASTM D4318-10e1

Project No. 0015-0029-00
Client City of Winnipeg
Project 2019 Local Street Renewal Program - Alley West of Salter

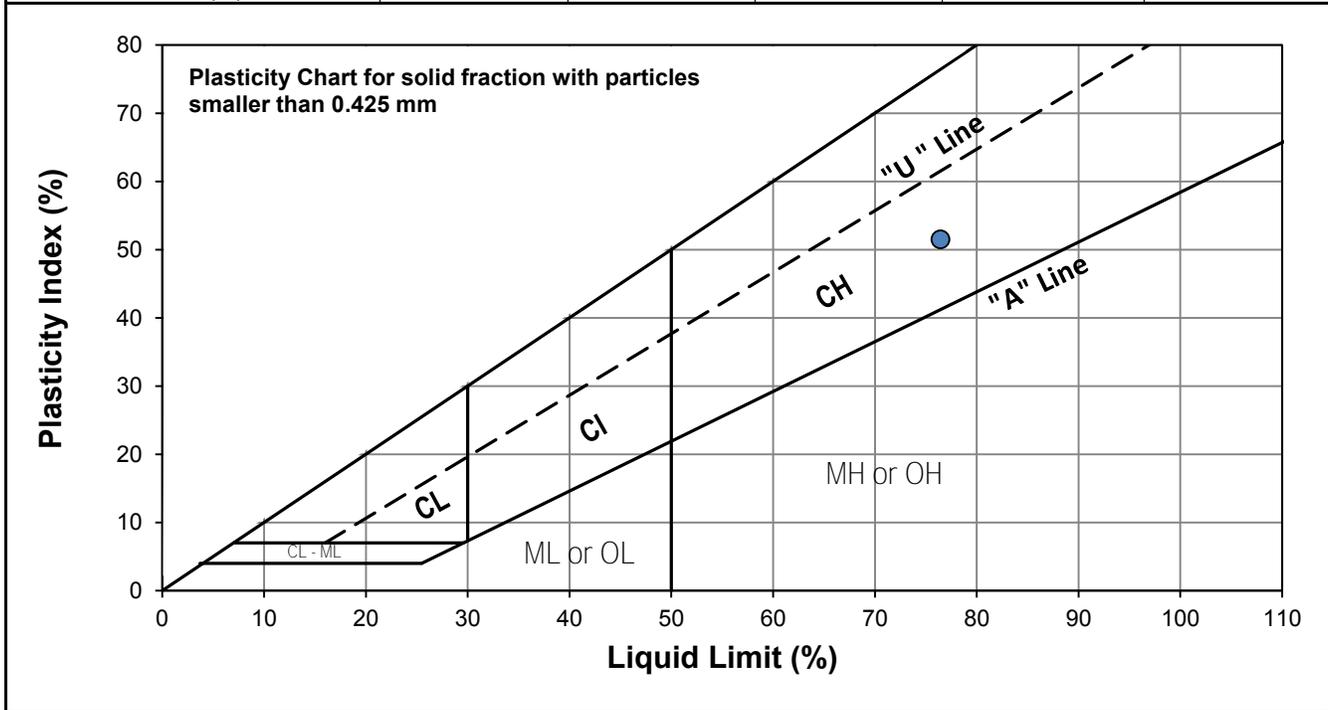


Test Hole TH18-09
Sample # G69
Depth (m) 0.8 - 0.9
Sample Date 19-Dec-18
Test Date 8-Jan-19
Technician DS

Liquid Limit	76
Plastic Limit	25
Plasticity Index	51

Liquid Limit

Trial #	1	2	3
Number of Blows (N)	20	22	35
Mass Wet Soil + Tare (g)	23.218	22.833	23.064
Mass Dry Soil + Tare (g)	19.191	19.126	19.309
Mass Tare (g)	14.039	14.335	14.226
Mass Water (g)	4.027	3.707	3.755
Mass Dry Soil (g)	5.152	4.791	5.083
Moisture Content (%)	78.164	77.374	73.874



Plastic Limit

Trial #	1	2	3	4	5
Mass Tare (g)	20.168	20.884			
Mass Wet Soil + Tare (g)	18.958	19.532			
Mass Dry Soil + Tare (g)	14.055	14.182			
Mass Water (g)	1.210	1.352			
Mass Dry Soil (g)	4.903	5.350			
Moisture Content (%)	24.679	25.271			



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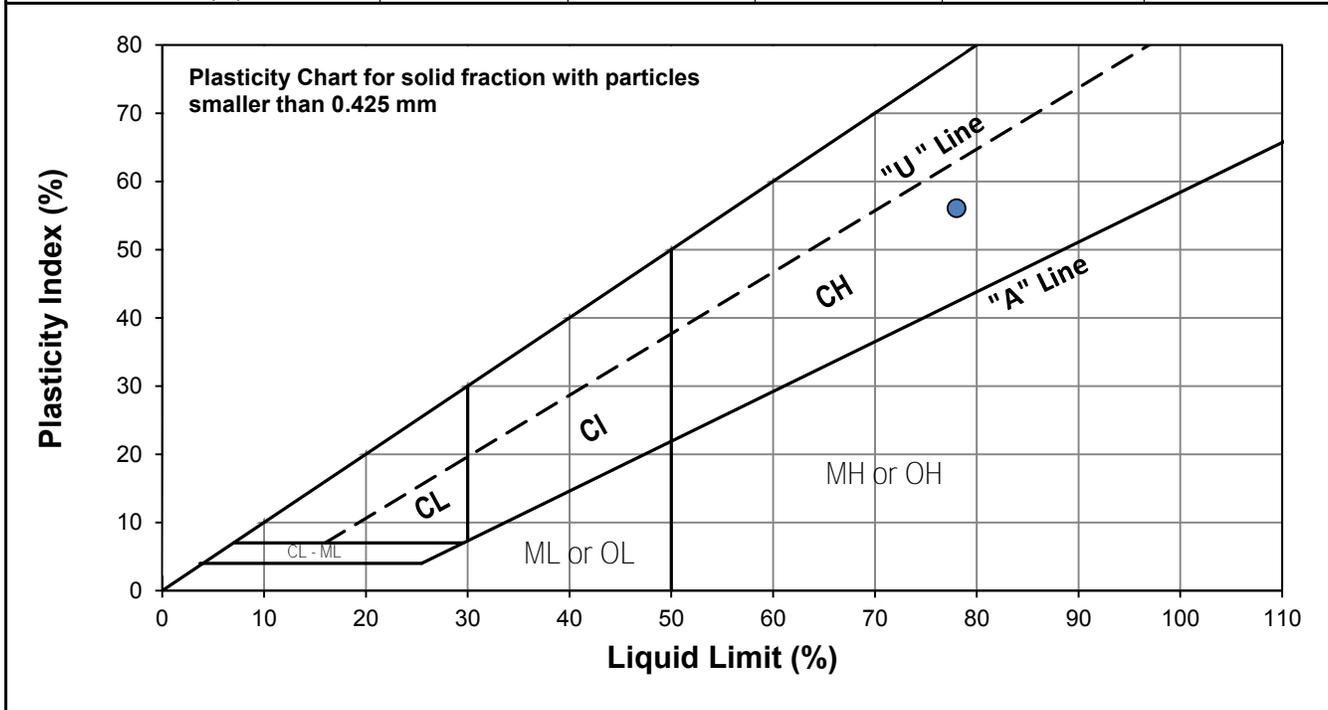


Test Hole TH18-10
Sample # G77
Depth (m) 0.8 - 0.9
Sample Date 19-Dec-18
Test Date 9-Jan-19
Technician DS

Liquid Limit	78
Plastic Limit	22
Plasticity Index	56

Liquid Limit

Trial #	1	2	3
Number of Blows (N)	16	24	27
Mass Wet Soil + Tare (g)	23.044	21.733	24.760
Mass Dry Soil + Tare (g)	18.998	18.386	19.960
Mass Tare (g)	14.060	14.122	13.746
Mass Water (g)	4.046	3.347	4.800
Mass Dry Soil (g)	4.938	4.264	6.214
Moisture Content (%)	81.936	78.494	77.245



Plastic Limit

Trial #	1	2	3	4	5
Mass Tare (g)	20.813	20.166			
Mass Wet Soil + Tare (g)	19.618	19.062			
Mass Dry Soil + Tare (g)	14.116	14.100			
Mass Water (g)	1.195	1.104			
Mass Dry Soil (g)	5.502	4.962			
Moisture Content (%)	21.719	22.249			



Photo 1: Pavement Core Sample at Test Hole TH18-07



Photo 2: Pavement Core Sample at Test Hole TH18-08



Photo 3: Pavement Core Sample at Test Hole TH18-09



Photo 4: Pavement Core Sample at Test Hole TH18-10

Appendix F

Powers Street – Leila Avenue to Partridge Avenue

Summary Table & Photographs of Pavement Core Samples



**2019 Local Street Renewal Program
Road Investigation
Powers Street**

Pavement Core No.	Pavement Core Location	Pavement Surface		Pavement Structure Material	
		Type	Thickness (mm)	Type	Thickness (mm)
PC18 - 29	1.5 m East of West curb, 7 m North of Partridge Avenue North sidewalk UTM N5534114 E0634763	Asphalt	N/A	Concrete	205
PC18 - 30 (On Joint)	Located at Apartment #1080, Centreline of Road UTM N5534139 E0634777	Asphalt	N/A	Concrete	170
PC18 - 31 (On Joint)	1.5 m West of East curb, 7 m South of South sidewalk of Leila Avenue UTM N5534173 E0634794	Asphalt	N/A	Concrete	150



Photo 1: Pavement Core Sample at Test Hole PC18-29



Photo 2: Pavement Core Sample at Test Hole PC18-30 (On Joint)



Photo 3: Pavement Core Sample view of Joint at Test Hole PC18-30



Photo 4: Pavement Core Sample at Test Hole PC18-31 (On Joint)



Photo 5: Pavement Core Sample view of Joint at Test Hole PC18-31

Appendix G

Burrows Avenue (W/B) – Main Street to Powers Street

Summary Table & Photographs of Pavement Core Samples



**2019 Local Street Renewal Program
Road Investigation
Burrows Avenue (WB)**

Pavement Core No.	Pavement Core Location	Pavement Surface		Pavement Structure Material	
		Type	Thickness (mm)	Type	Thickness (mm)
PC18 - 46	Located at House #253, Centreline of Westbound Lane UTM N5530872 E0634059	Asphalt	N/A	Concrete	240
PC18 - 47	2 m South of North curb, 1 m East of East sidewalk of Charles Street UTM N5530924 E0633954	Asphalt	N/A	Concrete	190
PC18 - 48	Located at House #309, 2 m South of North curb UTM N5530961 E0633872	Asphalt	N/A	Concrete	215
PC18 - 49	Located at House #347, 1 m North of the Median curb, 4 m East of East sidewalk of Aikins Street UTM N5531004 E0633772	Asphalt	N/A	Concrete	180
PC18 - 50	Located at House #365, 2 m South of North curb UTM N5531047 E0633689	Asphalt	50	Concrete	210
PC18 - 51	Located at House # 405, 1 m North of the Median curb, 10 m East of East sidewalk of Salter Street, UTM N5531088 E0633594	Asphalt	55	Concrete	195
PC18 - 52	Located at House #433, 1.5 m South of North curb UTM N5531134 E0633506	Asphalt	N/A	Concrete	235
PC18 - 53	Located at House #467, 2 m South of North curb, 10 m East of East sidewalk of Power Street UTM N5531179 E0633409	Asphalt	N/A	Concrete	230



Photo 1: Pavement Core Sample at Test Hole PC18-46



Photo 2: Pavement Core Sample at Test Hole PC18-47



Photo 3: Pavement Core Sample at Test Hole PC18-48



Photo 4: Pavement Core Sample at Test Hole PC18-49



Photo 5: Pavement Core Sample at Test Hole PC18-50



Photo 6: Pavement Core Sample at Test Hole PC18-51



Photo 7: Pavement Core Sample at Test Hole PC18-52



Photo 8: Pavement Core Sample at Test Hole PC18-53

Appendix I

Forest Cove Drive – Garton Avenue to Jonathan Crescent Summary Table & Photographs of Pavement Core Samples



**2019 Local Street Renewal Program
Road Investigation
Forest Cove Drive**

Pavement Core No.	Pavement Core Location	Pavement Surface		Pavement Structure Material	
		Type	Thickness (mm)	Type	Thickness (mm)
PC18 - 40	Located at House #156, 1.5 m East of West curb UTM N5534421 E0628737	Asphalt	N/A	Concrete	175
PC18 - 41	Located at House #128, 1.5 m East of West curb UTM N5534323 E0628738	Asphalt	N/A	Concrete	150
PC18 - 42 (On Joint)	Located at House #102, Centreline of the Road UTM N5534234 E0628747	Asphalt	N/A	Concrete	155
PC18 - 43 (On Joint)	Located at House #74, 1 m South of North curb UTM N5534236 E0628847	Asphalt	N/A	Concrete	175
PC18 - 44	Located at House #50, 1.5 m South of North curb UTM N5534237 E0628952	Asphalt	N/A	Concrete	150
PC18 - 45	Located at House #18, 1 m West of East curb UTM N5534319 E0628974	Asphalt	N/A	Concrete	160

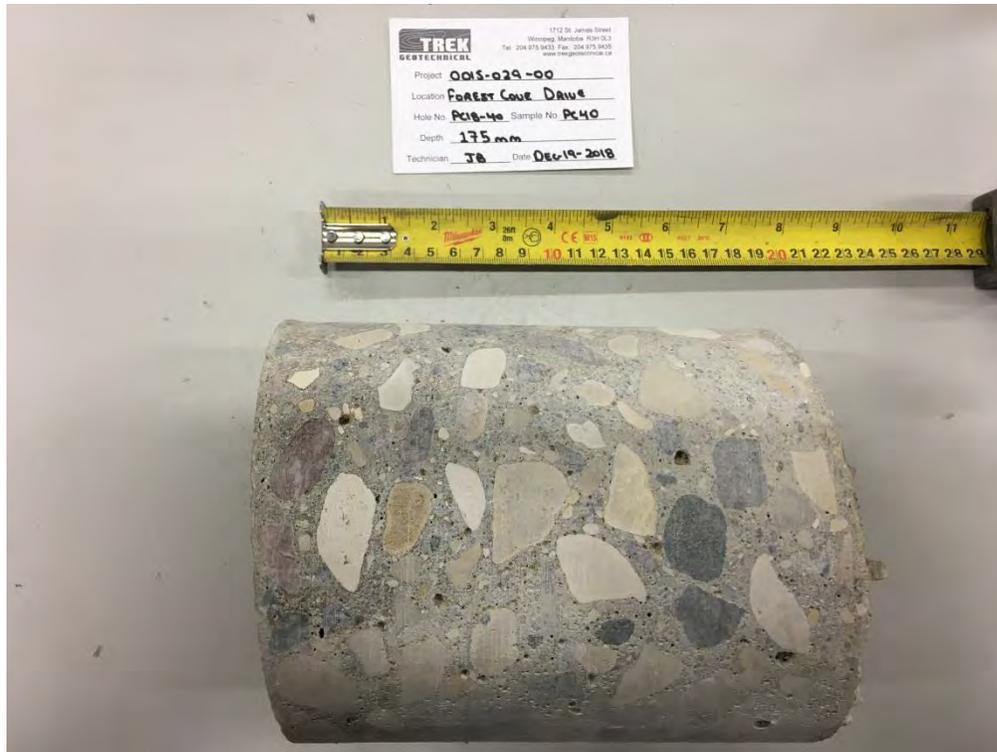


Photo 1: Pavement Core Sample at Test Hole PC18-40



Photo 2: Pavement Core Sample at Test Hole PC18-41



Photo 3: Pavement Core Sample at Test Hole PC18-42 (On Joint)

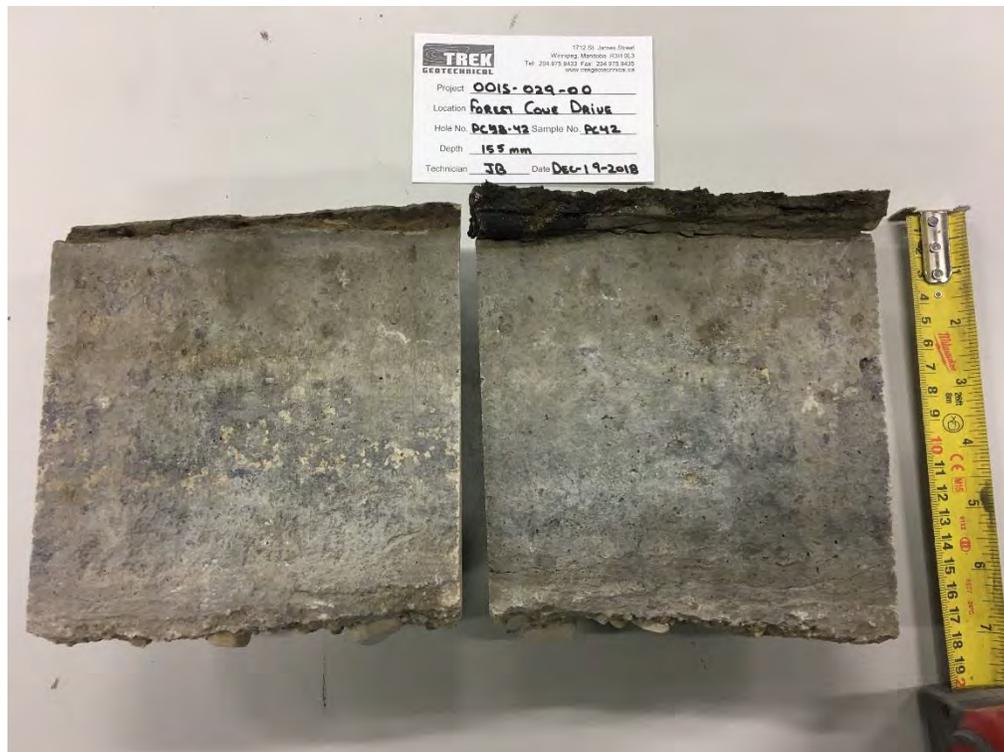


Photo 4: Pavement Core Sample view of Joint at Test Hole PC18-42



Photo 5: Pavement Core Sample at Test Hole PC18-43 (On Joint)

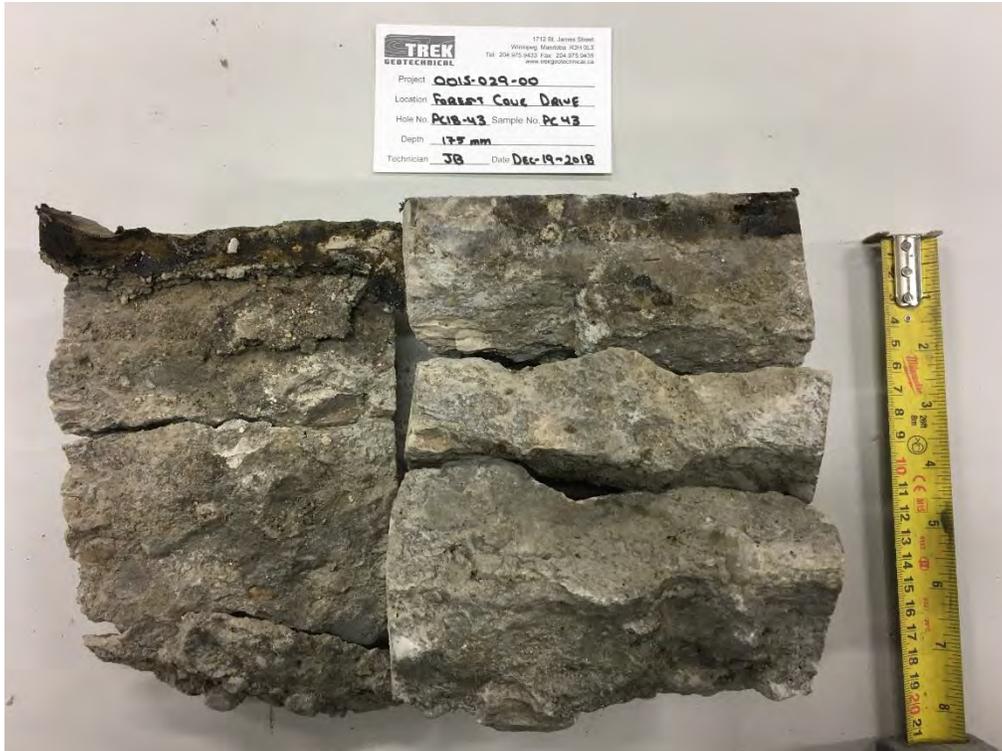


Photo 6: Pavement Core Sample view of Joint at Test Hole PC18-43



Photo 7: Pavement Core Sample at Test Hole PC18-44



Photo 8: Pavement Core Sample at Test Hole PC18-45

Appendix J

Selkirk Avenue – Buller Street to Sheppard Street

Summary Table & Photographs of Pavement Core Samples



**2019 Local Street Renewal Program
Road Investigation
Selkirk Avenue**

Pavement Core No.	Pavement Core Location	Pavement Surface		Pavement Structure Material	
		Type	Thickness (mm)	Type	Thickness (mm)
PC18 - 23	Located at House #1581, 2 m North of South curb UTM N5532355 E0629974	Asphalt	N/A	Concrete	230
PC18 - 24	Located at House #1549, 2.5 m South of North curb UTM N5532319 E0629974	Asphalt	N/A	Concrete	235
PC18 - 25	Located at House #1503, 1 m North of South curb UTM N5532274 E0630149	Asphalt	N/A	Concrete	230
PC18 - 26	Located at House #1477, 1.5 m South of North curb UTM N5532236 E0630243	Asphalt	N/A	Concrete	225
PC18 - 27	Located at House #1445, 3 m North of South curb UTM N5532193 E0630327	Asphalt	N/A	Concrete	235
PC18 - 28	Located at House # 1427, 30 m South of North Curb of the Road UTM N5532149 E0630428	Asphalt	N/A	Concrete	260



Photo 1: Pavement Core Sample at Test Hole PC18-23



Photo 2: Pavement Core Sample at Test Hole PC18-24



Photo 3: Pavement Core Sample at Test Hole PC18-25



Photo 4: Pavement Core Sample at Test Hole PC18-26



Photo 5: Pavement Core Sample at Test Hole PC18-27



Photo 6: Pavement Core Sample at Test Hole PC18-28