



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 315-2010

**PROVINCE OF MANITOBA/CITY OF WINNIPEG LOCAL STREET RENEWALS:
ARTHUR WRIGHT CRESCENT, DORCHESTER AVENUE, HUGO STREET,
JEFFERSON AVENUE, MARGATE ROAD, YALE AVENUE**

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 PROVINCE OF MANITOBA/CITY OF WINNIPEG LOCAL STREET RENEWALS: ARTHUR WRIGHT CRESCENT, DORCHESTER AVENUE, HUGO STREET, JEFFERSON AVENUE, MARGATE ROAD, YALE AVENUE

B2. SUBMISSION DEADLINE

- B2.1 The Submission Deadline is 12:00 noon Winnipeg time, May 20, 2010.
- B2.2 Bids determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.
- B2.3 The Contract Administrator or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. SITE INVESTIGATION

B3.1 Further to C3.1, the Bidder may view the Site without making an appointment.

B4. ENQUIRIES

- B4.1 All enquiries shall be directed to the Contract Administrator identified in D3.1.
- B4.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.
- B4.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.
- B4.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator only to the Bidder who made the enquiry.
- B4.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B4 unless that response or interpretation is provided by the Contract Administrator in writing.

B5. ADDENDA

- B5.1 The Contract Administrator may, at any time prior to the Submission deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.
- 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.
- B5.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/bidopp.asp>
- B5.2.2 The Bidder is responsible for ensuring that he has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

B5.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B6. SUBSTITUTES

B6.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.

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 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, only to the Bidder who requested approval of the substitute.

B6.6.1 The Bidder requesting and obtaining the approval of a substitute shall be entirely responsible for disseminating information regarding the approval to any person or persons he 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 Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B15.

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.

B6.10 Notwithstanding B6.2 to B6.9, in accordance with B7.6, deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B15.1(a).

B7. BID COMPONENTS

B7.1 The Bid shall consist of the following components:

- (a) Form A: Bid;
- (b) Form B: Prices, hard copy;
- (c) Bid Security;
 - (i) Form G1: Bid Bond and Agreement to Bond, or
Form G2: Irrevocable Standby Letter of Credit and Undertaking, or
a certified cheque or draft;

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, to constitute a responsive Bid.

B7.4 The Bid shall be submitted enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address.

B7.4.1 Samples or other components of the Bid which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid.

B7.4.2 A hard copy of Form B: Prices must be submitted with the Bid. If there is any discrepancy between the Adobe PDF version of Form B: Prices and the Microsoft Excel version of Form B: Prices, the PDF version shall take precedence.

B7.5 Bidders are advised not to include any information/literature except as requested in accordance with B7.1.

B7.6 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B15.1(a).

B7.7 Bids submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.

B7.8 Bids shall be submitted to:

The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg MB R3B 1J1

B8. BID

B8.1 The Bidder shall complete Form A: Bid, making all required entries.

B8.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in his own name, his 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 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, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.

B8.4 Paragraph 12 of Form A: Bid shall be signed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in his 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 and the corporate seal, if the corporation has one, shall be affixed;
- (d) if the Bidder is carrying on business under a name other than his 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 should be printed 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 For the convenience of Bidders, and pursuant to B7.4.2 and B15.4.3, an electronic spreadsheet Form B: Prices in Microsoft Excel (.xls) format is available along with the Adobe PDF documents for this Bid Opportunity on the Bid Opportunities page at the Materials Management Division website at <http://www.winnipeg.ca/matmgt>

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 Prices from Non-Resident Bidders are subject to a Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B10. QUALIFICATION

B10.1 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.

- B10.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:
- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/debar.stm>
- B10.3 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).
- B10.4 Further to B10.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:
- (a) a valid COR certification number under the Certificate of Recognition (COR) Program administered by the Manitoba Construction Safety Association or by the Manitoba Heavy Construction Association's Safety, Health and Environment 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>)
- B10.5 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.
- B10.6 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.
- B11. BID SECURITY**
- B11.1 The Bidder shall provide bid security in the form of:
- (a) 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); or
 - (b) an irrevocable standby letter of credit, in the amount of at least ten percent (10%) of the Total Bid Price, and undertaking issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form included in the Bid Submission (Form G2: Irrevocable Standby Letter of Credit and Undertaking); or
 - (c) a certified cheque or draft payable to "The City of Winnipeg", in the amount of at least fifty percent (50%) of the Total Bid Price, drawn on a bank or other financial institution registered to conduct business in Manitoba.
- B11.1.1 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.
- B11.1.2 All signatures on bid securities shall be original.

- B11.1.3 The Bidder shall sign the Bid Bond.
- B11.1.4 The Surety shall sign and affix its corporate seal on the Bid Bond and the Agreement to Bond.
- B11.2 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 executed by the successful Bidder and the performance security furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.
- B11.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B11.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.
- B11.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.
- B11.3 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 Bid Opportunity.

B12. OPENING OF BIDS AND RELEASE OF INFORMATION

- B12.1 Bids will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Division, or in such other office as may be designated by the Manager of Materials.
- B12.1.1 Bidders or their representatives may attend.
- B12.1.2 Bids determined by the Manager of Materials, or his designate, to not include the bid security specified in B11 will not be read out.
- B12.2 Following the submission deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt>
- B12.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract Amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt>
- B12.4 The Bidder is advised that any information contained in any Bid may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

B13. IRREVOCABLE BID

- B13.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.
- B13.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work until a Contract for the Work has been duly executed and the performance security 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.

B14. WITHDRAWAL OF BIDS

- B14.1 A Bidder may withdraw his Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.
- B14.1.1 Notwithstanding C23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.
- B14.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid, and only such person, has authority to give notice of withdrawal.
- B14.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:
- (a) retain the Bid until after the Submission Deadline has elapsed;
 - (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid; and
 - (c) if the notice has been given by any one of the persons specified in B14.1.3(b), declare the Bid withdrawn.
- B14.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B13.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law, including the right to retain the Bidder's bid security.

B15. EVALUATION OF BIDS

- B15.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Bid Opportunity, or acceptable deviation therefrom (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B10 (pass/fail);
 - (c) Total Bid Price;
 - (d) economic analysis of any approved alternative pursuant to B6.
- B15.2 Further to B15.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.
- B15.3 Further to B15.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his Bid or in other information required to be submitted, that he is responsible and qualified.
- B15.4 Further to B15.1(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.
- B15.4.1 If there is any discrepancy between the Total Bid Price written in figures, the Total Bid Price written in words and the sum of the quantities multiplied by the unit prices for each item, the sum of the quantities multiplied by the unit prices for each item shall take precedence.
- B15.4.2 Further to B15.1(a), in the event that a unit price is not provided on Form B: Prices, the City will determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.
- B15.4.3 The electronic Form B: Prices and the formulas imbedded in that spreadsheet are only provided for the convenience of Bidders. The City makes no representations or warranties

as to the correctness of the imbedded formulas. It is the Bidder's responsibility to ensure the extensions of the unit prices and the sum of Total Bid Price performed as a function of the formulas within the electronic Form B: Prices are correct.

B16. AWARD OF CONTRACT

- B16.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B16.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.
- B16.2.1 Without limiting the generality of B16.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Work;
 - (b) the prices are materially in excess of the prices received for similar work in the past;
 - (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
 - (d) only one Bid is received; or
 - (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.
- B16.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B15.
- B16.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his Bid upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C1. GENERAL CONDITIONS

C1.1 The *General Conditions for Construction* (Revision 2006 12 15) are applicable to the Work of the Contract.

C1.1.1 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

C1.2 A reference in the Bid Opportunity to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Construction*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

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

D2. SCOPE OF WORK

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

(a) Pavement Reconstruction.

- (i) Hugo Street from Fleet Avenue to Warsaw Avenue. Location (e.g., Mighton Avenue from Henderson Highway to Brazier Street.)
- (ii) Dorchester Avenue from Guelph Street to Harrow Street.
- (iii) Yale Avenue from Rockwood Street to Wilton Street. Location (e.g., St. Mary's Road from Dunkirk to Fermor, West Side)

(b) Major Rehabilitation

- (i) Margate Road from Arthur Wright Crescent (West) to Mandalay Drive.
- (ii) Arthur Wright Crescent (East) from Arthur Wright Way to Margate Road.

(c) Minor Rehabilitation

- (i) Jefferson Avenue from Powers Street to Main Street.

D2.2 The Major Components of the work are as follows:

(a) Pavement Reconstruction.

- (i) Remove existing pavement
- (ii) Excavation
- (iii) Installation of Sub drains
- (iv) Compacting of existing sub-grade
- (v) Installation of catchbasin and connection pipe
- (vi) Placement of Geotextiles and Geogrid
- (vii) Placement of Sub base and base coarse materials
- (viii) Adjustment of existing manholes
- (ix) Construct 150mm concrete pavement (reinforced)
- (x) Renewal of existing sidewalk
- (xi) Boulevard restoration

(b) Major Rehabilitation

- (i) Complete partial depth patching of existing joints
- (ii) Complete full depth patching of existing pavement slabs and joints
- (iii) Removal and Installation of curbs
- (iv) Renewal of existing sidewalk
- (v) Adjust of drainage inlets and manholes
- (vi) Placement of asphalt overlay
- (vii) Boulevard restoration

- (c) Minor Rehabilitation
 - (i) Planning of existing asphalt pavement
 - (ii) Complete full depth patching of existing pavement slabs and joints
 - (iii) Renewal of existing curb
 - (iv) Renewal of existing sidewalk
 - (v) Adjust of drainage inlets and manholes
 - (vi) Placement of asphalt overlay
 - (vii) Boulevard restoration

D3. CONTRACT ADMINISTRATOR

D3.1 The Contract Administrator is:

W. Joe Funk, P.Eng.
General Manager, Transportation Group
400-386 Broadway
Winnipeg, MB R3C 4M8

Telephone No. (204) 956-0980

Facsimile No. (204) 957-5389

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 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 C23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.

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, D5.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the address or facsimile number identified in D3.1.

D5.3 Notwithstanding C21., all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following address or facsimile number:

The City of Winnipeg
Chief Financial Officer
Administration Building, 3rd Floor
510 Main Street
Winnipeg MB R3B 1B9

Facsimile No.: (204) 949-1174

- D5.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following address or facsimile number:

The City of Winnipeg
Internal Services Department
Legal Services Division
Attn: City Solicitor
185 King Street, 3rd Floor
Winnipeg MB R3B 1J1
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 Bid Opportunity. If the Contractor requires additional sets of the Bid Opportunity, they will be supplied to him 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.
- 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>

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) automobile liability insurance for owned automobiles used for or in connection with the Work in the amount of at least two million dollars (\$2,000,000.00) at all times during the performance of the Work and until the date of Total Performance;
 - (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. PERFORMANCE SECURITY

D10.1 The Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:

- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or
- (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
- (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.

D10.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.

D10.2 If the bid security provided in his Bid was not a certified cheque or draft pursuant to B11.1(c), the Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of letter of intent and prior to the commencement of any Work on the Site and in no event later than the date specified in the C4.1 for the return of the executed Contract.

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.

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 a Gantt chart for the Work, acceptable to the Contract Administration.

D12.3 Further to D12.2 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 is in receipt of a letter of intent 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 performance 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 commence the Work on the Site within seven (7) Working Days of receipt of the letter of intent.
- D13.4 The City intends to award this Contract by June 10, 2010.
- D13.4.1 If the actual date of award is later than the intended date, the dates specified for Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D14. WORKING DAYS

- D14.1 Further to C1.1(gg);
- D14.1.1 The Contract Administrator will determine daily if a Working Day has elapsed and will record his 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 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) Water and Waste Contract
 - (i) Watermain renewals
 - 1. Dorchester Avenue from Guelph Street to Harrow Street
 - 2. Hugo Street from Warsaw Avenue to Fleet Avenue
 - (ii) Feedermain Abandonment on Hugo Street from Warsaw Avenue to Fleet Avenue
 - (iii) Sewer Renewal on Yale Avenue from Rockwood Street to half a block east.
 - (iv) Sewer Partial Repair
 - 1. Dorchester Avenue from Guelph Street to Harrow Street (4 repairs)
 - 2. Hugo Street from Mulvey Avenue to Backlane, North (1 repair)
- (b) Manitoba Hydro Gas division
 - (i) Possible lowering of gas services
- (c) Manitoba Hydro Street Lighting division
 - (i) Possible relocation of street lighting cables

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 activity on Hugo Street shall not commence until Watermain Renewal, Sewer partial repairs and Feedermain abandonment has been completed by other contract. This work is expected to be completed by August 13, 2010.
- D17.1.5 Construction activity on Dorchester Avenue shall not commence until Watermain Renewal and Sewer partial repair have been completed by other contract. This work is expected to be completed by July 30, 2010.
- D17.1.6 Construction activity on Yale Avenue shall not commence until Sewer renewal has been completed by other contact. This work is expected to be completed by July 30, 2010.

D18. SUBSTANTIAL PERFORMANCE

- D18.1 The Contractor shall achieve Substantial Performance within Seventy Five (75) consecutive Working Days of the commencement of the Work as specified in D13.
- D18.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.

D18.3 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.

D19. TOTAL PERFORMANCE

D19.1 The Contractor shall achieve Total Performance within Eighty (80) consecutive Working Days of the commencement of the Work as specified in D13.

D19.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.

D19.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

D20. LIQUIDATED DAMAGES

D20.1 If the Contractor fails to achieve Total Performance in accordance with the Contract by the day fixed herein for Total Performance, the Contractor shall pay the City One Thousand dollars (\$1,000) per Working Day for each and every Working Day following the day fixed herein for Total Performance during which such failure continues.

D20.2 The amount specified for liquidated damages in D20.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Total Performance by the day fixed herein for same.

D20.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D21. SCHEDULED MAINTENANCE

D21.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

- (a) Maintenance of sodding area as specified in CW 3510 Sodding;
- (b) Reflective crack and sealing during warranty period as specified in CW 3250 Joint and Crack Maintenance;

D21.2 Determination of Substantial Performance and Total Performance shall be exclusive of scheduled maintenance identified herein. All scheduled maintenance shall be completed prior to the expiration of the warranty period. Where the scheduled maintenance cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the scheduled maintenance.

CONTROL OF WORK

D22. JOB MEETINGS

D22.1 Regular weekly job meetings will be held at the site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.

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

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

D23.1 Further to C6.24, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

WARRANTY

D24. WARRANTY

D24.1 Notwithstanding C13.2, the warranty period shall begin on the date of Substantial Performance and shall expire one (1) year thereafter unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

D24.2 Notwithstanding C13.2, the warranty period shall begin on the date of Substantial Performance and shall expire one (1) years thereafter for Street Rehabilitations , and two (2) years thereafter for pavement reconstruction works, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

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

BID OPPORTUNITY NO. 315-2010

PROVINCE OF MANITOBA/CITY OF WINNIPEG LOCAL STREET RENEWALS: ARTHUR WRIGHT CRESCENT, DORCHESTER AVENUE, HUGO STREET, JEFFERSON AVENUE, MARGATE ROAD, YALE AVENUE

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

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

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

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

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

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

_____ day of _____, 20____ .

**SIGNED AND SEALED
in the presence of:**

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

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

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

(See D10)

(Date)

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

RE: PERFORMANCE SECURITY – BID OPPORTUNITY NO. 315-2010

PROVINCE OF MANITOBA/CITY OF WINNIPEG LOCAL STREET RENEWALS: ARTHUR
WRIGHT CRESCENT, DORCHESTER AVENUE, HUGO STREET, JEFFERSON AVENUE, MARGATE
ROAD, YALE AVENUE

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

(Name of Contractor)

(Address of Contractor)

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

Canadian dollars.

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

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

Partial drawings are permitted.

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

(Address)

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

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

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

_____ .
(Date)

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

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

This credit is subject to the Uniform Customs and Practice for Documentary Credit (1993 Revision), International Chamber of Commerce Publication Number 500.

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

E1.1 These Specifications shall apply to the Work.

E1.2 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.

E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>

E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.

E1.2.3 Further to C2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.

E1.3 The following are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
	Cover Sheet	
1000070200-DWG-C1001-00	Hugo Street - Fleet Avenue to 9m North of Mulvey Avenue	594mmx841mm
1000070200-DWG-C1002-00	Hugo Street - 9m North of Mulvey Avenue to Warsaw Avenue	594mmx841mm
1000070200-DWG-C1003-00	Dorchester Avenue - Guelph Street to 100m East of Guelph Street	594mmx841mm
1000070200-DWG-C1004-00	Dorchester Avenue - 100m East of Guelph Street to Harrow Street	594mmx841mm
1000070200-DWG-C1005-00	Yale Avenue - Rockwood Street to 100m East of Rockwood Street	594mmx841mm
1000070200-DWG-C1006-00	Yale Avenue - 100m East of Rockwood Street to Wilton Street	594mmx841mm
1000070200-DWG-C1007-00	Jefferson Avenue - Powers Street to 130m East of Powers Street	594mmx841mm
1000070200-DWG-C1008-00	Jefferson Avenue - 130m East of Powers Street to 65m East of Salter Street	594mmx841mm
1000070200-DWG-C1009-00	Jefferson Avenue - 65m East of Salter Street to 26m East of Aikins Street	594mmx841mm
1000070200-DWG-C1010-00	Jefferson Avenue - 26m East of Aikins Street to Main Street	594mmx841mm
1000070200-DWG-C1011-00	Arthur Wright - Crescent Arthur Wright Way to 110m North of Arthur Wright Way	594mmx841mm
1000070200-DWG-C1012-00	Arthur Wright - Crescent 110m North of Arthur Wright Way to 480m North of Arthur Wright Way	594mmx841mm
1000070200-DWG-C1013-00	Arthur Wright - Crescent 480 m North of Arthur Wright Way to Margate Road	594mmx841mm
1000070200-DWG-C1014-00	Margate Road - Arthur Wright Crescent to 51m East of Duval Street	594mmx841mm
1000070200-DWG-C1015-00	Margate Road - 51m East of Duval Street to 13m West of Sorokin Street	594mmx841mm
1000070200-DWG-C1016-00	Margate Road - 13m West of Sorokin Street to Mandalay Drive	594mmx841mm

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. OFFICE FACILITIES

E3.1 The Contractor shall supply office facilities meeting the following requirements:

- (a) The field office shall be for the exclusive use of the Contract Administrator.
- (b) The building shall be conveniently located near the site of the Work.
- (c) The building shall have a minimum floor area of 25 square metres, a height of 2.4m with two windows for cross ventilation and a door entrance with a suitable lock.
- (d) The building shall be suitable for all weather use. It shall be equipped with an electric heater and air conditioner so that the room temperature can be maintained between either 16-18°C or 24-25°C.
- (e) The building shall be adequately lighted.
- (f) The building shall be furnished with one desk, 6 chairs, drafting table (3m x 1.2m) with stool, one four drawer filing cabinet.
- (g) A portable toilet shall be located near the field office building. The toilet shall have a locking door and be for the exclusive use of the Contract Administrator and other personnel from the City.
- (h) The field office building and the portable toilet shall be cleaned on a weekly basis immediately prior to each site meeting. The Contract Administrator may request additional cleaning when he deems it necessary.

E3.2 The Contractor shall be responsible for all installation and removal costs, all operating costs, and the general maintenance of the office facilities.

E3.3 The office facilities will be provided from the date of the commencement of the Work to the date of Substantial Performance.

E3.4 On a one time basis, where directed by the Contract Administrator, the Contractor shall relocate the office facilities to a location more convenient for the remaining Work.

E4. PROTECTION OF EXISTING TREES

E4.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities to existing boulevard trees within the limits of the construction area:

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

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

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

E4.2 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or his designate.

E4.3 No separate measurement or payment will be made for the protection of trees.

E4.4 Except as required in clause E4.1(c) and E4.1(e), Elm trees shall not be pruned at any time between April 1 and July 31.

E5. TRAFFIC CONTROL

E5.1 Further to clauses 3.6 and 3.7 of CW 1130:

- (a) Where directed, 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 in Work Areas on City Streets, the Contractor ("Agency" in the manual) shall make arrangements with the Traffic Services Branch of the City of Winnipeg to place all temporary regulatory signs. The Contractor shall bear all costs associated with the placement of temporary traffic control devices by the Traffic Services Branch of the City of Winnipeg in connection with the works undertaken by the Contractor.

E6. TRAFFIC MANAGEMENT

E6.1 Further to clause 3.7 of CW 1130:

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

- (a) Jefferson Avenue shall have at least one lane maintained for local access traffic during construction.
- (b) Arthur Wright Crescent and Margate Road will be closed to through traffic. Local access and/or bus traffic shall be maintained. The Contractor shall sign the street "Road Closed Local Access Only" in accordance with the Manual of Temporary Traffic Control.
- (c) Yale Avenue, Dorchester Avenue and Hugo Street will be closed to all traffic. The Contractor shall sign the street "Road Closed" in accordance with the Manual of Temporary Traffic Control.
- (d) Arthur Wright Crescent, Margate Road and Jefferson Avenue intersecting street and private approach access shall be maintained at all times.

E6.1.2 Should the Contractor be unable to maintain an existing access to a residence or business, he shall review the planned disruption with the business or residence and the Contract Administrator, and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of 24 hours notification to the affected residence or business and the Contract Administrator, prior to disruption of access.

E6.1.3 Pedestrian and ambulance/emergency vehicle access must be maintained at all times.

E7. REFUSE AND RECYCLING COLLECTION

E7.1 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 E7.2 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.

E7.2 Collection Schedule

From Cockburn to Hugo between Warsaw and Mulvey and between Mulvey and Fleet.

Collection Day(s): **Garbage and Recycling Day 1**

Collection Time: **7:00 A.M. and 6:00 P.M.**

Common Collection Area: **Back lane pick up for garbage. Trucks can access from Cockburn, but trucks will require flag or traffic control personnel to direct trucks as they back up, or alternate placement of garbage will be required for pick up. Recycling is front street pick up and access will be required for access or alternate relocation of blue boxes for pick up will be required.**

From Hugo to Daly between Warsaw and Mulvey and between Mulvey and Fleet.

Collection Day(s): **Garbage and Recycling Day 1**

Collection Time: **7:00 A.M. and 6:00 P.M.**

Common Collection Area: **Back lane pick up for garbage. Trucks can access from Daly but trucks will require flag or traffic control personnel to direct trucks as they back up, or alternate placement of garbage will be required for pick up. Recycling is front street pick up and access will be required for access or alternate relocation of blue boxes for pick up will be required.**

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

E8. PEDESTRIAN SAFETY

E8.1 During the project, as required and directed by the Contract Administrator, a temporary snow fence shall be installed around any deep excavations or similar conditions that present danger to the public. The Contractor shall be responsible for maintaining the snow fence in a proper working condition. No measurement for payment shall be made for this work.

E9. WATER USED BY CONTRACTOR

E9.1 Further to clause 3.7 of CW 1120, the Contractor shall pay for all costs associated with obtaining water in accordance with the Waterworks By-law, including sewer charges.

E10. SURFACE RESTORATIONS

E10.1 Further to clause 3.3 of CW 1130, when Total Performance is not achieved in the year the Contract is commenced, the Contractor shall temporarily repair any Work commenced and not completed to the satisfaction of the Contract Administrator. The Contractor shall maintain the temporary repairs in a safe condition as determined by the Contract Administrator until permanent repairs are completed. The Contractor shall bear all costs associated with temporary repairs and their maintenance.

E11. INFRASTRUCTURE SIGNS

E11.1 The Contractor shall obtain infrastructure signs from the Traffic Services Sign Shop at 421 Osborne Street. The Contractor shall mount each sign securely to a rigid backing material approved by the Contract Administrator. The Contractor shall fasten each sign to a suitable support and erect and maintain one sign at each street as directed by the Contract

Administrator. When the Contract Administrator considers the Work on the street complete, the Contractor shall remove and dispose of the signs and supports. No measurement for payment will be made for performing all operations herein described and all other items incidental to the work described

E12. RECYCLED CONCRETE BASE COURSE MATERIAL

DESCRIPTION

E12.1 General

E12.1.1 Further to CW 3110, this specification covers supply and placement of recycled concrete base course material for Full-Depth Partial Slab Patches (Class A, B, C, & D), miscellaneous concrete slabs and sidewalks.

E12.2 Definitions

E12.2.1 Deleterious material – are materials such as vegetation, organic material, wood, glass, plastic, metal, reinforcing steel, building rubble, brick, salvaged asphalt materials, clay, shale, and friable particles.

E12.3 Referenced Standard Construction Specifications

- (a) CW 3110 – Sub-Grade. Sub-Base and Base Course Construction.
- (b) CW 3230 – Full-Depth Patching of Existing Pavement Slabs and Joints.
- (c) CW 3235 – Renewal of Existing Miscellaneous Concrete Slabs.
- (d) CW 3325 – Portland Cement Concrete Sidewalk.

MATERIALS

E12.4 Recycled Concrete Base Course Material

E12.4.1 Recycled concrete base course material when used for Full-Depth Partial Slab Patches (Class A, B, C, & D), miscellaneous concrete slabs and sidewalks will be considered equal to granular or limestone base course material specified in Section 2.2 of CW 3110.

E12.4.2 Recycled concrete base course material will be approved by the Contract Administrator.

E12.4.3 Recycled concrete base course material will consist of sound durable particles produced by crushing, screening, and grading of recovered concrete materials, free from soft material that would disintegrate through decay or weathering.

E12.4.4 The recycled concrete base course material will be well graded and conform to the following grading requirements:

Recycled Concrete Base Course Material Grading Requirements

CANADIAN METRIC SIEVE SIZE	PERCENT OF TOTAL DRY WEIGHT PASSING EACH SIEVE
20 000	100%
5 000	40% - 70%
2 500	25% - 60%
315	8% - 25%
80	6% - 17%

E12.4.5 Recycled concrete base course material when subjected to the abrasion test will have a loss of not more than 35% when tested in accordance with grading B of ASTM C131, Test for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

E12.4.6 The amount of deleterious material will be limited to a maximum of two percent of the total dry weight.

CONSTRUCTION METHODS

E12.5 Placement of Recycled Concrete Base Course Material

- E12.5.1 Place and compact recycled concrete base course material as a levelling course to a maximum thickness of 50 millimetres.
- E12.5.2 Spread materials uniformly to avoid segregation free of pockets of fine and coarse material.
- E12.5.3 Level and compact to the finished elevation. Compact to 100% Standard Proctor Density for Full-Depth Partial Slab Patches (Class A, B, C, & D) and 90% Standard Proctor Density for miscellaneous concrete slabs and sidewalks.
- E12.5.4 Maintain the finished material until the pavement or sidewalk is placed.

MEASUREMENT AND PAYMENT

E12.6 Recycled Concrete Base Course Material

- E12.6.1 The supplying, placing and compaction of recycled concrete base course material will be measured on a volume basis and paid for at the Contract Unit Price per cubic metre for the "Supplying and Placing Base Course Material" as specified in accordance with CW 3110.
- E12.6.2 No measurement or payment will be made for material placed as a levelling course under miscellaneous concrete slabs and sidewalks where the costs are included in accordance with CW 3235 and CW 3325.
- E12.6.3 No measurement or payment will be made for materials rejected by the Contract Administrator.

E13. PARTIAL DEPTH PATCHING OF EXISTING JOINTS

DESCRIPTION

E13.1 General

- E13.1.1 This specification covers the Partial Depth Patching of existing concrete pavement joints.

E13.2 Referenced Standard Construction Specifications

- (a) CW 3230 – Full-Depth Patching of Existing Slabs and Joints
- (b) CW 3410 – Asphalt Concrete Pavement Works
- (c) CW 3450 – Planing of Pavement

MATERIALS

E13.3 Asphalt Materials

- E13.3.1 Asphalt material will be Type 1A supplied in accordance with Sections 5 and 6 of CW 3410.

E13.4 Tack Coat

- E13.4.1 Tack Coat will be undiluted SS-1 emulsified asphalt or approval equal.

CONSTRUCTION METHODS

E13.5 Planing of Joints

- E13.5.1 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.

- E13.5.2 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 13.7 of this specification
- E13.5.3 Dispose of material in accordance with Section 3.4 of CW 1130.
- E13.6 Placement of Asphalt Material
- E13.6.1 Prior to placement of asphalt material, the planed joint shall be swept or blow clean of any loose material.
- E13.6.2 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.
- E13.6.3 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.
- E13.6.4 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 %.
- E13.6.5 Ensure that no traffic is allowed to travel over the patched area until the asphalt has cooled to atmospheric temperature.

MEASUREMENT AND PAYMENT

- E13.7 Partial Depth Planing of Existing Joints
- E13.7.1 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.
- E13.8 Asphalt Patching of Partial Depth Joints
- E13.8.1 Asphalt Patching of Partial Depth Joints will be measured on a weight basis and paid for at the Contract Unit Price per tonne for "Asphalt Patching of Partial Depth Joints". The weight to be paid for will be the total number of tonnes of asphalt supplied and placed in accordance with this specification and accepted by the Contract Administrator, as measured on a certified weigh scale.

E14. 100MM CRUSHED SUB-BASE MATERIAL WITH GEOTEXTILE FABRIC AND GEOGRID FOR UNSTABLE SUB-GRADES

DESCRIPTION

- E14.1 Further to CW 3110, this specification covers the supply and placement of 100mm crushed sub-base material for unstable sub-grades.
- E14.2 Referenced Standard Construction Specifications
- E14.2.1 CW 3110 – Sub-grade, Sub-base and Base Course Construction
- E14.2.2 CW 3120 – Installation of Subdrains
- E14.2.3 CW 3130 – Supply and Installation of Geotextile Fabrics
- E14.2.4 CW 3135 – Supply and Installation of Geogrid

MATERIALS

- E14.3 100mm crushed sub-base material will be supplied in accordance with CW 3110.

E14.4 Separation geotextile fabric will be non-woven fabric supplied in accordance with CW 3120.

E14.5 Geogrid will be supplied in accordance with CW 3135.

CONSTRUCTION METHODS

E14.6 Prepare the subgrade in accordance with CW 3110.

E14.7 Place separation geotextile fabric (non-woven) over the accepted subgrade in accordance with CW 3130.

E14.8 Place geogrid over the separation fabric (non-woven) in accordance with CW 3135.

E14.9 Place sub-base material by end dumping down the centre of the excavation. The sub-base shall be pushed forward and levelled using a track type dozer where possible, to build a thickened section to support the hauling operations and avoid damage to the subgrade, geotextile fabric or geogrid. This procedure shall continue until all sub-base material has been placed down the centre of the excavation.

E14.10 Spread the sub-base material to final grades utilizing a track type dozer.

E14.11 Initial compaction of the sub-base material shall consist of two complete passes utilizing vibratory type equipment capable of compacting the material. Each pass shall be over lapped by half the width of the roller. All additional compaction shall be completed utilizing static type equipment. No trucks, rubber tire loaders or graders will be allowed to travel on the sub-base material until the Contract Administrator has approved the compaction of the sub-base.

E14.12 The final compacted thickness of the sub-base material shall be a minimum of 300 mm thickness or as shown on the drawings.

MEASUREMENT AND PAYMENT

E14.13 Supply and installation of separation geotextile fabric (non-woven) will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Separation Geotextile Fabric". The area to be paid for will be the total number of square metres of separation geotextile fabric, supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

E14.14 Supply and installation of geogrid will be measured and paid in accordance with CW 3135.

E14.15 Supply, placement and compaction of crushed sub-base material will be measured and paid in accordance with CW 3110.

E14.16 No measurement or payment will be made for materials rejected by the Contract Administrator.

APPENDIX 'A'

GEOTECHNICAL REPORT

APPENDIX 'A' - GEOTECHNICAL REPORT

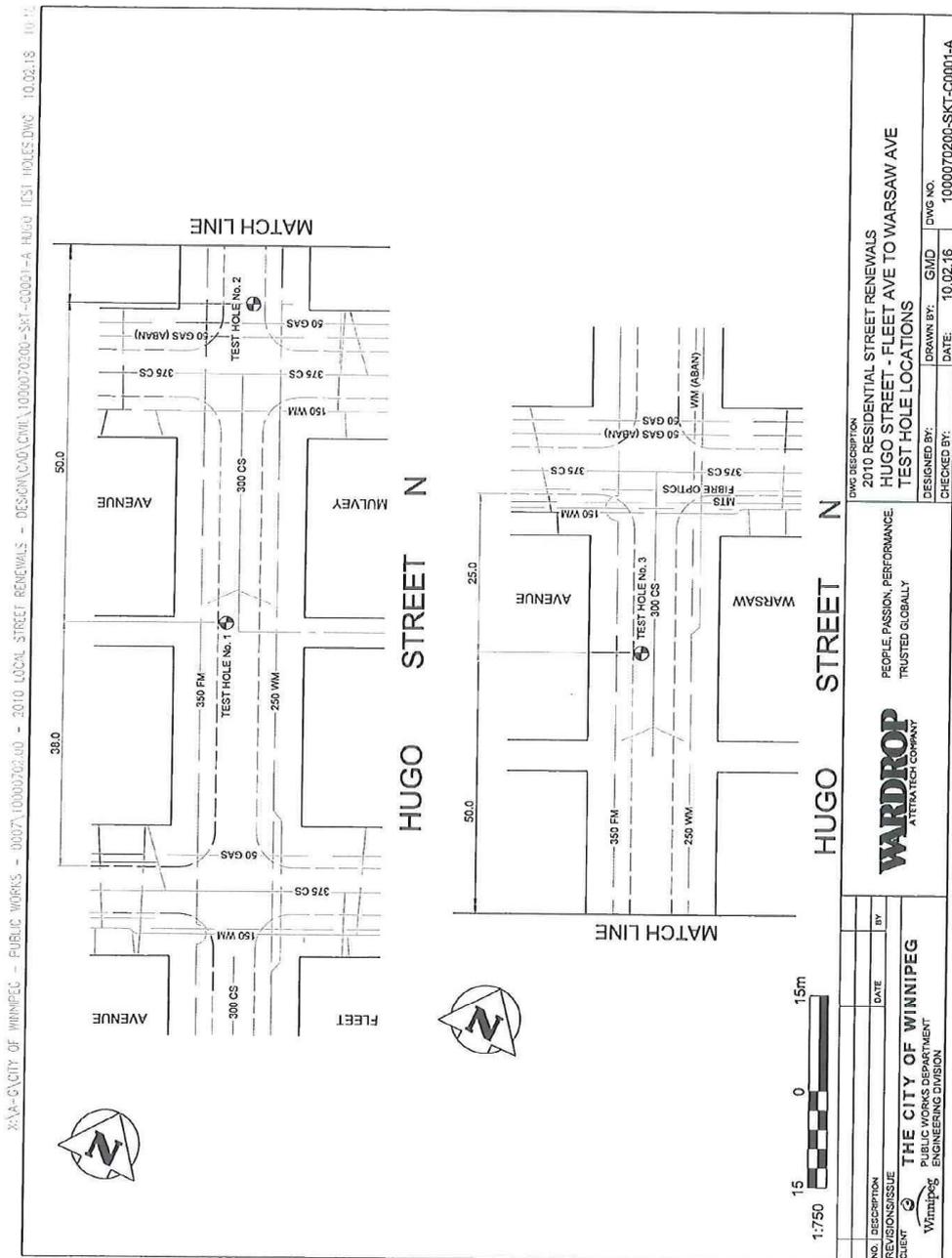
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The geotechnical report is provided to aid in the Contractor's evaluation of the existing pavement structure and/or soil conditions. The information presented is considered accurate at the locations shown on the Drawings and at the time of drilling.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

Geotechnical Report for Hugo Street

Test Hole Locations



Summary of Core Samples

Test Hole #	Test Hole Location	Pavement Thickness		Pavement Structure Material		Subgrade Description	Sample Depth (m)	Moisture Content (%)	Hydrometer Analysis				Atterberg Limits			
		Type	Thickness (mm)	Type	Thickness (mm)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Index	
1	Hugo Street	Concrete	150	-	-	Asphalt/Concrete	0.4	-	0.0	4.2	56.8	30.0	36	15	21	
						Clayey Silt	0.5	26.3								
							0.8	27.6								
						Silt	1.1	25.4								
							1.4	34.9								
2	Hugo Street	Concrete	150	-	-	Asphalt/Concrete	0.4	-								
						Clayey Silt	0.5	34.0								
							0.8	24.1								
						Silt	1.1	19.2								
							1.4	30.1								
3	Hugo Street	Concrete	185	-	-	Asphalt/Concrete	0.4	-								
						Organic Clay	0.5	27.4								
						Silt	0.8	25.3	0.0	5.5	75.5	19.0	26	17	9	
							1.1	23.5								
						Silt	1.4	29.3								
3	Hugo Street	Concrete	185	-	-		1.7	39.2								
							2.0	41.3								
						Clay	2.4	43.8								

Test Hole Log for TH1

LOG OF BOREHOLE H1

SOIL PROFILE		SAMPLES		CPT (kPa)		REMARKS								
DEPTH	ELEV.	DESCRIPTION	STRAT. PLOT	% RECOVERY	TYPE	"N" VALUES	GROUND WATER CONDITIONS	DEPTH SCALE	FIELD SHEAR (kPa)	Lab Shear (kPa)	PLASTIC LIMIT	NATURAL MOISTURE CONTENT	LIQUID LIMIT	GRAIN SIZE DISTRIBUTION (%)
									X	◆	W _p	w	W _L	GR SA SI CL
		ASPHALT - 25 mm												
		CONCRETE - 150 mm												
		SILT - Clayey, brown			AS									0 4 57 39
1		SILT - brown			AS			1						
					AS									
					AS									
2		CLAY - grey			AS			2						
					AS									
					AS									
		CLAY - Silty, brown			AS									
		End of Borehole @ 2.6 m.												
3								3						
4								4						

W:\TBT BOREHOLE 10-527 HUGO STREET.GPJ TBT.GDT 10/5/16



TBT Engineering Limited
 110 Paramount Road
 Winnipeg, Manitoba R2X 2W3
 PH: 204-633-6008
 FX: 204-633-6620
 Email: tble@tble.ca
 Web: www.tble.ca

SAMPLE TYPE LEGEND

- AS Auger Sample
- SS Split Spoon Sample
- TW 70mm Thin Wall Tube
- CC Concrete/Asphalt Core
- RC Rock Core
- PS Ponar Sample
- SD Side Sample

ENCLOSURE 1

Test Hole Log for TH2

LOG OF BOREHOLE H2

TBT REF. No.: 10-527 CLIENT: Wardrop PROJECT: Geotechnical Investigation LOCATION: Hugo Street - Fleet Ave to Warsaw Ave Winnipeg, Manitoba				SURFACE ELEV.: metres EQUIPMENT: SS Auger DIAMETER: 125 mm DATE: 2010 March 18 DRILL COMPANY: Active Drilling								
SOIL PROFILE		SAMPLES		CPT (kPa)		REMARKS						
DEPTH	ELEV.	DESCRIPTION	STRAT PLOT	% RECOVERY	TYPE	"N" VALUES	GROUND WATER CONDITIONS	DEPTH SCALE	PLASTIC LIMIT	NATURAL MOISTURE CONTENT	LIQUID LIMIT	GRAIN SIZE DISTRIBUTION (%)
		ASPHALT - 20 mm CONCRETE - 150 mm CLAY - Silty, grey			AS							
1		SILT - brown			AS							
		CLAY - grey			AS							
2		CLAY - Silty, brown			AS							
		End of Borehole @ 2.6 m.			AS							
3												
4												
 TBT Engineering Limited 110 Paramount Road Winnipeg, Manitoba R2X 2W3 PH: 204-633-6008 FX: 204-633-6620 Email: tbte@tbte.ca Web: www.tbte.ca				SAMPLE TYPE LEGEND AS Auger Sample RC Rock Core SS Split Spoon Sample PS Ponar Sample TW 70mm Thin Wall Tube SD Side Sample CC Concrete/Asphalt Core				ENCLOSURE 2 PAGE 1 OF 1				

W: TBT BOREHOLE 10-527 HUGO STREET.GPJ TBT.GDT 10/2/26

Test Hole Log for TH3

LOG OF BOREHOLE H3

SOIL PROFILE		SAMPLES		GROUND WATER CONDITIONS	DEPTH SCALE	CPT (kPa)		PLASTIC LIMIT (kPa)	NATURAL MOISTURE CONTENT (kPa)	LIQUID LIMIT (kPa)	REMARKS	
DEPTH	ELEV.	DESCRIPTION	STRAT PLOT			% RECOVERY	TYPE					"N" VALUES
							SPT (N)	DCPT				GR SA SI CL
		ASPHALT - 20 mm										
		CONCRETE - 180 mm										
		ORGANIC CLAY - black										
		CLAY - Silty, grey			AS							
		SILT - brown			AS							
1		CLAY - grey			AS							0 6 75 19
		SILT			AS							
2		CLAY - grey			AS							
		SILT			AS							
		End of Borehole @ 2.6 m.										
3												
4												

W:\TBT BOREHOLE - 10-527 HUGO STREET.GPJ TBT.GDT 10/2/26



TBT Engineering Limited
 110 Paramount Road
 Winnipeg, Manitoba R2X 2W3
 PH: 204-633-6008
 FX: 204-633-6620
 Email: tbte@tbte.ca
 Web: www.tbte.ca

SAMPLE TYPE LEGEND

AS	Auger Sample	RC	Rock Core
SS	Split Spoon Sample	PS	Ponar Sample
TW	70mm Thin Wall Tube	SD	Side Sample
CC	Concrete/Asphalt Core		

ENCLOSURE 3

Atterberg Limits for TH1



TBT Engineering Limited
 110 Paramount Road
 Winnipeg, MB R3X 2W3
 PH: (204) 633-6008 Fax (204) 633-6620
 E-Mail: hmanalo@tbt.ca

Atterberg Limits					
To: Wardrop Engineering Inc. 400-386 Broadway Winnipeg, Manitoba R3C 4M8			TBT Project No.: 10-527		
Attn: Dean Lazaruk, C.E.T. Project: City of Winnipeg 2010 Residential Street Renewal Program Hugo Street			Lab Sample No.: 130		
Liquid Limit Determination					
Dish No.:	17	1	12		Liquid Limit
Wet Soil + Dish:	38.06	41.05	37.45		25 Blows
Dry Soil + Dish:	33.12	35.25	32.36		
Moisture:	4.94	5.8	5.09		
Dish:	19.08	19.21	19.07		
Dry Soil:	14.04	16.04	13.29		
% Moisture:	35.19	36.16	38.30		
No. of Blows:	30	25	16		36
				Material Identification: Date Received: 18-Mar-10 Date Tested: 23-Mar-10 B.H./T.P. No.: TH 1 Sample No.: 1 Depth: .66 m Liquid Limit, %: 36 Plastic Limit, %: 15 Plasticity Index: 21	
Plastic Limit Determination					
Dish No.:	25	24			
Wet Soil + Dish:	26.33	26.29			
Dry Soil + Dish:	25.42	25.39			
Moisture:	0.91	0.9			
Dish:	19.38	19.4			
Dry Soil:	6.04	5.99			
% Moisture:	15.07	15.03			
Average:					15
Test Method : ASTM: D4318, D2216 TBTE Technician: Elena Oberez Remarks: Cl, lean clay					
				REVIEWED BY: Hermie Manalo	

Atterberg Limits for TH3



TBT Engineering Limited
 110 Paramount Road
 Winnipeg, MB R3X 2W3
 PH: (204) 633-6008 Fax (204) 633-6620
 E-Mail: hmanalo@tble.ca

Atterberg Limits					
To: Wardrop Engineering Inc. 400-386 Broadway Winnipeg, Manitoba R3C 4M8			TBT Project No.: 10-527		
Attn: Dean Lazaruk Project: City of Winnipeg 2010 Residential Street Renewal Program Hugo Street			Lab Sample No.: 131		
Liquid Limit Determination					
Dish No.:	33	5	23		Liquid Limit
Wet Soil + Dish:	38.05	39.72	36.77		25 Blows
Dry Soil + Dish:	34.24	35.48	32.98		
Moisture:	3.81	4.24	3.79		
Dish:	19.19	19.23	19.42		
Dry Soil:	15.05	16.25	13.56		
% Moisture:	25.32	26.09	27.95		
No. of Blows:	30	24	15		26
				Material Identification: Date Received: 18-Mar-10 Date Tested: 23-Mar-10 B.H./T.P. No.: TH 3 Sample No.: 2 Depth: .66 m Liquid Limit, %: 26 Plastic Limit, %: 17 Plasticity Index: 9	
Plastic Limit Determination					
Dish No.:	25	24			
Wet Soil + Dish:	25.55	26.72			
Dry Soil + Dish:	24.65	25.66			
Moisture:	0.9	1.06			
Dish:	19.36	19.48			
Dry Soil:	5.29	6.18			
% Moisture:	17.01	17.15			
Average:					17
Test Method : ASTM: D4318, D2216 TBTE Technician: Elena Oberez Remarks: CI, lean clay					
				REVIEWED BY: Hermie Manalo	

Particle Size Analysis TH1



TBT Engineering Limited
 110 Paramount Road, Winnipeg, MB R2X 2W3
 PH: (204) 633-6008 FAX: (204) 633-6620
 E-Mail: hmanalo@tbte.ca

Particle Size Analysis of Soils Test Report			
To: Wardrop Engineering Inc. 400-386 Broadway Winnipeg, Manitoba R3C 4M8 Attention: Dean Lazaruk, C.E.T. Project: City of Winnipeg 2010 Residential Street Renewal Program Hugo Street		TBTE Project No.: 10-527 Lab Sample No.: 130	
Date Sampled: 18-Mar-10	Date Received: 18-Mar-10	Sieve Analysis	
Sampled By: EO-TBTE	Date Tested: 23-Mar-10	Sieve(mm)	% Passing
Material Identification B.H./T.H. No. TH 1 Sample No. 2 Depth .66 m Specific Gravity of Material: 2.65		37.5	100.0
		25	100.0
		19	100.0
		12.5	100.0
		9.5	100.0
		4.75	100.0
		2	99.8
		0.841	99.7
		0.42	99.6
		0.25	99.4
		Hydrometer Analysis	
		Diameter	% Finer
		0.106	98.5
		0.075	95.8
		0.0385992	79.3
		0.0282334	71.5
		0.0185725	61.9
		0.0111822	52.2
		0.0080174	48.3
		0.0057781	44.5
		0.0029005	40.6
		0.0012311	36.7
Grain Size Analysis 			
Clay Silt Fine Sand Medium Sand Coarse Sand Fine Gravel Coarse Gravel Cullibles			
Soil Classification		% Composition	
Clayey silt		0	Gravel
		4.2	Sand
		56.8	Silt
		39.0	Clay
Test Method: ASTM D422, D2216, D4318, D2487		D10	0
TBT Technician: Elena Oberez		D30	0
		D60	0.0170
		Cu	-
		Cc	-
		REVIEWED BY: <i>Hermano</i> Hermie Manalo	

Particle Size Analysis for TH3

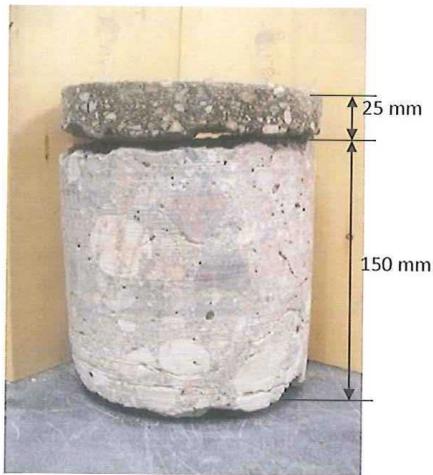


TBT Engineering Limited
 110 Paramount Road, Winnipeg, MB R2X 2W3
 PH: (204) 633-6008 FAX: (204) 633-6620
 E-Mail: hmanalo@tbt.ca

Particle Size Analysis of Soils Test Report					
To: Wardrop Engineering Inc. 400-386 Broadway Winnipeg, Manitoba R3C 4M8 Attention: Dean Lazaruk, C.E.T. Project: City of Winnipeg 2010 Residential Street Renewal Program Hugo Street			TBTE Project No.: 10-527 Lab Sample No.: 131		
Date Sampled: 18-Mar-10	Date Received: 18-Mar-10	Sieve Analysis		Hydrometer Analysis	
Sampled By: EO-TBTE	Date Tested: 23-Mar-10	Sieve(mm)	% Passing	Diameter	% Finer
Material Identification B.H./T.H. No. TH 3 Sample No. - Depth .99 m Specific Gravity of Material: 2.65		37.5	100.0	0.106	98.7
		25	100.0	0.075	94.5
		19	100.0	0.0385992	79.4
		12.5	100.0	0.028918	65.9
		9.5	100.0	0.0193969	50.4
		4.75	100.0	0.0118687	34.9
		2	100.0	0.0085481	29.1
		0.841	100.0	0.0061508	25.2
		0.42	100.0	0.0030917	20.3
		0.25	99.9	0.0013029	18.4
Grain Size Analysis 					
Soil Classification		% Composition		D10	0
Silt		0	Gravel	D30	0.0090
		5.5	Sand	D60	0.0240
		75.5	Silt	Cu	-
		19.0	Clay	Cc	-
Test Method: ASTM D422, D2216, D4318, D2487					
TBT Technician: Elena Oberez					
REVIEWED BY: <i>Hermie Manalo</i>					

Pavement Core Photos

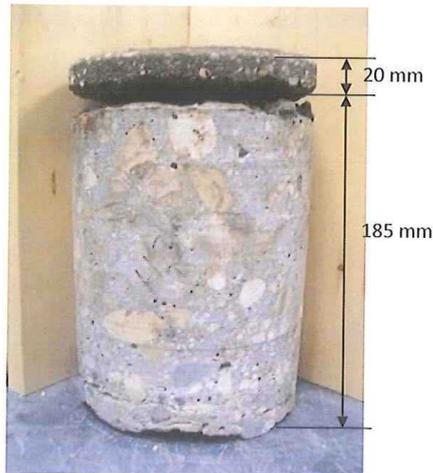
CITY OF WINNIPEG 2010 RESIDENTIAL STREET RENEWAL PROGRAM
HUGO STREET



TEST HOLE 1



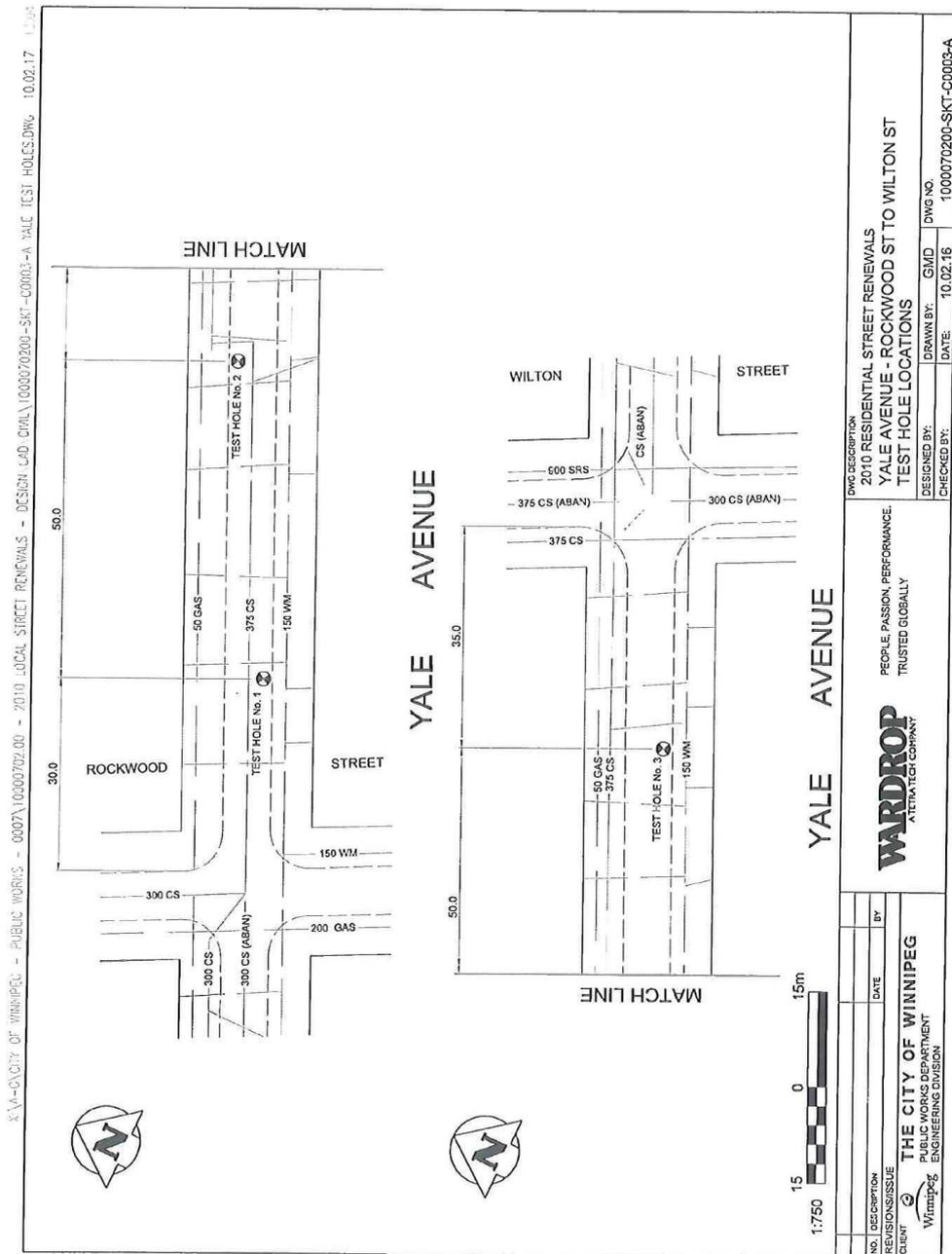
TEST HOLE 2



TEST HOLE 3

Geotechnical Report for Yale

Test Hole Locations



Summary of Core Samples

Test Hole Log for TH1

LOG OF BOREHOLE Y1

SOIL PROFILE		SAMPLES		GROUND WATER CONDITIONS	DEPTH SCALE	CPT (kPa)		PLASTIC LIMIT (kPa)	NATURAL MOISTURE CONTENT (w)	LIQUID LIMIT (kPa)	REMARKS
DEPTH	ELEV.	DESCRIPTION	STRAT. PL. OT			% RECOVERY	TYPE				
		ASPHALT - 80 mm									
		CONCRETE									
		FILL - GRAVEL									
		CLAY - Silty, brown			AS						0 1 37 62
		CLAY - Silty, some silt seams (1-3 mm thick), brown			AS						
1					AS						
					AS						
		----- - some sand			AS						
2					AS						
		SILT - Clayey, brown			AS						
		End of Borehole @ 2.6 m.									
3											
4											

W1TBT BOREHOLE 10-527 YALE AVENUE GRJ TBT.GDT 10/06



TBT Engineering Limited
 110 Paramount Road
 Winnipeg, Manitoba R2X 2W3
 PH: 204-633-6008
 FX: 204-633-6620
 Email: tbt@tbt.ca
 Web: www.tbt.ca

SAMPLE TYPE LEGEND

AS	Auger Sample	RC	Rock Core
SS	Split Spoon Sample	PS	Ponar Sample
TW	70mm Thin Wall Tube	SD	Side Sample
CC	Concrete/Asphalt Core		

ENCLOSURE 11
 PAGE 1 OF 1

Test Hole Log for TH2

LOG OF BOREHOLE Y2

SOIL PROFILE		SAMPLES		GROUND WATER CONDITIONS	DEPTH SCALE	CPT (kPa)		FLUID LIMIT	NATURAL MOISTURE CONTENT	LIQUID LIMIT	REMARKS	
DEPTH	ELEV.	DESCRIPTION	STRAT PLOT			% RECOVERY	TYPE					"N" VALUES
		ASPHALT - 70 mm										
		CONCRETE										
		FILL - GRAVEL			AS							
		CLAY - black			AS							
					AS							
		SILT - Clayey, brown			AS							
1		CLAY - Silty, brown			AS							
					AS							
		----- - some silt seams			AS							
2		CLAY - brown			AS							
					AS							
		End of Borehole @ 2.6 m.										
3												
4												

SAMPLE TYPE LEGEND			
AS	Auger Sample	RC	Rock Core
SS	Split Spoon Sample	PS	Ponar Sample
TW	70mm Thin Wall Tube	SD	Side Sample
CC	Concrete/Asphalt Core		

 <p>TBT Engineering Limited 110 Paramount Road Winnipeg, Manitoba R2X 2W3 PH: 204-633-6008 FX: 204-633-6620 Email: tble@tbte.ca Web: www.tbte.ca</p>	<p>ENCLOSURE 12</p> <p>PAGE 1 OF 1</p>
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W:\TBT\BOREHOLE_10-527\YALE AVENUE\GPR\TBT.GDT_10/3/26

Test Hole Log for TH3

LOG OF BOREHOLE Y3

TBT REF. No.: 10-527		SURFACE ELEV.: metres									
CLIENT: Wardrop		EQUIPMENT: SS Auger									
PROJECT: Geotechnical Investigation		DIAMETER: 125 mm									
LOCATION: Yale Avenue - Rockwood Street to Wilton Street Winnipeg, Manitoba		DATE: 2010 March 18									
		DRILL COMPANY: Active Drilling									
DEPTH ELEV.	SOIL PROFILE DESCRIPTION	STRAT. PLOT % RECOVERY	SAMPLES TYPE 'N' VALUES	GROUND WATER CONDITIONS	DEPTH SCALE	CPT (kPa)		PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	REMARKS
						FIELD SHEAR (kPa) x	Lab Shear (kPa) o				
	ASPHALT - 70 mm										
	CONCRETE										
	FILL - GRAVEL - trace clay		AS								0 5 30 65
	CLAY - black		AS								
	CLAY - brown		AS								
1	SILT - brown		AS		1						
			AS								
2	CLAY - trace silt seams, brown		AS		2						
			AS								
	CLAY - brown		AS								
	End of Borehole @ 2.6 m.										
3					3						
4					4						

W: TBT BOREHOLE 10-527 YALE AVENUE.GPJ TBT.GDT 10/02/06



TBT Engineering Limited
 110 Paramount Road
 Winnipeg, Manitoba R2X 2W3
 PH: 204-633-6008
 FX: 204-633-6620
 Email: tbt@tble.ca
 Web: www.tble.ca

SAMPLE TYPE LEGEND

AS	Auger Sample	RC	Rock Core
SS	Split Spoon Sample	PS	Ponar Sample
TW	70mm Thin Wall Tube	SD	Side Sample
CC	Concrete/Asphalt Core		

ENCLOSURE 13

Atterberg Limits for TH1



TBT Engineering Limited
 110 Paramount Road
 Winnipeg, MB R3X 2W3
 PH: (204) 633-6008 Fax (204) 633-6620
 E-Mail: hmanalo@tbt.ca

Atterberg Limits					
To: Wardrop Engineering Inc. 400-386 Broadway Winnipeg, Manitoba R3C 4M8			TBT Project No.: 10-527 Lab Sample No.: 128		
Attn: Dean Lazaruk, C.E.T. Project: City of Winnipeg 2010 Residential Street Renewal Program Yale Avenue					
Liquid Limit Determination					
Dish No.:	35	3	34		Liquid Limit 25 Blows
Wet Soil + Dish:	29.95	36.89	34.5		
Dry Soil + Dish:	25.88	30.04	28.42		
Moisture:	4.07	6.85	6.08		
Dish:	19.25	19.41	19.34		
Dry Soil:	6.63	10.63	9.08		
% Moisture:	61.39	64.44	66.96		
No. of Blows:	35	21	13		63
				Material Identification: Date Received: 18-Mar-10 Date Tested: 23-Mar-10 B.H./T.P. No.: TH 1 Sample No.: 2 Depth: .35 m Liquid Limit, %: 63 Plastic Limit, %: 19 Plasticity Index: 44	
Plastic Limit Determination					
Dish No.:	14	30			
Wet Soil + Dish:	25.22	25.71			
Dry Soil + Dish:	24.3	24.72			
Moisture:	0.92	0.99			
Dish:	19.43	19.51			
Dry Soil:	4.87	5.21			
% Moisture:	18.89	19.00			
Average:					19
Test Method : ASTM: D4318, D2216 TBTE Technician: Elena Oberez Remarks: CH, high plastic clay					
				REVIEWED BY: Hermie Manalo	

Atterberg Limits for TH3



TBT Engineering Limited
 110 Paramount Road
 Winnipeg, MB R3X 2W3
 PH: (204) 633-6008 Fax (204) 633-6620
 E-Mail: hmanalo@tbt.ca

Atterberg Limits					
To: Wardrop Engineering Inc. 400-386 Broadway Winnipeg, Manitoba R3C 4M8			TBT Project No.: 10-527 Lab Sample No.: 129		
Attn: Dean Lazaruk, C.E.T. Project: City of Winnipeg 2010 Residential Street Renewal Program Yale Avenue					
Liquid Limit Determination					
Dish No.:	28	32	2		Liquid Limit 25 Blows
Wet Soil + Dish:	30.02	37.12	34.21		
Dry Soil + Dish:	25.91	30.12	28.22		
Moisture:	4.11	7	5.99		
Dish:	19.45	19.37	19.33		
Dry Soil:	6.46	10.75	8.89		
% Moisture:	63.62	65.12	67.38		
No. of Blows:	30	21	15		64
				Material Identification: Date Received: 18-Mar-10 Date Tested: 23-Mar-10 B.H./T.P. No.: TH 3 Sample No.: 2 Depth: .35 m Liquid Limit, %: 64 Plastic Limit, %: 18 Plasticity Index: 46	
Plastic Limit Determination					
Dish No.:	12	34			
Wet Soil + Dish:	24.32	23.11			
Dry Soil + Dish:	23.56	22.57			
Moisture:	0.76	0.54			
Dish:	19.34	19.62			
Dry Soil:	4.22	2.95			
% Moisture:	18.01	18.31			
Average:					18
Test Method : ASTM: D4318, D2216 TBTE Technician: Elena Oberez Remarks: CH, high plastic clay					
				REVIEWED BY: Hermie Manalo	

Particle Size Analysis TH1



TBT Engineering Limited
 110 Paramount Road, Winnipeg, MB R2X 2W3
 PH: (204) 633-6008 FAX: (204) 633-6620
 E-Mail: hmanalo@tbte.ca

Particle Size Analysis of Soils Test Report			
To: Wardrop Engineering Inc. 400-386 Broadway Winnipeg, Manitoba R3C 4M8 Attention: Dean Lazaruk Project: City of Winnipeg 2010 Residential Streets Renewal Program Yale Avenue		TBTE Project No.: 10-527 Lab Sample No.: 128	
Date Sampled: 18-Mar-10 Sampled By: PB-T BTE	Date Received: 18-Mar-10 Date Tested: 23-Mar-10	Sieve Analysis	Hydrometer Analysis
Material Identification B.H./T.H. No. TH 1 Sample No. 2 Depth .35 m Specific Gravity of Material: 2.65		Sieve(mm) % Passing	Diameter % Finer
		37.5 100.0	0.106 99.6
		25 100.0	0.075 98.9
		19 100.0	0.0356228 97.1
		12.5 100.0	0.0257073 93.2
		9.5 100.0	0.0168315 87.4
		4.75 100.0	0.0100769 79.6
		2 100.0	0.0072797 74.8
		0.841 100.0	0.0052625 70.9
		0.42 100.0	0.0026653 64.1
0.25 99.9	0.0011657 54.4		
Grain Size Analysis 			
Soil Classification		% Composition	D10 0 D30 0 D60 0.0018 Cu - Cc -
Silty clay		0 Gravel 1.1 Sand 36.9 Silt 62.0 Clay	
Test Method: ASTM D422, D2216, D4318, D2487 TBT Technician: Elena Oberez			
REVIEWED BY:			

Particle Size Analysis for TH3

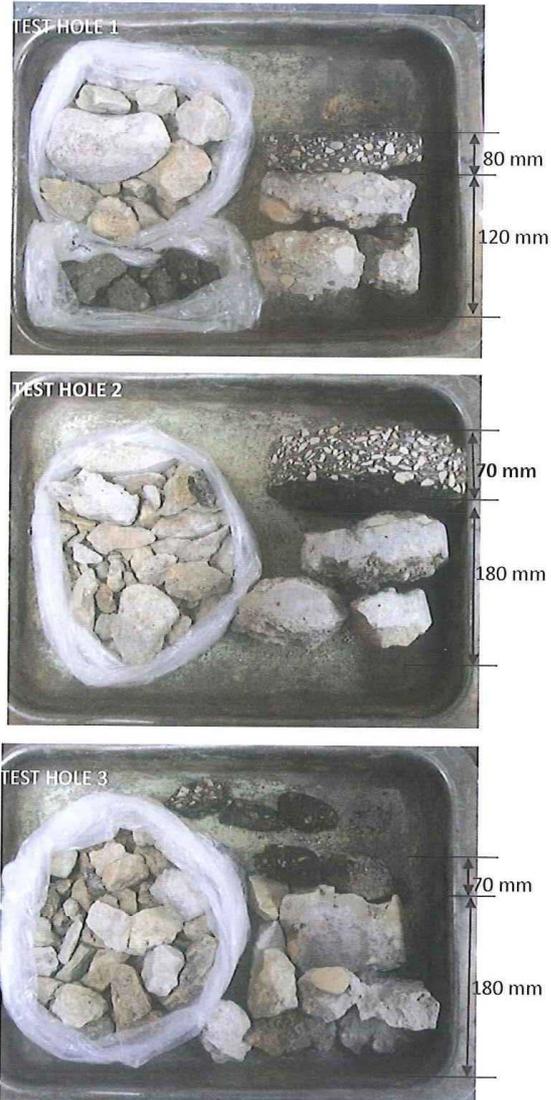


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 110 Paramount Road, Winnipeg, MB R2X 2W3
 PH: (204) 633-6008 FAX: (204) 633-6620
 E-Mail: hmanalo@tbte.ca

Particle Size Analysis of Soils Test Report															
To: Wardrop Engineering Inc. 400-386 Broadway Winnipeg, Manitoba R3C 4M8 Attention: Dean Lazaruk, C.E.T. Project: City of Winnipeg 2010 Residential Street Renewal Program Yale Avenue		TBTE Project No.: 10-527 Lab Sample No.: 129													
Date Sampled: 18-Mar-10 Sampled By: PB-TBTE	Date Received: 18-Mar-10 Date Tested: 23-Mar-10	Sieve Analysis	Hydrometer Analysis												
Material Identification B.H./T.H. No. TH 3 Sample No. 2 Depth .35 m Specific Gravity of Material: 2.65		Sieve(mm) % Passing	Diameter % Finer												
		37.5 100.0	0.106 97.2												
		25 100.0	0.075 94.8												
		19 100.0	0.0370741 89.1												
		12.5 100.0	0.0267136 85.3												
		9.5 100.0	0.017281 80.4												
		4.75 100.0	0.0102951 74.6												
		2 100.0	0.0073708 71.7												
		0.841 99.9	0.0052544 69.8												
		0.42 99.6	0.0026448 65.9												
0.25 99.1	0.0011212 63.0														
Grain Size Analysis 															
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Clay</td> <td style="width: 25%;">Silt</td> <td style="width: 25%;">Fine Sand</td> <td style="width: 25%;">Coarse Sand</td> </tr> <tr> <td style="width: 25%;">Clay</td> <td style="width: 25%;">Silt</td> <td style="width: 25%;">Fine Gravel</td> <td style="width: 25%;">Coarse Gravel</td> </tr> <tr> <td style="width: 25%;">Cobbles</td> <td colspan="3"></td> </tr> </table>		Clay	Silt	Fine Sand	Coarse Sand	Clay	Silt	Fine Gravel	Coarse Gravel	Cobbles					
Clay	Silt	Fine Sand	Coarse Sand												
Clay	Silt	Fine Gravel	Coarse Gravel												
Cobbles															
Soil Classification		% Composition													
Clay		0	Gravel												
		5.2	Sand												
		29.8	Silt												
		65.0	Clay												
Test Method: ASTM D422, D2216, D4318, D2487 TBT Technician: Elena Oberez															
		REVIEWED BY: Hermie Manalo													

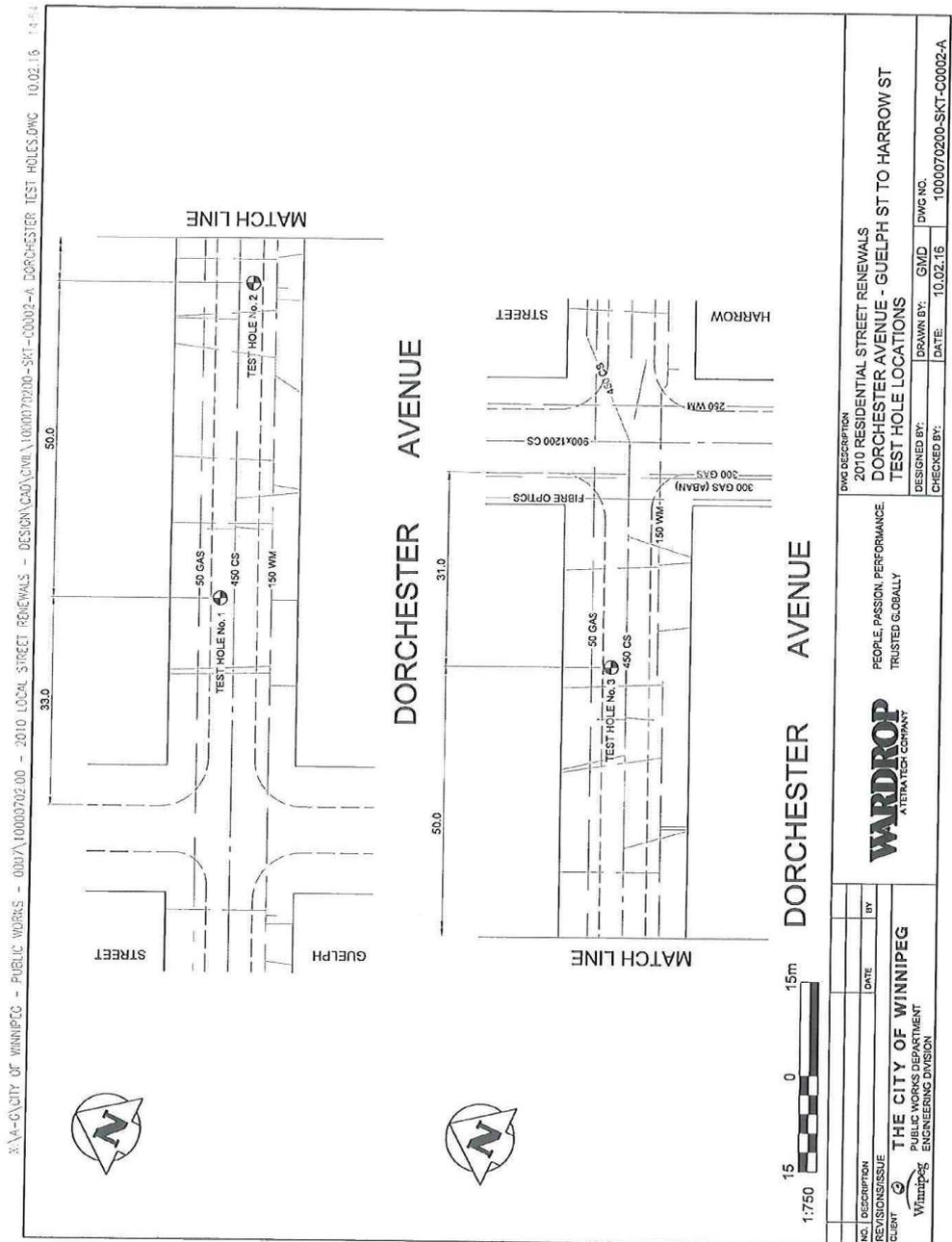
Pavement Core Photos

CITY OF WINNIPEG 2010 RESIDENTIAL STREET RENEWAL PROGRAM
YALE AVENUE



Geotechnical Report for Dorchester

Test Hole Locations



Summary of Core Samples

Test Hole #	Test Hole Location	Pavement Thickness		Pavement Structure Material		Subgrade Description	Sample depth (m)	Moisture Content (%)	Hydrometer Analysis				Atterberg Limits			
		Type	Thickness (mm)	Type	Thickness (mm)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Index	
1	Dorchester Avenue	Concrete	350	-	-	Asphalt/Concrete	0.4	12.9								
						Silty Clay	0.6	40.5	0.0	3.9	31.8	64.3	65	20	45	
							0.8	26.4								
						Silt	1.0	28.8								
						Clay	1.3	36.0								
						Silt	1.6	40.9								
2	Dorchester Avenue	Concrete	135	-	-	Asphalt/Concrete/Gravel	0.4	15.7	0.2	3.1	24.7	72.0				
						Clay	0.6	33.0								
							0.8	37.0								
						Clay	1.0	33.8								
							1.3	28.4	0.2	2.7	70.1	27.0				
						Silt	1.6	24.2								
3	Dorchester Avenue	Concrete	170	-	-	Asphalt/Concrete	0.4	-								
							0.6	36.9								
							0.8	44.5								
						Clay	1.0	42.7								
							1.3	34.2								
						Clay & Silt	1.6	38.3								

Test Hole Log for TH1

LOG OF BOREHOLE D1

SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	CPT (kPa)	PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W _L	REMARKS
DEPTH ELEV.	DESCRIPTION	STRAT. PLOT	% RECOVERY	TYPE						
							■ SPT (N)	◆ DCPT		GR SA SI CL
	ASPHALT - 50 mm CONCRETE									
	FILL - GRAVEL - trace clay CLAY - Silty, brown			AS						0 4 33 63
1	SILT - Clayey, brown			AS		1				
	CLAY - brown			AS						
2	SILT - Clayey, brown			AS		2				
	CLAY - Silty, brown			AS						
	End of Borehole @ 2.6 m.									
3						3				
4						4				

W:\TBT BOREHOLE 10-527 DORCHESTER AVENUE.GPJ TBT.GDT 10/23/26



TBT Engineering Limited
 110 Paramount Road
 Winnipeg, Manitoba R2X 2W3
 PH: 204-633-6008
 FX: 204-633-6620
 Email: tbte@tbte.ca
 Web: www.tbte.ca

SAMPLE TYPE LEGEND

AS	Auger Sample	RC	Rock Core
SS	Split Spoon Sample	PS	Ponar Sample
TW	70mm Thin Wall Tube	SD	Side Sample
CC	Concrete/Asphalt Core		

ENCLOSURE 6
 PAGE 1 OF 1

Test Hole Log for TH2

LOG OF BOREHOLE D2

SOIL PROFILE		SAMPLES		CPT (kPa)		REMARKS						
DEPTH	ELEV.	DESCRIPTION	STRAT PLOT	% RECOVERY	TYPE	"N" VALUES	GROUND WATER CONDITIONS	DEPTH SCALE	FIELD SHEAR (kPa)	Lab Shear (kPa)	WATER CONTENT (%)	GRAIN SIZE DISTRIBUTION (%)
									X	Lab Shear (kPa)	W _p W _n W _L	GR SA SI CL
		ASPHALT - 65 mm										
		CONCRETE										
		FILL - GRAVEL - trace clay, black			AS							
		CLAY - brown			AS							0 3 24 72
1		SILT - brown			AS			1				
		- trace sand			AS							0 3 69 28
2		CLAY - trace silt, brown			AS			2				
		End of Borehole @ 2.6 m.			AS							
3								3				
4								4				

W TBT BOREHOLE 10-527 DORCHESTER AVENUE.GPJ TBT.GDT 10/3/26



TBT Engineering Limited
 110 Paramount Road
 Winnipeg, Manitoba R2X 2W3
 PH: 204-633-6008
 FX: 204-633-6620
 Email: tbt@tbt.ca
 Web: www.tbt.ca

SAMPLE TYPE LEGEND

AS	Auger Sample	RC	Rock Core
SS	Split Spoon Sample	PS	Ponar Sample
TW	70mm Thin Wall Tube	SD	Side Sample
CC	Concrete/Asphalt Core		

ENCLOSURE 7
 PAGE 1 OF 1

Test Hole Log for TH3

LOG OF BOREHOLE D3

SOIL PROFILE		SAMPLES		CPT (kPa)		REMARKS						
DEPTH	ELEV.	DESCRIPTION	STRAT PLOT	% RECOVERY	TYPE	"N" VALUES	GROUND WATER CONDITIONS	DEPTH SCALE	PLASTIC LIMIT	NATURAL MOISTURE CONTENT	LIQUID LIMIT	GRAIN SIZE DISTRIBUTION (%)
									W _p	w	W _L	GR SA SI CL
		ASPHALT - 70 mm										
		CONCRETE - 170 mm										
		CLAY - trace gravel, black			AS							
		----- - brown			AS							
1					AS			1				
		SILT			AS							
					AS							
2		CLAY & SILT - layered			AS			2				
					AS							
		CLAY - some silt seams, brown			AS							
		End of Borehole @ 2.6 m.										
3								3				
4								4				

W TBT BOREHOLE 10-527 DORCHESTER AVENUE.GPJ TBT.GDT 10/2/26



TBT Engineering Limited
 110 Paramount Road
 Winnipeg, Manitoba R2X 2W3
 PH: 204-633-6008
 FX: 204-633-6620
 Email: tble@tble.ca
 Web: www.tble.ca

SAMPLE TYPE LEGEND

AS	Auger Sample	RC	Rock Core
SS	Split Spoon Sample	PS	Ponar Sample
TW	70mm Thin Wall Tube	SD	Side Sample
CC	Concrete/Asphalt Core		

ENCLOSURE 8

Atterberg Limits for TH1



TBT Engineering Limited
 110 Paramount Road
 Winnipeg, MB R3X 2W3
 PH: (204) 633-6008 Fax (204) 633-6620
 E-Mail: hmanalo@tbt.ca

Atterberg Limits					
To: Wardrop Engineering Inc. 400-386 Broadway Winnipeg, Manitoba R3C 4M8 Attn: Dean Lazaruk, C.E.T. Project: City of Winnipeg 2010 Residential Street Renewal Program Dorchester Avenue			TBT Project No.: 10-527 Lab Sample No.: 132		
Liquid Limit Determination					
Dish No.:	22	27	8		Liquid Limit 25 Blows 65
Wet Soil + Dish:	32.83	31.16	32.11		
Dry Soil + Dish:	27.67	26.49	26.88		
Moisture:	5.16	4.67	5.23		
Dish:	19.35	19.25	19.02		
Dry Soil:	8.32	7.24	7.86		
% Moisture:	62.02	64.50	66.54		
No. of Blows:	36	26	21		
				Material Identification: Date Received: 18-Mar-10 Date Tested: 23-Mar-10 B.H./T.P. No.: TH 1 Sample No.: 2 Depth: .60 m Liquid Limit, %: 65 Plastic Limit, %: 20 Plasticity Index: 45	
Plastic Limit Determination					
Dish No.:	26	13			
Wet Soil + Dish:	23.07	23.14			
Dry Soil + Dish:	22.46	22.48			
Moisture:	0.61	0.66			
Dish:	19.39	19.23			
Dry Soil:	3.07	3.25			
% Moisture:	19.87	20.31			
Average:					20
Test Method : ASTM: D4318, D2216 TBTE Technician: Elena Oberez Remarks: CH, high plastic clay					
				REVIEWED BY: Hermie Manalo	

Particle Size Analysis TH1



TBT Engineering Limited
 110 Paramount Road, Winnipeg, MB R2X 2W3
 PH: (204) 633-6008 FAX: (204) 633-6620
 E-Mail: hmanalo@tbte.ca

Particle Size Analysis of Soils Test Report											
To: Wardrop Engineering Inc. 400-386 Broadway Winnipeg, Manitoba R3C 4M8 Attention: Dean Lazaruk, C.E.T. Project: City of Winnipeg 2010 Residential Street Renewal Program Dorchester Avenue		TBTE Project No.: 10-527 Lab Sample No.: 132									
Date Sampled: 18-Mar-10	Date Received: 18-Mar-10	Sieve Analysis									
Sampled By: PB-TBTE	Date Tested: 23-Mar-10	Sieve(mm)	% Passing								
Material Identification B.H./T.H. No. TH 1 Sample No. 2 Depth .60 m Specific Gravity of Material: 2.65		37.5	100.0								
		25	100.0								
		19	100.0								
		12.5	100.0								
		9.5	100.0								
		4.75	99.7								
		2	99.7								
		0.841	99.7								
		0.42	99.6								
		0.25	99.3								
		Hydrometer Analysis									
		Diameter	% Finer								
		0.106	97.9								
		0.075	95.8								
		0.0369209	90.8								
		0.0266129	86.9								
		0.0173772	80.2								
		0.0103382	73.4								
		0.0074424	70.5								
		0.0053262	67.6								
		0.0026551	64.7								
		0.0011339	59.9								
Grain Size Analysis 											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Clay</td> <td style="width: 25%;">Silt</td> <td style="width: 25%;">Fine Sand</td> <td style="width: 25%;">Coarse Sand</td> </tr> <tr> <td style="width: 25%;">Coarse Gravel</td> <td style="width: 25%;">Fine Gravel</td> <td style="width: 25%;">Cobbles</td> <td style="width: 25%;"></td> </tr> </table>				Clay	Silt	Fine Sand	Coarse Sand	Coarse Gravel	Fine Gravel	Cobbles	
Clay	Silt	Fine Sand	Coarse Sand								
Coarse Gravel	Fine Gravel	Cobbles									
Soil Classification		% Composition									
Silty clay		0	Gravel								
		3.9	Sand								
		31.8	Silt								
		64.3	Clay								
		-	-								
Test Method: ASTM D422, D2216, D4318, D2487		D10	0								
TBT Technician: Elena Oberez		D30	0								
		D60	0.0011								
		Cu	-								
		Cc	-								
		REVIEWED BY:									

Particle Size Analysis for TH2 (0.4m depth)



TBT Engineering Limited
 110 Paramount Road, Winnipeg, MB R2X 2W3
 PH: (204) 633-6008 FAX: (204) 633-6620
 E-Mail: hmanalo@tbte.ca

Particle Size Analysis of Soils Test Report																				
To: Wardrop Engineering Inc. 400-386 Broadway Winnipeg, Manitoba R3C 4M8 Attention: Dean Lazaruk, C.E.T. Project: City of Winnipeg 2010 Residential Street Renewal Program Dorchester Avenue			TBTE Project No.: 10-527 Lab Sample No.: 133																	
Date Sampled: 18-Mar-10	Date Received: 18-Mar-10	Sieve Analysis		Hydrometer Analysis																
Sampled By: PB-TBTE	Date Tested: 23-Mar-10	Sieve(mm)	% Passing	Diameter	% Finer															
Material Identification B.H./T.H. No. TH 2 Sample No. 2 Depth .40 m Specific Gravity of Material: 2.65		37.5	100.0	0.106	97.6															
		25	100.0	0.075	96.7															
		19	100.0	0.0368958	94.1															
		12.5	100.0	0.0264656	91.1															
		9.5	100.0	0.0170506	87.0															
		4.75	99.8	0.0100212	83.0															
		2	99.6	0.0072184	80.0															
		0.841	99.3	0.0051764	77.9															
		0.42	98.9	0.0026032	72.9															
		0.25	98.3	0.0011059	70.8															
Grain Size Analysis 																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Clay</td> <td style="text-align: center;"> </td> <td style="text-align: center;">Silt</td> <td style="text-align: center;"> </td> <td style="text-align: center;">Fine Sand</td> <td style="text-align: center;"> </td> <td style="text-align: center;">Medium Sand</td> <td style="text-align: center;"> </td> <td style="text-align: center;">Coarse Sand</td> <td style="text-align: center;"> </td> <td style="text-align: center;">Fine Gravel</td> <td style="text-align: center;"> </td> <td style="text-align: center;">Coarse Gravel</td> <td style="text-align: center;"> </td> <td style="text-align: center;">Cobbles</td> </tr> </table>						Clay		Silt		Fine Sand		Medium Sand		Coarse Sand		Fine Gravel		Coarse Gravel		Cobbles
Clay		Silt		Fine Sand		Medium Sand		Coarse Sand		Fine Gravel		Coarse Gravel		Cobbles						
Soil Classification		% Composition		D10	0															
Clay		0.2	Gravel	D30	0															
		3.1	Sand	D60	0															
		24.7	Silt	Cu	-															
		72.0	Clay	Cc	-															
Test Method: ASTM D422, D2216, D4318, D2487																				
TBT Technician: Elena Oberez																				
REVIEWED BY: Hermie Manalo																				

Particle Size Analysis TH2 (1.2m depth)



TBT Engineering Limited
 110 Paramount Road, Winnipeg, MB R2X 2W3
 PH: (204) 633-6008 FAX: (204) 633-6620
 E-Mail: hmanalo@tble.ca

Particle Size Analysis of Soils Test Report					
To: Wardrop Engineering Inc. 400-386 Broadway Winnipeg, Manitoba R3C 4M8 Attention: Dean Lazaruk, C.E.T. Project: City of Winnipeg 2010 Residential Street Renewal Program Dorchester Avenue			TBTE Project No.: 10-527		Lab Sample No.: 134
Date Sampled: 18-Mar-10	Date Received: 18-Mar-10	Sieve Analysis		Hydrometer Analysis	
Sampled By: PB-TBTE	Date Tested: 23-Mar-10	Sieve(mm)	% Passing	Diameter	% Finer
Material Identification B.H./T.H. No. TH 2 Sample No. 3 Depth 1.2 m Specific Gravity of Material: 2.65		37.5	100.0	0.106	98.4
		25	100.0	0.075	97.1
		19	100.0	0.0381262	83.5
		12.5	100.0	0.0281557	73.8
		9.5	100.0	0.0188854	59.2
		4.75	99.8	0.0114156	46.6
		2	99.7	0.0082796	40.8
		0.841	99.4	0.0059633	36.9
		0.42	99.1	0.0029931	31.1
		0.25	98.9	0.0012769	25.2
Grain Size Analysis 					
Soil Classification		% Composition		D10	0
Silt		0.2	Gravel	D30	0.0025
		2.7	Sand	D60	0.0200
		70.1	Silt	Cu	-
		27.0	Clay	Cc	-
Test Method: ASTM D422, D2216, D4318, D2487					
TBT Technician: Elena Oberez					
REVIEWED BY: Hernie Manalo					

Pavement Core Photos

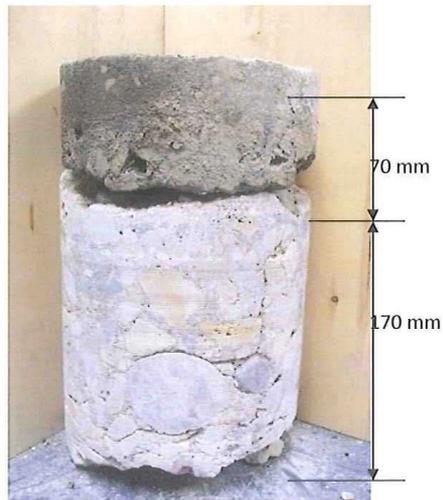
CITY OF WINNIPEG 2010 RESIDENTIAL STREET RENEWAL PROGRAM
DORCHESTER AVENUE



TEST HOLE 1



TEST HOLE 2



TEST HOLE 3