



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 225-2005

**WIHURI ROAD – PETER AVENUE TO SASKATCHEWAN AVENUE – NEW
TRANSPORTATION FACILITY ROAD CONSTRUCTION, LAND DRAINAGE SEWER
AND ASSOCIATED WORKS**

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PART B - BIDDING PROCEDURES

B1. PROJECT TITLE

- B1.1 WIHURI ROAD – PETER AVENUE TO SASKATCHEWAN AVENUE – NEW TRANSPORTATION FACILITY ROAD CONSTRUCTION, LAND DRAINAGE SEWER AND ASSOCIATED WORKS

B2. SUBMISSION DEADLINE

- B2.1 The Submission Deadline is 12:00 noon Winnipeg time, June 22, 2005.
- B2.2 Bid Submissions 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. ENQUIRIES

- B3.1 All enquiries shall be directed to the Contract Administrator identified in D3.1.
- B3.2 If the Bidder finds errors, discrepancies or omissions in the 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.
- B3.3 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.
- B3.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator only to the Bidder who made the enquiry.
- B3.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B3 unless that response or interpretation is provided by the Contract Administrator in writing.

B4. ADDENDA

- B4.1 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.
- B4.2 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.
- B4.2.1 Addenda will be available at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.
- B4.2.2 The Bidder is responsible for ensuring that he has received all addenda and is advised to check the Materials Management Branch internet website for addenda shortly before submitting his Bid.
- B4.3 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.

B5. SUBSTITUTES

- B5.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.
- B5.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B5.3 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.
- B5.4 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.
- B5.5 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.
- B5.6 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.
- B5.6.1 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.
- B5.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B5.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative shall 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 B14.
- B5.9 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. BID SUBMISSION

- B6.1 The Bid Submission consists of the following components:
- (a) Form A: Bid;
 - (b) Form B: Prices, hard copy;
 - (c) Form G1: Bid Bond and Agreement to Bond, or
Form G2: Irrevocable Standby Letter of Credit and Undertaking, or
a certified cheque or draft;
- B6.2 All components of the Bid Submission 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 in ink, to constitute a responsive Bid.
- B6.3 The Bid Submission shall be submitted enclosed and sealed in an envelope. The envelope shall be clearly marked with the Bid Opportunity number and the Bidder's name and address.
- B6.3.1 Samples or other components of the Bid Submission which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid Submission.
- B6.3.2 A hard copy of Form B: Prices must be submitted with the Bid Submission. 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.
- B6.4 Bid Submissions submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.
- B6.5 Bid Submissions shall be submitted to:
- The City of Winnipeg
Corporate Finance Department
Materials Management Branch
185 King Street, Main Floor
Winnipeg MB R3B 1J1

B7. BID

- B7.1 The Bidder shall complete Form A: Bid, making all required entries.
- B7.2 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.
- B7.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B7.2.
- B7.3 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.

- B7.4 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.
- B7.4.1 The name and official capacity of all individuals signing Form A: Bid shall be printed below such signatures.
- B7.4.2 All signatures shall be original and shall be witnessed except where a corporate seal has been affixed.
- B7.5 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 Submission and the Contract, when awarded, shall be both joint and several.

B8. PRICES

- B8.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.
- B8.1.1 For the convenience of Bidders, and pursuant to B6.3.2 and B14.4.2, 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 Branch internet website at <http://www.winnipeg.ca/matmgt>.
- B8.2 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.
- B8.3 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. QUALIFICATION

- B9.1 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;
 - (b) be responsible and not be suspended, debarred or in default of any obligation to the City;
 - (c) be financially capable of carrying out the terms of the Contract;
 - (d) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract;
 - (e) have successfully carried out work, similar in nature, scope and value to the Work; and
 - (f) employ only Subcontractors who:
 - (i) are responsible and not suspended, debarred or in default of any obligation 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 Branch internet site at <http://www.winnipeg.ca/matmgt>); and

- (ii) have successfully carried out work similar in nature, scope and value to the portion of the Work proposed to be subcontracted to them, and are fully capable of performing the Work required to be done in accordance with the terms of the Contract;
 - (g) have a written workplace safety and health program in accordance with The Workplace Safety and Health Act (Manitoba);
- B9.2 Further to B9.1(g), the Bidder shall, within three (3) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder 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 - Option 1 administered by the Manitoba Heavy Construction Association's Safety, Health and Environment Program; or
 - (b) a valid COR certification number under the Certificate of Recognition (COR) Program administered by the Manitoba Construction Safety Association; or
 - (c) 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 Branch internet site at <http://www.winnipeg.ca/matmgt>.)
- B9.3 The Bidder shall be prepared to 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.
- B9.4 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.

B10. BID SECURITY

- B10.1 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.
- B10.1.1 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.
- B10.2 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.

- B10.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B10.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.
- B10.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.
- B10.3 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.

B11. OPENING OF BIDS AND RELEASE OF INFORMATION

- B11.1 Bid Submissions will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Branch, or in such other office as may be designated by the Manager of Materials.
 - B11.1.1 Bidders or their representatives may attend.
 - B11.1.2 Bid Submissions determined by the Manager of Materials, or his designate, to not include the bid security specified in B10 will not be read out.
- B11.2 After the public opening, the names of the Bidders and their Total Bid Prices as read out (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 Branch internet site at <http://www.winnipeg.ca/matmgt>.
- B11.3 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 Branch internet site at <http://www.winnipeg.ca/matmgt>.
- B11.4 The Bidder is advised that any information contained in any Bid Submission 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.

B12. IRREVOCABLE BID

- B12.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.
- B12.2 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.

B13. WITHDRAWAL OF BIDS

- B13.1 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.
 - B13.1.1 Notwithstanding GC:23.3, 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.

- B13.1.2 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.
- B13.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials shall:
- (a) retain the Bid Submission until after the Submission Deadline has elapsed;
 - (b) open the Bid Submission 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 B13.1.3(b), declare the Bid withdrawn.
- B13.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B12.2 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.

B14. EVALUATION OF BIDS

- B14.1 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;
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B9;
 - (c) Total Bid Price;
 - (d) economic analysis of any approved alternative pursuant to B5.
- B14.2 Further to B14.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid Submission 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 if the interests of the City so require.
- B14.3 Further to B14.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his Bid Submission or in other information required to be submitted, that he is responsible and qualified.
- B14.4 Further to B14.1(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.
- B14.4.1 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.
- B14.4.2 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.

B15. AWARD OF CONTRACT

- B15.1 The City will give notice of the award of the Contract by way of a letter of intent, or will give notice that no award will be made.
- B15.2 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.
- B15.2.1 Without limiting the generality of B15.2, 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.
- B15.3 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.

PART C - GENERAL CONDITIONS

C1. GENERAL CONDITIONS

- C1.1 The General Conditions for Construction Contracts (Revision 2000 11 09) are applicable to the Work of the Contract.
- C1.2 The *General Conditions for Construction Contracts* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

- D1.1 In addition to the General Conditions for Construction Contracts, these Supplemental Conditions are applicable to the Work of the Contract.
- D1.2 The General Conditions are amended by striking out "The City of Winnipeg Act" wherever it appears in the General Conditions and substituting "The City of Winnipeg Charter".
- D1.3 The General Conditions are amended by striking out "Tender Package" wherever it appears in the General Conditions and substituting "Bid Opportunity".
- D1.4 The General Conditions are amended by striking out "Tender Submission" wherever it appears in the General Conditions and substituting "Bid Submission".
- D1.5 The General Conditions are amended by deleting GC:6.16 and GC:6.17. The City of Winnipeg is now within the jurisdiction of the Manitoba Ombudsman pursuant to The Ombudsman Act.

D2. SCOPE OF WORK

- D2.1 The Work to be done under the Contract shall consist of:
- (a) Construction of Wihuri Road from Peter Avenue to Saskatchewan Avenue
- D2.2 The major components of the Work are as follows:
- (a) Removal of existing asphalt pavement
 - (b) Excavation and stockpiling of existing subbase material.
 - (c) Excavation of suitable and unsuitable site material and topsoil.
 - (d) Placement of suitable site material.
 - (e) Installation of manholes, catchbasins, land drainage sewers and sewer service pipes.
 - (f) Installation of subdrains.
 - (g) Compaction of subgrade.
 - (h) Placement of separation/reinforcement geotextile fabric.
 - (i) Placement and compaction of stockpiled subbase material and new subbase material and base course.
 - (j) Slip form 230 mm plain dowelled concrete pavement with integral modified barrier curb.
 - (k) Construct 150 mm reinforced concrete pavement approaches.
 - (l) Mill and asphalt overlay (average thickness 50 mm) tie-in to existing pavement at south end.
 - (m) Construct concrete sidewalk.
 - (n) Remove, salvage and reinstall chain link fence.
 - (o) Boulevard grading and landscaping.

D3. CONTRACT ADMINISTRATOR

D3.1 The Contract Administrator is UMA Engineering Ltd., represented by:

Ron Bruce, P.Eng.
Senior Project Engineer
1479 Buffalo Place, Winnipeg, Manitoba, R3T 1L7

Telephone No. (204) 928-7432

Facsimile No. (204) 475-3646

D3.2 At the pre-construction meeting, Ron Bruce, P.Eng. 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 24 hours a day to respond to an emergency.

D5. NOTICES

D5.1 Except as provided for in GC:23.2.2, 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 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 Administrative Officer Secretariat
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
Corporate Services Department
Legal Services Division
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. SAFE WORK PLAN

- D7.1 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 GC:4.1 for the return of the executed Contract.
- D7.2 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 Branch internet site at <http://www.winnipeg.ca/matmgt>.

D8. INSURANCE

- D8.1 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) all inclusive, with The City of Winnipeg being named as an additional insured, with a cross-liability clause, such liability policy to also contain a contractual liability, an unlicensed motor vehicle liability and a completed operations endorsement to remain in place at all times during the performance of the Work and throughout the warranty period;
 - (b) automobile liability insurance for owned and non-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;
- D8.2 Deductibles shall be borne by the Contractor.
- D8.3 The Contractor shall provide the City Solicitor with a certificate of insurance of each policy, in a form satisfactory to the City Solicitor, 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 GC:4.1 for the return of the executed Contract.
- D8.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least fifteen (15) Calendar Days prior written notice to the Contract Administrator.

D9. PERFORMANCE SECURITY

- D9.1 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.

D9.2 If the bid security provided in his Bid Submission was not a certified cheque or draft pursuant to B10.1(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 GC:4.1 for the return of the executed Contract.

D10. SUBCONTRACTOR LIST

D10.1 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 GC:4.1 for the return of the executed Contract.

D11. DETAILED WORK SCHEDULE

D11.1 The Contractor shall provide the Contract Administrator with a detailed work schedule (Form L: 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.

SCHEDULE OF WORK

D12. COMMENCEMENT

D12.1 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.

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

- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence that the Contractor is 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;
 - (ii) evidence of the workers compensation coverage specified in GC:6.14;
 - (iii) the twenty-four (24) hour emergency response phone number specified in D4.2.
 - (iv) the Safe Work Plan specified in D7;
 - (v) evidence of the insurance specified in D8;
 - (vi) the performance security specified in D9;
 - (vii) the subcontractor list specified in D10;
 - (viii) the detailed work schedule specified in D11; and
- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.

D12.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the Letter of Intent.

D13. WORKING DAYS

D13.1 Further to GC:1.1(gg);

D13.1.1 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.

D13.1.2 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.

D13.1.3 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.

D14. RESTRICTED WORK HOURS

D14.1 Further to clause 3.10 of CW 1130, the Contractor shall require written permission 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.

D14.2 In accordance with the Manual of Temporary Traffic Control, Sections 2.03, 2.04, 2.05 and 2.06, should the Traffic Management Branch of the Public Works Department require that work on Regional Streets be carried out at night or on Sundays or on public holidays, where permitted by the City of Winnipeg Police Department, or that work be restricted or suspended during peak traffic hours, no additional compensation will be considered to meet these requirements.

D15. WORK BY OTHERS

D15.1 Work by others on or near the Site will include but not necessarily be limited to:

- (a) Manitoba Hydro – installation of new street lighting.
- (b) Manitoba Hydro Gas Division – lowering/protection of existing gas lines.
- (c) City of Winnipeg Traffic Services – new street signage.
- (d) City of Winnipeg Geomatics Branch – various work on survey monuments.
- (e) Nav Canada – lowering/protection of communication line.

D16. SUBSTANTIAL PERFORMANCE

D16.1 The Contractor shall achieve Substantial Performance within fifty (50) consecutive Working Days of the commencement of the Work as specified in D12.

D16.2 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.

D16.3 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.

D17. TOTAL PERFORMANCE

- D17.1 The Contractor shall achieve Total Performance within fifty-five (55) consecutive Working Days of the commencement of the Work as specified in D12.
- D17.2 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.
- D17.3 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.

D18. LIQUIDATED DAMAGES

- D18.1 If the Contractor fails to achieve Substantial Performance in accordance with the Contract by the day fixed herein for Substantial Performance, the Contractor shall pay the City one thousand one hundred twenty-five dollars (\$1,125) per Working Day for each and every Working Day following the day fixed herein for Substantial Performance during which such failure continues.
- D18.2 The amount specified for liquidated damages in D18.1 is based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve Substantial Performance by the day fixed herein for same.
- D18.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D19. SCHEDULED MAINTENANCE

- D19.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:
- (a) Sod maintenance as specified in CW 3510-R8;
 - (b) Reflective crack maintenance during two year maintenance warranty period as specified in CW 3250-R6.
- D19.2 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

D20. JOB MEETINGS

- D20.1 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.

D20.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he deems it necessary.

D21. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

D21.1 Further to GC:6.26, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

WARRANTY

D22. WARRANTY

D22.1 Notwithstanding GC:13.2, the warranty period shall begin on the date of Total Performance and shall expire two (2) years thereafter unless extended pursuant to GC:13.2.1 or GC:13.2.2, in which case it shall expire when provided for thereunder.

D22.2 Notwithstanding GC:13.2 or D22.1, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if:

- (a) a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use; or
- (b) Substantial Performance has been achieved.

D22.2.1 In such case the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in GC:13.2 for the warranty period to begin.

FORM H1: PERFORMANCE BOND
(See D9)

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 dated the

_____ day of _____, 20____, for:

BID OPPORTUNITY NO. 225-2005

WIHURI ROAD – PETER AVENUE TO SASKATCHEWAN AVENUE – NEW TRANSPORTATION FACILITY ROAD CONSTRUCTION, LAND DRAINAGE SEWER AND ASSOCIATED WORKS

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

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

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

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

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

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

_____ day of _____, 20____ .

SIGNED AND SEALED
in the presence of:

(Witness)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

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

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)

FORM J: SUBCONTRACTOR LIST
(See D10)

WIHURI ROAD – PETER AVENUE TO SASKATCHEWAN AVENUE – NEW TRANSPORTATION
FACILITY ROAD CONSTRUCTION, LAND DRAINAGE SEWER AND ASSOCIATED WORKS

<u>Portion of the Work</u>	<u>Name</u>	<u>Address</u>
SURFACE WORKS		
Supply of Materials:		
Concrete		
Asphalt		
Base Course		
Subbase Material		
Geotextile Fabric		
Sod		
Installation/Placement:		
Concrete		
Asphalt		
Base Course		
Subbase Material		
Sod		
UNDERGROUND WORKS:		
Supply of Materials:		
Catchbasins & Catchpits:		
Manholes		
Land Drainage Sewers		
Sewer Service Pipe		
Subdrain Pipe		
Frames & Covers		
Culverts		

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS, STANDARD DETAILS AND DRAWINGS

- E1.1 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.1.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.
- E1.1.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.1.3 Further to GC:2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.2 The following Drawings are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
00	Cover Sheet and Location Plan	A1
01	Abbreviations, Key Plan, Drawing List, Horizontal and Vertical Control, Details	A1
02	Horizontal and Vertical Alignment from Sta. 0+116 to Sta. 0+230	A1
03	Horizontal and Vertical Alignment from Sta. 0+230 to Sta. 0+380	A1
04	Horizontal and Vertical Alignment from Sta. 0+380 to Sta. 0+530	A1
05	Horizontal and Vertical Alignment from Sta. 0+530 to Sta. 0+695	A1
06	Horizontal and Vertical Alignment from Sta. 0+695 to Sta. 0+850	A1
07	Horizontal and Vertical Alignment from Sta. 0+850 to Saskatchewan Avenue	A1

E2. GEOTECHNICAL REPORT

- E2.1 Further to GC:3.1, 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 20 square metres, 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 a heater and air conditioner so that the room temperature can be maintained between either 16-18°C or 24-25°C.
- (e) The building shall be adequately lighted with fluorescent fixtures and have a minimum of three (3) wall outlets.
- (f) The building shall be furnished with one desk, one drafting table, 3 m x 1.2 m table, one stool, one four-drawer legal filing cabinet, and a minimum of six (6) chairs.
- (g) A portable toilet shall be located near the field office building. The toilet shall have a locking door and be for the exclusive use of the Contract Administrator and other personnel from the City.
- (h) The field office building and the portable toilet shall be cleaned on a weekly basis immediately prior to each site meeting. The Contract Administrator may request additional cleaning when he 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 the Contract is completed.

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 Elm trees cannot be trimmed between April 1 and July 31, inclusive.

E5. TRAFFIC CONTROL

E5.1 Further to clauses 3.6 and 3.7 of CW 1130-R1:

- (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. No measurement for payment will be made for this work.
- (b) In accordance with the Manual of Temporary Traffic Control, the Contractor ("Agency" in the manual) shall make arrangements with the Traffic Services Section 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 Section 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-R1:

- E6.1.1 Wihuri Road will be closed to traffic from Peter Avenue to Saskatchewan Avenue. The Contractor shall barricade and sign the street "Road Closed" in accordance with the Manual of Temporary Traffic Control.
- E6.1.2 Access to WinPak via their approach just south of the project limits must be maintained at all times.

E7. WATER USED BY CONTRACTOR

E7.1 Further to clause 3.7 of CW 1120-R1, the Contractor shall pay for all costs associated with obtaining water in accordance with the Waterworks By-law. Sewer charges will not be assessed for water obtained from a hydrant.

E8. SURFACE RESTORATIONS

E8.1 Further to clause 3.3 of CW 1130-R1, when Total Performance is not achieved in the year the Contract is commenced, the Contractor shall temporarily repair any Work commenced and not completed to the satisfaction of the Contract Administrator. The Contractor shall maintain the temporary repairs in a safe condition as determined by the Contract Administrator until permanent repairs are completed. The Contractor shall bear all costs associated with temporary repairs and their maintenance.

E9. SALVAGE, STOCKPILE AND REUSE OF EXISTING SUBBASE MATERIAL

DESCRIPTION

E9.1 General

E9.1.1 This specification shall cover the salvaging, stockpiling and reuse of existing granular subbase material.

E9.1.2 Referenced Standard Construction Specifications

- (a) CW 1130- Site Requirements
- (b) CW 3110- Sub-Grade, Sub-Base and Base Course Construction

CONSTRUCTION METHODS

- E9.2 Salvage & Stockpile Existing Granular Subbase Material
- E9.2.1 After the existing pavement has been removed in accordance with CW 3110, the Contractor shall excavate the existing granular subbase material and stockpile it at locations designated by the Contract Administrator.
- E9.2.2 Care must be taken to avoid fouling the material with clay or other deleterious materials.
- E9.3 Placing Stockpiled Granular Subbase Material
- E9.3.1 Placement of the stockpiled subbase material at the proposed location will be in accordance with Section 3.4 of CW 3110.
- E9.3.2 Excess material shall be hauled and stockpiled at the City of Winnipeg snow dump site located off Saskatchewan Avenue at Highwood Street.

MEASUREMENT AND PAYMENT

- E9.4 Salvage & Stockpile Existing Granular Subbase Material
- E9.4.1 The excavation and stockpiling of existing granular base course will be measured on a volume basis and paid for at the Contract Unit Price for "Salvage & Stockpile Existing Granular Subbase Material". The volume to be paid for will be the total number of cubic metres of subbase material excavated and stockpiled in accordance with this specification, accepted and measured by the Contract Administrator.
- E9.4.2 The volume of material will be measured by cross-sections and computed by the method of Average End Areas.
- E9.5 Placing Stockpiled Granular Subbase Material
- E9.5.1 The placing of stockpiled granular subbase material will be measured on a volume basis and paid for at the Contract Unit Price for "Placing Stockpiled Granular Subbase Material". The volume to be paid for will be the total number of cubic metres of previously stockpiled subbase material placed in accordance with this specification, accepted and measured by the Contract Administrator.
- E9.5.2 The volume of base course will be measured by cross-sections and computed by the method of Average End Areas.
- E9.5.3 Only material placed within the limits of excavation will be included in payment for "Placing Stockpiled Granular Subbase Material".
- E9.5.4 No measurement or payment will be made for materials rejected by the Contract Administrator.

E10. TURFSTONE SURFACING

DESCRIPTION

- E10.1 General
- E10.1.1 This specification shall cover the supply and installation of turfstone interlocking concrete surfacing as shown on the Drawings.
- E10.1.2 Referenced Standard Construction Specifications
- (a) CW 3330-R3- Installation of Interlocking Paving Stones

- (b) CW 3520-R8- Seeding
- (c) CW 3540-R3- Topsoil and Finish Grading for Establishment of Turf Areas

MATERIALS

E10.2 Turfstone

E10.2.1 Use Barkman Concrete Ltd. "Turfstone" Interlocking Concrete Surfacing as indicated on the Drawings, or approved equal.

E10.3 Topsoil

E10.3.1 Topsoil shall be stockpiled on-site topsoil mixed 50% with peatmoss.

E10.3.2 Peatmoss shall be derived from partially decomposed species of Sphagnum Mosses, fairly elastic and homogeneous, free of decomposed colloidal residue, wood, sulphur and iron, or other deleterious materials which could affect healthy plant growth, containing a minimum 60% organic matter by weight, and moisture content not exceeding 15%. Shredded particles may not exceed 5 mm in size. Minimum pH value of peat, 4.5; maximum, 7.0.

E10.4 Seed Mix for Turfstone Surfacing

E10.4.1 Seed Quality: All seed to be Certified Number One seed, only.

E10.4.2 Seed Mix: shall be a mixture of 60% Kentucky bluegrass cultivars as specified in CW 3520 and 40% Victory Chewings fescue or Creeping Red fescue hardy cultivars.

CONSTRUCTION METHODS

E10.5 Turfstone

E10.5.1 Installation of Turfstone shall conform with CW 3330-R3.

E10.6 Topsoil

E10.6.1 Topsoil shall be installed in accordance with CW 3540.

E10.7 Seed

E10.7.1 Seed shall be installed in accordance with CW 3520.

MEASUREMENT AND PAYMENT

E10.8 Turfstone

E10.8.1 Turfstone will be measured and paid for in accordance with CW 3330 except that payment shall also be compensation in full for placement of topsoil and the seed mix.

E11. DITCH INLET GRATES

DESCRIPTION

E11.1 General

E11.1.1 This Specification covers the supply and installation of ditch inlet grates on catch basins.

MATERIALS

E11.2 Ditch Inlet Grate

- E11.2.1 All steel shall be supplied in accordance with details on the Drawings. All steel shall be hot dip galvanized and all hardware shall be stainless steel. Ditch Inlet Grates shall be Shopost Iron Works MK-A1 or approved equal.

CONSTRUCTION METHODS

E11.3 Ditch Inlet Grates

- E11.3.1 The Contractor shall be required to supply and install ditch inlet grates on drainage inlets shown on the Drawings.
- E11.3.2 The ditch inlet grate shall be understood to include the supply and installation of all anchor steel, grate steel, and hardware. All concrete material shall be included in the unit price bid for the catch basins.
- E11.3.3 The ditch inlet grate shall be securely fastened to the drainage inlets as shown on the Drawings and as approved by the Contract Administrator.
- E11.3.4 Any galvanized surfaces that are damaged shall be coated with a galvanizing compound approved by the Contract Administrator.

MEASUREMENT AND PAYMENT

E11.4 Ditch Inlet Grates

- E11.4.1 The supply and installation of ditch inlet grates will not be measured for payment and shall be included in the payment for catch basins.

E12. REMOVAL OF EXISTING CULVERTS

DESCRIPTION

E12.1 General

- E12.1.1 This specification covers the removal of existing culverts.
- E12.1.2 Referenced Standard Construction Specifications
(a) CW 2030- Excavation Bedding and Backfill

CONSTRUCTION METHODS

E12.2 Removal of Existing Culverts

- E12.2.1 The Contractor shall remove and salvage existing culverts designated for removal within the limits of the Contract and as shown on the Drawings.
- E12.2.2 The excavation for the removal of existing culverts outside of proposed pavements shall be backfilled to Class 4 standards in accordance with CW 2030. The excavation for removal of existing culverts under proposed pavements shall be backfilled to Class 2 standards in accordance with CW 2030.
- E12.2.3 The culverts shall be removed so as not to damage the pipe sections. Where culverts are coupled, the sections shall be separated prior to removal.

- E12.2.4 Culverts that are deemed unsalvageable by the Contract Administrator shall be removed and disposed of off site.
- E12.2.5 Salvaged culverts shall be delivered to the City of Winnipeg, Public Works Department, North District Yard, 1220 Pacific Avenue. Contact Gary Pekrul (Phone: 986-3165) to arrange delivery.
- E12.2.6 The Contractor shall remove rip rap from the ends of existing culverts where shown on the Drawings and backfilled to Class 4 standards if outside of proposed pavements and Class 2 standards if under proposed pavements, both in accordance with CW 2030.

MEASUREMENT AND PAYMENT

E12.3 Removal of Existing Culverts

- E12.3.1 The removal of existing culverts will be measured on a length basis for each size of culvert and paid for at the Contract Unit Price for "Removal of Existing Culverts". Length to be paid for will be the total number of linear metres removed, measured horizontally at grade, in accordance with this specification, accepted and measured by the Contract Administrator.
- E12.3.2 Salvaging and delivery or disposal of the culverts shall be included in payment for "Removal of Existing Culverts" and no further payment shall be made.
- E12.3.3 There will be no measurement for the removal of rip rap from the ends of existing culverts. Payment shall be included in the price paid for "Removal of Existing Culverts".

E13. REMOVAL OF EXISTING CONCRETE HEADWALL

DESCRIPTION

E13.1 General

- E13.1.1 This specification shall cover the removal of the existing concrete headwall on the end of the existing 450 mm diameter culvert designated for abandonment. The headwall is in the east boulevard of Wihuri Road at approximately station 0+142.
- E13.1.2 Referenced Standard Construction Specifications
 - (a) CW 1130 Site Requirements

CONSTRUCTION METHODS

E13.2 Removal of Existing Concrete Headwall

- E13.2.1 The Contractor shall be required to demolish, remove and dispose of the existing concrete headwall shown on the Drawings.
- E13.2.2 All concrete items removed shall be disposed of by the Contractor in accordance with CW 1130.

MEASUREMENT AND PAYMENT

E13.3 Removal of Existing Concrete Headwall

- E13.3.1 The removal and disposal of the existing concrete headwall will be measured on a unit basis and paid for at the Contract Unit Price for "Removal of Existing Concrete Headwall". The number to be paid for will be the total number of concrete headwalls removed and disposed of in accordance with this specification, accepted and measured by the Contract Administrator.

E14. REMOVE, SALVAGE AND REINSTALLATION OF CHAIN LINK FENCE

DESCRIPTION

E14.1 General

E14.1.1 This specification covers the removal, salvaging and reinstallation of chain link fencing.

E14.1.2 Referenced Standard Construction Specifications

(a) CW 3550- Chain Link Fencing

CONSTRUCTION METHODS

E14.2 Removal and Salvage of Existing Chain Link Fence

E14.2.1 Existing chain link fencing designated for removal shall be carefully removed and salvaged. All chain link fencing components and all hardware, including barbed wire, shall be salvaged for reuse and stockpiled at locations designated by the Contract Administrator.

E14.2.2 The Contractor shall remove the fence posts and concrete bases. The post holes remaining following the removal of the fencing shall be backfilled and compacted to the satisfaction of the Contract Administrator. All concrete rubble shall be removed and disposed of by the Contractor.

E14.2.3 All chain link fencing materials judged by the Contract Administrator to be in unsatisfactory condition shall be disposed of by the Contractor and replaced with equivalent new materials at the Contractor's cost.

E14.2.4 In the event of damage to any materials by the Contractor, the Contractor shall immediately notify the Contract Administrator and make all repairs or replacements necessary, at his own expense, to the satisfaction of the Contract Administrator. In no case shall the Contractor install a damaged component on the chain link fencing.

E14.3 Installation of Salvaged Chain Link Fencing and Gates

E14.3.1 Install chain link fence and gates in accordance with CW 3550.

E14.3.2 New fence posts shall be supplied and installed to match the removed posts.

E14.3.3 ReInstall 3 strand barbed wire, 0.300 m high on top of the installed fence.

MEASUREMENT AND PAYMENT

E14.4 Remove & Salvage Chain Link Fence

E14.4.1 The removal and salvaging of existing chain link fences will be measured on a length basis and paid for at the Contract Unit Price for "Remove & Salvage Chain Link Fence". The length to be paid for will be the total number of metres of chain link fence removed and salvaged in accordance with this specification, accepted and measured by the Contract Administrator.

E14.4.2 The cost of backfilling post holes and removing and disposing of old fence posts and concrete rubble shall be included in the payment for "Remove and Salvage Chain Link Fence".

E14.5 Install Salvaged Chain Link Fence

E14.5.1 The installation of salvaged chain link fences will be measured on a length basis and paid for at the Contract Unit Price for "Install Salvaged Chain Link Fence". The length to be

paid for will be the total number of metres of salvaged chain link fence installed in accordance with this specification, accepted and measured by the Contract Administrator.

E14.5.2 No measurement or payment will be made for new chain link fence materials needed to replace unsatisfactory or damaged chain link fences.

E14.5.3 No measurement or payment will be made for barbed wire. Barbed wire shall be included in payment for installing the salvaged chain link fence.

E15. HYDRO VAC EXCAVATION

DESCRIPTION

E15.1 Nav Canada Communication Line

E15.1.1 The Nav Canada Communication Line, which crosses Wihuri Road just south of Saskatchewan Avenue, shall be exposed using Hydro Vac machines to confirm depth.

E15.1.2 If the depth is considered by the Contract Administrator to be insufficient to support compaction equipment, then the line shall be protected as directed by the Contract Administrator.

E15.1.3 No payment shall be made for the use of Hydro Vac machines used to expose the Nav Canada line, it shall be included in payment for "Excavation", however additional payment will be made for any protection work which is deemed necessary.

E15.2 Manitoba Hydro Gas Line

E15.2.1 The Manitoba Hydro gas line, in the east boulevard, shall be exposed using Hydro Vac machines at locations where there are proposed catchbasins in the east boulevard.

E15.2.2 The gas line shall be protected as directed by the Contract Administrator, including the use of sand backfill and wood blocks between the catchbasin and gas line where necessary.

E15.2.3 No payment shall be made for the use of Hydro Vac machines used to expose the gas line, it shall be included in payment for "Excavation".

E15.2.4 No payment shall be made for the protection measures taken to protect the gas line, it shall be included in payment for "Catchbasins".

APPENDIX 'A'

GEOTECHNICAL REPORT

APPENDIX 'A' - GEOTECHNICAL REPORT

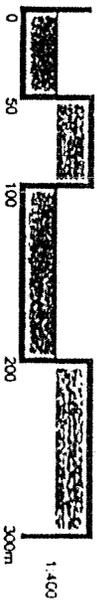
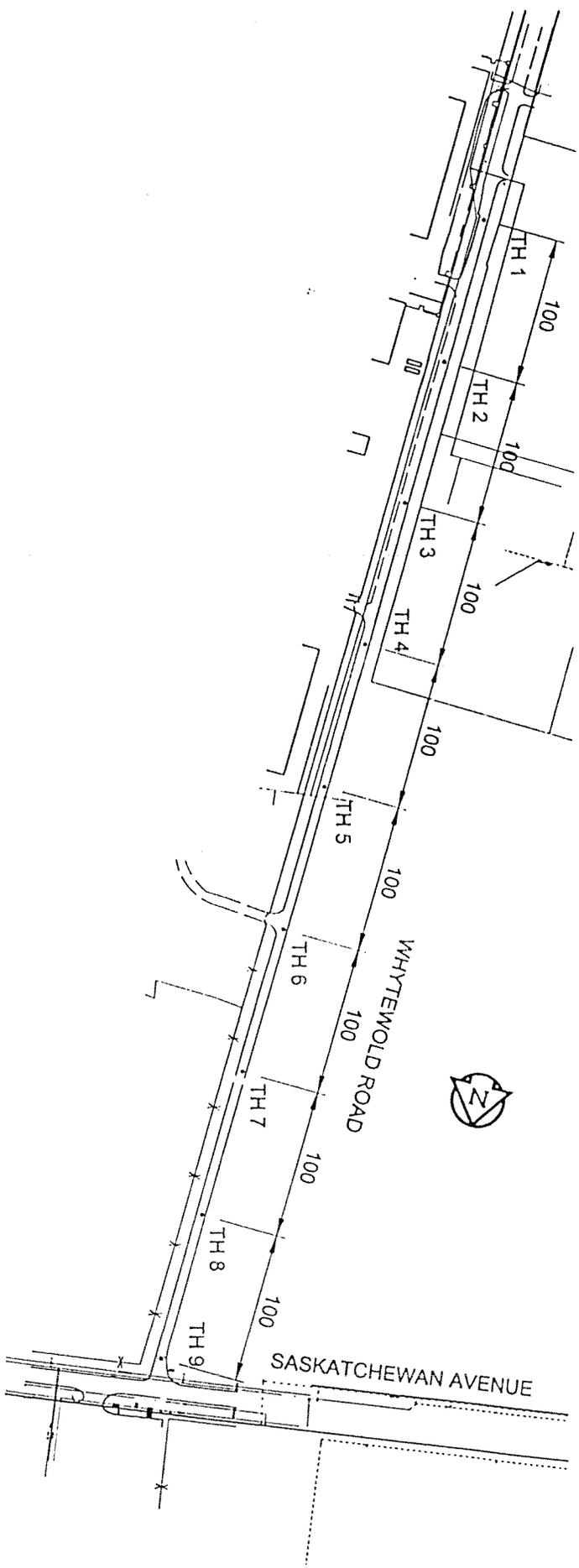
TABLE OF CONTENTS

GEOTECHNICAL REPORT FOR WIHURI ROAD

Test Hole Locations	1
Summary of Core Samples	2
Test Hole Logs	3
Particle Size Analysis Report	8
Pavement Core Photos	10
Existing Granular Subbase Material Analysis	12

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.

NOTE:-DND TO BE NOTIFIED PRIOR TO ENTERING SITE. CONTACT RON BRUCE AT UMA ENGINEERING TO ARRANGE. LOCATIONS OF ALL BOREHOLES IN CENTER OF EXISTING ROADWAY.



LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE. BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

 THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	DATE	DRAWING NO.
	06-10-04	XX-XXXX
DRAWN BY	SCALE	
C.P.L.	1:400	

2004 RESIDENTIAL STREET RENEWAL ON
 WHYTEWOLD ROAD
 TESTHOLE LOCATION

City of Winnipeg
 2005 Street Renewal Program
 Geotechnical Investigation
 Whytevoid Road

Test Hole No.	Testhole Location	Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Location	Moisture Content (%)	Hydrometer Analysis				Atterberg Limits		
		Type	Thickness (mm)	Type	Thickness (mm)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Index
1	Whytevoid Road	Asphalt	87	20 mm L	293	Clayey Silt	0.91 - 1.22	18.6 - 25	-	11.8	55.9	32.3	34.5	18.0	16.5
2	Whytevoid Road	Asphalt	101	20 mm L	509	Silty Clay	0.76	21.3	2.4	16.6	34.0	47.0	59.7	25.0	34.7
3	Whytevoid Road	Asphalt	89	20 mm L	521	-	-	-	-	-	-	-	-	-	-
4	Whytevoid Road	Asphalt	98	20 mm L	512	-	-	-	-	-	-	-	-	-	-
5	Whytevoid Road	Asphalt	72	20 mm L	538	-	-	-	-	-	-	-	-	-	-

Notes: 20 mm L - 20 mm limestone base

ENG-TECH CONSULTING LIMITED

GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING

Client: City of Winnipeg

Project: Geotechnical Investigation - 2005 Street Renewal Program

Site: Whytefold Rd.

Location: 25.0 m S. of Saskatchewan Ave., 1.6 m E. of W. edge of pavement **Water Elevation: --**

Test Hole #: TH1

File No: 04-217-04

Date Drilled: November 17, 2004

Grade Elevation: 100 m (local)

SUBSURFACE PROFILE				SAMPLE DATA				Water Content (%) PL -----0----- LL 20 40 60 80	GRAIN SIZE DISTRIBUTION %			
Depth (m)	Soil Symbol	Description	Elevation (m)	Number	Sample Type	Recovery (%)	blows/300 mm		Gravel	Sand	Silt	Clay
0		Ground Surface	100									
		<i>Asphalt</i> - 87 mm thick.										
		<i>20 mm Crushed Limestone</i> - 293 mm thick.										
		<i>Silty Clay Fill (CH)</i> - dark gery & black, moist, high plastic, soft to firm, with silt, trace sand sizes.		S1		100						
		<i>Clayey Silt (CI)</i> - brown, damp, medium plastic, firm, with clay, some sand sizes.		S2		100						
1		- below 1.1 m, moist to wet, very soft.	99	S3		100			0.0	11.8	55.9	32.3
				S4		100						
		<i>Clay (CH)</i> - brown, moist, high plastic, firm, trace sand sizes.		S5		100						
		- below 1.8 m, silt & sand lense.		S6		100						
				S7		100						
2			98	S8		100						
		<i>End of Test Hole</i> - ended test hole at 2.2 m below grade. - backfilled test hole with auger cuttings. - filled core hole with cold patch.										

ENG-TECH Consulting Limited

Logged by: CW

Reviewed by:

Sample Type



Split Barrel



Shelby Tube



Auger Cuttings



Split Spoon

Drilled By: H.D.M. Enterprises

Drill Rig: Mounted Bobcat

Auger Size: 125 mm solid stem

Completion Depth: 2.2 m

Completion Elevation: 97.8

Sheet: 1

ENG-TECH CONSULTING LIMITED

GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING

Client: City of Winnipeg

Project: Geotechnical Investigation - 2005 Street Renewal Program

Site: Whytefold Rd.

Location: 225.0m S. of Saskatchewan Ave. F.L., 1.6m E. of W. edge of pave. **Water Elevation: --**

Test Hole #: TH2

File No: 04-217-04

Date Drilled: November 17, 2004

Grade Elevation: 100 m (local)

SUBSURFACE PROFILE				SAMPLE DATA				GRAIN SIZE DISTRIBUTION %									
Depth (m)	Soil Symbol	Description	Elevation (m)	Number	Sample Type	Recovery (%)	blows/300 mm	Water Content (%)									
								PL	LL	Gravel	Sand	Silt	Clay				
0		Ground Surface	100														
		<i>Asphalt</i> - 101 mm thick.															
		<i>20 mm Crushed Limestone</i> - 509 mm thick.		S1		100											
		<i>Silty Clay Fill (CH)</i> - dark grey & black, damp, high plastic, firm, with silt, some sand sizes, trace gravel.		S2		100											
		<i>Clay (CH)</i> - black, moist, high plastic, firm, some silt inclusions, trace sand sizes and rootlets. - below 1.2 m, grey/brown.		S3		100											
1			99	S4		100											
				S5		100											
				S6		100											
				S7		100											
2			98	S8		100											
		<i>End of Test Hole</i> - ended test hole at 2.2 m below grade. - backfilled test hole with auger cuttings. - filled core hole with cold patch.															

ENG-TECH Consulting Limited

Logged by: CW

Reviewed by: 

Sample Type



Split Barrel



Shelby Tube



Auger Cuttings



Split Spoon

Drilled By: H.D.M. Enterprises

Drill Rig: Mounted Bobcat

Auger Size: 125 mm solid stem

Completion Depth: 2.2 m

Completion Elevation: 97.8

Sheet: 1

ENG-TECH CONSULTING LIMITED

GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING

Client: City of Winnipeg

Project: Geotechnical Investigation - 2005 Street Renewal Program

Site: Whytefold Rd.

Location: 425.0m S. of Saskatchewan Ave. F.L., 1.6m E. of W. edge of pave. **Water Elevation: --**

Test Hole #: TH3

File No: 04-217-04

Date Drilled: November 17, 2004

Grade Elevation: 100 m (local)

SUBSURFACE PROFILE				SAMPLE DATA				GRAIN SIZE DISTRIBUTION %							
Depth (m)	Soil Symbol	Description	Elevation (m)	Number	Sample Type	Recovery (%)	blows/300 mm	Water Content (%)							
								PL	0	LL					
0		Ground Surface	100												
		<i>Asphalt</i> - 89 mm thick.													
		<i>20 mm Crushed Limestone</i> - 521 mm thick.													
		<i>Silty Clay Fill (CH)</i> - dark grey & black, moist, high plastic, soft to firm, with silt, some sand sizes, trace gravel.		S1	Split Barrel	100									
		<i>Clay (CH)</i> - brown, moist, high plastic, firm, some silt inclusions.		S2	Split Barrel	100									
				S3	Split Barrel	100									
1				S4	Split Barrel	100									
				S5	Split Barrel	100									
				S6	Split Barrel	100									
2			98	S7	Split Barrel	100									
		<i>End of Test Hole</i> - ended test hole at 2.2 m below grade. - backfilled test hole with auger cuttings. - filled core hole with cold patch.													

ENG-TECH Consulting Limited

Logged by: CW

Reviewed by: *CH*

Sample Type



Split Barrel



Shelby Tube



Auger Cuttings



Split Spoon

Drilled By: H.D.M. Enterprises

Drill Rig: Mounted Bobcat

Auger Size: 125 mm solid stem

Completion Depth: 2.2 m

Completion Elevation: 97.8

Sheet: 1

ENG-TECH CONSULTING LIMITED

GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING

Client: City of Winnipeg

Project: Geotechnical Investigation - 2005 Street Renewal Program

Site: Whytewold Rd.

Location: 625.0m S. of Saskatchewan Ave. F.L., 1.6m E. of W. edge of pave. **Water Elevation: --**

Test Hole #: TH4

File No: 04-217-04

Date Drilled: November 17, 2004

Grade Elevation: 100 m (local)

SUBSURFACE PROFILE				SAMPLE DATA				Water Content (%) PL -----0----- LL 20 40 60 80	GRAIN SIZE DISTRIBUTION %			
Depth (m)	Soil Symbol	Description	Elevation (m)	Number	Sample Type	Recovery (%)	blows/300 mm		Gravel	Sand	Silt	Clay
0		Ground Surface	100									
		<i>Asphalt</i> - 98 mm thick.										
		<i>20 mm Crushed Limestone</i> - 512 mm thick.		S1		100						
		<i>Silty Clay Fill (CH)</i> - dark grey & black, moist, high plastic, soft to firm, with silt, some sand sizes, trace gravel.		S2		100						
			S3		100							
1			<i>Clay (CH)</i> - brown, moist, high plastic, firm, some silt inclusions.	99	S4		100					
		S5			100							
		S6			100							
2		98		S7		100						
		<i>End of Test Hole</i> - ended test hole at 2.2 m below grade. - backfilled test hole with auger cuttings. - filled core hole with cold patch.										

ENG-TECH Consulting Limited

Logged by: CW

Reviewed by: *CAH*

Drilled By: H.D.M. Enterprises

Drill Rig: Mounted Bobcat

Auger Size: 125 mm solid stem

Completion Depth: 2.2 m

Completion Elevation: 97.8

Sheet: 1

Sample Type



Split Barrel



Shelby Tube



Auger Cuttings



Split Spoon

ENG-TECH CONSULTING LIMITED

GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING

Client: City of Winnipeg

Project: Geotechnical Investigation - 2005 Street Renewal Program

Site: Whytewold Rd.

Location: 800.0m S. of Saskatchewan Ave. F.L., 1.6m E. of W. edge of pave. **Water Elevation: --**

Test Hole #: TH5

File No: 04-217-04

Date Drilled: November 17, 2004

Grade Elevation: 100 m (local)

SUBSURFACE PROFILE				SAMPLE DATA				Water Content (%)	GRAIN SIZE DISTRIBUTION %			
Depth (m)	Soil Symbol	Description	Elevation (m)	Number	Sample Type	Recovery (%)	blows/300 mm		Gravel	Sand	Silt	Clay
0		Ground Surface	100									
		<i>Asphalt</i> - 72 mm thick.										
		<i>20 mm Crushed Limestone</i> - 538 mm thick.										
		<i>Silty Clay Fill (CH)</i> - dark grey & black, moist, high plastic, firm, with silt, some sand sizes, trace gravel. - below 0.9 m, and silt.		S1		100						
				S2		100						
				S3		100						
1			99	S4		100						
		<i>Clay (CH)</i> - black, moist, organic high plastic, soft to firm.		S5		100						
				S6		100						
2			98	S7		100						
		<i>End of Test Hole</i> - ended test hole at 2.2 m below grade. - backfilled test hole with auger cuttings. - filled core hole with cold patch.										

ENG-TECH Consulting Limited

Logged by: CW

Reviewed by:

Sample Type



Split Barrel



Shelby Tube



Auger Cuttings



Split Spoon

Drilled By: H.D.M. Enterprises

Drill Rig: Mounted Bobcat

Auger Size: 125 mm solid stem

Completion Depth: 2.2 m

Completion Elevation: 97.8

Sheet: 1

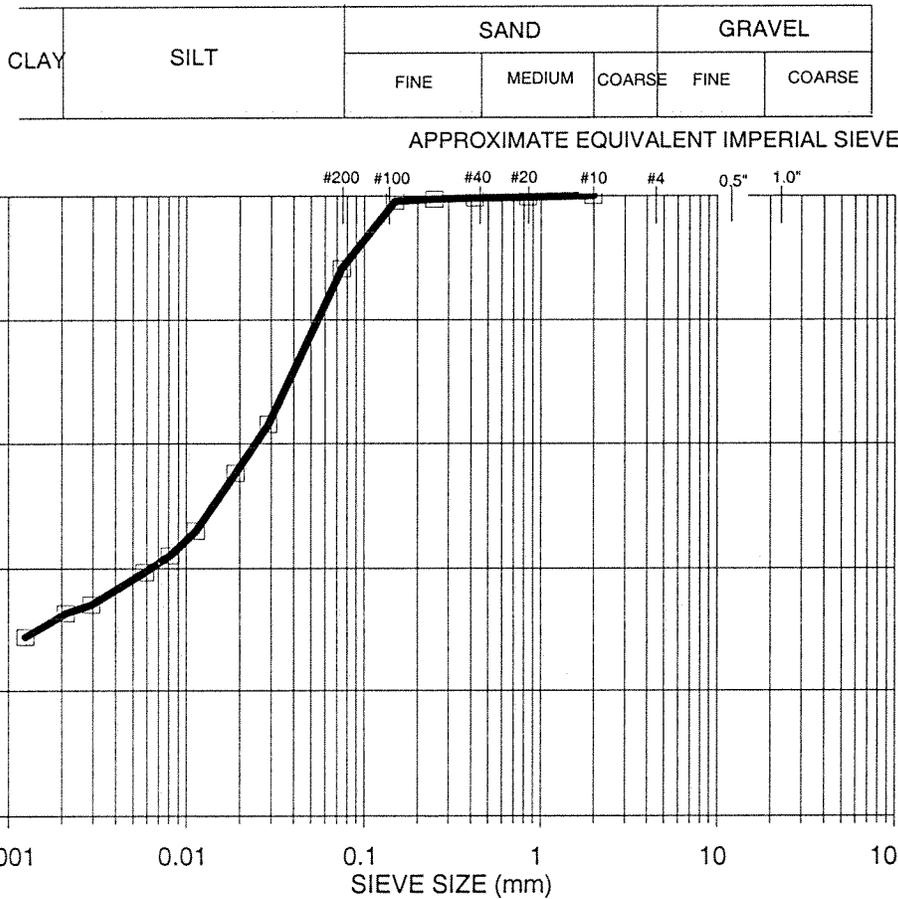
City of Winnipeg
 c/o UMA Engineering Ltd.
 1479 Buffalo Place
 Winnipeg, Manitoba
 R3T 1L7

File No.: 04-217-04
Reference No.: 4-217-4-18

ATTENTION: Ron Bruce, P. Eng.

PROJECT: 2005 Street Renewal Program Geotechnical Investigation

Test Hole No. TH 1 **Sample No.** S3 & S4 **Depth:** 0.91-1.22m
Sampled By: ENG-TECH **Type of Sample:** Bag **Source:** Whytefold Road
Date Sampled: Nov 17/04 **Date Received:** Nov 17/04 **Date Tested:** Nov 29/04



SIEVE SIZE (mm)	PERCENT PASSING
2.0	100.0
0.850	99.8
0.425	99.7
0.250	99.5
0.150	99.2
0.075	88.2
0.029	63.1
0.019	55.2
0.011	46.0
0.008	42.0
0.0059	39.4
0.0029	34.1
0.0021	32.8
0.0013	28.8

Percent of: GRAVEL (0.0%), SAND (11.8%), SILT (55.9%) and CLAY (32.3%)
Sample Description: Clayey Silt, medium plastic, firm, damp, brown, with clay, some sand sizes.

COMMENTS:

ENG-TECH Consulting Limited
 per *Clark Hryhoruk*
 Contact: Clark Hryhoruk, M.Sc., P. Eng.
 Ph: (204) 233-1694
 Fax: (204) 235-1579

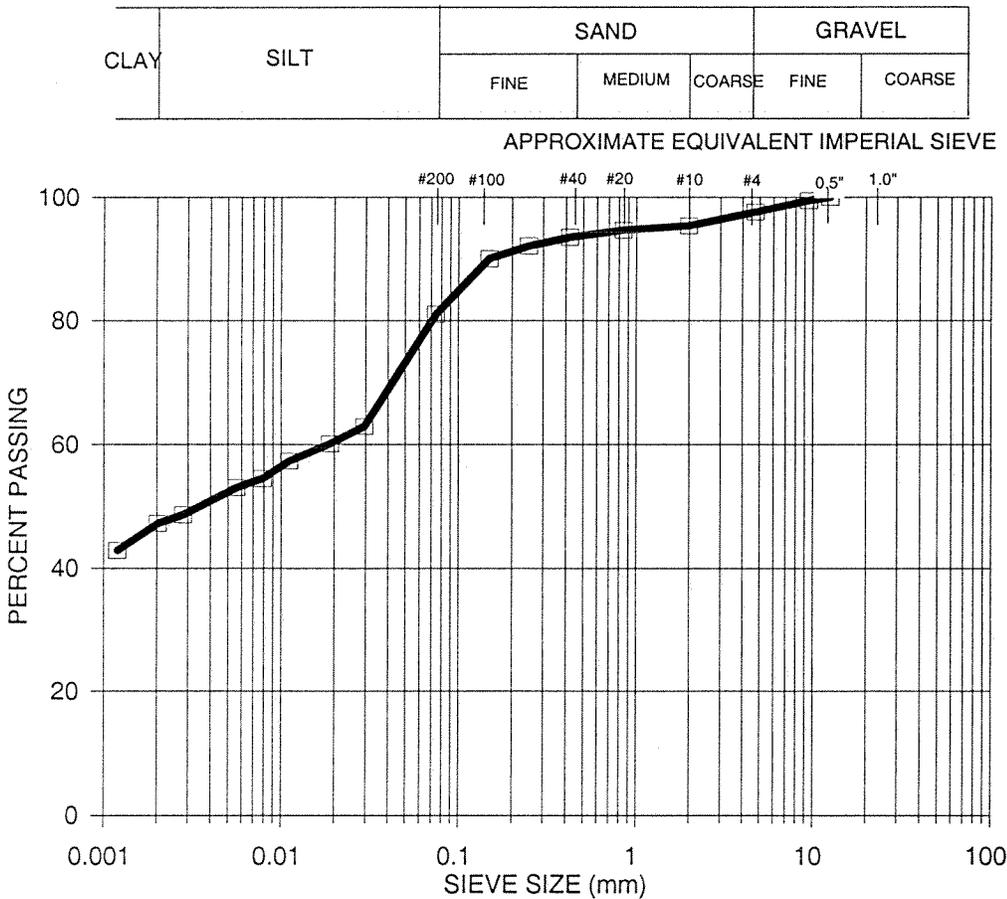
City of Winnipeg
 c/o UMA Engineering Ltd.
 1479 Buffalo Place
 Winnipeg, Manitoba
 R3T 1L7

File No.: 04-217-04
Reference No.: 4-217-4-19

ATTENTION: Ron Bruce, P. Eng.

PROJECT: 2005 Street Renewal Program Geotechnical Investigation

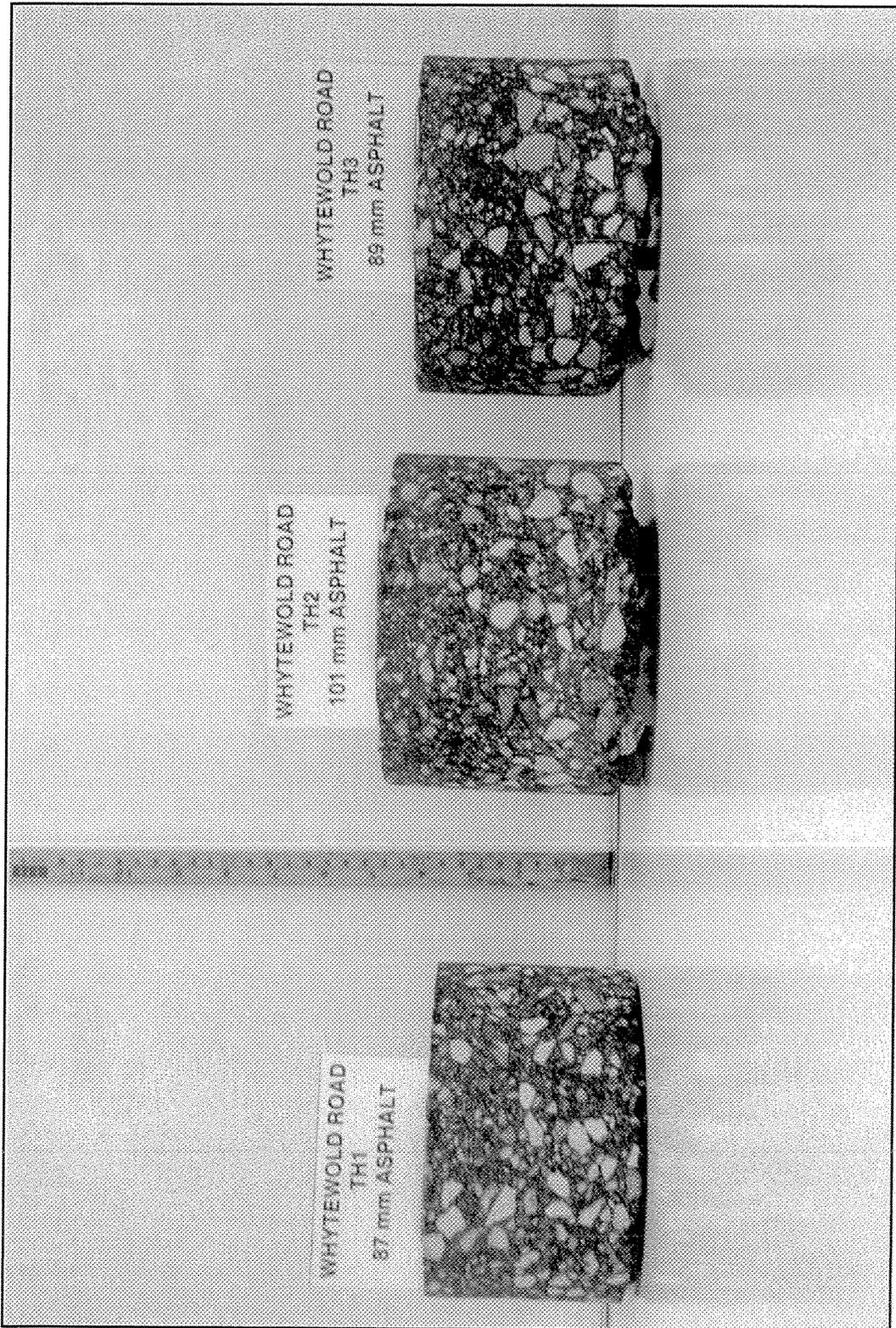
Test Hole No. TH 2 **Sample No.** S3 **Depth:** 0.76m
Sampled By: ENG-TECH **Type of Sample:** Bag **Source:** Whytefold Road
Date Sampled: Nov 17/04 **Date Received:** Nov 17/04 **Date Tested:** Nov 29/04



Percent of: GRAVEL (2.4%), SAND (16.6%), SILT (34.0%) and CLAY (47.0%)
Sample Description: Silty Clay, high plastic, firm, damp, dark grey & black, with silt, some sand sizes, trace gravel

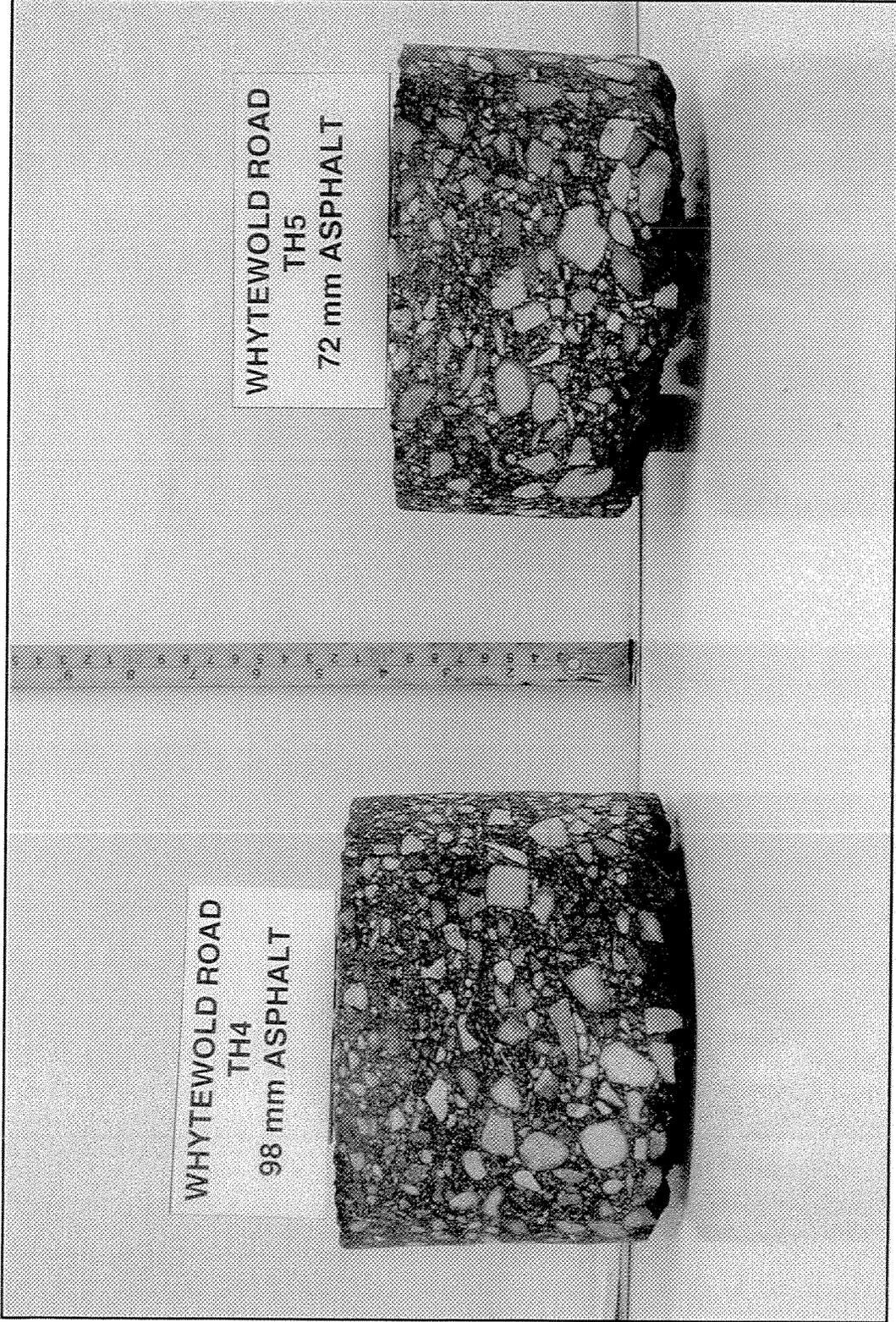
COMMENTS:

ENG-TECH Consulting Limited
 per *Clark Hryhoruk*
 Contact: Clark Hryhoruk, M. Sc., P. Eng.
 Ph: (204) 233-1694
 Fax: (204) 235-1579



Whytewold Road





WHYTEWOLD ROAD
TH4
98 mm ASPHALT

WHYTEWOLD ROAD
TH5
72 mm ASPHALT

Whytefold Road





MATERIALS LABORATORY

UMA Engineering Ltd.

1479 Buffalo Place, Winnipeg, MB R3T 1L7 Canada
tel (204) 284-0580 fax (204) 475-3646

Project: Whytewold Reconstruction
Client: UMA Engineering Ltd
Job Number: C171-001-01
Date: May 24, 2005
Material: 50mm Limestone Subbase

Contractor:
Material Sourced Sampled on Site
Lab No: S05-47

LOS ANGELES ABRASION TESTING

Small Size Coarse Aggregate A.S.T.M. C 131-96

Sieve Sizes		Grading (weight in grams)				Grading Used
Passing	Retained	A	B	C	D	C
1 1/2 in	1 in	1250 +/- 25				1252.3
1 in	3/4 in	1250 +/- 25				1250.9
3/4 in	1/2 in	1250 +/- 10	2500 +/- 10			1248.3
1/2 in	3/8 in	1250 +/- 10	2500 +/- 10			1249.3
3/8 in	1/4 in			2500 +/- 10		
1/4 in	No. 4			2500 +/- 10		
No. 4	No. 8				5000 +/- 10	
Totals		5000 +/- 10	5000 +/- 10	5000 +/- 10	5000 +/- 10	5000.8

% WEIGHT LOSS

29.50%

The City of Winnipeg spec 3110-R5 (Rev. Feb. 1993) shall have a loss of not more than

- 35% (thirty-five percent) for base course material
- 40% (fortypercent) for sub-base material

SOUNDNESS TESTING

Course Aggregate Soundness Test A.S.T.M. C-88

TOTAL CORRECTED % LOSS

16.04%

Crushed limestone when subjected to the Magnesium Sulphate Soundness test shall have a loss of not more than

- 18% (eighteen percent)

GRAIN SIZE DISTRIBUTION



MATERIALS LABORATORY

UMA Engineering Ltd.

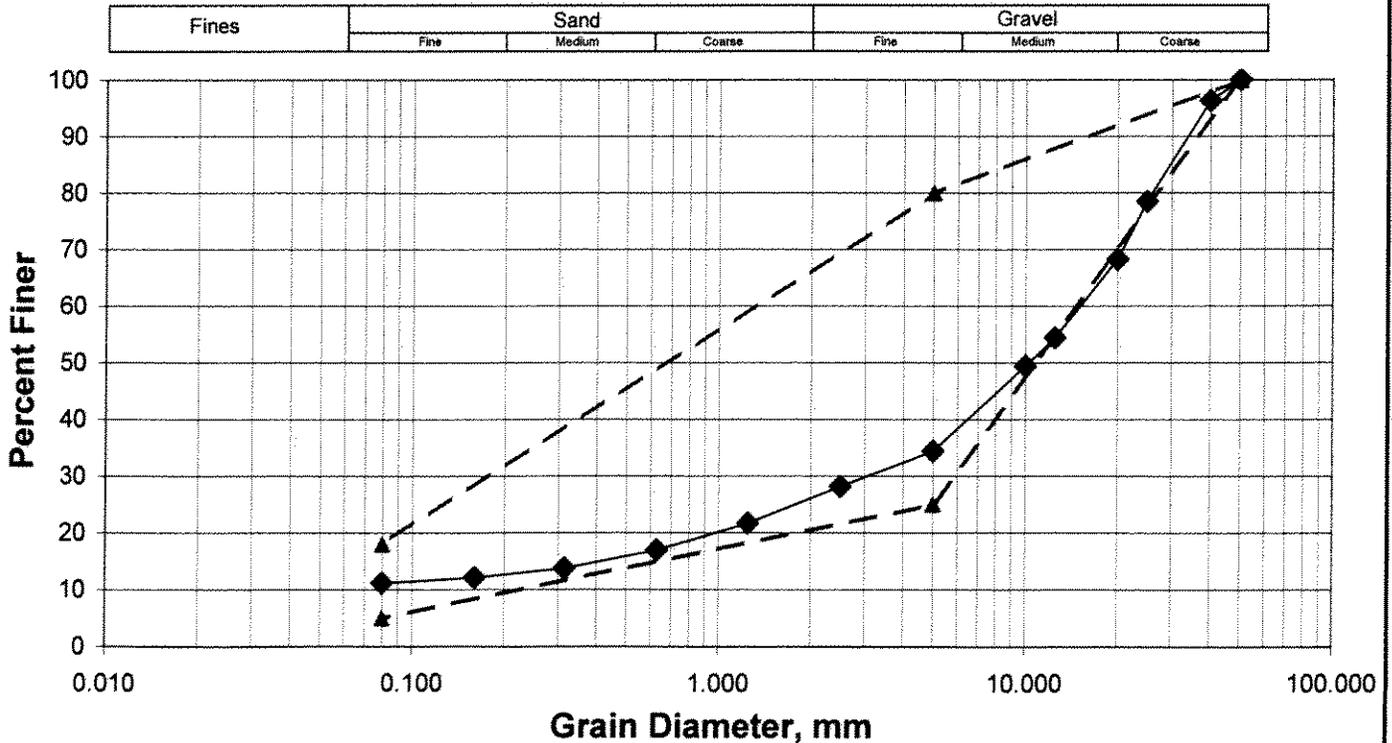
1479 Buffalo Place, Winnipeg, MB R3T 1L7 Canada
tel (204) 284-0580 fax (204) 475-3646

Client: UMA
Project: Whytefold Reconstruction
Job No: C171-001-01
Date : 24-May-05

Supplier: Sampled on Site
Sample No: S05-47
Depth:
Sample Description: 50mm Limestone Subbase

CDN. Sieve (mm.)	Sieve No.	Total Percent Passing	Specifaction (min - max)
150.0	-		
100.0	-		
80.0	-		
50.0	-	100	100 - 100
40.0	-	96	
25.0	-	78	
20.0	-	68	
12.5	-	54	
10.0	-	49	
5.0	-	34	25 - 80
2.5	-	28	
1.25	-	22	
0.630	-	17	
0.315	-	14	
0.160	-	12	
0.080	-	11	5 - 18

GRAIN SIZE DISTRIBUTION CURVE



** Note: Soil Classification based on Grain Size from Canadian Foundation Engineering Manual, 3rd edition (1992).