THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 487-2015

2015 LOCAL IMPROVEMENTS – CONTRACT NO.2

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 2015 Local Improvements – Contract No.2

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, June 17, 2015.

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. 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. CONFIDENTIALITY

B4.1 Information provided to a Bidder by the City or acquired by a Bidder by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator. The use and disclosure of the confidential information shall not apply to information which:

(a) was known to the Bidder before receipt hereof; or

(b) becomes publicly known other than through the Bidder; or

(c) is disclosed pursuant to the requirements of a governmental authority or judicial order.

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

B5. ADDENDA

B5.1 The Contract Administrator may, at any time prior to the Submission deadline, issue addenda correcting errors, discrepancies or omissions in the 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/she 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/her sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.

B6.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Bidder who requested approval of the substitute.

B6.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.

B6.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.

B6.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with 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/her own name, his/her name shall be inserted;

(b) if the Bidder is a partnership, the full name of the partnership shall be inserted;

(c) if the Bidder is a corporation, the full name of the corporation shall be inserted;

(d) if the Bidder is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

B8.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B8.2.

B8.3 In Paragraph 3 of Form A: Bid, 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/her own name, it shall be signed by the Bidder;

(b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;

(c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers 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/her own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.

B8.4.1 The name and official capacity of all individuals signing Form A: Bid 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 B15.4.2, 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 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 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B9.5 Form B: Prices is organized into Parts: Part 1 of the Work and Part 2 of the Work. Bidders shall provide a total price for each Part and, on the summary sheet, a Total Bid Price consisting of the sum of prices for Part 1 and Part 2.

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 copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or

(b) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or

(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 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/her 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/her 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/her Bid after the Submission Deadline but before his/her 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.

B15.2.1 Any bid with an apparent imbalance between the unit prices in Part 1 and Part 2 may be determined to be non-responsive and rejected by the Award Authority in its sole discretion, acting reasonably.

B15.3 Further to B15.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is 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 adjusted, if necessary, as follows:

(a) if the lowest evaluated responsive Bid submitted by a responsible and qualified Bidder is within the budgetary provision for the Work, no adjustment will be made to the Total Bid Price; or

(b) if the lowest evaluated responsive Bid submitted by a responsible and qualified Bidder exceeds the budgetary provision for the Work, the Total Bid Prices of all responsive Bids submitted by responsible and qualified Bidders will be adjusted by progressively deducting locations in the following order; Part 1 surface works Item E in its entirety and Part 2 Drainage and underground works Item EE in its entirety, Part 1 surface works Item J in its entirety and Part 2 Drainage and underground works Item HH in its entirety, Part 1 surface works Item F in its entirety and Part 2 Drainage and underground works Item FF in its entirety, Part 1 surface works Item D in its entirety and Part 2 Drainage and underground works Item DD in its entirety, Part 1 surface works Item L in its entirety and Part 2 Drainage and underground works Item II in its entirety, Part 1 surface works Item C in its entirety and Part 2 Drainage and underground works Item CC in its entirety, Part 1 surface works Item K in its entirety, Part 1 surface works Item I in its entirety and Part 2 Drainage and underground works Item GG in its entirety, Part 1 surface works Item A in its entirety and Part 2 Drainage and underground works Item AA in its entirety, Part 1 surface works Item H in its entirety, Part 1 surface works Item G in its entirety, Part 1 surface works Item B in its entirety and Part 2 Drainage and underground works Item BB in its entirety, until a Total Bid Price within the budgetary provision is achieved.

B15.4.1 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.

B15.4.2 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.

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;

B16.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

C0.1 The *General Conditions for Construction* (Revision 2006 12 15) are applicable to the Work of the Contract.

C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm

C0.2 A reference in the 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 two parts:

(a) Part 1 – Surface Works

(b) Part 2 – Drainage and Underground Works.

Part 1 – Surface Works

D2.2 Part 1 – Surface Works shall consist of:

(a) Local Improvements – New Asphalt Pavement

(i) Rue Aubert/Rue La Verendrye – The block bounded by Rue Aubert, Rue la Verendrye, Rue St. Joseph and Rue Langevin.

(ii) Crawford Ave./Chandos St. - The block bounded by Crawford Ave., Chandos St., Coniston St. and Lyndale Dr..

(iii) Gendraeu Ave./East of Dorge Dr. – The block bounded by Gendreau Ave., East of Dorge Dr. and West of Villeneuve Blvd..

(iv) Helmsdale Ave./Kimberly Ave. – The block bounded by Helmsdale Ave., Kimberly Ave., Kildonan Dr. and Henderson Hwy..

(v) Rue La Verendrye/Rue Notre Dame – The block bounded by Rue La Verendrye, Rue Notre Dame, Rue La Fleche and Rue Archibald.

(vi) Leighton Ave./Roberta Ave. – The block bounded by Leighton Ave., Roberta Ave., Woodvale St. and Henderson Hwy..

(vii) Lilian Ave./Cromwell St. West East lane – The block bounded by Lilian Ave., Cromwell St. and St. Mary's Rd..

(viii) Lilian Ave./Cromwell St. South North lane – The block bounded by Lilian Ave., Cromwell St. and St. Mary's Rd..

(ix) Monck Ave./Tache Ave. – The block bounded by Monck Ave., Tache Ave., Coniston St. and Lyndale Dr..

(x) Oakland Ave./McLeod Ave. – The block bounded by Oakland Ave., McLeod Ave., Golspie St. and Dundoon St..

(xi) Pinedale Ave./Birchdale Ave. – The block bounded by Pinedale Ave., Birchdale Ave., Kirkdale Ave. and Highfield St..

(xii) Rosemount Ave./Edderton Ave. – The block bounded by Rosemount Ave., Edderton Ave., Rockman St. and Wynne St..

Part 2 – Drainage and Underground Works

D2.3 Part 2 – Drainage and Underground Works shall consist of:

(a) Land Drainage Sewer Installation

(i) Rue Aubert/Rue La Verendrye – Land drainage sewer

(ii) Crawford Ave./Chandos St. – Land drainage sewer

(iii) Gendreau Ave./East of Dorge Dr. – Land drainage sewer

(iv) Helmsdale Ave./Kimberly Ave. – Land drainage sewer

(v) Rue La Verendrye/Rue Notre Dame – Land drainage sewer

(vi) Leighton Ave./Roberta Ave. – Land drainage sewer
(vii) Monck Ave./Tache Ave. – Land drainage sewer
(viii) Oakland Ave./McLeod Ave. – Land drainage sewer
(ix) Rosemount Ave./Edderton Ave. – Land drainage sewer

D2.4 The major components of the Work are as follows:

(a) Part 1 – Surface Works
(i) Remove existing approaches
(ii) Excavation
(iii) Compaction of existing sub-grade
(iv) Placement of separation/reinforcement fabric and/or geogrid
(v) Placement of sub-base and base course materials
(vi) Construction of new concrete catchbasin/manhole aprons and tees
(vii) Construction of 125mm asphalt pavement surface
(viii) Renewal of existing approaches
(ix) Renewal of miscellaneous concrete slabs, curbs and sidewalk
(x) Restoration

(b) Part 2 – Drainage and Underground works
(i) Installation of manholes and catchbasins
(ii) Installation of land drainage sewer

D3. CONTRACT ADMINISTRATOR

D3.1 The Contract Administrator is:

Mr. Scott Minty
WSP Project Manager
1600 Buffalo Place, Wpg, Mb, R3T 6B8

Telephone No. 204 (204) 477-6650
Facsimile No. 204 (204) 474-2864

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.

D3.3 Bids Submissions must be submitted to the address in B7.8

D4. CONTRACTOR'S SUPERVISOR

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

D4.2 At least two (2) business days prior to the commencement of any Work on the site, the Contractor shall provide the Contract Administrator with a phone number where the supervisor identified in D4.1 or an alternate can be contacted twenty-four (24) hours a day to respond to an emergency.

D5. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE

D5.1 The Contract, all deliverables produced or developed, and information provided to or acquired by the Contractor are the property of the City and shall not be appropriated for the Contractors own use, or for the use of any third party.

D5.2 The Contractor shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Contract Administrator.

D5.3 The following shall be confidential and shall not be disclosed by the Contractor to the media or any member of the public without the prior written authorization of the Contract Administrator;

(a) information provided to the Contractor by the City or acquired by the Contractor during the course of the Work;

(b) the Contract, all deliverables produced or developed; and

(c) any statement of fact or opinion regarding any aspect of the Contract.

D5.4 A Contractor who violates any provision of D5 may be determined to be in breach of Contract.

D6. NOTICES

D6.1 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.

D6.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D6.3 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the facsimile number identified in D3.1.

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

The City of Winnipeg
Legal Services Department
Attn: Director of Legal Services

Facsimile No.: 204-947-9155

D6.1 **Bids Submissions** must be submitted to the address in B7.8.

D7. FURNISHING OF DOCUMENTS

D7.1 Upon award of the Contract, the Contractor will be provided with three (3) complete sets of the Bid Opportunity. If the Contractor requires additional sets of the Bid Opportunity, they will be supplied to him/her at cost.

SUBMISSIONS

D8. AUTHORITY TO CARRY ON BUSINESS

D8.1 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.

D9. SAFE WORK PLAN

D9.1 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.

D9.2 The Safe Work Plan shall be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/safety/default.stm

D10. INSURANCE

D10.1 The Contractor shall provide and maintain the following insurance coverage:

(a) commercial general liability insurance, in the amount of at least two million dollars ($2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability, broad form property damage cover and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;

(b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than $2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence;

(c) an all risks Installation Floater carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.

D10.2 Deductibles shall be borne by the Contractor.

D10.3 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.

D10.4 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.

D11. PERFORMANCE SECURITY

D11.1 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.

D11.1.1 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.

D11.2 If the bid security provided in his/her 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.

D12. SUBCONTRACTOR LIST

D12.1 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.

D13. EQUIPMENT LIST

D13.1 The Contractor shall provide the Contract Administrator with a complete list of the equipment which the Contractor proposes to utilize (Form K: Equipment 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.

D14. DETAILED WORK SCHEDULE

D14.1 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.

D14.2 The detailed work schedule shall consist of the following:

(a) a Gantt chart for the Work.

D14.3 Further to D14.2(a), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.

SCHEDULE OF WORK

D15. COMMENCEMENT

D15.1 The Contractor shall not commence any Work until he/she is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.

D15.2 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 D8;
  (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 D9;
  (v) evidence of the insurance specified in D10;
  (vi) the performance security specified in D11;
  (vii) the subcontractor list specified in D12;
  (viii) the equipment list specified in D13; and
  (ix) the detailed work schedule specified in D14.

(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.

D15.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the letter of intent.

D15.4 The City intends to award this Contract by two (2) weeks from the submission deadline.

D15.4.1 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.

D16. WORKING DAYS

D16.1 Further to C1.1(jj);

D16.1.1 The Contract Administrator will determine daily if a Working Day has elapsed and will record his/her assessment. On a weekly basis the Contract Administrator will provide the Contractor with a record of the Working Days assessed for the preceding week. The Contractor shall sign each report signifying that he/she agrees with the Contract Administrator's determination of the Working Days assessed for the report period.

D16.1.2 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.

D16.1.3 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.

D17. RESTRICTED WORK HOURS

D17.1 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.

D18. WORK BY OTHERS

D18.1 Work by others on or near the Site will include but not necessarily be limited to:

(a) Manitoba Hydro

(b) Manitoba Telecom Services;

(c) Shaw Communications.

D19. SEQUENCE OF WORK

D19.1 Further to C6.1, the sequence of work shall comply with the following:

D19.1.1 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.

D19.1.2 Where the Contractor utilizes two (2) or more crews that work independently on the same major component of the Work as identified inD2, the Contract Administrator may approve an increase to the maximum number of streets under construction at any time.

D19.1.3 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.

D20. SUBSTANTIAL PERFORMANCE

D20.1 The Contractor shall achieve Substantial Performance within seventy (70) consecutive Working Days of the commencement of the Work as specified in D15.

D20.2 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.

D20.3 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.

D21. TOTAL PERFORMANCE

D21.1 The Contractor shall achieve Total Performance within seventy five (75) consecutive Working Days of the commencement of the Work as specified in D15.

D21.2 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.

D21.3 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.

D22. LIQUIDATED DAMAGES

D22.1 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 five hundred dollars ($1, 500.00) per working day for each and every working day following the day fixed herein for Total Performance during which such failure continues.

D22.2 The amount specified for liquidated damages in D22.1 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.

D22.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D23. SCHEDULED MAINTENANCE

D23.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

(a) Reflective crack maintenance as specified in CW3250-R7;

(b) Sod maintenance as specified in CW3510-R9;

(c) Gravel surfacing maintenance as specified in CW3150-R4.

D23.2 Determination of Substantial Performance and Total Performance shall be exclusive of scheduled maintenance identified herein. All scheduled maintenance shall be completed prior to the expiration of the warranty period. Where the scheduled maintenance cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the scheduled maintenance.

CONTROL OF WORK

D24. JOB MEETINGS

D24.1 Regular weekly job meetings will be held at the site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.

D24.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

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

D25.1 Further to C6.24, 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).

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

D26.1 Further to B10.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B10.4.

MEASUREMENT AND PAYMENT

D27. PAYMENT

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

WARRANTY

D28. WARRANTY

D28.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) year thereafter, except where longer warranty periods are specified in the respective Specification sections, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

D28.1.1 For the purpose of Performance Security, the warranty period shall be one (1) year.

D28.2 Notwithstanding C13.2, 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 portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.

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

FORM H1: PERFORMANCE BOND
(See D11)

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. 487-2015

2015 Local Improvements – Contract No.2
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 D11)

_____
(Date)

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

RE: PERFORMANCE SECURITY – BID OPPORTUNITY NO. 487-2015

2015 Local Improvements – Contract No.2

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 (2007 Revision), International Chamber of Commerce Publication Number 600.

_____
(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

FORM J: SUBCONTRACTOR LIST
(See D12)

2015 Local Improvements – Contract No.2

Portion of the Work	Name	Address
SURFACE WORKS		
Supply of Materials:		
Concrete:		
Asphalt:		
Base Course & Sub-Base:		
Sod:		
INSTALLATION/PLACEMENT		
Concrete:		
Asphalt:		
Base:		
UNDERGROUND WORKS		
Supply of Materials:		
Installation/Placement:		
OTHERS:		

FORM K: EQUIPMENT
(See D13)

2015 Local Improvements – Contract No.2

1. Category/type:

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

2. Category/type:

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

3. Category/type:

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

FORM K: EQUIPMENT
(See D13)

2015 Local Improvements – Contract No.2

4. Category/type:

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

5. Category/type:

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

6. Category/type:

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

FORM L: DETAILED WORK SCHEDULE

(See D14)

2015 Local Improvements – Contract No.2

For each item of Work, indicate the cumulative percentage proposed to be completed by the end of each time period until 100% completion is achieved.						
Items of Work	Time Period in Working Days					
	15	30	45	60	70	75
Surface Works						
Drainage and Underground						

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:

Drawing No.	Drawing Name/Title	Drawing (Original) Sheet Size
141-24150-00-28-R3	Cover Sheet	24”X36”
141-24150-00-29-R3	Rue Aubert/Rue La Verendrye Lane – East gutter of Rue St. Joseph to Sta. 2+15	24”X36”
141-24150-00-30-R3	Rue Aubert/Rue La Verendrye Lane – Sta 2+15 to West gutter of Rue Langevin	24”X36”
141-24150-00-31-R3	Crawford Ave./Chandos Ave. Lane – Sta. 1+00 to Coniston St.	24”X36”
141-24150-00-32-R3	Crawford Ave./Chandos Ave. Lane – South Leg From Chandos Ave. to Crawford Ave.	24”X36”
141-24150-00-33-R3	Gendreau Ave./Dorge Dr. Lane – South gutter of Gendreau Ave. to Approximately 100m South at Turnaround	24”X36”
141-24150-00-34-R3	Helmsdale Ave./Kimberly Ave. lane – From Sta. 1+00 to Sta. 2+50	24”X36”
141-24150-00-35-R3	Helmsdale Ave./Kimberly Ave. Lane – From Sta. 2+50 to East leg Tie-in	24”X36”
141-24150-00-36-R3	Helmsdale Ave./Kimberly Ave. Lane – From Kimberly Ave. to Helmsdale Ave. East Leg	24”X36”
141-24150-00-37-R3	Rue La Verendrye/Rue Notre Dame Lane – East gutter of Rue La Fleche to the West limit of the East Lane leg	24”X36”
141-24150-00-38-R3	Rue La Verendrye/Rue Notre Dame Lane – East leg Rue Notre Dame to Rue La Verendrye	24”X36”
141-24150-00-39-R3	Leighton Ave./Roberta Ave. Lane – From Sta. 1+00 to Sta. 2+25	24”X36”
141-24150-00-40-R3	Leighton Ave./Roberta Ave. Lane – From Sta. 2+25 to Sta. 3+50	24”X36”
141-24150-00-41-R3	Leighton Ave./Roberta Ave. Lane – From Sta. 3+50 to Leighton Ave.	24”X36”
141-24150-00-42-R3	Lilian Ave./Cromwell St. Lane – West/East lane bounded by St. Mary’s Rd. and Lillian Ave.	24”X36”
141-24150-00-43-R3	Lilian Ave./Cromwell St. Lane – South/North lane bounded by St. Mary’s Rd. and Cromwell St	24”X36”
141-24150-00-44-R3	Monck Ave./Tache Ave. Lane – North leg from Sta. 1+00 to Coniston St.	24”X36”
141-24150-00-45-R3	Monck Ave./Tache Ave. Lane – South leg from Monck Ave. to Tache Ave.	24”X36”
141-24150-00-46-R3	Oakland Ave./McLeod Ave. Lane – Golspie St. to Sta. 2+20	24”X36”
141-24150-00-47-R3	Oakland Ave./McLeod Ave. Lane – From Sta. 2+20 to Sta. 3+40	24”X36”
141-24150-00-48-R3	Oakland Ave./McLeod Ave. Lane – From Sta. 3+40 to Dundoon St.	24”X36”
141-24150-00-49-R3	Pinedale Ave./Birchdale Ave. Lane – From Highfield St. to Sta. 2+00	24”X36”
141-24150-00-50-R3	Pinedale Ave./Birchdale Ave. Lane – From Sta. 2+00 to Kirkdale St.	24”X36”
141-24150-00-51-R3	Rosemount Ave./Edderton Ave. Lane – From Rockman St. to Wynne St.	24”X36”

E2. GEOTECHNICAL REPORT

E2.1 Further to C3.1, the geotechnical report is provided to aid the Contractor's evaluation of existing conditions. The geotechnical report is contained in Appendix 'A'.

E3. PROTECTION OF EXISTING TREES

E3.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities to existing boulevard trees within the limits of the construction area:

(a) The Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.

(b) Trees identified to be at risk by the Contract Administrator are to be strapped with 25 x 100 x 2400mm wood planks, or suitably protected as approved by the Contract Administrator.

(c) Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the excavation shall be a minimum of 1.5 times the diameter (measured in inches), with the outcome read in feet, from the closest edge of the trunk. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation.

(d) Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of trees. The dripline of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.

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

E3.2 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or his/her designate.

E3.3 No separate measurement or payment will be made for the protection of trees.

E3.4 Except as required in clause E3.1(c) and E3.1(e), Elm trees shall not be pruned at any time between April 1 and July 31.

E4. TRAFFIC CONTROL

E4.1 Further to clauses 3.6 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.

E5. TRAFFIC MANAGEMENT

E5.1 Further to clause 3.7 of CW 1130:

E5.1.1 South traffic on St. Mary's Rd.at #4 St. Mary's Rd. (Santa Lucia Pizza) and back lane approach intersection must be maintained during approach re-construction to allow for three (3) lanes of traffic during the hours of 3:00pm to 5:30pm Monday to Friday. During

approach re-construction activities, two (2) south lanes of traffic must be maintained at all times.

E5.1.2 Intersecting street and private approach access shall be maintained at all times.

E5.1.3 Should the Contractor be unable to maintain pedestrian or vehicular access to a residence or business, he/she shall review the planned disruption with the business or residence and the Contract Administrator, and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of 24 hours notification to the affected residence or business and the Contract Administrator, prior to disruption of access.

E5.1.4 Pedestrian and ambulance/emergency vehicle access must be maintained at all times.

E6. REFUSE AND RECYCLING COLLECTION

E6.1 While access to refuse and/or recycling collection vehicles is restricted, on collection day(s) the Contractor shall move all of the affected property owners refuse and/or recycling materials to a nearby common area, prior to an established time, in accordance with E6.2 to permit the normal collection vehicles to collect the materials. Immediately following recycling collection the Contractor shall return recycling receptacles to the addresses marked on the receptacles.

E6.2 Collection Schedule:

Rosemount Ave./Edderton Ave..

Collection Day(s):	**Mondays**
Collection Time:	**6:00am to 10:00pm**
Common Collection Area:	**Back Lane**

Rue Aubert/Rue La Verendrye, Crawford Ave./Chandos St., Rue La Verendrye/Rue Notre Dame, Lilian Ave./Cromwell St., Monck Ave./Tache Ave. and Pinedale Ave./Birchdale Ave. .

Collection Day(s):	**Tuesdays**
Collection Time:	**6:00am to 10:00pm**
Common Collection Area:	**Back Lane**

Helmsdale Ave./Kimberly Ave., Leighton Ave./Roberta Ave. and Oakland Ave./McLeod Ave..

Collection Day(s):	**Wednesdays**
Collection Time:	**6:00am to 10:00pm**
Common Collection Area:	**Back Lane**

Gendreau Ave./East of Dorge Dr.

Collection Day(s):	**Fridays**
Collection Time:	**6:00am to 10:00pm**
Common Collection Area:	**Back Lane**

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

E7. PEDESTRIAN SAFETY

E7.1 During the project, a temporary snow fence shall be installed when requested by the Contract Administrator. The Contractor shall be responsible for maintaining the snow fence in a proper working condition. No measurement for payment shall be made for this work.

E8. WATER OBTAINED FROM THE CITY

E8.1 Further to clause 3.7 of CW 1120, the Contractor shall pay for all costs, including sewer charges, associated with obtaining water from the City in accordance with the Waterworks and Sewer By-laws.

E9. SURFACE RESTORATIONS

E9.1 Further to clause 3.3 of CW 1130, when Total Performance is not achieved in the year the Contract is commenced, the Contractor shall temporarily repair any Work commenced and not completed to the satisfaction of the Contract Administrator. The Contractor shall maintain the temporary repairs in a safe condition as determined by the Contract Administrator until permanent repairs are completed. The Contractor shall bear all costs associated with temporary repairs and their maintenance.

E10. INFRASTRUCTURE SIGNS

E10.1 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

E11. SALT TOLERANT GRASS SEEDING

DESCRIPTION

E11.1 Further to CW 3520 and CW3540, this specification shall cover sub-grade preparation and the supply and placement of Salt Tolerant Grass Seed.

MATERIALS

E11.2 Salt Tolerant Grass Seed

E11.2.1 Salt Tolerant Grass Seed for regional and collector boulevards, medians and interchange areas shall be a mixture composed of:

(a) Seventy percent (70%) Fults or Nuttals Alkaligrass (Puccinellia spp.), twenty percent (20%) Audubon or Aberdeen Creeping Red Fescue and ten percent (10%) Perennial Ryegrass.

EQUIPMENT

E11.3 Scarification equipment shall be suitable for the area being scarified, shall be capable of scarifying the sub-grade to the specified depth and shall be accepted by the Contract Administrator. For confined areas a toothed bucket may be acceptable. For larger areas tilling equipment may be required.

CONSTRUCTION METHODS

E11.4 Preparation of Existing Grade

E11.4.1 Prior to placing topsoil, in areas to be seeded greater in width than 600mm, prepare the existing sub-grade by scarifying to a minimum depth of 75mm and to a maximum depth of 100mm to the satisfaction of the Contract Administrator.

E11.4.2 Scarification shall consist of breaking up and loosening the sub-grade. No scarification shall occur within the edge of a tree canopy (or drip line).

E11.5 Salt Tolerant Grass Seeding

E11.5.1 Salt Tolerant Grass Seed shall be sown at a rate of 2.2 kilograms per 100 square meters.

MEASUREMENT AND PAYMENT

E11.6 Supply, placement and maintenance of Salt Tolerant Grass Seed will be paid for at the Contract Unit Price per square metre for "Salt Tolerant Grass Seeding", measured as specified herein, which price shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the work included in this Specification. Payment for Salt Tolerant Grass Seeding shall be in accordance with the following:

(a) Sixty five (65%) percent of quantity following supply and placement.

(b) Remaining thirty five (35%) percent of quantity following termination of the Maintenance Period.

E12. EXCAVATION EQUIPMENT

E12.1 During roadway excavation, excavation equipment must not travel on the exposed subgrade.

E12.2 During sub drain excavation, light weight track excavation equipment may travel on the exposed subgrade.

E12.3 Upon completion of excavation and installation of sub drains, any irregularities or unevenness in the subgrade shall be corrected to the satisfaction of the Contract Administrator, at the Contractor’s expense, before commencement of compaction and sub-base construction.

E13. SUPPLYING AND PLACING OF APPROARCH SURFACING MATERIAL

E13.1 Driveway Surfacing Material will be measured on a weight basis and paid for at the Contract unit Price per tonne. The weight to be paid for will be the total number of tonnes of surfacing material that is supplied and placed in accordance with specification CW 3150-R4, accepted and measured by the Contract Administrator.

E13.2 The weight to be paid for will be the total number of tonnes of surfacing material measured on a certified scale.

E13.3 Only material placed within the limits of the resurfacing, as directed by the Contract Administrator, will be included in the payment for Surfacing Material.

E14. OUTLET FLOW RESTRICTOR

E14.1 Install C/W Outlet restrictors as per detail SD-122 which is attached in the appendix. Outlet restrictors to be paid on a unit basis. The number of Outlet Restrictors to be paid will be the total number of restrictors supplied and installed in accordance with SD-122, as accepted and measured by the Contract Administrator.

E15. CATCHBASIN RISERS

E15.1 Catchbasin riser supply and installation will be measured on a vertical meter basis for payment and paid for at the Contract Unit Price. The number of vertical meters to be paid for will be the total of the vertical meters measured which were supplied and installed where required in accordance with CW-2130-R12, as accepted and measured by the Contract Administrator.

E16. LAND DRAINAGE SEWER EXCAVATION

E16.1 The Contractor is required to utilize Jetting, Flooding and Tamping as per CW 2030-R7 in all underground works excavations.

E16.2 Measurement and payment for Jetting, Flooding and Tamping will be included with construction of the underground works as per CW 2030-R7.

E17. CRACK MAINTANENCE

E17.1 Route and Seal cracks within the warranty period as directed by the Contract Administrator.

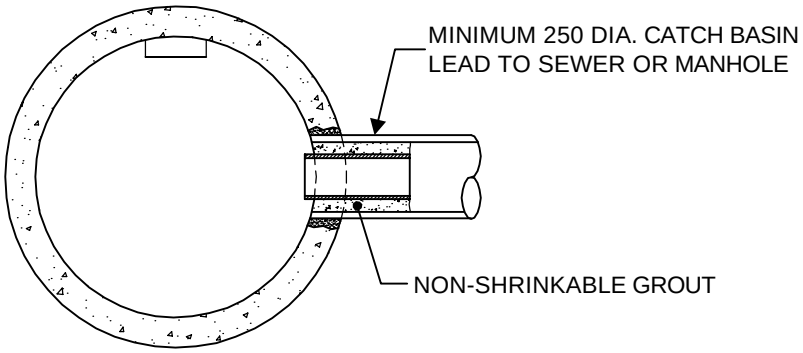
E17.2 No separate measurement or payment will be made for Crack Maintenance.

E18. CONSTRUCTION PHASING

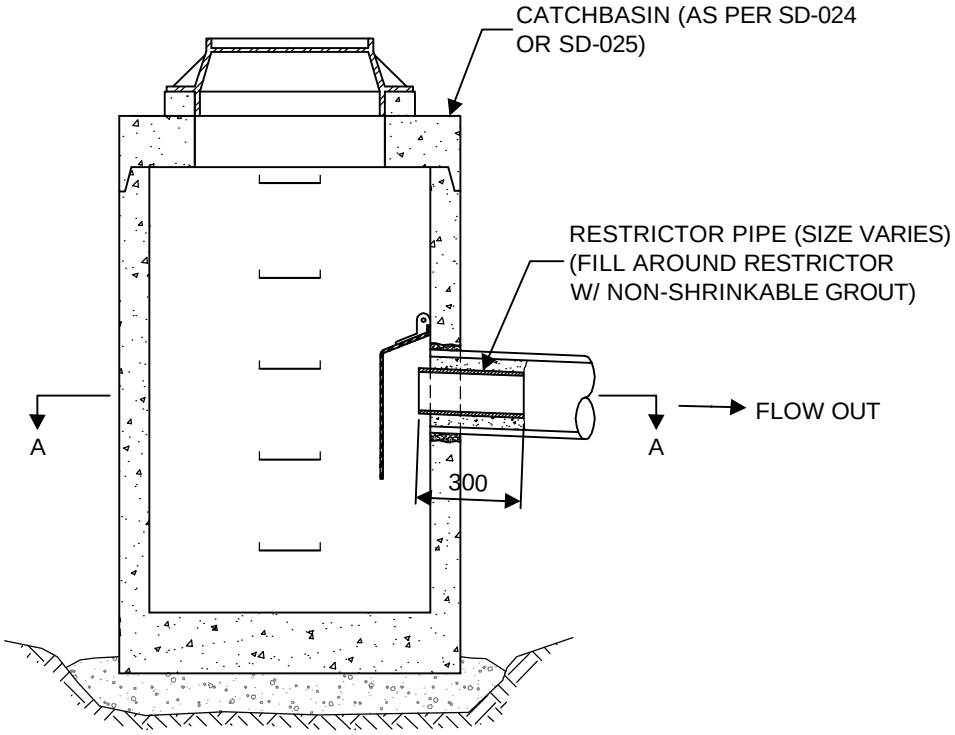
E18.1 Construction phasing and resident parking plan to be determined prior to commencing construction, for approval by, and to the satisfaction of, the Contract Administrator.

APPENDIX 'A'

DETAIL SD-122
GEOTECHNICAL REPORT



SECTION A - A



OUTLET FLOW RESTRICTOR

DIMENSIONS IN MILLIMETERS

THE CITY OF WINNIPEG
WATER & WASTE DEPARTMENT

Reference Spec. No.
CW 2030 CW 2130 CW 3205 CW 3210

STANDARD PRE-CAST
CONCRETE CATCH BASIN
C/W OUTLET RESTRICTOR

Designed By:	Drawn By:	Scale:
DG	CJH	N.T.S.
Checked By: SC	**Date:** 12-02-06 **Revision: 0**	**Drawing No.** SD-122
Approved: UNDERGROUND WORKS COMMITTEE		

GEOTECHNICAL STREET TESTING PROGRAM
2015 CITY OF WINNIPEG LOCAL IMPROVEMENTS – CONTRACT 2
WINNIPEG, MANITOBA

Prepared for:

City of Winnipeg
Public Works Department

Project No: 141-24150-00
May, 2015

WSP Canada Inc.
1600 Buffalo Place
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TABLE OF CONTENTS

1.0 SUMMARY

A geotechnical investigation was conducted for the proposed lane reconstruction projects in Winnipeg, Manitoba. The purpose of this investigation was to assess the general subsurface conditions with respect to identifying the existing pavement structure and the underlying soil profile.

Eleven (11) lanes (listed in Table 1), were drilled to at least 3.05 m depth in conjunction with City of Winnipeg (COW) geotechnical investigation guidelines. A total of thirty-one (31) boreholes were drilled.

At minimum, seven (7) grab-bag samples were taken for each borehole at 0.3 m intervals to determine the moisture content for each sample as well as particle size analysis on selected samples.

The subsurface conditions for each lane reconstruction project are summarized for each site. Also included are borehole logs (Appendix A), and test results (Appendix B).

2.0 INTRODUCTION

2.1 SCOPE OF WORK AND BACKGROUND

WSP was retained to undertake a soils investigation for a proposed lane reconstruction and projects in Winnipeg, Manitoba. The purpose of this work was to establish the soil and groundwater conditions at the sites, of which the pavement structure is identified and soil stratigraphy is profiled using the City of Winnipeg (COW) geotechnical investigation guideline. Authorization to proceed with the work was provided by City of Winnipeg.

2.2 PROPOSED LANE RECONSTRUCTION PROJECTS

The proposed lane reconstruction projects are as follows:

Table 1 - List of Lane Reconstruction Projects

SITE NO.	LOCATION DETAILS
1	All lanes bounded by Coniston St/Lyndale Dr/Chandos Ave/Crawford Ave
5	All lanes bounded by Leighton Ave/Roberta Ave/Woodvale St/Henderson Hwy
6	Rosemount Ave/Edderton Ave/Rockman St/Wynne St
8	Pinedale Ave/Birchdale Ave/Highfield St/Kirkdale St
10	All lanes bounded by Helmsdale Ave/Kimberly Ave/Henderson Hwy/Kildonan Dr
11	Rue Aubert/Rue La Verendrye/Rue St. Joseph/Rue Langevin including north-south section west of Rue Langevin
13	North-south lane bounded by Gendreau Ave/east of Dorge Dr/west of Villeneuve Blvd
16	St. Mary's Rd/Lillian Ave/Cromwell St including east-west and north-south lanes
17	All lanes bounded by Coniston St/Lyndale Dr/Tache Ave/Monck Ave
19	Oakland Ave/McLeod Ave/Dundoon St/Golspie St
21	All lanes bounded by Rue La Verendrye/Rue Notre Dame/Rue Archibald/Rue La Fleche

3.0 FIELD METHODOLOGY

The subsoils encountered were visually classified to the full extent in the borehole and representative soil samples were recovered at regular depth intervals (every 0.3 m down to 2.13 m).

The field investigation was undertaken between January 14, 2015 and February 3, 2015. A total of thirty-one (31) boreholes were cored and drilled down to 3.05 m depth using a truck-mounted B-40LX rig and CME-55 drilling rig equipped with 125 mm auger. All boreholes were backfilled with auger cuttings/bentonite and capped with cold mix asphalt after completion of drilling (if applicable).

For confirmation, all of the soil samples are tested for moisture contents and selected soil samples between the depth of 0.5 m and 1.0 m were submitted for Particle Size Analysis test (PSA). One Atterberg Limit test was also conducted. The asphalt (if applicable) was measured for thicknesses. Any groundwater seepage and sloughing encountered in the boreholes were noted.

4.0 SOIL CONDITIONS

4.1 SUBSURFACE CONDITIONS (SOIL PROFILE AND GROUNDWATER)

The general soil profile encountered for most boreholes was a top layer of granular fill (typical base course), followed by a layer of clay or silty clay (insitu or fill), which extended to the bottom of each borehole. Some boreholes also revealed a layer of silt between two layers of clay or silty clay.

The granular fill was found to have an approximate thickness ranging from 0.15 m to 0.6 m, averaging around 0.3 m. Ten (10) boreholes also revealed a layer of deteriorated or disintegrated asphalt ranging in thickness from 0.08 m to 0.15 m. In some cases, the suspected asphalt may have been particularly compacted granular material mixed with a sealant.

The clay or silty clay encountered beneath the granular fill ranged from grey to brown and was typically fissured in the upper 1.5 m of the borehole. Some boreholes revealed a layer of clay fill beneath the granular material. The clay fill ranged in thickness from 0.3 m to 1.35 m. The clay fill was largely a mix of brown to grey to black, with some clay fill layers showing a trace of fine gravel.

Various boreholes revealed a layer of silt at an approximate depth ranging from 0.6 m to 2.45 m. The thickness of the silt layer ranged from 0.3 m to 1.35 m and was generally moist to wet.

For each borehole, the groundwater level and depth of frost was measured. The frost ranged in depth from 1.05 m to 1.35 m. No groundwater was encountered after drilling in any of the boreholes.

Detailed descriptions of the soil profiles in each borehole are shown on in the borehole logs in Appendix A.

4.2 LABORATORY TESTING

For each borehole, a minimum of seven (7) grab-bag samples were selected at 0.3 m intervals. Each sample was tested to determine its moisture content. Certain samples in the 0.5 m to 1.0 m range were also tested to determine the particle size, so that the selected sample may be classified into four categories: clay (< 30% silt), silty clay (30% - 50% silt), clayey silt (50% - 70%), and silt (>70%). One Atteberg Limit test was also conducted to determine the plasticity of a selected sample.

Detailed descriptions of the moisture content, PSA and Atterberg Limit test results are shown in Appendix B.

5.0 SUMMARY OF SOIL CONDITIONS BY SITE

SITE 1 - All lanes bounded by Coniston St/Lyndale Dr/Chandos Ave/Crawford Ave

Borehole ID	Borehole Location	Pavement Surface		Pavement Structure Material		Soil Description	Borehole Depth	No. of Samples Taken
		Type	Thickness (mm)	Type	Thickness (mm)			
TH 7	Lane behind 575 Lyndale Dr	Asphalt/ Granular Fill	125 (deteriorated)	Granular Fill	200	Asphalt, granular fill (typ. base course), clay (1.2 m), silt (0.3 m), clay (1.2 m)	3.05 m	8
TH 8	Lane behind 60 Crawford Ave	Asphalt/ Granular Fill	150 (deteriorated)	Granular Fill	150	Asphalt, granular fill (typ. base course), clay fill (0.6 m), clay (0.3 m), silt (0.6 m), clay (1.2 m)	3.05 m	8
TH 9	Lane behind 72 Crawford Ave	Asphalt/ Granular Fill	175 (deteriorated)	Granular Fill	150	Asphalt, granular fill (typ. base course), clay fill (0.3 m), clayey silt (1.2 m), clay (1.2 m)	3.05 m	8

SITE 5 – All lanes bounded by Leighton Ave/Roberta Ave/Woodvale St/Henderson Hwy

Borehole ID	Borehole Location	Pavement Surface		Pavement Structure Material		Soil Description	Borehole Depth	No. of Samples Taken
		Type	Thickness (mm)	Type	Thickness (mm)			
TH 31	Lane behind 182 Leighton Ave	Granular Fill	-	Granular Fill	600	Granular fill (typ. limestone base course), clay fill (0.45 m), clay (2.0 m)	3.05 m	7
TH 32	Lane behind 152 Leighton Ave	Granular Fill	-	Granular Fill	600	Granular fill (typ. limestone base course), clay fill (0.45 m), clay (2.0 m)	3.05 m	7
TH 33	Lane behind 100 Leighton Ave	Granular Fill	-	Granular Fill	600	Granular fill (typ. limestone base course), clay fill (0.45 m), clay (2.0 m)	3.05 m	7

SITE 6 – All Lanes Bounded by Rosemount Ave/Edderton Ave/Rockman St/Wynne St

Borehole ID	Borehole Location	Pavement Surface		Pavement Structure Material		Soil Description	Borehole Depth	No. of Samples Taken
		Type	Thickness (mm)	Type	Thickness (mm)			
TH 4	Lane behind 1048 Rosemount Ave	Granular Fill	-	Granular Fill	200	Granular fill (typ. base course), clay fill (0.4 m), clay (2.45 m)	3.05 m	8
TH 5	Lane behind 1036 Rosemount Ave	Granular Fill	-	Granular Fill	200	Granular fill (typ. base course), clay fill (1.0 m), clay (0.3 m), silt (0.45 m), clay (1.1 m)	3.05 m	8
TH 6	Lane behind 1016 Rosemount Ave	Granular Fill	-	Granular Fill	200	Granular fill (typ. base course), clay fill (0.7 m), clay (2.15 m)	3.05 m	8

SITE 8 – All Lanes Bounded by Pinedale Ave/Birchdale Ave/Highfield St/Kirkdale St

Borehole ID	Borehole Location	Pavement Surface		Pavement Structure Material		Soil Description	Borehole Depth	No. of Samples Taken
		Type	Thickness (mm)	Type	Thickness (mm)			
TH 10	Lane behind 123 Birchdale Ave	Asphalt/ Granular Fill	100 (deteriorated)	Granular Fill	200	Granular fill (typ. base course), clay fill (0.3 m), clay (2.45 m)	3.05 m	7
TH 11	Lane behind 143 Birchdale Ave	Asphalt/ Granular Fill	75 (deteriorated)	Granular Fill	225	Granular fill (typ. base course), clay fill (0.3 m), clay (2.45 m)	3.05 m	7
TH 12	Lane behind 165 Birchdale Ave	Asphalt/ Granular Fill	100 (deteriorated)	Granular Fill	200	Granular fill (typ. base course), clay fill (0.3 m), clay (2.45 m)	3.05 m	7

SITE 10 – All lanes bounded by Helmsdale Ave/Kimberly Ave/Henderson Hwy/Kildonan Dr

Borehole ID	Borehole Location	Pavement Surface		Pavement Structure Material		Soil Description	Borehole Depth	No. of Samples Taken
		Type	Thickness (mm)	Type	Thickness (mm)			
TH 13	Lane behind 764 Henderson Hwy	Granular Fill	-	Granular Fill	300	Granular fill (typ. base course), clay (1.2 m), clayey silt (1.35 m), clay (0.2 m)	3.05 m	8
TH 14	Lane behind 137 Kimberley Ave	Granular Fill	-	Granular Fill	175	Granular fill (typ. base course), clay (2.3 m), clayey silt (0.6 m)	3.05 m	8
TH 15	Lane behind 103 Kimberley Ave	Asphalt/ Granular Fill	75 (deteriorated)	Granular Fill	225	Granular fill (typ. base course), clay (2.75 m)	3.05 m	7

SITE 11 – All lanes bounded Rue Aubert/Rue La Verendrye/Rue St. Joseph/Rue Langevin including north-south section west of Rue Langevin

Borehole ID	Borehole Location	Pavement Surface		Pavement Structure Material		Soil Description	Borehole Depth	No. of Samples Taken
		Type	Thickness (mm)	Type	Thickness (mm)			
TH 63	Lane behind 186 Rue St. Joesph	Granular Fill	-	Granular Fill	750	Granular fill (typ. base course), clay (2.3 m)	3.05 m	7
TH 64	Lane behind 212 Rue St. Joesph	Granular Fill	-	Granular Fill	300	Granular fill (typ. base course), clay fill (1.2 m), clay (1.5 m)	3.05 m	7

SITE 13 – North-south lane bounded by Gendreau Ave/east of Dorge Dr/west of Villeneuve Blvd

Borehole ID	Borehole Location	Pavement Surface		Pavement Structure Material		Soil Description	Borehole Depth	No. of Samples Taken
		Type	Thickness (mm)	Type	Thickness (mm)			
TH 1	Lane behind 122 Villeneuve Blvd	Granular Fill	-	Granular Fill	150	Granular fill (typ. base course), clay (1.0 m), silt (1.05 m), clay (0.9 m)	3.05 m	8
TH 2	Lane behind 114 Villeneuve Blvd	Granular Fill	-	Granular Fill	150	Granular fill (typ. base course), clay (1.5 m), silt (0.75 m), clay (0.6 m)	3.05 m	8
TH 3	Lane behind 100 Villeneuve Blvd	Granular Fill	-	Granular Fill	300	Granular fill (typ. base course), clay (1.0 m), silt (0.9 m), clay (0.9 m)	3.05 m	8

SITE 16 – East-west and north-south lanes bounded by St. Mary's Rd/Lillian Ave/Cromwell St

Borehole ID	Borehole Location	Pavement Surface		Pavement Structure Material		Soil Description	Borehole Depth	No. of Samples Taken
		Type	Thickness (mm)	Type	Thickness (mm)			
TH 43	Lane east of 35B Cromwell St	Granular Fill	-	Granular Fill	150	Granular fill (typ. base course), clay (2.9 m)	3.05 m	7
TH 44	Lane north of 35A Cromwell St	Granular Fill	-	Granular Fill	300	Granular fill (typ. limestone base course), clay (2.75 m)	3.05 m	7

SITE 17 – All lanes bounded by Coniston St/Lyndale Dr/Tache Ave/Monck Ave

Borehole ID	Borehole Location	Pavement Surface		Pavement Structure Material		Soil Description	Borehole Depth	No. of Samples Taken
		Type	Thickness (mm)	Type	Thickness (mm)			
TH 19	Lane behind 521 Lyndale Dr	Asphalt/ Granular Fill	50 (deteriorated)	Granular Fill	250	Granular fill (typ. base course), silty clay (1.2 m), silt (0.6 m), clay (0.9 m)	3.05 m	7
TH 20	Lane behind 55 Tache Ave	Asphalt/ Granular Fill	50 (deteriorated)	Granular Fill	250	Granular fill (typ. base course), silty clay (1.2 m), silt (0.6 m), clay (0.9 m)	3.05 m	7
TH 21	Lane behind 71 Tache Ave	Asphalt	50 (deteriorated)	-	-	Clay fill (0.55 m), silty clay (1.65 m), clay (0.75 m)	3.05 m	7

SITE 19 – All lanes bounded by Oakland Ave/McLeod Ave/Dundoon St/Golspie St

Borehole ID	Borehole Location	Pavement Surface		Pavement Structure Material		Soil Description	Borehole Depth	No. of Samples Taken
		Type	Thickness (mm)	Type	Thickness (mm)			
TH 16	Lane behind 601 McLeod Ave	Granular Fill	-	Granular Fill	300	Granular fill (typ. base course), clay fill (0.6 m), clay (0.6 m), silt (1.2 m), clay (0.3 m)	3.05 m	8
TH 17	Lane behind 637 McLeod Ave	Granular Fill	-	Granular Fill	450	Granular fill (typ. base course), clay fill (0.45 m), clay (0.9 m), silt (0.3 m), clay (0.3 m), silt (0.3 m), clay (0.3 m)	3.05 m	8
TH 18	Lane behind 699 McLeod Ave	Granular Fill	-	Granular Fill	450	Granular fill (typ. base course), clay fill (0.75 m), clay (0.9 m), silt (0.75 m), clay (0.2 m)	3.05 m	8

SITE 21 – All lanes bounded by Rue La Verendrye/Rue Notre Dame/Rue Archibald/Rue La Fleche

Borehole ID	Borehole Location	Pavement Surface		Pavement Structure Material		Soil Description	Borehole Depth	No. of Samples Taken
		Type	Thickness (mm)	Type	Thickness (mm)			
TH 65	Lane behind 484 Rue La Verendrye	Granular Fill	-	Granular Fill	300	Granular fill (typ. base course), clay fill (0.3 m), silty clay (0.9 m), silt (0.3 m), clay (1.2 m)	3.05 m	7
TH 66	Lane behind 498 Rue La Verendrye	Granular Fill	-	Granular Fill	300	Granular fill (typ. base course), clay fill (0.3 m), clay (0.9 m), silt (1.35 m), clay (0.2 m)	3.05 m	7
TH 67	Lane behind 508 Rue La Verendrye	Granular Fill	-	Granular Fill	750	Granular fill (typ. base course), clay (0.75 m), silt (0.75 m), clay (0.75 m)	3.05 m	7

6.0 CLOSURE

The findings and recommendations provided in this report were prepared by WSP (the Consultant) in accordance with generally accepted professional engineering principles and practices. The recommendations are based on the results of field and laboratory investigations and are reflective only of the actual borehole(s) and/or excavation(s) examined. If conditions encountered during construction appear to be different than those shown by the borehole(s) and/or excavation(s) at this site, the Consultant should be notified immediately in order that the recommendations can be reviewed and modified as necessary to address actual site conditions.

This report is limited in scope to only those items that are specifically referenced in this report. There may be existing conditions that were not recorded in this report. Such conditions were not apparent to the Consultant due to the limitations imposed by the scope of work. The Consultant, therefore, accepts no liability for any costs incurred by the Client for subsequent discovery, manifestation or rectification of such conditions.

This report is intended solely for the Client named as a general indication of the visible or reported physical condition of the items addressed in the report at the time of the geotechnical investigation. The material in this report reflects the Consultant's best judgment in light of the information available to it at the time of preparation.

This report and the information and data contained herein are to be treated as confidential and may be used only by the Client and its officers and employees in relation to the specific project that it was prepared for. Any use a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. The Consultant accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The report has been written to be read in its entirety, do not use any part of this report as a separate entity.

All files, notes, source data, test results and master files are retained by the Consultant and remain the property of the Consultant.

Prepared by: Dana T.G. Bredin, P.Eng

Reviewed by: Silvestre S. Urbano, P.Eng.

APEGM

Certificate of Authorization

WSP Canada Inc.

No. 5750 Date: MAY 5, 2015

APPENDIX A

Project No: 141-24150-00 **TH 1**

Project: 2015 COW Alley Way Improvements

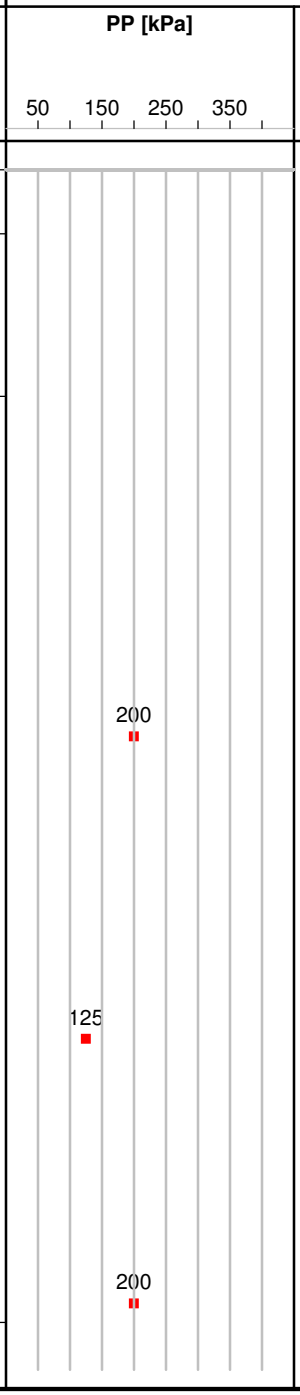
Client: City of Winnipeg

Location: Site 13 - Alley behind 122 Villeneuve Blvd **Engineer: S. Urbano**

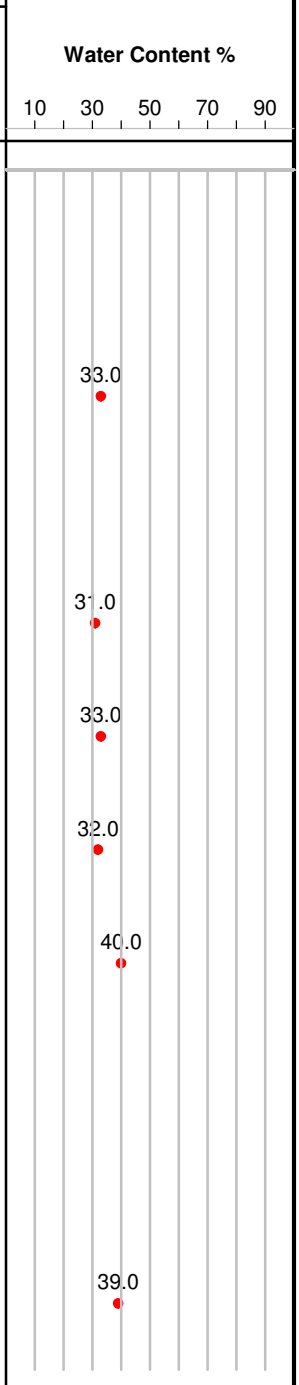
SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
0	0		**GRANULAR FILL** Typ. base course	99.8
1			**CLAY FILL** Grey-black mixed, trace of fine gravel	99.4
2			**CLAY** Brown, fissured, stiff at 1.5 m, SILTY at 2.15 m to 2.3 m	
3	1			
4				
5				
6				
6	2			
7				
8				
9				
10	3			97.0
			End of Log	

SAMPLE



SPT [N]



Drill Method: Auger

Drill Date: 1/14/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00 **TH 2**

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 13 - Alley behind 114 Villeneuve Blvd **Engineer: S. Urbano**

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
0	0		**GRANULAR FILL** Typ. limestone base course	99.8
1			**CLAY FILL** Grey-black mixed, frost to 1.4 m	
3	1			
5				98.5
5			**CLAY** Grey-black 1.7 m, brown below 1.7 m, stiff,, SILTY at 2.15 m to 2.3 m	
6	2			
10	3			97.0
			End of Log	

SAMPLE

PP [kPa] (50, 150, 250, 350)

SPT [N]

Water Content % (10, 30, 50, 70, 90)

Depth (ft)	PP [kPa]	Water Content %
1		32.0
2		36.0
3		36.0
4		36.0
5	200	38.0
6		33.0
7		36.0
7	50	
10	200	40.0

Drill Method: Auger

Drill Date: 1/14/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00

TH 3

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 13 - Alley behind 100 Villeneuve Blvd

Engineer: S. Urbano

Depth (m)	Description	Elev [m]
0	Ground Surface	100.0
0 – 0.3	**GRANULAR FILL** Typ. limestone base course	99.7
0.3 – 1.5	**CLAY FILL** Grey-black mixed, frost to 1.4 m	98.5
1.5 – 3.0	**CLAY** Grey-black 1.7 m, brown below 2.0 m, SILTY at 1.85 m to 2.0 m	97.0
	End of Log	

SAMPLE

Depth (ft)	PP [kPa]	SPT [N]	Water Content %
1			33.0
2			42.0
3			39.0
4			38.0
5	200		36.0
6	100		38.0
6.5	200		
7			38.0
10			42.0

Drill Method: Auger

Drill Date: 1/14/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00

TH 4

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 6 - Alley behind 1048 Rosemount Ave

Engineer: S. Urbano

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
0	0		**GRANULAR FILL** Typ. base course	99.8
1			**CLAY FILL** Black to brown, trace of fine gravel	99.4
2			**CLAY** Grey-black, brown below 1.7 m, stiff at 1.7 m, SILTY at 1.8 m to 2.0 m, clayey below 2.0 m	
3	1			
4				
5				
6				
7	2			
8				
9				
10	3			97.0
			End of Log	

SAMPLE

PP [kPa] (50, 150, 250, 350)

100

125

SPT [N]

Water Content % (10, 30, 50, 70, 90)

33.0

31.0

30.0

31.0

32.0

42.0

48.0

50.0

Drill Method: Auger

Drill Date: 1/14/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00 **TH 5**

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 6 - Alley behind 1036 Rosemount Ave **Engineer: S. Urbano**

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
0	0		**GRANULAR FILL** Typ. base course	99.8
1			**CLAY FILL** SILTY CLAY, brown to black	
4	1			98.8
4			**CLAY** Grey-black, frost to 1.35 m	98.5
5			**SILT** Tan-brown, soft, moist to wet	98.0
6	2		**CLAY** Brown, stiff	
10	3			97.0
			End of Log	

SAMPLE

PP [kPa]: 50, 150, 250, 350

SPT [N]

Water Content %: 10, 30, 50, 70, 90

Depth (ft)	Water Content %
4	42.0
5	39.0
6	39.0
7	39.0
8	27.0
9	23.0
10	38.0
11	47.0

Drill Method: Auger

Drill Date: 1/14/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00 **TH 6**

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 6 - Alley behind 1016 Rosemount Ave **Engineer: S. Urbano**

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
0	0		**GRANULAR FILL** Typ. base course	99.8
1			**CLAY FILL**	
3	1			99.1
			CLAY Grey-black, frost to 1.35 m, brown at 1.5 m	
10	3			97.0
			End of Log	

SAMPLE

PP [kPa] (50, 150, 250, 350)

SPT [N]

Water Content % (10, 30, 50, 70, 90)

Depth (ft)	PP [kPa]	Water Content %
1		30.0
2		40.0
3		36.0
4		32.0
5	150	33.0
6		37.0
7		37.0
10	125	45.0

Drill Method: Auger

Drill Date: 1/14/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00

TH 7

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 1 - Alley behind 575 Lyndale Dr

Engineer: S. Urbano

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
			ASPHALT	99.9
			GRANULAR FILL Typ. base course	99.7
1			**CLAY** Grey-black, frost to 1.5 m	
2				
3	1			
4				
5				98.5
			SILT Tan-brown, soft	
6				98.2
	2		**CLAY** Brown, stiff, SILTY from 2.9 m to 3.05 m	
7				
8				
9				
10	3			97.0
			End of Log	

SAMPLE

PP [kPa] (50, 150, 250, 350)

125

175

75

SPT [N]

Water Content % (10, 30, 50, 70, 90)

28.0

35.0

33.0

35.0

47.0

37.0

41.0

41.0

Drill Method: Auger

Drill Date: 1/14/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00 **TH 8**

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 1 - Alley behind 60 Crawford Ave **Engineer: S. Urbano**

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
			ASPHALT	99.8
1			**GRANULAR FILL** Typ. base course	99.7
2			**CLAY FILL** Grey-black mixed, trace of fine gravel	
3	1			99.1
			CLAY Grey-black	
4				98.8
			SILT Tan-brown, dry, frost to 1.35 m	
5				
6				98.2
	2		**CLAY** Brown, stiff, dry	
7				
8				
9				
10	3			97.0
			End of Log	

SAMPLE

PP [kPa] (50, 150, 250, 350)

150

SPT [N]

Water Content % (10, 30, 50, 70, 90)

20.0

33.0

33.0

30.0

23.0

41.0

44.0

51.0

Drill Method: Auger

Drill Date: 1/14/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00

TH 9

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

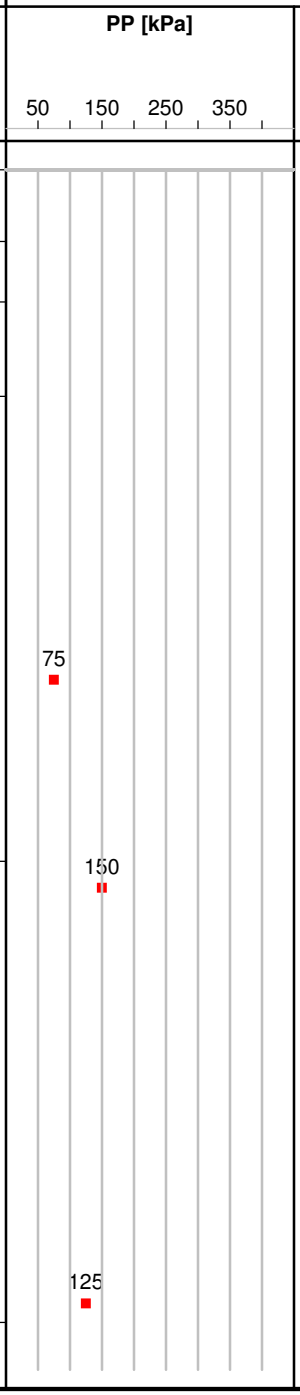
Location: Site 1 - Alley behind 72 Crawford Ave

Engineer: S. Urbano

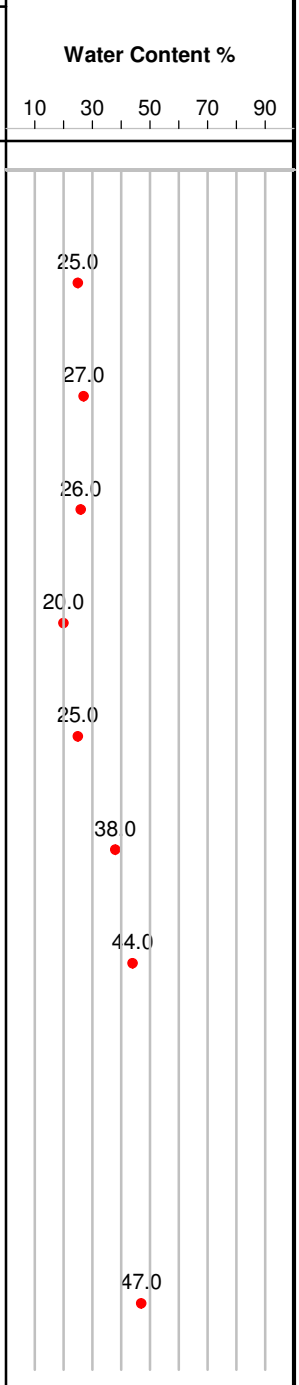
SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
			ASPHALT	99.8
1			**GRANULAR FILL** Typ. base course	99.7
			CLAY FILL Grey-black	99.4
2			**SILT** CLAYEY SILT, tan-brown, dry, frost to 1.35 m, moist to wet below 1.35 m, stratified at 1.5 m	
3	1			
4				
5				
6				98.2
	2		**CLAY** Brown, stiff, SILTY from 2.45 m to 2.6 m	
7				
8				
9				
10	3			97.0
			End of Log	

SAMPLE



SPT [N]



Drill Method: Auger

Drill Date: 1/14/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00 **TH 10**

Project: 2015 COW Alley Way Improvements

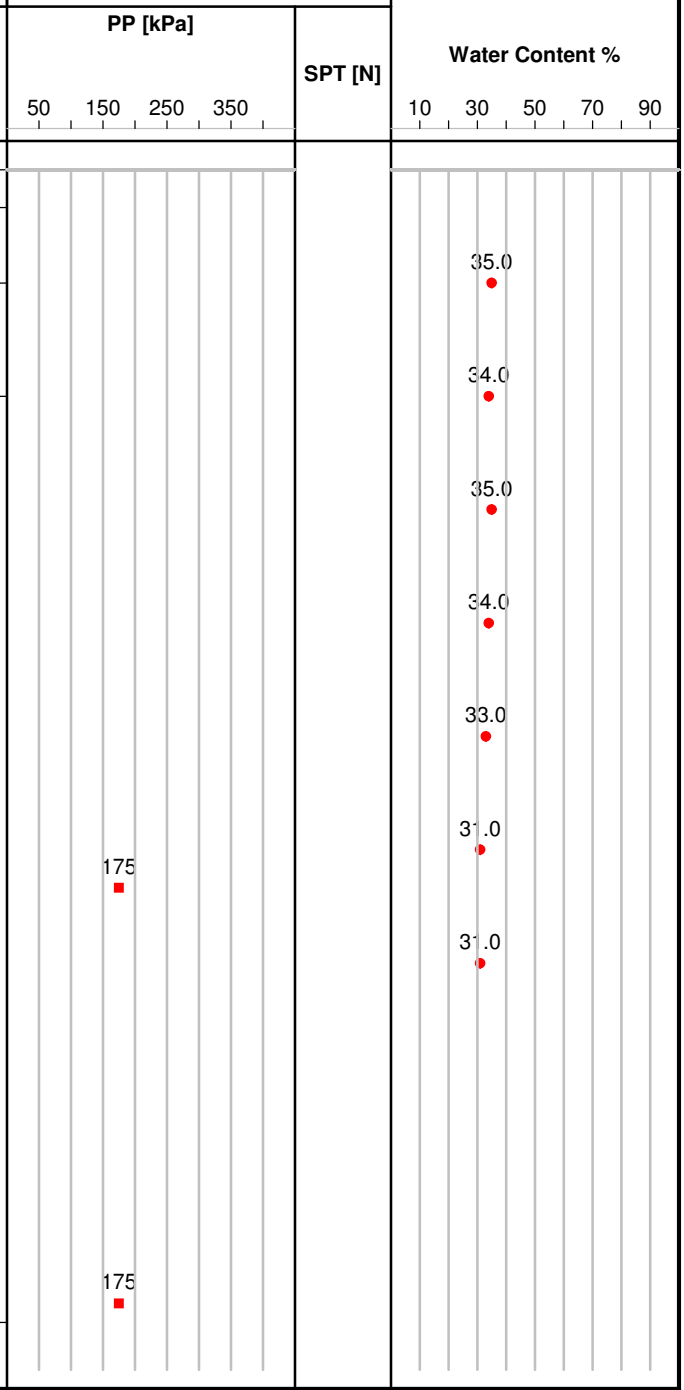
Client: City of Winnipeg

Location: Site 8 - Alley behind 123 Birchdale Ave **Engineer: S. Urbano**

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
			ASPHALT	99.9
			GRANULAR FILL Typ. base course	99.7
1			**CLAY FILL** Grey-black, trace of fine gravel	99.4
2			**CLAY** Grey-black, frost to 1.35 m, brown and stiff below 1.85 m	
3	1			
4				
5				
6				
	2			
7				
8				
9				
	3			
10				97.0
			End of Log	

SAMPLE



Drill Method: Auger

Drill Date: 1/15/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00 **TH 11**

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 8 - Alley behind 143 Birchdale Ave **Engineer: S. Urbano**

SUBSURFACE PROFILE

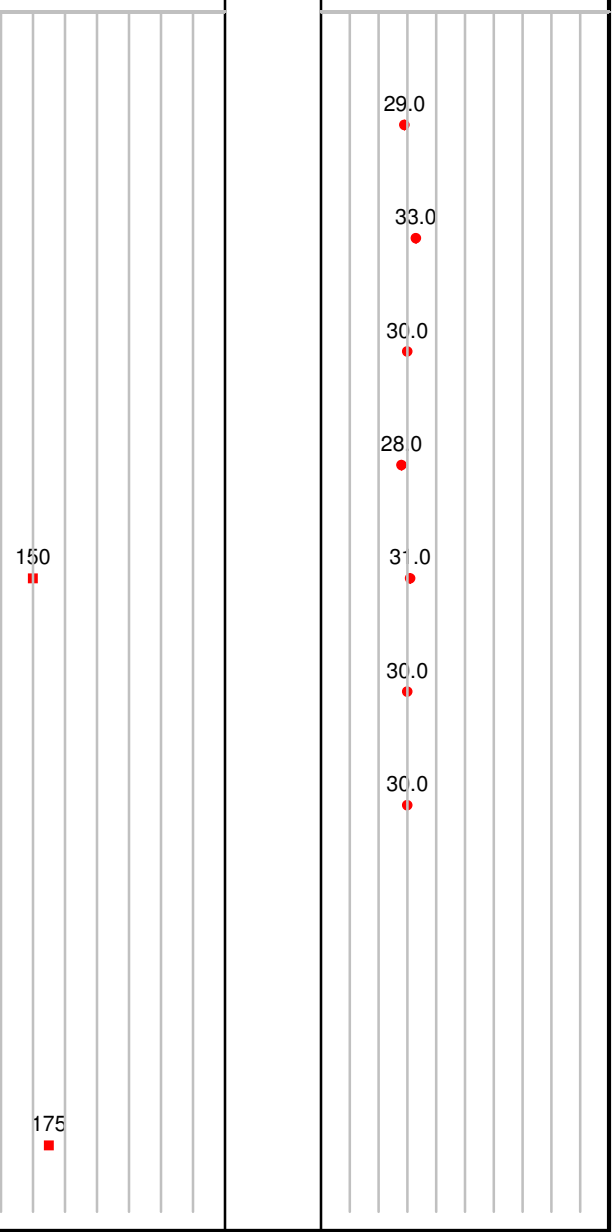
Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
0	0		**ASPHALT**	99.9
0	0		**GRANULAR FILL** Typ. base course	99.7
1	0		**CLAY FILL** Grey-black, trace of fine gravel	99.4
2	0		**CLAY** Grey-black, frost to 1.35 m, brown and stiff below 1.85 m	
10	3		End of Log	97.0

SAMPLE

PP [kPa] (50, 150, 250, 350)

SPT [N]

Water Content % (10, 30, 50, 70, 90)



Drill Method: Auger

Drill Date: 1/15/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00

TH 12

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

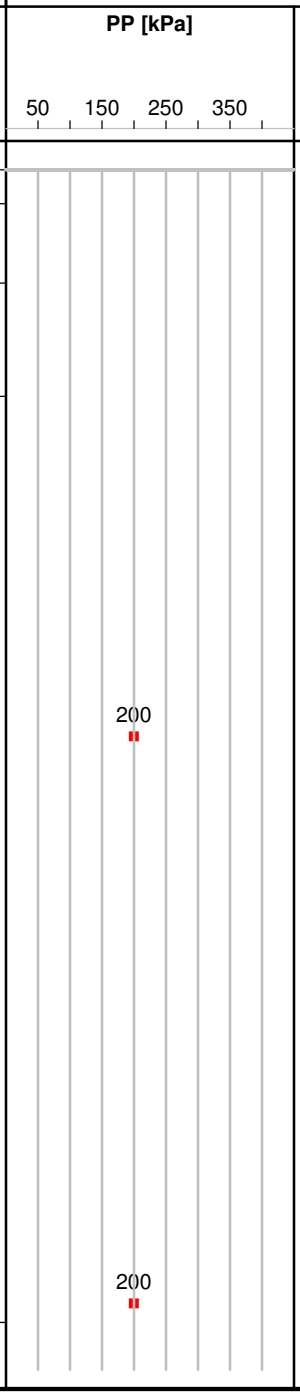
Location: Site 8 - Alley behind 165 Birchdale Ave

Engineer: S. Urbano

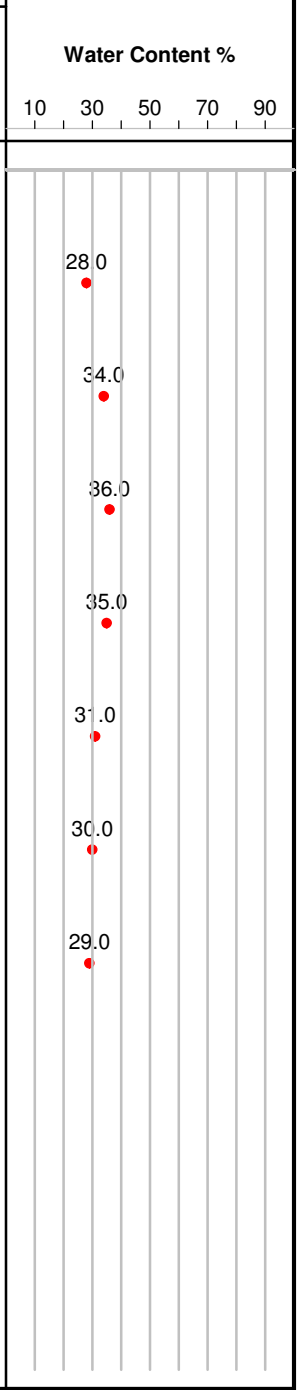
SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
			ASPHALT	99.9
			GRANULAR FILL Typ. base course	99.7
1			**CLAY FILL** Grey-black, trace of fine gravel	99.4
2			**CLAY** Grey-black, frost to 1.35 m, brown below 1.52 m	
3	1			
4				
5				
6				
7	2			
8				
9				
10	3			97.0
			End of Log	

SAMPLE



SPT [N]



Drill Method: Auger

Drill Date: 1/15/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00 **TH 13**

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 10 - Alley behind 764 Henderson Hwy **Engineer: S. Urbano**

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
0	0		**GRANULAR FILL** Typ. base course	
1				99.7
1			**CLAY** Grey-black, brown below 1.2 m, stiff below 1.35 m, frost to 1.35 m	
5	1			98.5
5			**CLAYEY SILT** Soft, tan-brown, moist to wet	
9	2			97.1
10	3		**CLAY** Brown, stiff	97.0
			End of Log	

SAMPLE

PP [kPa] (50, 150, 250, 350)

25

100

SPT [N]

Water Content % (10, 30, 50, 70, 90)

9.0

32.0

31.0

30.0

31.0

27.0

24.0

33.0

Drill Method: Auger

Drill Date: 1/15/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00

TH 14

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 10 - Alley behind 137 Kimberly Ave

Engineer: S. Urbano

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
0	0		**GRANULAR FILL** Typ. base course	99.8
1			**CLAY** Brown, fissured, frost to 1.35 m	
2				
3	1			
4				
5				
6	2			
7				
8				97.6
8			**CLAYEY SILT** Soft, tan-brown, moist to wet	
9				
10	3			97.0
			End of Log	

SAMPLE

PP [kPa]

50 150 250 350

200

25

SPT [N]

Water Content %

10 30 50 70 90

33.0

33.0

31.0

31.0

31.0

34.0

27.0

24.0

Drill Method: Auger

Drill Date: 1/15/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00

TH 15

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 10 - Alley behind 103 Kimberly Ave

Engineer: S. Urbano

SUBSURFACE PROFILE

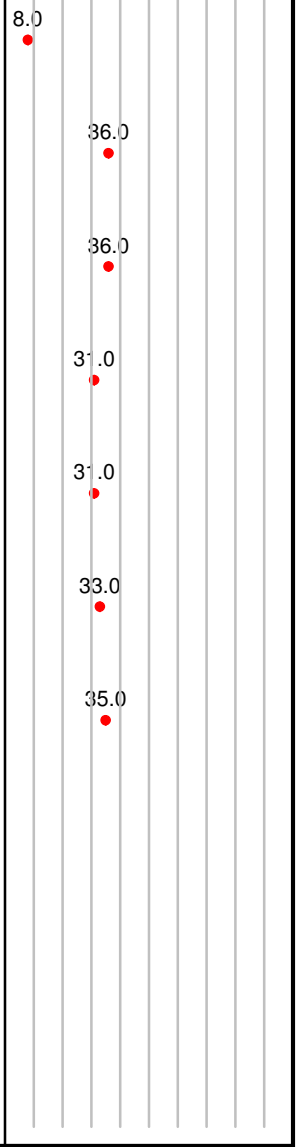
Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
			ASPHALT	99.9
			GRANULAR FILL Typ. base course	99.7
1			**CLAY** Grey-black, frost to 1.35 m, brown below 1.5 m, stiff	
2				
3	1			
4				
5				
6				
7	2			
8				
9				
10	3			97.0
			End of Log	

SAMPLE

PP [kPa] (50, 150, 250, 350)

SPT [N]

Water Content % (10, 30, 50, 70, 90)



Drill Method: Auger

Drill Date: 1/15/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00

TH 16

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 19 - Alley behind 601 McLeod Ave

Engineer: S. Urbano

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
			GRANULAR FILL Typ. base course	99.7
1			**CLAY FILL** Mixed brown and black, trace of fine gravel	99.1
3	1		**CLAY** Brown, fissured, frost to 1.35 m	98.5
5			**SILT** Clayey, soft, tan-brown	97.3
9	2		**CLAY** Brown, stiff	97.0
10	3		End of Log	

SAMPLE

PP [kPa]: 50, 150, 250, 350

SPT [N]: 125

Water Content %: 10, 30, 50, 70, 90

9.0

31.0

29.0

27.0

27.0

23.0

23.0

35.0

Drill Method: Auger

Drill Date: 1/15/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00 **TH 17**

Project: 2015 COW Alley Way Improvements

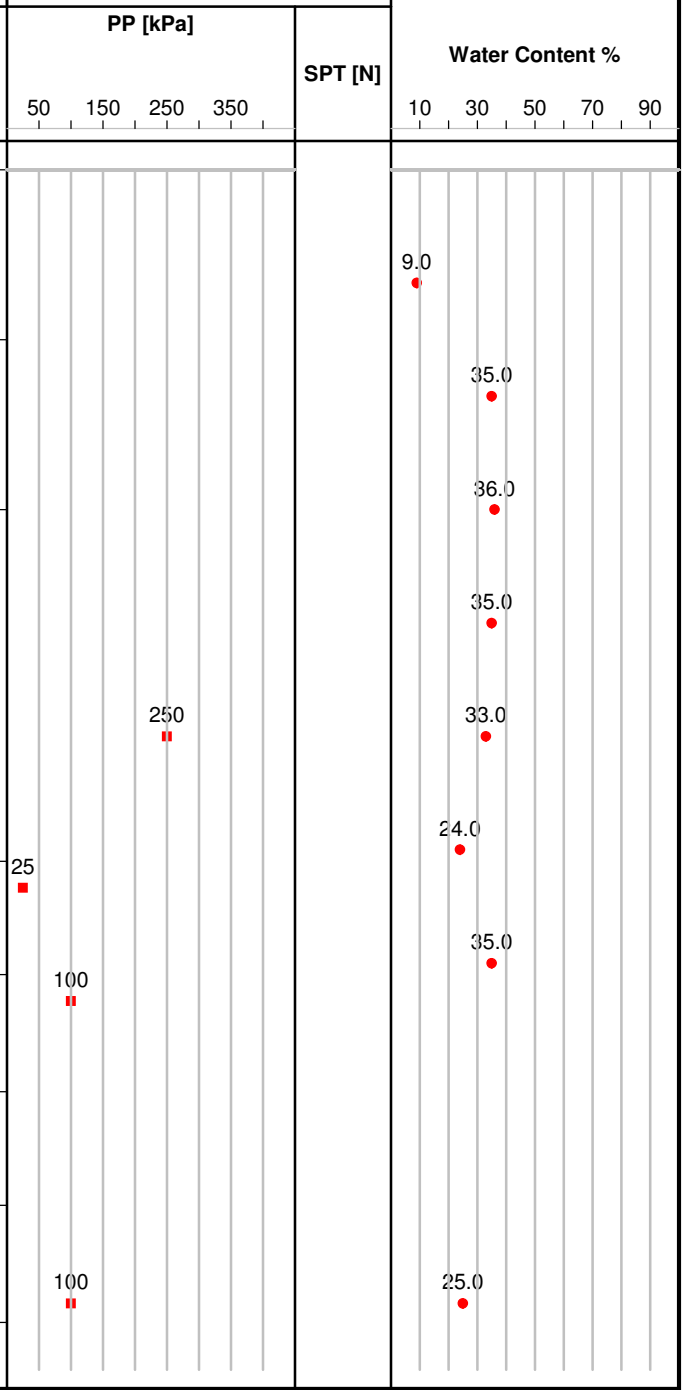
Client: City of Winnipeg

Location: Site 19 - Alley behind 637 McLeod Ave **Engineer: S. Urbano**

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
			GRANULAR FILL Typ. base course	
1				99.5
			CLAY FILL Grey-black, mixed, trace of fine gravel	
2				99.1
3	1		**CLAY** Grey-black, fissured, frost to 1.35 m	
4				
5				
6				98.2
	2		**SILT** Tan-brown, soft	
7				97.9
			CLAY Brown	
8				97.6
			SILT Tan-brown, soft	
9				97.3
			CLAY Brown	
10	3			97.0
			End of Log	

SAMPLE



Drill Method: Auger

Drill Date: 1/15/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00 **TH 18**

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 19 - Alley behind 699 McLeod Ave **Engineer: S. Urbano**

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
			GRANULAR FILL Typ. base course	
1				99.5
			CLAY FILL Grey-black, mixed	
2				
3	1			
4				98.8
			CLAY Brown, stiff, frost to 1.35 m	
5				
6				
	2			
7				97.9
			SILT Tan-brown, soft	
8				
9				
				97.1
10	3		**CLAY** Brown, stiff	97.0
			End of Log	

SAMPLE

PP [kPa]: 50, 150, 250, 350

SPT [N]

Water Content %: 10, 30, 50, 70, 90

PP [kPa]: 150

Water Content %: 10.0, 35.0, 37.0, 36.0, 29.0, 29.0, 25.0, 39.0

Drill Method: Auger

Drill Date: 1/15/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00

TH 19

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 17 - Alley behind 521 Lyndale Dr.

Engineer: D.Bredin

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
			ASPHALT	99.9
			GRANULAR FILL Typ. base course	99.7
1			**SILTY CLAY** Brown, fissured above 1.2 m, frost to 1.2 m	
2				
3	1			
4				
5				98.5
			SILT Tan-brown, moist	
6				
	2			
7				97.9
			CLAY Brown, cohesive	
8				
9				
	3			
10				97.0
			End of Log	

SAMPLE

PP [kPa]

50 150 250 350

SPT [N]

Water Content %

10 30 50 70 90

8.0
29.0
39.0
38.0
29.0
24.0
42.0

Drill Method: Auger

Drill Date: 1/16/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00

TH 20

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 17 - Alley behind 55 Tache Ave

Engineer: D.Bredin

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
			ASPHALT	99.9
			GRANULAR FILL Typ. base course	99.7
1			**SILTY CLAY** Brown, fissured above 1.2 m, frost to 1.2 m, SILTY below 1.2 m	
2				
3	1			
4				
5				98.5
			SILT Tan-brown, moist	
6	2			
7				97.9
			CLAY Brown, cohesive	
8				
9				
10	3			97.0
			End of Log	

SAMPLE

PP [kPa]: 50, 150, 250, 350

SPT [N]

Water Content %: 10, 30, 50, 70, 90

Water Content % values: 5.0, 28.0, 42.0, 41.0, 35.0, 31.0, 40.0

Drill Method: Auger

Drill Date: 1/16/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00

TH 21

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 17 - Alley behind 71 Tache Ave

Engineer: D.Bredin

SUBSURFACE PROFILE

SAMPLE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]	PP [kPa]	SPT [N]	Water Content %
0	0		Ground Surface	100.0			
			ASPHALT	99.9			
1			**CLAY FILL** Grey, dry, fractured, trace of gravel				23.0
2				99.4			36.0
			SILTY CLAY Brown, fissured above 0.9 m, SILTY from 0.9 m to 2.3 m, frost to 1.2 m				28.0
3	1						
4							23.0
5							23.0
6							41.0
7	2			97.7			34.0
8			**CLAY** Brown, cohesive				
9							
10	3			97.0			
			End of Log				

PP [kPa]: 50 150 250 350

Water Content %: 10 30 50 70 90

Drill Method: Auger

Drill Date: 1/16/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00

TH 31

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 5 - Alley behind 182 Leighton Ave

Engineer: S. Urbano

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
0	0		**GRANULAR FILL** Typ. limestone base course	
2				99.4
2			**CLAY FILL** Grey-black, trace of fine gravel	
3	1			99.0
3	1		**CLAY** Grey-black, frost to 1.35 m, brown below 1.5 m, stiff	
10	3			97.0
10	3		End of Log	

SAMPLE

PP [kPa] (50, 150, 250, 350)

250

150

SPT [N]

Water Content % (10, 30, 50, 70, 90)

6.0

26.0

34.0

32.0

32.0

32.0

35.0

Drill Method: Auger

Drill Date: 1/19/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00

TH 32

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 5 - Alley behind 152 Leighton Ave

Engineer: S. Urbano

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
0	0		**GRANULAR FILL** Typ. limestone base course	
				99.4
2			**CLAY FILL** Grey-black, trace of fine gravel	
	1			99.0
3			**CLAY** Grey-black, frost to 1.35 m, brown below 1.5 m, stiff	
10	3			97.0
			End of Log	

SAMPLE

PP [kPa] (50, 150, 250, 350)

200

150

SPT [N]

Water Content % (10, 30, 50, 70, 90)

7.0

31.0

34.0

34.0

33.0

35.0

38.0

Drill Method: Auger

Drill Date: 1/19/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00

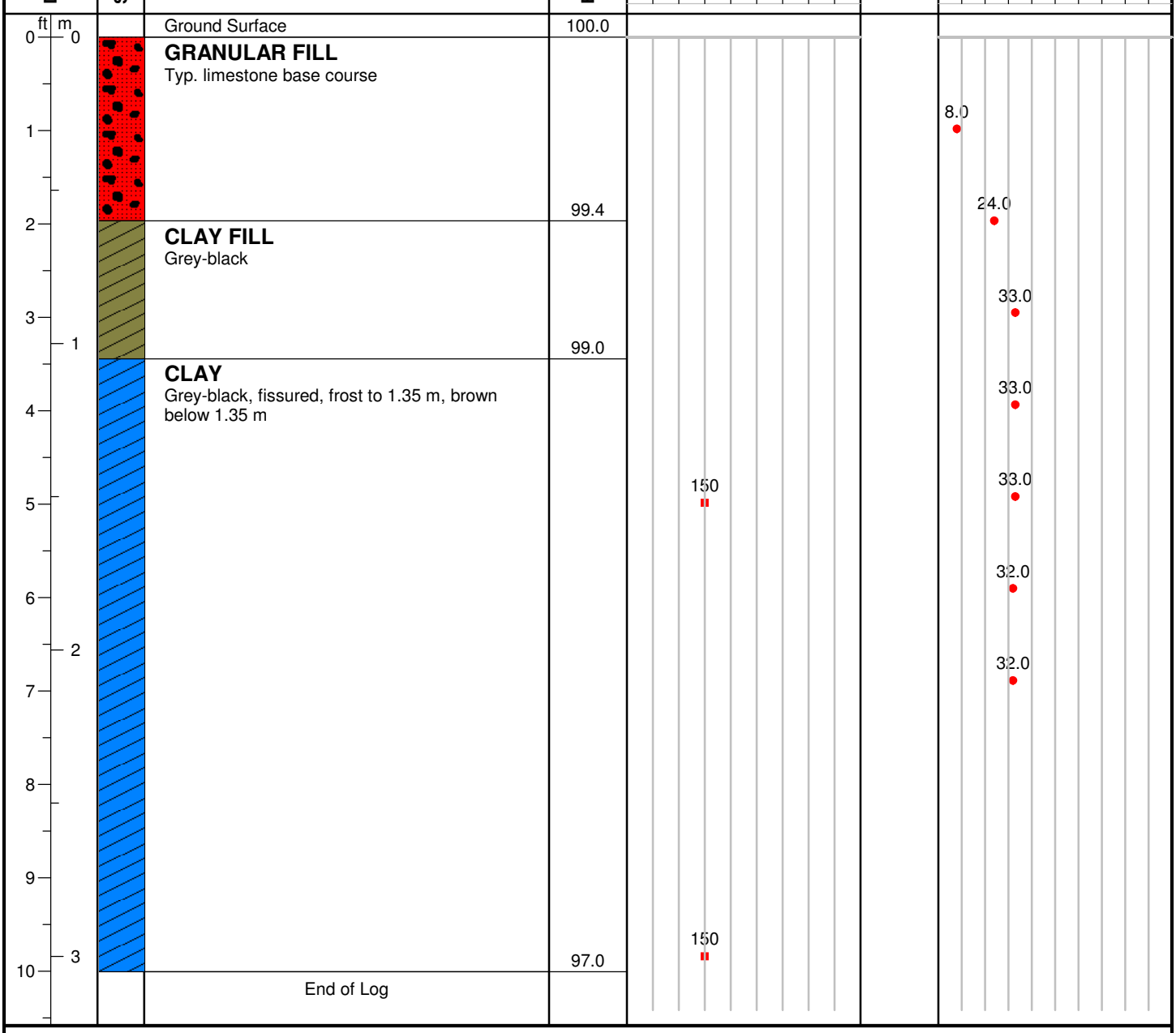
Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 5 - Alley behind 100 Leighton Ave

TH 33

Engineer: S. Urbano



Drill Method: Auger

Drill Date: 1/19/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00

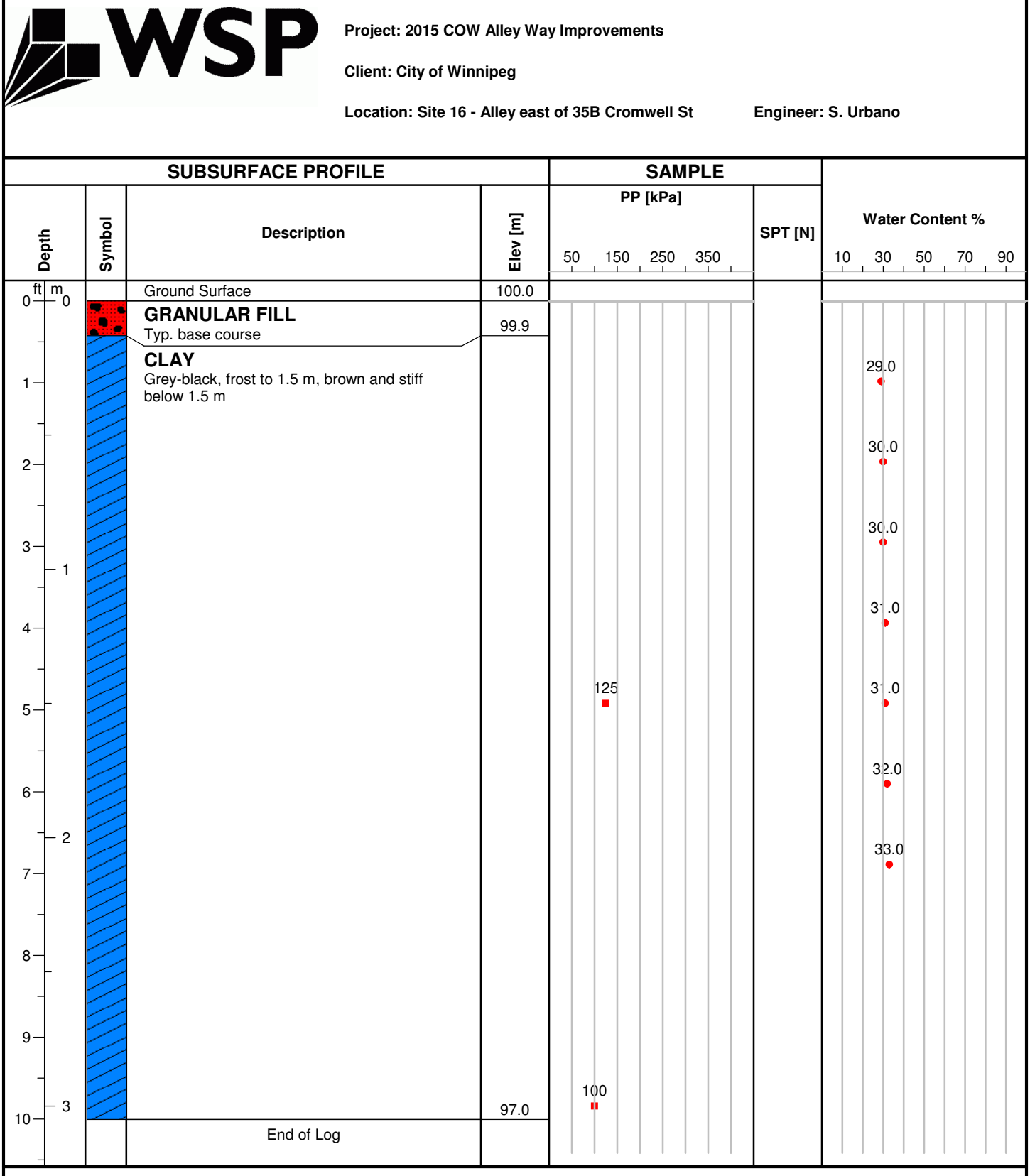
TH 43

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 16 - Alley east of 35B Cromwell St

Engineer: S. Urbano



Drill Method: Auger

Drill Date: 1/22/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00

TH 44

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 16 - Alley north of 35A Cromwell St

Engineer: S. Urbano

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
0	0		**GRANULAR FILL** Typ. limestone base course	
1				99.7
1			**CLAY** Grey-black, frost to 1.35 m, brown and stiff below 1.5 m	
10	3			97.0
			End of Log	

SAMPLE

PP [kPa] (50, 150, 250, 350)

SPT [N]

Water Content % (10, 30, 50, 70, 90)

Depth (ft)	PP [kPa]	Water Content %
1		5.0
2		29.0
3		32.0
4		33.0
5	150	32.0
6		30.0
7		31.0
9	125	

Drill Method: Auger

Drill Date: 1/22/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00

TH 63

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 11 - Alley behind 186 Rue St. Joesph

Engineer: D. Bredin

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
0	0		**GRANULAR FILL** Typ. base course	
				99.3
3	1		**CLAY** Grey and fissured, frost to 1.5 m, brown below 1.5 m, trace of SILT inclusions	
				97.0
10	3		End of Log	

SAMPLE

PP [kPa]: 50, 150, 250, 350

SPT [N]

Water Content %: 10, 30, 50, 70, 90

8.0

11.0

36.0

36.0

38.0

36.0

36.0

Drill Method: Auger

Drill Date: 2/3/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00

TH 64

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 11 - Alley behind 212 Rue St. Joesph

Engineer: D. Bredin

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
			GRANULAR FILL Typ. base course	
1				99.7
			CLAY FILL Grey, fractured and dry above 0.6 m, frost to 1.5 m, trace of fine gravel	
2				
3	1			
4				
5				98.5
			CLAY Brown, SILTY from 1.8 m to 2.1 m, SILT inclusions below 2.1 m	
6				
	2			
7				
8				
9				
	3			
10				97.0
			End of Log	

SAMPLE

PP [kPa]: 50, 150, 250, 350

SPT [N]

Water Content %: 10, 30, 50, 70, 90

8.0

35.0

37.0

40.0

37.0

29.0

31.0

Drill Method: Auger

Drill Date: 2/3/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00 **TH 65**

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 21 - Alley behind 484 Rue La Verendrye **Engineer: D. Bredin**

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
			GRANULAR FILL Typ. base course	99.7
1			**CLAY FILL** Grey, fractured and dry above 0.6 m	99.4
2			**SILTY CLAY** Brown, SILTY, frost to 1.5 m	
3	1			
4				
				98.5
5			**SILT** Tan-brown, moist, soft	98.2
6			**CLAY** Brown, SILTY from 1.8 m to 2.1 m, cohesive below 2.1 m	
7	2			
8				
9				
10	3			97.0
			End of Log	

SAMPLE

PP [kPa]: 50 150 250 350

SPT [N]

Water Content %: 10 30 50 70 90

11.0
33.0
44.0
38.0
27.0
24.0
27.0

Drill Method: Auger

Drill Date: 2/3/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00 **TH 66**

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 21 - Alley behind 498 Rue La Verendrye **Engineer: D. Bredin**

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
			GRANULAR FILL Typ. base course	
1				99.7
			CLAY FILL Grey, fractured and dry above 0.6 m	
2				99.4
			CLAY Grey, fissured, frost to 1.5 m, SILTY from 1.5 m to 1.8 m	
3	1			
4				
5				98.5
			SILT Tan-brown, moist, soft	
6				
	2			
7				
8				
9				
				97.1
	3		**CLAY** Brown, cohesive, soft	97.0
10			End of Log	

SAMPLE

PP [kPa]: 50, 150, 250, 350

SPT [N]

Water Content %: 10, 30, 50, 70, 90

9.0
25.0
35.0
33.0
33.0
27.0
24.0

Drill Method: Auger

Drill Date: 2/3/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

Project No: 141-24150-00

TH 67

Project: 2015 COW Alley Way Improvements

Client: City of Winnipeg

Location: Site 21 - Alley behind 508 Rue La Verendrye

Engineer: D. Bredin

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description	Elev [m]
0	0		Ground Surface	100.0
			GRANULAR FILL Typ. base course	
				99.3
			CLAY Grey to 1.05 m, brown below 1.05 m, fissured, frost to 1.5 m	
	1			98.5
			SILT Tan-brown, moist, soft	
	2			97.7
			CLAY Brown, cohesive, soft	
	3			97.0
10			End of Log	

SAMPLE

PP [kPa]

50 150 250 350

SPT [N]

Water Content %

10 30 50 70 90

4.0

8.0

36.0

35.0

33.0

23.0

24.0

Drill Method: Auger

Drill Date: 2/3/2015

Hole Size: 125 mm

WSP
1600 Buffalo Pl.
Winnipeg, MB
R3T 6B8

Elevation: 100 m

Checked By: S.Urbano

Sheet: 1 of 1

APPENDIX B

H. MANALO CONSULTING LTD.

1402 Notre Dame Avenue, Winnipeg, MB R3E 3G5
Winnipeg, Manitoba Phone: 204 697-3854 Cell: 204 997-1355
Email: hmanalo@mts.net

MOISTURE CONTENT OF SOIL

ASTM D2216

CLIENT: WSP Group	**TEST NO:** 1	**PROJECT NO: 15-02-2**
PROJECT: City of Wpg 2015 Alley	**DATE SAMPLED: Jan. 2015**	**SAMPLED BY: SU**
PROJECT CONTACT: S. Urbano	**DATE TESTED: Jan. 19, 2015**	**TESTED BY:** GP

Test Hole No.	**1**	**1**	**1**	**1**	**1**
Depth	2 ft	4 ft	5 ft	6 ft	7 ft
Tare No.					
Wt Wet Sample + Tare	115.3	142.9	153.5	143.8	122.2
Wt Dry Sample + Tare	87.5	109.7	116.7	109.6	88.3
Wt Water	27.8	33.2	36.8	34.2	33.9
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	83.3	105.5	112.5	105.4	84.1
Moisture Content (%)	**33**	**31**	**33**	**32**	**40**

Test Hole No.	**1**				
Depth	10 ft				
Tare No.					
Wt Wet Sample + Tare	189.9				
Wt Dry Sample + Tare	137.6				
Wt Water	52.3				
Wt Tare	4.2				
Wt Dry Sample	133.4				
Moisture Content (%)	**39**				

Hole No.	**2**	**2**	**2**	**2**	**2**
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	144.2	126.3	175.4	179.6	158.5
Wt Dry Sample + Tare	110.3	94.1	129.8	133	116.2
Wt Water	33.9	32.2	45.6	46.6	42.3
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	106.1	89.9	125.6	128.8	112.0
Moisture Content (%)	**32**	**36**	**36**	**36**	**38**

Hole No.	**2**	**2**	**2**		
Depth	6 ft	7 ft	10 ft		
Tare No.					
Wt Wet Sample + Tare	147.1	150.9	147.1		
Wt Dry Sample + Tare	111.4	111.9	106.4		
Wt Water	35.7	39	40.7		
Wt Tare	4.2	4.2	4.2		
Wt Dry Sample	107.2	107.7	102.2		
Moisture Content (%)	**33**	**36**	**40**		

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Winnipeg, Manitoba Phone: 204 697-3854 Cell: 204 997-1355
Email: hmanalo@mts.net

MOISTURE CONTENT OF SOIL

ASTM D2216

CLIENT: WSP Group	**TEST NO:** 1	**PROJECT NO: 15-02-2**
PROJECT: City of Wpg 2015 Alley	**DATE SAMPLED: Jan. 2015**	**SAMPLED BY: SU**
PROJECT CONTACT: S. Urbano	**DATE TESTED: Jan. 19, 2015**	**TESTED BY:** GP

Test Hole No.	**3**	**3**	**3**	**3**	**3**
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	128.6	95.5	154.6	138.1	108.5
Wt Dry Sample + Tare	97.4	68.7	112.3	101.5	81
Wt Water	31.2	26.8	42.3	36.6	27.5
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	93.2	64.5	108.1	97.3	76.8
Moisture Content (%)	**33**	**42**	**39**	**38**	**36**

Test Hole No.	**3**	**3**	**3**		
Depth	6 ft	7ft	10 ft		
Tare No.					
Wt Wet Sample + Tare	162.5	162.3	157.1		
Wt Dry Sample + Tare	119.1	118.6	111.8		
Wt Water	43.4	43.7	45.3		
Wt Tare	4.2	4.2	4.1		
Wt Dry Sample	114.9	114.4	107.7		
Moisture Content (%)	**38**	**38**	**42**		

Hole No.	**4**	**4**	**4**	**4**	**4**
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	154.1	118.4	147.6	122.9	183.7
Wt Dry Sample + Tare	117.1	91.5	114.2	94.5	140.6
Wt Water	37	26.9	33.4	28.4	43.1
Wt Tare	4.2	4.2	4.1	4.1	4.3
Wt Dry Sample	112.9	87.3	110.1	90.4	136.3
Moisture Content (%)	**33**	**31**	**30**	**31**	**32**

Hole No.	**4**	**4**	**4**		
Depth	6 ft	7 ft	10 ft		
Tare No.					
Wt Wet Sample + Tare	194.8	147.3	152.2		
Wt Dry Sample + Tare	138.7	101.1	102.7		
Wt Water	56.1	46.2	49.5		
Wt Tare	4.2	4.1	4.2		
Wt Dry Sample	134.5	97.0	98.5		
Moisture Content (%)	**42**	**48**	**50**		

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Winnipeg, Manitoba Phone: 204 697-3854 Cell: 204 997-1355
Email: hmanalo@mts.net

MOISTURE CONTENT OF SOIL

ASTM D2216

CLIENT: WSP Group	**TEST NO:** 1	**PROJECT NO: 15-02-2**
PROJECT: City of Wpg 2015 Alley	**DATE SAMPLED: Jan. 2015**	**SAMPLED BY: SU**
PROJECT CONTACT: S. Urbano	**DATE TESTED: Jan. 19, 2015**	**TESTED BY:** GP

Test Hole No.	**5**	**5**	**5**	**5**	**5**
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	148.1	119.8	131.3	136.9	194.6
Wt Dry Sample + Tare	105.3	87.3	95.9	99.5	153.8
Wt Water	42.8	32.5	35.4	37.4	40.8
Wt Tare	4.1	4.2	4.2	4.2	4.2
Wt Dry Sample	101.2	83.1	91.7	95.3	149.6
Moisture Content (%)	**42**	**39**	**39**	**39**	**27**

Test Hole No.	**5**	**5**	**5**		
Depth	6 ft	7 ft	10 ft		
Tare No.					
Wt Wet Sample + Tare	178.7	145	126.4		
Wt Dry Sample + Tare	145.6	106.3	87.1		
Wt Water	33.1	38.7	39.3		
Wt Tare	4.2	4.1	4.1		
Wt Dry Sample	141.4	102.2	83.0		
Moisture Content (%)	**23**	**38**	**47**		

Hole No.	**6**	**6**	**6**	**6**	**6**
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	132.8	151.9	125.3	119.9	125.2
Wt Dry Sample + Tare	103	109.4	92.9	91.5	95.4
Wt Water	29.8	42.5	32.4	28.4	29.8
Wt Tare	4.1	4.1	4.1	4.1	4.1
Wt Dry Sample	98.9	105.3	88.8	87.4	91.3
Moisture Content (%)	**30**	**40**	**36**	**32**	**33**

Hole No.	**6**	**6**	**6**		
Depth	6 ft	7 ft	10 ft		
Tare No.					
Wt Wet Sample + Tare	131	131.8	161.7		
Wt Dry Sample + Tare	96.8	97.4	112.7		
Wt Water	34.2	34.4	49		
Wt Tare	4.1	4.1	4.1		
Wt Dry Sample	92.7	93.3	108.6		
Moisture Content (%)	**37**	**37**	**45**		

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Winnipeg, Manitoba Phone: 204 697-3854 Cell: 204 997-1355
Email: hmanalo@mts.net

MOISTURE CONTENT OF SOIL

ASTM D2216

CLIENT: WSP Group	**TEST NO:** 1	**PROJECT NO: 15-02-2**
PROJECT: City of Wpg 2015 Alley	**DATE SAMPLED: Jan. 2015**	**SAMPLED BY: SU**
PROJECT CONTACT: S. Urbano	**DATE TESTED: Jan. 20, 2015**	**TESTED BY:** GP

Test Hole No.	7	7	7	7	7
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	177.6	124.8	181.8	165.3	187.9
Wt Dry Sample + Tare	139.2	93.8	137.4	123.3	129.1
Wt Water	38.4	31	44.4	42	58.8
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	135.0	89.6	133.2	119.1	124.9
Moisture Content (%)	**28**	**35**	**33**	**35**	**47**

Test Hole No.	7	7	7		
Depth	6 ft	7 ft	10 ft		
Tare No.					
Wt Wet Sample + Tare	144.3	187.3	183.1		
Wt Dry Sample + Tare	106.7	133.6	131.1		
Wt Water	37.6	53.7	52		
Wt Tare	4.2	4.2	4.2		
Wt Dry Sample	102.5	129.4	126.9		
Moisture Content (%)	**37**	**41**	**41**		

Hole No.	8	8	8	8	8
Depth	1ft	2ft	3ft	4ft	5ft
Tare No.					
Wt Wet Sample + Tare	194.3	157.8	163.5	176.9	231.3
Wt Dry Sample + Tare	162.5	119.5	124.3	136.6	188.8
Wt Water	31.8	38.3	39.2	40.3	42.5
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	158.3	115.3	120.1	132.4	184.6
Moisture Content (%)	**20**	**33**	**33**	**30**	**23**

Hole No.	8	8	8		
Depth	6ft	7ft	10ft		
Tare No.					
Wt Wet Sample + Tare	137.6	173.3	142.8		
Wt Dry Sample + Tare	98.8	121.7	95.9		
Wt Water	38.8	51.6	46.9		
Wt Tare	4.2	4.2	4.2		
Wt Dry Sample	94.6	117.5	91.7		
Moisture Content (%)	**41**	**44**	**51**		

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MOISTURE CONTENT OF SOIL

ASTM D2216

CLIENT: WSP Group	**TEST NO:** 1	**PROJECT NO: 15-02-2**
PROJECT: City of Wpg 2015 Alley	**DATE SAMPLED: Jan. 2015**	**SAMPLED BY: SU**
PROJECT CONTACT: S. Urbano	**DATE TESTED: Jan. 20, 2015**	**TESTED BY:** GP

Test Hole No.	**9**	**9**	**9**	**9**	**9**
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	117.6	141.2	209.4	194.7	210.1
Wt Dry Sample + Tare	94.8	112	167.7	162.3	169
Wt Water	22.8	29.2	41.7	32.4	41.1
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	90.6	107.8	163.5	158.1	164.8
Moisture Content (%)	**25**	**27**	**26**	**20**	**25**

Test Hole No.	**9**	**9**	**9**		
Depth	6 ft	7 ft	10 ft		
Tare No.					
Wt Wet Sample + Tare	150.6	153.4	156.7		
Wt Dry Sample + Tare	110.3	108.1	107.8		
Wt Water	40.3	45.3	48.9		
Wt Tare	4.1	4.2	4.2		
Wt Dry Sample	106.2	103.9	103.6		
Moisture Content (%)	**38**	**44**	**47**		

Hole No.	**10**	**10**	**10**	**10**	**10**
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	168.4	139.5	113.2	150.6	165
Wt Dry Sample + Tare	126.1	105	85.2	113.2	125.3
Wt Water	42.3	34.5	28	37.4	39.7
Wt Tare	4.2	4.1	4.1	4.2	4.2
Wt Dry Sample	121.9	100.9	81.1	109.0	121.1
Moisture Content (%)	**35**	**34**	**35**	**34**	**33**

Hole No.	**10**	**10**			
Depth	6 ft	7 ft			
Tare No.					
Wt Wet Sample + Tare	175.5	125.9			
Wt Dry Sample + Tare	134.8	96.9			
Wt Water	40.7	29			
Wt Tare	4.2	4.2			
Wt Dry Sample	130.6	92.7			
Moisture Content (%)	**31**	**31**			

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MOISTURE CONTENT OF SOIL

ASTM D2216

CLIENT: WSP Group	**TEST NO:** 1	**PROJECT NO: 15-02-2**
PROJECT: City of Wpg 2015 Alley	**DATE SAMPLED: Jan. 2015**	**SAMPLED BY: SU**
PROJECT CONTACT: S. Urbano	**DATE TESTED: Jan. 20, 2015**	**TESTED BY:** GP

Test Hole No.	**11**	**11**	**11**	**11**	**11**
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	165.1	135.4	118.3	167.9	183.7
Wt Dry Sample + Tare	129.4	102.5	92	132.4	141.5
Wt Water	35.7	32.9	26.3	35.5	42.2
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	125.2	98.3	87.8	128.2	137.3
Moisture Content (%)	**29**	**33**	**30**	**28**	**31**
Test Hole No.	**11**	**11**			
Depth	6 ft	7 ft			
Tare No.					
Wt Wet Sample + Tare	145.8	178.4			
Wt Dry Sample + Tare	113.1	138.3			
Wt Water	32.7	40.1			
Wt Tare	4.2	4.2			
Wt Dry Sample	108.9	134.1			
Moisture Content (%)	**30**	**30**			
Hole No.	**12**	**12**	**12**	**12**	**12**
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	168.2	125.2	131.3	157.4	143.1
Wt Dry Sample + Tare	132.8	94.2	97.6	117.5	109.9
Wt Water	35.4	31	33.7	39.9	33.2
Wt Tare	4.2	4.2	4.2	4.1	4.2
Wt Dry Sample	128.6	90.0	93.4	113.4	105.7
Moisture Content (%)	**28**	**34**	**36**	**35**	**31**
Hole No.	**12**	**12**			
Depth	6 ft	7 ft			
Tare No.					
Wt Wet Sample + Tare	159.2	182.3			
Wt Dry Sample + Tare	123.1	142			
Wt Water	36.1	40.3			
Wt Tare	4.2	4.1			
Wt Dry Sample	118.9	137.9			
Moisture Content (%)	**30**	**29**			

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MOISTURE CONTENT OF SOIL

ASTM D2216

CLIENT: WSP Group	**TEST NO:** 1	**PROJECT NO: 15-02-2**
PROJECT: City of Wpg 2015 Alley	**DATE SAMPLED: Jan. 2015**	**SAMPLED BY: SU**
PROJECT CONTACT: S. Urbano	**DATE TESTED: Jan. 20, 2015**	**TESTED BY:** GP

Test Hole No.	**13**	**13**	**13**	**13**	**13**
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	218.7	157.8	137.7	167.3	181.1
Wt Dry Sample + Tare	201.6	120.9	106.1	129.3	139.3
Wt Water	17.1	36.9	31.6	38	41.8
Wt Tare	4.1	4.2	4.2	4.2	4.1
Wt Dry Sample	197.5	116.7	101.9	125.1	135.2
Moisture Content (%)	**9**	**32**	**31**	**30**	**31**

Test Hole No.	**13**	**13**	**13**		
Depth	6 ft	7 ft	10 ft		
Tare No.					
Wt Wet Sample + Tare	174.5	153.8	142.2		
Wt Dry Sample + Tare	138.8	125.1	107.7		
Wt Water	35.7	28.7	34.5		
Wt Tare	4.2	4.2	4.2		
Wt Dry Sample	134.6	120.9	103.5		
Moisture Content (%)	**27**	**24**	**33**		

Hole No.	**14**	**14**	**14**	**14**	**14**
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	130.8	138.4	119.7	138.6	177.5
Wt Dry Sample + Tare	99.3	105.1	92.1	106.7	136.8
Wt Water	31.5	33.3	27.6	31.9	40.7
Wt Tare	4.2	4.2	4.2	4.1	4.1
Wt Dry Sample	95.1	100.9	87.9	102.6	132.7
Moisture Content (%)	**33**	**33**	**31**	**31**	**31**

Hole No.	**14**	**14**	**14**		
Depth	6 ft	7 ft	10 ft		
Tare No.					
Wt Wet Sample + Tare	158.2	154.9	154		
Wt Dry Sample + Tare	119.5	122.6	125		
Wt Water	38.7	32.3	29		
Wt Tare	4.1	4.2	4.1		
Wt Dry Sample	115.4	118.4	120.9		
Moisture Content (%)	**34**	**27**	**24**		

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MOISTURE CONTENT OF SOIL

ASTM D2216

CLIENT: WSP Group	**TEST NO:** 1	**PROJECT NO: 15-02-2**
PROJECT: City of Wpg 2015 Alley	**DATE SAMPLED: Jan. 2015**	**SAMPLED BY: SU**
PROJECT CONTACT: S. Urbano	**DATE TESTED: Jan. 20, 2015**	**TESTED BY:** GP

Test Hole No.	**15**	**15**	**15**	**15**	**15**
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	174.9	124.9	135.3	158.1	162.2
Wt Dry Sample + Tare	161.7	92.9	100.8	121.4	125
Wt Water	13.2	32	34.5	36.7	37.2
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	157.5	88.7	96.6	117.2	120.8
Moisture Content (%)	**8**	**36**	**36**	**31**	**31**

Test Hole No.	**15**	**15**			
Depth	6 ft	7 ft			
Tare No.					
Wt Wet Sample + Tare	141.9	153.5			
Wt Dry Sample + Tare	107.8	114.6			
Wt Water	34.1	38.9			
Wt Tare	4.2	4.2			
Wt Dry Sample	103.6	110.4			
Moisture Content (%)	**33**	**35**			

Hole No.	**16**	**16**	**16**	**16**	**16**
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	180.9	134.3	150.9	162.1	174.1
Wt Dry Sample + Tare	165.9	103.5	118	128.1	137.8
Wt Water	15	30.8	32.9	34	36.3
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	161.7	99.3	113.8	123.9	133.6
Moisture Content (%)	**9**	**31**	**29**	**27**	**27**

Hole No.	**16**	**16**	**16**		
Depth	6 ft	7 ft	10 ft		
Tare No.					
Wt Wet Sample + Tare	189.6	194.3	153.6		
Wt Dry Sample + Tare	155.4	159	114.9		
Wt Water	34.2	35.3	38.7		
Wt Tare	4.2	4.2	4.2		
Wt Dry Sample	151.2	154.8	110.7		
Moisture Content (%)	**23**	**23**	**35**		

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MOISTURE CONTENT OF SOIL

ASTM D2216

CLIENT: WSP Group	**TEST NO:** 1	**PROJECT NO: 15-02-2**
PROJECT: City of Wpg 2015 Alley	**DATE SAMPLED: Jan. 2015**	**SAMPLED BY: SU**
PROJECT CONTACT: S. Urbano	**DATE TESTED: Jan. 21, 2015**	**TESTED BY:** GP

Test Hole No.	**17**	**17**	**17**	**17**	**17**
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	203.6	121.4	160.4	161.8	193.1
Wt Dry Sample + Tare	187.3	90.9	119.2	121	146.3
Wt Water	16.3	30.5	41.2	40.8	46.8
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	183.1	86.7	115.0	116.8	142.1
Moisture Content (%)	**9**	**35**	**36**	**35**	**33**

Test Hole No.	**17**	**17**	**17**		
Depth	6 ft	7 ft	10 ft		
Tare No.					
Wt Wet Sample + Tare	189.1	142.7	196.8		
Wt Dry Sample + Tare	153.2	106.6	158.2		
Wt Water	35.9	36.1	38.6		
Wt Tare	4.2	4.2	4.2		
Wt Dry Sample	149.0	102.4	154.0		
Moisture Content (%)	**24**	**35**	**25**		

Hole No.	**18**	**18**	**18**	**18**	**18**
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	177.1	159.7	127.3	159.3	195.7
Wt Dry Sample + Tare	161.4	119.8	94.2	118.5	152.7
Wt Water	15.7	39.9	33.1	40.8	43
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	157.2	115.6	90.0	114.3	148.5
Moisture Content (%)	**10**	**35**	**37**	**36**	**29**

Hole No.	**18**	**18**	**18**		
Depth	6 ft	7 ft	10 ft		
Tare No.					
Wt Wet Sample + Tare	180.6	190.9	195.4		
Wt Dry Sample + Tare	141.2	153.1	141.5		
Wt Water	39.4	37.8	53.9		
Wt Tare	4.2	4.2	4.2		
Wt Dry Sample	137.0	148.9	137.3		
Moisture Content (%)	**29**	**25**	**39**		

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MOISTURE CONTENT OF SOIL

ASTM D2216

CLIENT: WSP Group	**TEST NO: 1**	**PROJECT NO: 15-02-19 & 20**
PROJECT: City of Wpg 2015 Alleys	**DATE SAMPLED: Jan. 29, 2015**	**SAMPLED BY: SU**
PROJECT CONTACT: S. Urbano	**DATE TESTED: February 4, 2015**	**TESTED BY: GP**

Test Hole No.	19	19	19	19	19
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	267.5	155.6	157.3	178.7	182.6
Wt Dry Sample + Tare	249.1	121.5	114.3	130.2	142.6
Wt Water	18.4	34.1	43	48.5	40
Wt Tare	4.1	4.1	4.1	4.1	4.1
Wt Dry Sample	245.0	117.4	110.2	126.1	138.5
Moisture Content (%)	**8**	**29**	**39**	**38**	**29**

Test Hole No.	19	19			
Depth	6 ft	7 ft			
Tare No.					
Wt Wet Sample + Tare	256.4	169.4			
Wt Dry Sample + Tare	207.9	120.7			
Wt Water	48.5	48.7			
Wt Tare	4.1	4.1			
Wt Dry Sample	203.8	116.6			
Moisture Content (%)	**24**	**42**			

Test Hole No.	20	20	20	20	20
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	202.3	183.8	169.6	178.6	178.2
Wt Dry Sample + Tare	192.9	144.7	120.7	127.9	133.1
Wt Water	9.4	39.1	48.9	50.7	45.1
Wt Tare	4.1	4.1	4.1	4.1	4.1
Wt Dry Sample	188.8	140.6	116.6	123.8	129.0
Moisture Content (%)	**5**	**28**	**42**	**41**	**35**

Test Hole No.	20	20			
Depth	6 ft	7 ft			
Tare No.					
Wt Wet Sample + Tare	233.5	162.6			
Wt Dry Sample + Tare	179.3	117.4			
Wt Water	54.2	45.2			
Wt Tare	4.1	4.1			
Wt Dry Sample	175.2	113.3			
Moisture Content (%)	**31**	**40**			

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MOISTURE CONTENT OF SOIL

ASTM D2216

CLIENT: WSP Group	**TEST NO: 1**	**PROJECT NO: 15-02-21 & 22**
PROJECT: City of Wpg 2015 Alleys	**DATE SAMPLED: Jan. 29, 2015**	**SAMPLED BY: SU**
PROJECT CONTACT: S. Urbano	**DATE TESTED: February 4, 2015**	**TESTED BY: GP**

Test Hole No.	21	21	21	21	21
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	193.8	174.3	196.8	221.9	237.9
Wt Dry Sample + Tare	158.1	128.9	154.1	181.8	194.2
Wt Water	35.7	45.4	42.7	40.1	43.7
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	153.9	124.7	149.9	177.6	190.0
Moisture Content (%)	**23**	**36**	**28**	**23**	**23**
Test Hole No.	21	21			
Depth	6 ft	7 ft			
Tare No.					
Wt Wet Sample + Tare	162.5	204.1			
Wt Dry Sample + Tare	116.6	153			
Wt Water	45.9	51.1			
Wt Tare	4.2	4.2			
Wt Dry Sample	112.4	148.8			
Moisture Content (%)	**41**	**34**			
Test Hole No.	22	22	22	22	22
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	219.3	154.4	159.8	208.8	183.1
Wt Dry Sample + Tare	193.8	118.9	117.7	155.3	140.8
Wt Water	25.5	35.5	42.1	53.5	42.3
Wt Tare	4.1	4.1	4.1	4.1	4.1
Wt Dry Sample	189.7	114.8	113.6	151.2	136.7
Moisture Content (%)	**13**	**31**	**37**	**35**	**31**
Test Hole No.	22	22			
Depth	6 ft	7 ft			
Tare No.					
Wt Wet Sample + Tare	225.5	180.6			
Wt Dry Sample + Tare	174	130.6			
Wt Water	51.5	50			
Wt Tare	4.1	4.1			
Wt Dry Sample	169.9	126.5			
Moisture Content (%)	**30**	**40**			

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MOISTURE CONTENT OF SOIL

ASTM D2216

CLIENT: WSP Group	**TEST NO: 1**	**PROJECT NO: 15-04-1&2**
PROJECT: City of Wpg 2015 Alleys	**DATE SAMPLED: Jan. 2015**	**SAMPLED BY: SU**
PROJECT CONTACT: S. Urbano	**DATE TESTED: Jan. 26, 2015**	**TESTED BY: GP**

Test Hole No.	**31**	**31**	**31**	**31**	**31**
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	209.9	175.4	180.8	165.9	177.1
Wt Dry Sample + Tare	197.7	140.5	136.1	126.7	135.5
Wt Water	12.2	34.9	44.7	39.2	41.6
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	193.5	136.3	131.9	122.5	131.3
Moisture Content (%)	**6**	**26**	**34**	**32**	**32**

Test Hole No.	**31**	**31**			
Depth	6 ft	7 ft			
Tare No.					
Wt Wet Sample + Tare	147.4	150.3			
Wt Dry Sample + Tare	112.4	112.7			
Wt Water	35	37.6			
Wt Tare	4.2	4.2			
Wt Dry Sample	108.2	108.5			
Moisture Content (%)	**32**	**35**			

Test Hole No.	**32**	**32**	**32**	**32**	**32**
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	218.3	154.3	142.3	185.6	135.9
Wt Dry Sample + Tare	203.4	118.8	107.4	139.9	103
Wt Water	14.9	35.5	34.9	45.7	32.9
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	199.2	114.6	103.2	135.7	98.8
Moisture Content (%)	**7**	**31**	**34**	**34**	**33**

Test Hole No.	**32**	**32**			
Depth	6 ft	7 ft			
Tare No.					
Wt Wet Sample + Tare	150.2	129.6			
Wt Dry Sample + Tare	112.7	95.1			
Wt Water	37.5	34.5			
Wt Tare	4.2	4.2			
Wt Dry Sample	108.5	90.9			
Moisture Content (%)	**35**	**38**			

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MOISTURE CONTENT OF SOIL

ASTM D2216

CLIENT: WSP Group	**TEST NO: 1**	**PROJECT NO: 15-04-3&4**
PROJECT: City of Wpg 2015 Alleys	**DATE SAMPLED: Jan. 2015**	**SAMPLED BY: SU**
PROJECT CONTACT: S. Urbano	**DATE TESTED: Jan. 26, 2015**	**TESTED BY: GP**

Test Hole No.	**33**	**33**	**33**	**33**	**33**
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	198.7	197.9	142.5	142.7	140.3
Wt Dry Sample + Tare	183.8	160.5	108	108.6	106.7
Wt Water	14.9	37.4	34.5	34.1	33.6
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	179.6	156.3	103.8	104.4	102.5
Moisture Content (%)	**8**	**24**	**33**	**33**	**33**
Test Hole No.	**33**	**33**			
Depth	6 ft	7 ft			
Tare No.					
Wt Wet Sample + Tare	149.5	152.3			
Wt Dry Sample + Tare	114.1	116.4			
Wt Water	35.4	35.9			
Wt Tare	4.2	4.2			
Wt Dry Sample	109.9	112.2			
Moisture Content (%)	**32**	**32**			
Test Hole No.	**34**	**34**	**34**	**34**	**34**
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	198.6	198.7	122.9	163.8	132.8
Wt Dry Sample + Tare	182.9	157.1	92.4	136.3	102.2
Wt Water	15.7	41.6	30.5	27.5	30.6
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	178.7	152.9	88.2	132.1	98.0
Moisture Content (%)	**9**	**27**	**35**	**21**	**31**
Test Hole No.	**34**	**34**	**34**		
Depth	6 ft	7 ft	10 ft		
Tare No.					
Wt Wet Sample + Tare	181.9	165.4	134.3		
Wt Dry Sample + Tare	145.9	133.7	96.6		
Wt Water	36	31.7	37.7		
Wt Tare	4.2	4.2	4.2		
Wt Dry Sample	141.7	129.5	92.4		
Moisture Content (%)	**25**	**24**	**41**		

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MOISTURE CONTENT OF SOIL

ASTM D2216

CLIENT: WSP Group	**TEST NO: 1**	**PROJECT NO: 15-04-13&14**
PROJECT: City of Wpg 2015 Alleys	**DATE SAMPLED: Jan. 2015**	**SAMPLED BY: SU**
PROJECT CONTACT: S. Urbano	**DATE TESTED: Jan. 28, 2015**	**TESTED BY: GP**

Test Hole No.	43	43	43	43	43
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	165.4	175.5	149.7	174.1	177.4
Wt Dry Sample + Tare	128.9	135.9	115.7	134.2	136.1
Wt Water	36.5	39.6	34	39.9	41.3
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	124.7	131.7	111.5	130.0	131.9
Moisture Content (%)	**29**	**30**	**30**	**31**	**31**
Test Hole No.	43	43			
Depth	6 ft	7 ft			
Tare No.					
Wt Wet Sample + Tare	167.3	146.7			
Wt Dry Sample + Tare	127.8	111.6			
Wt Water	39.5	35.1			
Wt Tare	4.2	4.2			
Wt Dry Sample	123.6	107.4			
Moisture Content (%)	**32**	**33**			
Test Hole No.	44	44	44	44	44
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	243.9	150.3	163.5	145.6	167.7
Wt Dry Sample + Tare	232.4	117.1	124.5	110.5	128.5
Wt Water	11.5	33.2	39	35.1	39.2
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	228.2	112.9	120.3	106.3	124.3
Moisture Content (%)	**5**	**29**	**32**	**33**	**32**
Test Hole No.	44	44			
Depth	6 ft	7 ft			
Tare No.					
Wt Wet Sample + Tare	147.5	159.8			
Wt Dry Sample + Tare	114.3	123			
Wt Water	33.2	36.8			
Wt Tare	4.2	4.2			
Wt Dry Sample	110.1	118.8			
Moisture Content (%)	**30**	**31**			

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Winnipeg, Manitoba Phone: 204 697-3854 Cell: 204 997-1355
Email: hmanalo@mts.net

MOISTURE CONTENT OF SOIL

ASTM D2216

CLIENT: WSP Group	**TEST NO:** 1	**PROJECT NO:** 15-02-5
PROJECT: City of Winnipeg 2015 Alleys	**DATE SAMPLED:** Feb. 23, 2015	**SAMPLED BY:** SU
PROJECT CONTACT: S. Urbano	**DATE TESTED:** Feb. 26, 2015	**TESTED BY:** GP

Test Hole No.	62	62	62	62	62
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	207.8	176.9	170.9	181.4	182.6
Wt Dry Sample + Tare	178.9	125.1	128.4	138.1	137.5
Wt Water	28.9	51.8	42.5	43.3	45.1
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	174.7	120.9	124.2	133.9	133.3
Moisture Content (%)	**17**	**43**	**34**	**32**	**34**

Test Hole No.	62	62			
Depth	6 ft	7 ft			
Tare No.					
Wt Wet Sample + Tare	201.7	156.5			
Wt Dry Sample + Tare	152.5	111.8			
Wt Water	49.2	44.7			
Wt Tare	4.2	4.2			
Wt Dry Sample	148.3	107.6			
Moisture Content (%)	**33**	**42**			

Hole No.	63	63	63	63	63
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	192.7	201.5	180.4	157.8	163.5
Wt Dry Sample + Tare	179.3	181.2	133.7	116.9	119.4
Wt Water	13.4	20.3	46.7	40.9	44.1
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	175.1	177.0	129.5	112.7	115.2
Moisture Content (%)	**8**	**11**	**36**	**36**	**38**

Hole No.	63	63			
Depth	6 ft	7 ft			
Tare No.					
Wt Wet Sample + Tare	178.2	168.3			
Wt Dry Sample + Tare	132.4	124.9			
Wt Water	45.8	43.4			
Wt Tare	4.2	4.2			
Wt Dry Sample	128.2	120.7			
Moisture Content (%)	**36**	**36**			

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MOISTURE CONTENT OF SOIL

ASTM D2216

CLIENT: WSP Group	**TEST NO:** 1	**PROJECT NO:** 15-02-5
PROJECT: City of Winnipeg 2015 Alleys	**DATE SAMPLED:** Feb. 23, 2015	**SAMPLED BY:** SU
PROJECT CONTACT: S. Urbano	**DATE TESTED:** Feb. 26, 2015	**TESTED BY:** GP

Test Hole No.	64	64	64	64	64
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	140.4	116.7	159	135.1	172.2
Wt Dry Sample + Tare	130.4	87.5	117.6	97.9	126.8
Wt Water	10	29.2	41.4	37.2	45.4
Wt Tare	4.7	4.7	4.4	4.3	4.7
Wt Dry Sample	125.7	82.8	113.2	93.6	122.1
Moisture Content (%)	**8**	**35**	**37**	**40**	**37**

Test Hole No.	64	64			
Depth	6 ft	7 ft			
Tare No.					
Wt Wet Sample + Tare	176.9	200.7			
Wt Dry Sample + Tare	138.6	154.3			
Wt Water	38.3	46.4			
Wt Tare	4.3	4.7			
Wt Dry Sample	134.3	149.6			
Moisture Content (%)	**29**	**31**			

Hole No.	65	65	65	65	65
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	207.8	160.8	156.7	172.5	163.5
Wt Dry Sample + Tare	188.1	122.3	110	125.8	129.6
Wt Water	19.7	38.5	46.7	46.7	33.9
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	183.9	118.1	105.8	121.6	125.4
Moisture Content (%)	**11**	**33**	**44**	**38**	**27**

Hole No.	65	65			
Depth	6 ft	7 ft			
Tare No.					
Wt Wet Sample + Tare	214.8	194.1			
Wt Dry Sample + Tare	174	153.8			
Wt Water	40.8	40.3			
Wt Tare	4.2	4.2			
Wt Dry Sample	169.8	149.6			
Moisture Content (%)	**24**	**27**			

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MOISTURE CONTENT OF SOIL

ASTM D2216

CLIENT: WSP Group	**TEST NO:** 1	**PROJECT NO:** 15-02-5
PROJECT: City of Winnipeg 2015 Alleys	**DATE SAMPLED:** Feb. 23, 2015	**SAMPLED BY:** SU
PROJECT CONTACT: S. Urbano	**DATE TESTED:** Feb. 26, 2015	**TESTED BY:** GP

Test Hole No.	66	66	66	66	66
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	175.5	148	129	200.4	180.9
Wt Dry Sample + Tare	161.1	119.2	96.9	151.3	136.8
Wt Water	14.4	28.8	32.1	49.1	44.1
Wt Tare	4.6	4.5	4.6	4.6	4.6
Wt Dry Sample	156.5	114.7	92.3	146.7	132.2
Moisture Content (%)	**9**	**25**	**35**	**33**	**33**

Test Hole No.	66	66			
Depth	6 ft	7 ft			
Tare No.					
Wt Wet Sample + Tare	210.2	221.9			
Wt Dry Sample + Tare	166.3	179.7			
Wt Water	43.9	42.2			
Wt Tare	4.5	4.5			
Wt Dry Sample	161.8	175.2			
Moisture Content (%)	**27**	**24**			

Hole No.	67	67	67	67	67
Depth	1 ft	2 ft	3 ft	4 ft	5 ft
Tare No.					
Wt Wet Sample + Tare	222.1	210.7	157.4	160.9	150.3
Wt Dry Sample + Tare	213.6	195.8	117.1	120.4	113.9
Wt Water	8.5	14.9	40.3	40.5	36.4
Wt Tare	4.2	4.2	4.2	4.2	4.2
Wt Dry Sample	209.4	191.6	112.9	116.2	109.7
Moisture Content (%)	**4**	**8**	**36**	**35**	**33**

Hole No.	67	67			
Depth	6 ft	7 ft			
Tare No.					
Wt Wet Sample + Tare	229.3	205.1			
Wt Dry Sample + Tare	187.2	166.7			
Wt Water	42.1	38.4			
Wt Tare	4.2	4.2			
Wt Dry Sample	183.0	162.5			
Moisture Content (%)	**23**	**24**			

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PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

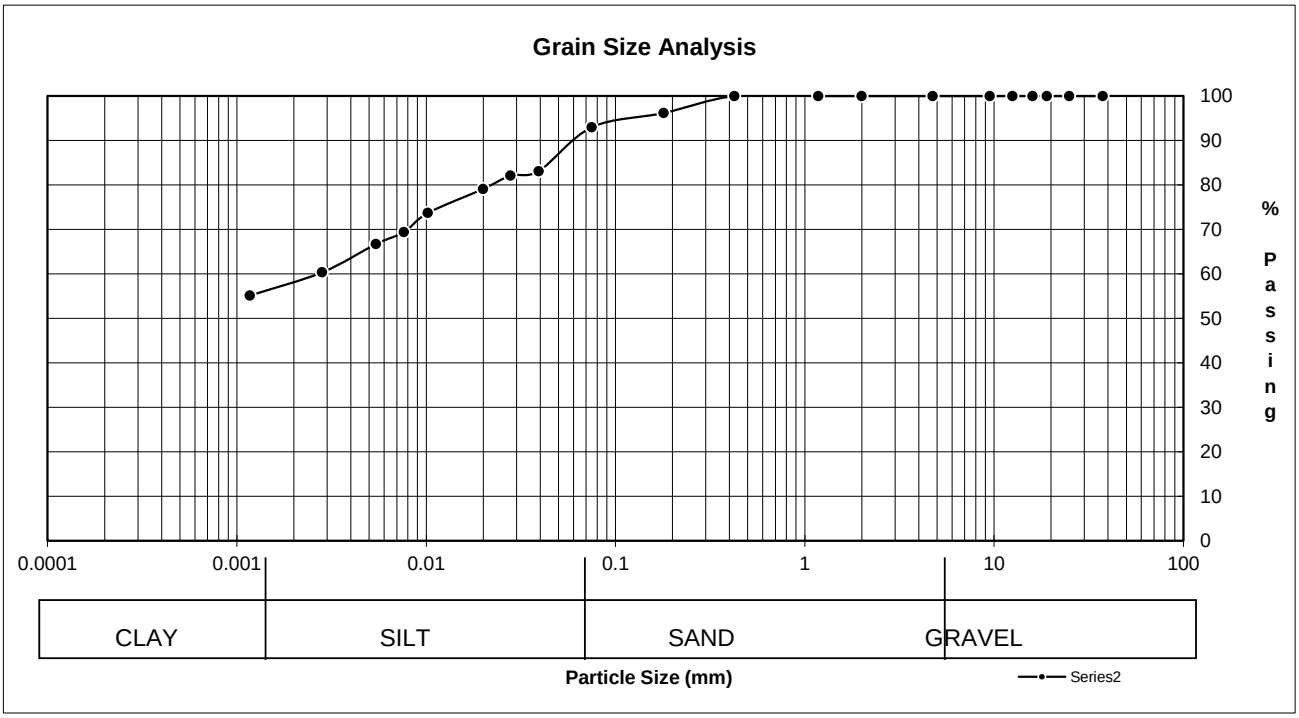
CLIENT: WSP Canada
1600 Buffalo Place
Winnipeg, MB R3T 6B8
ATTN:
PROJECT: COW Alley Renewal

PROJECT NO.

Date Sampled: unknown Date Received: Jan/Feb/15
Sampled By: Client Date Tested: 16-Mar-15

Material Identification
B.H./T.H. No. **TH5 @ 2'**
Sample No. **1**
Sample Source
Specific Gravity of Material: 2.65

Sieve Analysis		Hydrometer Analysis	
Sieve (mm)	% Passing	Diameter	% Finer
50.00	100.0		
37.50	100.0		
25.00	100.0		
19.00	100.0		
16.00	100.0		
12.50	100.0	0.0393	83.1
9.50	100.0	0.0279	82.1
4.75	100.0	0.0200	79.1
2.00	100.0	0.0102	73.7
1.18	100.0	0.0076	69.4
0.425	100.0	0.0054	66.7
0.180	96.2	0.0028	60.4
0.075	93.0	0.0012	55.1



SOIL DESCRIPTION	% Composition		D10	
		Gravel	D30	0.00129
The sample tested can be classified as silty clay.	7	Sand	D60	0.02176
	38	Silt	Cu	#DIV/0!
	55	Clay	Cc	#DIV/0!

Remarks: Test Method: ASTM D422, D2216, D4318

Technician: GM

REVIEWED BY: Hermie Manalo

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PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

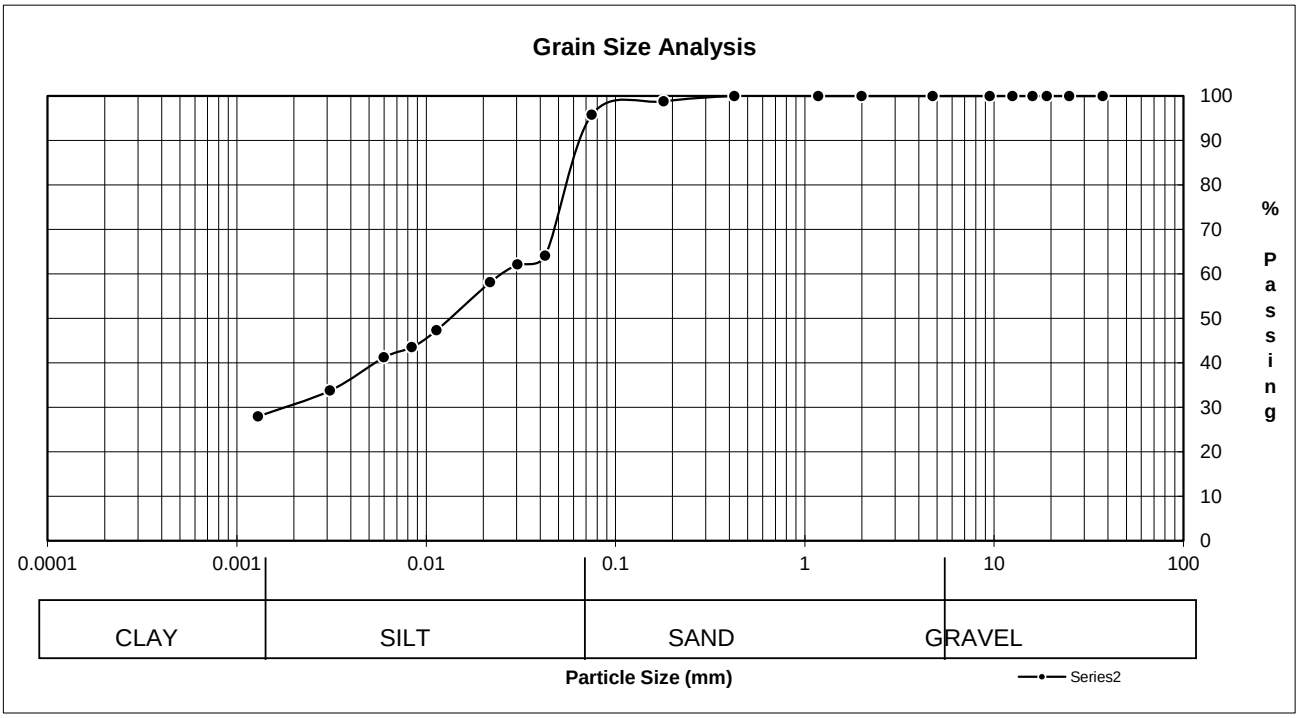
CLIENT: WSP Canada
1600 Buffalo Place
Winnipeg, MB R3T 6B8
ATTN:
PROJECT: COW Alley Renewal

PROJECT NO.

Date Sampled: unknown Date Received: Jan/Feb/15
Sampled By: Client Date Tested: 16-Mar-15

Material Identification
B.H./T.H. No. **TH9 @ 3'**
Sample No. **2**
Sample Source
Specific Gravity of Material: 2.65

Sieve Analysis		Hydrometer Analysis	
Sieve (mm)	% Passing	Diameter	% Finer
50.00	100.0		
37.50	100.0		
25.00	100.0		
19.00	100.0		
16.00	100.0		
12.50	100.0	0.0425	64.1
9.50	100.0	0.0303	62.1
4.75	100.0	0.0218	58.1
2.00	100.0	0.0113	47.3
1.18	100.0	0.0084	43.5
0.425	100.0	0.0060	41.2
0.180	98.8	0.0031	33.8
0.075	95.8	0.0013	28.0



SOIL DESCRIPTION	% Composition		D10	
		Gravel	D30	0.00129
The sample tested can be classified as silty clay loam.	4	Sand	D60	0.02176
	68	Silt	Cu	#DIV/0!
	28	Clay	Cc	#DIV/0!

Remarks: Test Method: ASTM D422, D2216, D4318

Technician: GM

REVIEWED BY: Hermie Manalo

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PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

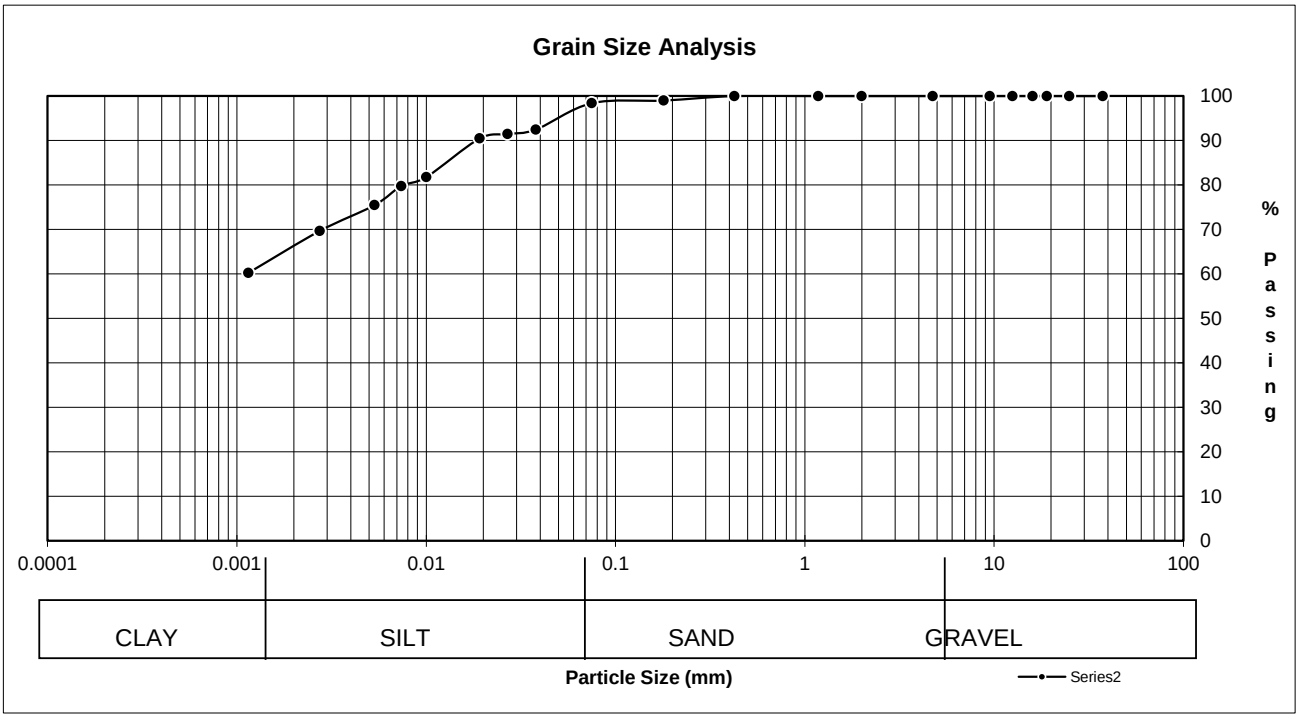
CLIENT: WSP Canada
1600 Buffalo Place
Winnipeg, MB R3T 6B8
ATTN:
PROJECT: COW Alley Renewal

PROJECT NO.

Date Sampled: unknown Date Received: Jan/Feb/15
Sampled By: Client Date Tested: 16-Mar-15

Material Identification
B.H./T.H. No. **TH13 @ 2'**
Sample No. **12**
Sample Source
Specific Gravity of Material: 2.65

Sieve Analysis		Hydrometer Analysis	
Sieve (mm)	% Passing	Diameter	% Finer
50.00	100.0		
37.50	100.0		
25.00	100.0		
19.00	100.0		
16.00	100.0		
12.50	100.0	0.0379	92.5
9.50	100.0	0.0269	91.5
4.75	100.0	0.0191	90.5
2.00	100.0	0.0100	81.8
1.18	100.0	0.0074	79.8
0.425	100.0	0.0053	75.5
0.180	99.0	0.0027	69.7
0.075	98.4	0.0012	60.3



SOIL DESCRIPTION	% Composition		D10	
		Gravel	D30	
The sample tested can be classified as silty clay.	2	Sand	D60	0.00115
	38	Silt	Cu	#DIV/0!
	60	Clay	Cc	#DIV/0!

Remarks: Test Method: ASTM D422, D2216, D4318

Technician: GM

REVIEWED BY: Hermie Manalo

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PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

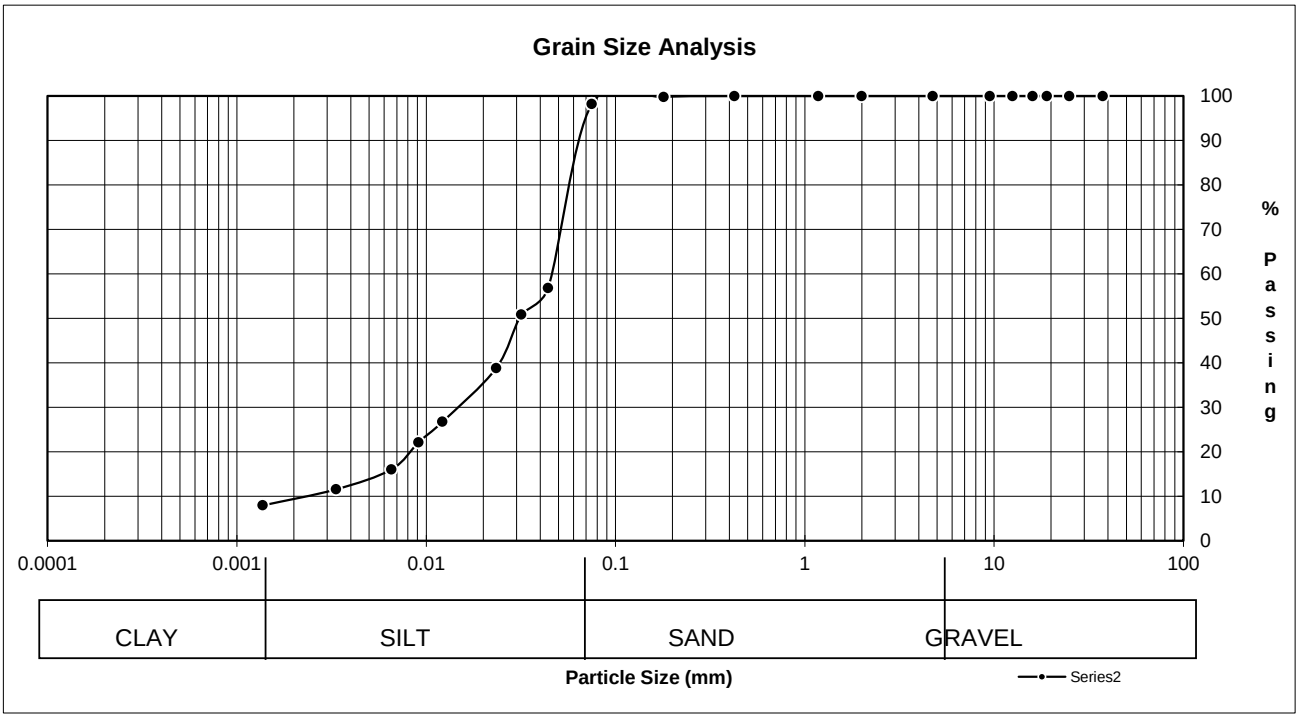
CLIENT: WSP Canada
1600 Buffalo Place
Winnipeg, MB R3T 6B8
ATTN:
PROJECT: COW Alley Renewal

PROJECT NO.

Date Sampled: unknown Date Received: Jan/Feb/15
Sampled By: Client Date Tested: 16-Mar-15

Material Identification
B.H./T.H. No. **TH13 @ 6'**
Sample No. **13**
Sample Source
Specific Gravity of Material: 2.65

Sieve Analysis		Hydrometer Analysis	
Sieve (mm)	% Passing	Diameter	% Finer
50.00	100.0		
37.50	100.0		
25.00	100.0		
19.00	100.0		
16.00	100.0		
12.50	100.0	0.0440	56.8
9.50	100.0	0.0318	50.8
4.75	100.0	0.0235	38.9
2.00	100.0	0.0122	26.8
1.18	100.0	0.0091	22.2
0.425	100.0	0.0066	16.1
0.180	99.8	0.0033	11.6
0.075	98.2	0.0014	8.0



SOIL DESCRIPTION	% Composition		D10	
		Gravel	D30	
The sample tested can be classified as silt loam.	2	Sand	D60	0.00115
	90	Silt	Cu	#DIV/0!
	8	Clay	Cc	#DIV/0!

Remarks: Test Method: ASTM D422, D2216, D4318

Technician: GM

REVIEWED BY: Hermie Manalo

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PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

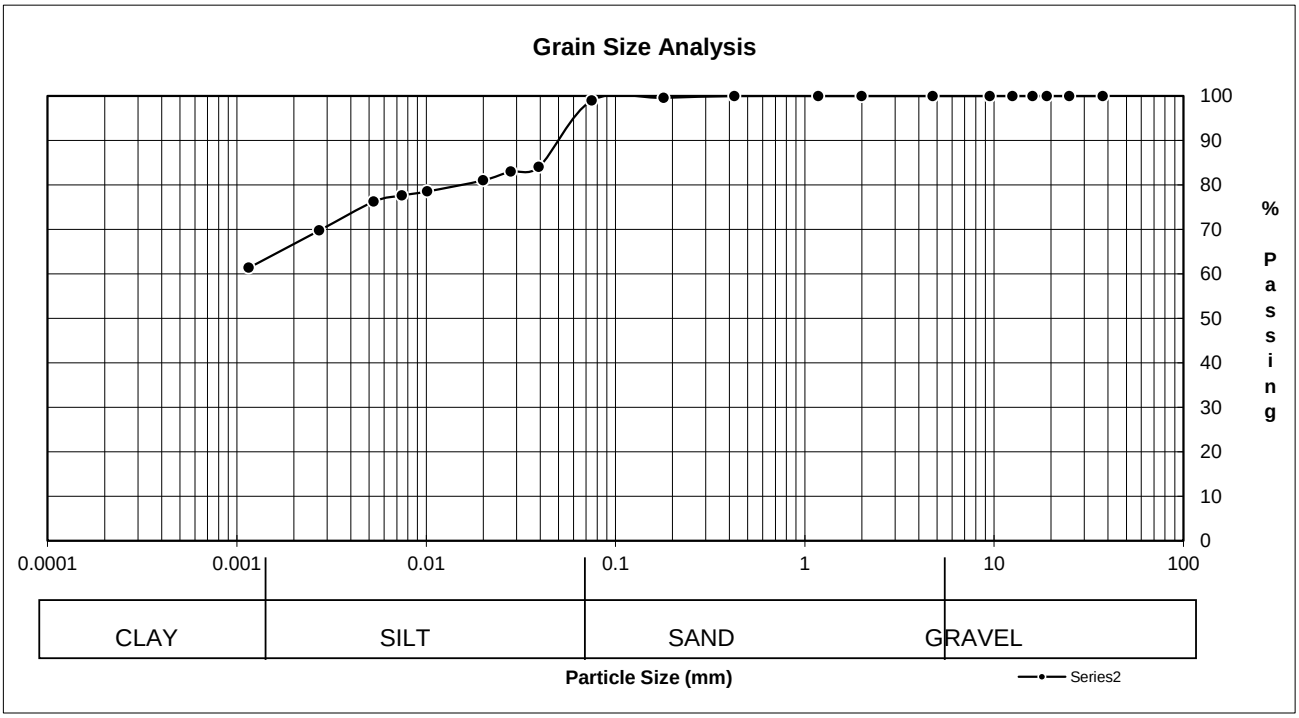
CLIENT: WSP Canada
1600 Buffalo Place
Winnipeg, MB R3T 6B8
ATTN:
PROJECT: COW Alley Renewal

PROJECT NO.

Date Sampled: unknown Date Received: Jan/Feb/15
Sampled By: Client Date Tested: 16-Mar-15

Material Identification
B.H./T.H. No. **TH19 @ 3'**
Sample No. **14**
Sample Source
Specific Gravity of Material: 2.65

Sieve Analysis		Hydrometer Analysis	
Sieve (mm)	% Passing	Diameter	% Finer
50.00	100.0		
37.50	100.0		
25.00	100.0		
19.00	100.0		
16.00	100.0		
12.50	100.0	0.0394	84.0
9.50	100.0	0.0280	83.0
4.75	100.0	0.0200	81.0
2.00	100.0	0.0101	78.6
1.18	100.0	0.0074	77.7
0.425	100.0	0.0053	76.3
0.180	99.6	0.0027	69.8
0.075	99.0	0.0012	61.4



SOIL DESCRIPTION	% Composition		D10	
		Gravel	D30	
	1	Sand	D60	
The sample tested can be classified as silty clay.	38	Silt	Cu	#DIV/0!
	61	Clay	Cc	#DIV/0!

Remarks: Test Method: ASTM D422, D2216, D4318

Technician: GM

REVIEWED BY: Hermie Manalo

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PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

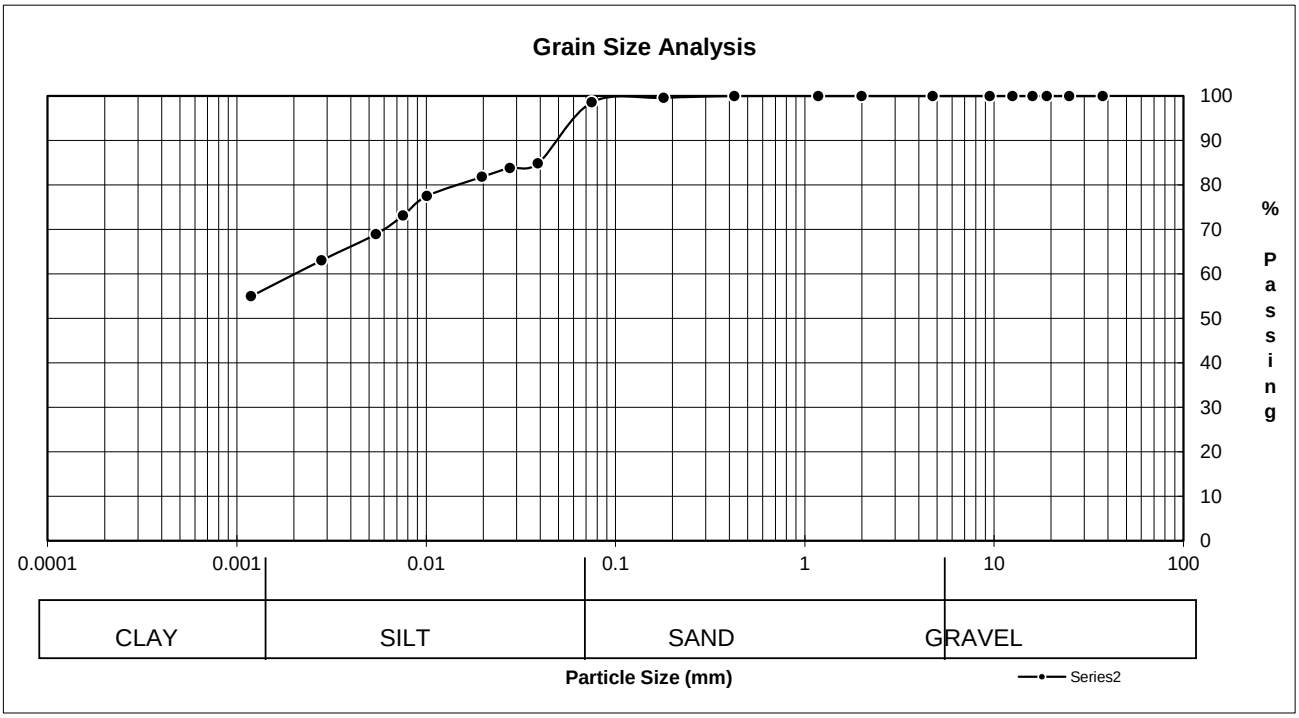
CLIENT: WSP Canada
1600 Buffalo Place
Winnipeg, MB R3T 6B8
ATTN:
PROJECT: COW Alley Renewal

PROJECT NO.

Date Sampled: unknown Date Received: Jan/Feb/15
Sampled By: Client Date Tested: 16-Mar-15

Material Identification
B.H./T.H. No. **TH32 @ 3'**
Sample No. **18**
Sample Source
Specific Gravity of Material: 2.65

Sieve Analysis		Hydrometer Analysis	
Sieve (mm)	% Passing	Diameter	% Finer
50.00	100.0		
37.50	100.0		
25.00	100.0		
19.00	100.0		
16.00	100.0		
12.50	100.0	0.0389	84.8
9.50	100.0	0.0276	83.8
4.75	100.0	0.0197	81.8
2.00	100.0	0.0101	77.5
1.18	100.0	0.0075	73.1
0.425	100.0	0.0054	68.9
0.180	99.6	0.0028	63.1
0.075	98.6	0.0012	55.0



SOIL DESCRIPTION	% Composition		D10	
		Gravel	D30	0.01210
The sample tested can be classified as silty clay.	1	Sand	D60	0.04475
	44	Silt	Cu	#DIV/0!
	55	Clay	Cc	#DIV/0!

Remarks: Test Method: ASTM D422, D2216, D4318

Technician: GM

REVIEWED BY: Hermie Manalo

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PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

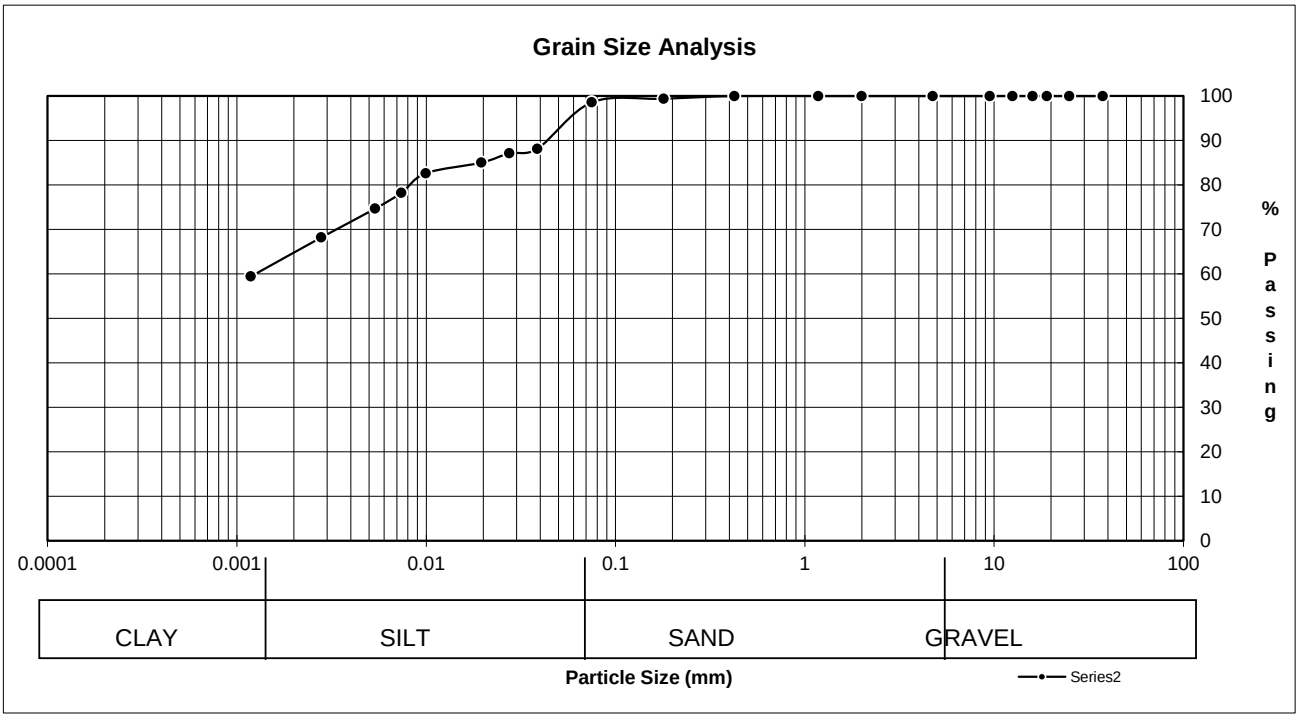
CLIENT: WSP Canada
1600 Buffalo Place
Winnipeg, MB R3T 6B8
ATTN:
PROJECT: COW Alley Renewal

PROJECT NO.

Date Sampled: unknown Date Received: Jan/Feb/15
Sampled By: Client Date Tested: 16-Mar-15

Material Identification
B.H./T.H. No. **TH65 @ 3'**
Sample No. **11**
Sample Source
Specific Gravity of Material: 2.65

Sieve Analysis		Hydrometer Analysis	
Sieve (mm)	% Passing	Diameter	% Finer
50.00	100.0		
37.50	100.0		
25.00	100.0		
19.00	100.0		
16.00	100.0		
12.50	100.0	0.0386	88.1
9.50	100.0	0.0274	87.1
4.75	100.0	0.0196	85.0
2.00	100.0	0.0099	82.7
1.18	100.0	0.0074	78.3
0.425	100.0	0.0054	74.7
0.180	99.4	0.0028	68.2
0.075	98.6	0.0012	59.4



SOIL DESCRIPTION	% Composition		D10	
		Gravel	D30	
The sample tested can be classified as silty clay.	1	Sand	D60	0.00118
	40	Silt	Cu	#DIV/0!
	59	Clay	Cc	#DIV/0!

Remarks: Test Method: ASTM D422, D2216, D4318

Technician: GM

REVIEWED BY: Hermie Manalo