SOIL-MAT ENGINEERS & CONSULTANTS LTD.

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PROJECT NO.: SM 177806-G October 24, 2017

RUTH VICTOR & ASSOCIATES
481 North Service Road West – Unit A-33
Oakville, Ontario
L6M 2V6

Attention: Jack Neal

GEOTECHNICAL INVESTIGATION
PROPOSED TOWNHOUSE DEVELOPMENT
2095 PROSPECT STREET
BURLINGTON, ONTARIO

Dear Mr. Neal,

Further to your authorisation, SOIL-MAT ENGINEERS & CONSULTANTS LTD. has completed the fieldwork, laboratory testing, and report preparation in connection with the above noted project. The fieldwork was completed in general accordance with our proposal, P6950, dated August 10, 2017. Our comments and recommendations, based on our findings at the four borehole locations are presented herein.

1. INTRODUCTION

We understand that the project will involve the construction of two three-storey townhouse blocks at the rear of 2095 Prospect Street in Burlington, Ontario, upon demolition and removal of the existing four-plex structures. The development will also include reconstruction of the existing parking lot and roadways over the subject site. The purpose of this geotechnical investigation work is to assess the subsurface conditions, and to provide our comments and recommendations with respect to the design and construction of the proposed development, from a geotechnical point of view.

This report is based on the above summarised project, and on the assumption that the design and construction will be performed in accordance with applicable codes and standards. Any significant deviations from the proposed project design may void the recommendations given in this report. If significant changes are made to the proposed design, this office must be consulted to review the new design with respect to the results of this investigation. It is noted that other than limited background testing detailed below,

the information contained in this report does not reflect upon the environmental aspects of the site and therefore have not been addressed in this document.

2. PROCEDURE

A total of eight [8] sampled boreholes were advanced at the locations illustrated in the attached Drawing No. 1, Borehole Location Plan. The borings were advanced using continuous flight power auger equipment on October 2, 2017 under the direction and supervision of a staff member of SOIL-MAT ENGINEERS & CONSULTANTS LTD. The boreholes were advanced to auger termination or sampling spoon refusal at depths of between approximately 2.1 and 6.7 metres below the existing ground surface. Upon completion of drilling the boreholes were backfilled in general accordance with Ontario Regulation 903 and the ground surface was reinstated flush with the surrounding grade.

Representative samples of the subsoils were recovered from the borings at selected depth intervals using split barrel sampling equipment driven in accordance with the requirements of the ASTM test specification D1586, Standard Penetration Resistance Testing. After undergoing a general field examination, the soil samples were preserved and transported to the SOIL-MAT laboratory for visual, tactile, and olfactory classifications. Routine moisture content tests were performed on all soil samples recovered from the borings, with unit weight determinations conducted on selected samples.

Additionally, four [4] selected samples of the subsurface soils recovered from the boreholes were submitted to AGAT Laboratories, an independent Canadian accredited analytical laboratory for background environmental testing for a standard scan of metals and inorganics. These results were compared to the relevant Standards under Ontario Regulation 153/04 [as amended] to provide comment regarding off-site disposal of surplus soil from the project site during construction. The results of this testing can be found appended to the end of this report.

The boreholes were located on site by a representative of SOIL-MAT ENGINEERS & CONSULTANTS LTD. The ground surface elevation at the borehole locations was surveyed to site specific geodetic data provided to our office, including various catch basins located throughout the parking lot.

Details of the conditions encountered in the boreholes, together with the results of the field and laboratory tests, are presented in the Log of Borehole Nos. 1 to 8, following the text of this report. It is noted that the boundaries of soil types indicated on the borehole logs are inferred from non-continuous soil sampling and observations made during

drilling. These boundaries are intended to reflect transition zones for the purpose of geotechnical design and therefore should not be construed at the exact depths of geological change.

3. SITE DESCRIPTION AND SUBSURFACE CONDITIONS

The subject site is located at 2095 Prospect Street in Burlington. The site is currently occupied by a multi-storey apartment building and four-plex structures at the rear of the property, with asphalt paved parking areas and roadways. The front landscaped area is surfaced with grass, with mature trees between the building and Prospect Street as well as some grass surfaced areas around the four-plexes. The site is bounded to the north by existing residential dwellings, to the east by a baseball diamond, to the west by an existing apartment building and to the south by Prospect Street. These boundaries are assuming an east-west orientation of Prospect Street. The site is relatively flat and even with an overall topographic relief of approximately 0.5 to 0.8 metres from west to east.

The subsurface conditions encountered at the borehole locations are summarised as follows:

Pavement Structure

Boreholes No. 1 through 7 were advanced through the pavement structure of the existing parking lot which was found to consist of approximately 50 to 100 millimetres of asphaltic concrete overlying 50 to 125 millimetres of compact granular base, summarised as follows:

Borehole No.	1	2	3	4	5	6	7
Asphaltic Concrete (mm)	100	75	75	75	75	50	100
Granular Base (mm)	125	125	125	125	125	125	50

Topsoil

A surficial veneer of topsoil approximately 150 millimetres in thickness was encountered at Borehole No. 8. It is noted that the depth of topsoil may vary across the site and from the depth encountered at the single borehole location. It is also noted that the term 'topsoil' has been used from a geotechnical point of view, and does not necessarily reflect the materials nutrient content or ability to support plant life.

Sand

Sand was encountered beneath the pavement structure or topsoil at all borehole locations. The brown sand soil encountered contained trace to some silt, trace gravel, with occasionally clayey inclusions, in a generally in a loose to compact state. Sand was proven to termination at depths of approximately 2.1 metres in Borehole Nos. 4, 6, and 8, and to depths of approximately 2.1 to 3.4 metres beneath the existing ground surface in the remaining boreholes. The upper levels of the sand soils had a reworked appearance and may be fill associated with construction of the existing structures and parking lot, subjected to freeze thaw cycles and traffic loads.

Clayey Silt/Sandy Silt

Native clayey silt/sandy silt was encountered beneath the sand in Boreholes No. 1, 2, 3, 5, and 7. The native cohesive soil was brown to grey in colour, contained trace gravel, and was generally in a very stiff to hard state. Clayey silt/sandy silt was proven to depths of approximately 5.5 to 6 metres below the existing ground surface where encountered.

Queenston Shale

Queenston shale bedrock was encountered at depths of approximately 5.5 to 6.0 metres below the existing ground surface in Borehole Nos. 1, 2, and 3. The Queenston shale was highly weathered in the upper levels, exhibiting characteristics of a very stiff to hard cohesive soil. The Queenston shale bedrock was not cored as part of this investigation.

A review of available published information [Quaternary Geology of Ontario, Southern Sheet Map 2556] indicates the subsurface soils to consist of coarse-textured glaciolacustrine deposits of sand and gravel overlying Queenston shale bedrock. These conditions are consistent with our experience in the area and observations during drilling.

Groundwater Observations

Boreholes No. 1, 4, 6, and 8 were recorded as being 'dry', while Boreholes No. 2, 3, 5, and 7 were recorded as being 'wet' at depths between 1.8 and 6.3 metres upon completion of drilling. It is noted that insufficient time would have passed for the static groundwater level to stabilise in the open boreholes. In fine grained to cohesive soils, however, the static groundwater level generally coincides with the transition in colour from brown to grey. As such, based on our observations during drilling and experience

in the area, the static groundwater level is estimated at a depth of between approximately 3 and 5 metres beneath the existing ground surface.

4. EXCAVATIONS

Excavations for the installation of the foundations and underground utilities are expected to extend to depths of up to perhaps 2 to 3 metres below the existing grade. Excavations through any fill materials and the surficial sand soils would be expected to remain stable at inclinations of up to 45 degrees to the horizontal. Excavations extending through the native clayey silt/sandy silt soils would be expected to remain stable at inclinations of up to 60 degrees to the horizontal, or steeper. Where wet seams are encountered, where excavations extend below the static groundwater level, or during periods of extended precipitation, the excavation sides should be expected to 'slough' in to as flat as 3 horizontal to 1 vertical, or flatter. Notwithstanding the above, all excavations must comply with the current Occupational Health and Safety Act and Regulations for Construction Projects.

As noted above, the static groundwater level is estimated at a depth of approximately 3 to 5 metres below the existing ground surface, generally below the anticipated depths of construction. Nevertheless, some minor infiltration of groundwater through permeable seams, as well as surface runoff into open excavations, should be anticipated. In the event that excavations extend to or slightly below the static groundwater level, the infiltration of groundwater through the clayey silt/sandy silt soils should be sufficiently low that it should be possible to adequately control groundwater infiltration for the short construction period using conventional construction dewatering techniques such as pumping from sumps in the base of the excavation. More groundwater control should be anticipated when connections are made to existing services. Surface water should be directed away from the excavations.

The base of excavations in the native sand or clayey silt/sandy silt should remain firm and stable. As such, standard pipe bedding as typically specified by the City of Burlington should suffice. The bedding material should be uniformly compacted to a minimum of 95 per cent of the materials standard Proctor maximum dry density [SPMDD]. Special attention should be paid to compaction under the pipe haunches.

We recommend that the invert elevations of any storm sewer pipes for rear yard catch basins be located above the proposed underside of footing elevations of adjacent townhouse structures, or that the trench excavations should be filled with 5 MPa 'lean mix' concrete product to the proposed underside of footing level where the excavations

extend below an imaginary 10 horizontal to 7 vertical line extending outwards and down from a point 0.3 metres beyond the proposed townhouse foundations.

5. BACKFILL CONSIDERATIONS

The majority of excavated material will consist of the native sand and clayey silt/sandy silt soils encountered in the boreholes, as described above. These materials are generally considered suitable for use as engineered fill, trench backfill, etc., provided that the moisture content can be controlled to within 3 per cent of its standard Proctor optimum value, and it is free of organics or otherwise deleterious materials, cobbles or boulders or construction debris. Depending on the weather conditions at the time of construction, some moisture conditioning of the excavated materials may be required to achieve acceptable compaction densities and minimise long-term settlement. The on-site soils are noted to be generally near to slightly 'wet' of their optimum moisture content.

We note that where backfill material is placed near or slightly above its optimum moisture content, the potential for long-term settlements due to the ingress of groundwater and collapse of the fill structure is reduced. It is therefore very important that the placement moisture content of the backfill soils be within 3 per cent of their standard Proctor optimum moisture content during placement and compaction to minimise long term subsidence [settlement] of the fill mass. Any imported fill required in service trenches or to raise the subgrade elevation should have its moisture content within 3 per cent of its optimum moisture content and meet the necessary environmental guidelines.

A representative of SOIL-MAT should be on-site during the backfilling and compaction operations to monitor uniform compaction of the backfill material to project specification requirements. Close supervision is prudent in areas that are not readily accessible to compaction equipment, for instance near the end of compaction 'runs'. All backfill should be placed in lifts optimal for the compaction equipment being utilised, and no more than 300 millimetres thick. Service trench backfill should be compacted to a minimum of 95 per cent of its standard Proctor maximum dry density [SPMDD], with the upper one metre of subgrade material compacted to 100 per cent of its SPMDD. Any structural fill should be compacted to 100 per cent of its SPMDD. The appropriate compaction equipment should be employed based on soil type, i.e. pad-toe for cohesive soils and smooth drum/vibratory plate for granular soils. A method should be developed to assess compaction efficiency employing the on-site compaction equipment and backfill materials during construction.

6. MANHOLES, CATCHBASINS AND VALVE CHAMBERS

With founding surfaces carefully prepared and cleared of all loose and disturbed soil, the bearing surfaces within the native soils or engineered fill will be practically non-yielding under the anticipated loads. Proper preparation of the founding soils will therefore accentuate the protrusion of these structures above the pavement surface if compaction of the fill around these structures is not adequate, causing settlement of the surrounding paved surfaces. Conversely, the pavement surfaces may rise above the valve chambers under frost action. To alleviate the potential for these types of differential movements, free-draining, non-frost susceptible material should be employed as backfill around the structures located within the paved roadway limits, and compacted to a minimum or 98 per cent of its standard Proctor density.

Thrust blocks placed in the native soils may be sized as recommended by the applicable Ontario Provincial Standard Specification [OPSD 1103.010, Nov 2013, Rev 2]. A design allowable bearing pressure of 150 kPa [~3,000 psf] may conservatively be used in the design of the thrust blocks within the native soils. Any backfill required behind the blocks should be granular and should be compacted to 100 per cent of its standard Proctor maximum dry density.

7. PAVEMENT STRUCTURE DESIGN CONSIDERATIONS

It may be feasible to maintain the existing pavement outside the area of the new building footprint, depending on the final site grades for the redevelopment. The pavement around the new building would then be reinstated to match the existing grade, consistent with the recommendations below. Care should be taken by the contractor during construction to limit damage to the pavement structure outside the area of building construction. Where significant damage from construction activity occurs it should be repaired, such as by milling and reinstating the surface asphalt. Alternatively, it may be considered to reconstruct the surface of the pavement structure across the site, removing the existing asphalt and placing new binder and surface course asphalt.

If it is necessary to replace the existing pavement structure, the areas to be paved must be cleared of all unsuitable materials and the exposed subgrade proof rolled in the presence of a representative of SOIL-MAT ENGINEERS immediately prior to the placement of sub-base material. Any areas of distress revealed by this or other means should be subexcavated and replaced with suitable backfill material. Where the subgrade condition is poorer it may be necessary to implement more aggressive stabilisation methods, such as the use of coarse aggregate [50mm clear stone, 'rip rap' stone, etc.] 'punched' into the soft areas. Consideration of pulverization and reclamation of the

existing pavement structures may be given to provide suitable materials for subgrade stabilisation.

The need for sub-excavations of softened subgrade materials will be reduced if construction is undertaken during dry periods of the year and careful attention is paid to the compaction operations. The on-site soils are sensitive to disturbance and moisture and may present difficulty for roadway construction during 'wet' periods of the year. Should pavement construction be undertaken during 'wet' periods of the year it should be anticipated that greater stabilisation efforts will be required and/or additional depth of OPSS Granular B, Type II sub-base course material may be required.

Good drainage provisions will optimise the long-term performance of the pavement structure. The subgrade must be properly crowned and shaped to promote drainage to the subdrain system. Subdrains should be installed to intercept excess subsurface water and to prevent softening of the subgrade material. Surface water should not be allowed to pond adjacent to the outer limits of the paved areas.

The most severe loading conditions on the subgrade typically occur during the course of construction, therefore precautionary measures may have to be taken to ensure that the subgrade is not unduly disturbed by construction traffic. SOIL-MAT should be given the opportunity to review the final pavement structure design and subdrain scheme prior to construction to ensure that they are consistent with the recommendations of this report.

The suggested pavement structures outlined in Table A are based on subgrade parameters estimated on the basis of visual and tactile examinations of the on-site soils and past experience. The outlined pavement structure may be expected to have an approximate ten-year life, assuming that regular maintenance is performed. Should a more detailed pavement structure design be required, site specific traffic information would be needed, together with detailed laboratory testing of the subgrade soils.

TABLE A
RECOMMENDED PAVEMENT STRUCTURES

LAYER DESCRIPTION	COMPACTION REQUIREMENTS	LIGHT DUTY SECTIONS	HEAVY DUTY [TRUCK ROUTE]
Asphaltic Concrete Wearing course OPSS HL 3 or HL 3A	92 per cent Marshall MRD	65 millimetres	40 millimetres
Binder Course OPSS HL 8	92 per cent Marshall MRD		65 millimetres
Base Course OPSS Granular A	100% SPMDD	150 millimetres	150 millimetres
Sub-base Course OPSS Granular B Type II	100% SPMDD	200 millimetres	350 millimetres

* Marshall MRD denotes Maximum Relative Density.

* SPMDD denotes Standard Proctor Maximum Dry Density, ASTM-D698.

Depending on the arrangement of light duty and heavy duty pavement sections, the transition between sections may present some difficulty for contractors. In this regard, consideration might be given to a slightly increased light duty pavement structure consisting of 50 millimetres of HL8 binder course and 40 millimetres of HL3 surface course asphaltic concrete. This structure will provide for a continuous depth of surface course asphalt allowing for ease of construction. As well such a pavement structure would have an improved performance over an increased design life. Such an arrangement of asphalt layers would also allow for future rehabilitation with a 'mill and pave' type operation.

To minimise segregation of the finished asphalt mat, the asphalt temperature must be maintained uniform throughout the mat during placement and compaction. All too often, significant temperature gradients exist in the delivered and placed asphalt with the cooler portions of the mat resisting compaction and presenting a honeycomb surface. As the spreader moves forward, a responsible member of the paving crew should monitor the pavement surface, to ensure a smooth uniform surface. The contractor can mitigate the surface segregation by 'back-casting' or scattering shovels of the full mix material over the segregated areas and raking out the coarse particles during compaction operations. Of course, the above assumes that the asphalt mix is sufficiently hot to allow the 'back-casting' to be performed.

8. TOWNHOUSE CONSTRUCTION

The undisturbed native sand and clayey silt/sandy silt soils encountered are considered suitable for support of typical residential townhouse structures on conventional spread footings extending below any fill or otherwise unsuitable material that may be encountered. While not anticipated based on the existing grades, should the site grading works require engineered fill below founding elevations, the general recommendations presented in the Backfill Considerations above should be strictly adhered to, with compaction to 100 per cent of the backfill material's SPMDD, and monitoring and testing by a representative of SOIL-MAT ENGINEERS present on a full time basis. If there is a short fall in the volume of fill required, then the source of imported fill should be checked for gradation, Proctor value, and compatibility with existing fill and approved by this office.

The support conditions afforded by the native soils and/or engineered fill are generally not uniform across the building footprint, nor are the loads on the various foundation elements. As such, the provision of nominal steel reinforcement should be considered in the concrete foundations. Such reinforcement will act to reduce the potential for cracking in the foundation walls due to minor settlements, heaving, shrinkage, etc. and will assist in resisting the earth pressures generated against the foundation walls by the backfill. This nominal reinforcement is an economical approach to the reduction or prevention of costly foundation repairs after completion and later in the life of the buildings. Such nominal reinforcement would typically consist of two continuous 15M steel rods placed in the footings [directly below the foundation wall] and a similar two steel rods placed approximately 300 millimetres from the top of the foundation walls. The reinforcing bars should be bent to reinforce all corners and under basement windows, and be provided with sufficient overlap at staggered splice locations. At 'steps' in the foundations and at window locations, the reinforcing steel should be bent to follow the step diagonally, rather than at 90 degrees, to maintain the continuous tensile capacity of the reinforcement. Where footings are founded on or partially on engineered fill, the above provision for nominal reinforcement would be a requirement.

All footings exposed to the environment must be provided with a minimum of 1.2 metres of earth cover or equivalent insulation to protect against frost penetration. This frost protection would also be required if construction were undertaken during the winter months. All footings must be proportioned to satisfy the requirements of the current Ontario Building Code. For design purposes a nominal design bearing value in the native soils or engineered fill of 150 kPa [~3,000 psf] may be considered.

All basement walls should be suitably damp-proofed, including a 'dimple type' drainage boarding leading to a perimeter drainage tile system. The perimeter weeping tile should consist of a perforated plastic pipe with a geofabric sock, surrounded with a minimum of 200 millimetres [top and sides] of 20-millimetre clear stone, in turn encased in a heavy geofabric. The perimeter drainage system should outlet to a gravity storm sewer connection, fitted with a suitable back-flow prevention valve. In the event that sump pit systems are required, consideration should be given to constructing the sump pump system with an 'oversized' reservoir so that the sump pump will not cycle repeatedly within short time periods.

It is imperative that a soils engineer be retained from this office to provide geotechnical engineering services during the excavation and foundation construction phases of the project. This is to observe compliance with the design concepts and recommendations of this geotechnical investigation report, and to allow changes to the made in the event that subsurface conditions differ from the conditions identified at the borehole locations.

9. ENVIRONMENTAL CONSIDERATIONS

As noted above, four [4] selected samples were submitted for background analytical testing of the subsurface soils to provide comments with respect to handling of surplus material for off-site disposal. The soil samples were submitted to AGAT Laboratories for background analytical testing for a scan of metals and inorganics. Field screening of the recovered soil samples yielded no evidence of potential hydrocarbon impact [i.e. staining, petroleum odour, etc.].

The laboratory test results received were compared to the applicable Standard from Ontario Regulation 153/04 [as amended] under the Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act*, as follows:

- **Table 1**: Full Depth Background Site Condition Standards for all other [ALL] property use.
- **Table 2**: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition for a Residential/ Parkland/ Institutional property use, [RPI], as well as for an Industrial/ Commercial/ Community [ICC] property use.
- **Table 3**: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for a Residential/ Parkland/ Institutional property use, [RPI], as well as for an Industrial/ Commercial/ Community [ICC] property use.

The results of this laboratory testing are presented in the attached AGAT Certificate of Analysis [17H268548].

Based on SOIL-MAT'S field observations and the analytical test results from AGAT, SOIL-MAT offers the following comments:

1. The tested material was found to be within Table 1 [ALL] Standards for the tested parameters, with the exception of Electrical Conductivity [EC] and/or Sodium Absorption Ratio [SAR].
2. The test material was found to be within the Table 2 and 3 RPI Standards for the tested parameters, with the exception of Samples BH3 SS1, BH4 SS1, BH7 SS1 which were found to exceed the Standards for EC and/or SAR.
3. The tested material was found to be within the Table 2 and 3 ICC Standards for the tested parameters, with the exception of Samples BH3 SS1, which was found to exceed the Standards for EC.
4. The samples secured for analytical testing are believed to be representative of the soil conditions. No staining or odours were observed during the fieldwork. If any significant changes are noted, i.e., odours, staining etc., SOIL-MAT should be contacted to reassess the environmental characteristics of the soil.

Given the analytical test results we offer the following recommendations regarding handling and off-site disposal of surplus material for the project.

- As the test results show the sampled material to exceed the Table 1 Standards, surplus material may not be accepted at an off-site property subject to Table 1 requirements [i.e. lands subject to a Record of Site Condition of MOE Certificate of Authorisation].
- As the test results show the sampled material to exceed the Table 2 and 3 RPI Standards for EC and/or SAR, strictly speaking, surplus materials may not be accepted at an off-site RPI property in a potable or non-potable groundwater condition.
- As the test results show the sampled material to exceed the Table 2 and 3 ICC Standards for EC, strictly speaking, surplus soil may not be accepted at an off-site ICC property in a potable or non-potable groundwater condition.
- As the test results show only elevated levels of EC and/or SAR, noted above as an essentially aesthetic parameter associated with the application of road de-icing salt, it would be reasonable to accept surplus material at an off-site RPI or ICC property under the 'beneficial use' concept. Such a use would require assessment of the

receiving property and approval of the receiving property owner, and depending on the location and nature of the property consultation with the local MOE District Engineer;

- Excavated soil may be reused on site.

10. GENERAL COMMENTS

The comments provided in this document are intended only for the guidance of the design team. The subsoil descriptions and borehole information are only intended to describe conditions at the borehole locations. Contractors placing bids or undertaking this project should carry out due diligence in order to verify the results of this investigation and to determine how the subsurface conditions will affect their operations.

We trust that this geotechnical report is sufficient for your present requirements. Should you require any additional information or clarification as to the contents of this document, please do not hesitate to contact the undersigned.

Yours very truly,
SOIL-MAT ENGINEERS & CONSULTANTS LTD.



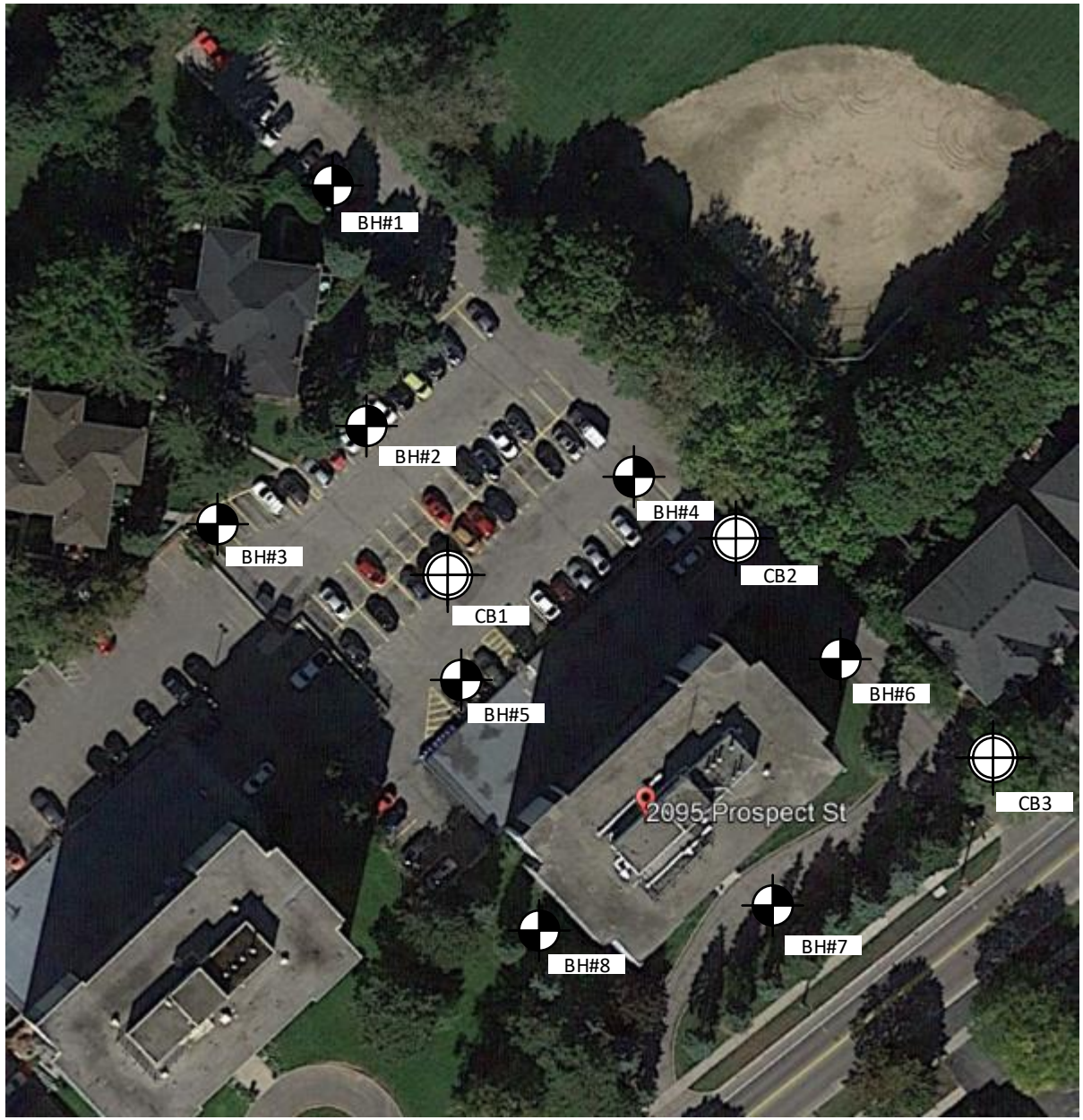
Yaroslav Mormil B. Eng.

Kyle Richardson, P. Eng.
Project Engineer

Stephen R. Sears, B.Eng. Mgmt., P.Eng.
Senior Engineer

Enclosures: Drawing No. 1, Borehole Location Plan
Log of Borehole Nos. 1 to 8
AGAT Laboratories Certificate of Analysis No. 17H268548

Distribution: Ruth Victor & Associates [2, plus pdf]



LEGEND

BH# Borehole Location

CB Benchmarks (Catch Basins)

NOTES

1. This drawing should be read in conjunction with Soil-Mat Engineers & Consultants Ltd. Report No. SM 177806-G.

2. Borehole locations are approximate.

SOIL-MAT

ENGINEERS & CONSULTANTS LTD.

Geotechnical Investigation Services
Proposed Townhouse Development
2095 Prospect St.
Burlington, Ontario

Borehole Location Plan

Project No. SM 177806-G

Date: October 2017

Drawn: AR | Checked: KR

SM 177806-G Borehole Location Plan

Drawing No. 1

Log of Borehole No. 1

Project No: SM 177806-G
Project: 2095 Prospect St.
Location: Burlington, Ontario
Client: Ruth Victo & Associates

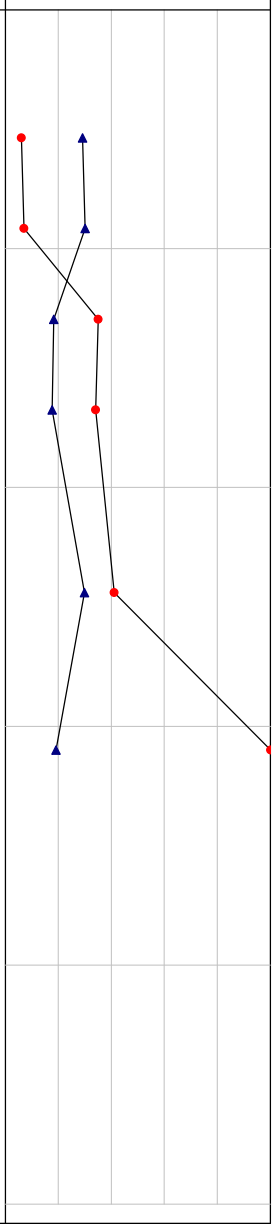
Project Manager: Kyle Richardson, P.Eng
Borehole Location: See Drawing No. 1
UTM Coordinates - N:
E:

Depth (ft)	Depth (m)	Elevation (m)	Description	Well Data	Type	Number	Blow Counts	Blows/300mm	Recovery	PP (kgf/cm2)	U.Wt.(kN/m3)
		94.44	Ground Surface								
0	0	94.21	**Pavement Structure** Approximately 100 millimetres of asphaltic concrete over 125 millimetres of granular base.								
3	1		**Sand** Brown, trace to some silt, trace gravel, occasional clayey inclusion, loose		SS	1	3,3,3,3	6			
6	2	92.34			SS	2	2,2,5,6	7			
			Clayey Silt/ Sandy Silt Brown to grey, trace gravel, hard.		SS	3	10,16,19,22	35		>4.5	
					SS	4	9,15,19,24	34		>4.5	
					SS	5	18,21,20,17	41			
19	6	88.64									
20		88.24	**Queenston Shale** Red, severely weathered in upper levels, hard in terms of soil.		SS	6	50/5"	100			
			End of Borehole								

NOTES:
1. Borehole was advanced using solid stem auger equipment on October 2nd, 2017 to a termination depth of 6.2 metres.

2. Borehole was recorded as 'dry' upon completion of drilling and backfilled as per Ontario Regulation 903.

3. Soil samples will be discarded after 3 months unless otherwise directed by our client.



Drill Method: Solid Stem Augers
Drill Date: October 2, 2017
Hole Size: 150mm
Drilling Contractor: Davis Drilling

Soil-Mat Engineers & Consultants Ltd.
130 Lancing Drive, Hamilton, ON L8W 3A1
T: 905.318.7440 F: 905.318.7455
E: info@soil-mat.ca

Datum: Geodetic
Field Logged by: A.R.
Checked by: K.R.
Sheet: 1 of 1

Log of Borehole No. 2

Project No: SM 177806-G
Project: 2095 Prospect St.
Location: Burlington, Ontario
Client: Ruth Victo & Associates

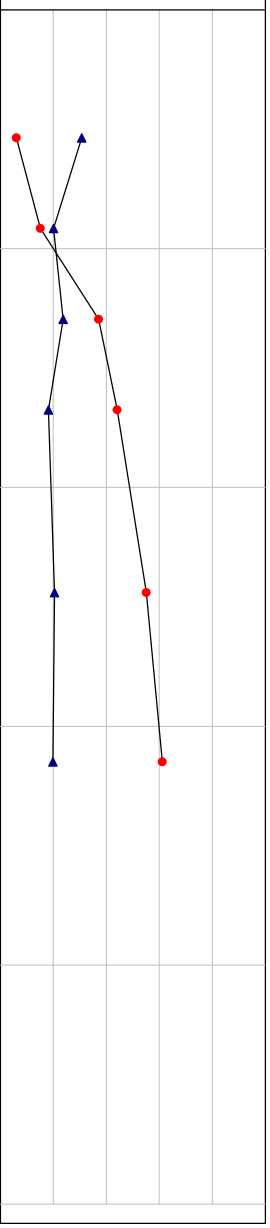
Project Manager: Kyle Richardson, P.Eng
Borehole Location: See Drawing No. 1
UTM Coordinates - N:
E:

Depth (ft / m)	Elevation (m)	Description	Well Data	SAMPLE Type	Number	Blow Counts	Blows/300mm	Recovery	PP (kgf/cm2)	U.Wt.(kN/m3)
0 / 0	94.30	Ground Surface								
0 / 0	94.10	**Pavement Structure** Approximately 75 millimetres of asphaltic concrete over 125 millimetres of granular base.								
3 / 1		**Sand** Brown, trace to some silt, trace gravel, occasional clayey inclusion, loose.		SS	1	3,3,3,4	6			
6 / 2				SS	2	6,7,8,8	15			
7 / 2	91.96	**Clayey Silt/Sandy Silt** Brown to grey, trace gravel, hard.		SS	3	8,16,21,30	37		>4.5	
10 / 3				SS	4	13,20,24,30	44		>4.5	
16 / 5				SS	5	26,30,25,22	55			
17 / 5	88.90	**Queenston Shale** Red, severely weathered in upper levels, hard in terms of soil.								
20 / 6				SS	6	26,31, 30,50/4"	61			
21 / 6	87.64	End of Borehole								

NOTES:
1. Borehole was advanced using solid stem auger equipment on October 2nd, 2017 to a termination depth of 6.2 metres.

2. Borehole was recorded as 'wet' at a depth of 6.3 metres upon completion of drilling and backfilled as per Ontario Regulation 903.

3. Soil samples will be discarded after 3 months unless otherwise directed by our client.



Drill Method: Solid Stem Augers
Drill Date: October 2, 2017
Hole Size: 150mm
Drilling Contractor: Davis Drilling

Soil-Mat Engineers & Consultants Ltd.
130 Lancing Drive, Hamilton, ON L8W 3A1
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Datum: Geodetic
Field Logged by: A.R.
Checked by: K.R.
Sheet: 1 of 1

Log of Borehole No. 3

Project No: SM 177806-G
Project: 2095 Prospect St.
Location: Burlington, Ontario
Client: Ruth Victo & Associates

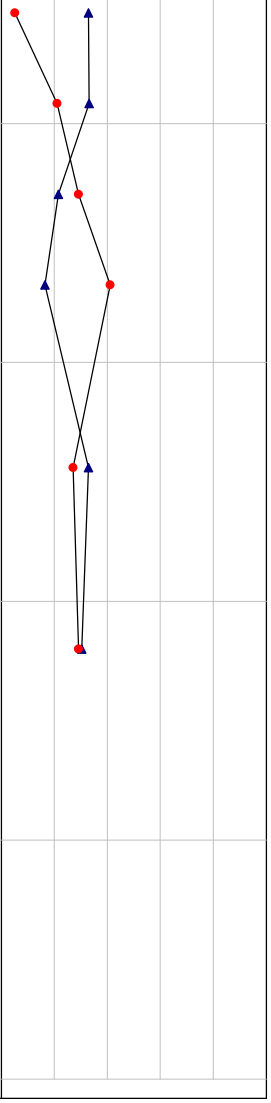
Project Manager: Kyle Richardson, P.Eng
Borehole Location: See Drawing No. 1
UTM Coordinates - N:
E:

Depth (ft / m)	Elevation (m)	Description	Well Data	SAMPLE Type	Number	Blow Counts	Blows/300mm	Recovery	PP (kgf/cm2)	U.Wt.(kN/m3)
0 / 0	94.48	Ground Surface								
0 / 0	94.28	**Pavement Structure** Approximately 75 millimetres of asphaltic concrete over 125 millimetres of granular base.								
3 / 1		**Sand** Brown, trace to some silt, trace gravel, occasional clayey inclusion, loose to compact.		SS	1	3,2,3,4	5			
6 / 2				SS	2	5,9,12,13	21			
7 / 2	92.14									
8 / 3		**Clayey Silt/Sandy Silt** Brown to grey, trace gravel, very stiff to hard.		SS	3	5,12,17,25	29		>4.5	
11 / 4				SS	4	12,15,26,31	41		>4.5	
16 / 5				SS	5	5,13,14,20	27			
20 / 6	88.28									
21 / 6		**Queenston Shale** Red, severely weathered in upper levels, hard in terms of soil.		SS	6	9,13,16,22	29			
22 / 7	87.78	End of Borehole								

NOTES:
1. Borehole was advanced using solid stem auger equipment on October 2nd, 2017 to a termination depth of 6.7 metres.

2. Borehole was recorded as 'wet' at a depth of 5.6 metres and caved in to 5.9 metres upon completion of drilling and backfilled as per Ontario Regulation 903.

3. Soil samples will be discarded after 3 months unless otherwise directed by our client.



Drill Method: Solid Stem Augers
Drill Date: October 2, 2017
Hole Size: 150mm
Drilling Contractor: Davis Drilling

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Checked by: K.R.
Sheet: 1 of 1

Log of Borehole No. 4

Project No: SM 177806-G
Project: 2095 Prospect St.
Location: Burlington, Ontario
Client: Ruth Victo & Associates

Project Manager: Kyle Richardson, P.Eng
Borehole Location: See Drawing No. 1
UTM Coordinates - N:
E:

Depth (ft / m)	Elevation (m)	Symbol	Description	Well Data	SAMPLE Type	SAMPLE Number	SAMPLE Blow Counts	SAMPLE Blows/300mm	SAMPLE Recovery	PP (kgf/cm2)	U.Wt.(kN/m3)	Moisture Content w% (10 20 30 40) / Standard Penetration Test blows/300mm (20 40 60 80)
0 / 0	93.95		Ground Surface									
0 / 0	93.75		**Pavement Structure** Approximately 75 millimetres of asphaltic concrete over 125 millimetres of granular base.									
3 / 1			**Sand** Brown, trace to some silt, trace gravel, occasional clayey inclusion, loose to compact.		SS	1	3,3,3,3	6				
6 / 2	91.85				SS	2	3,9,9,13	18				
7 / 2			End of Borehole									

NOTES:
1. Borehole was advanced using solid stem auger equipment on October 2nd, 2017 to a termination depth of 2.1 metres.

2. Borehole was recorded as 'dry' upon completion of drilling and backfilled as per Ontario Regulation 903.

3. Soil samples will be discarded after 3 months unless otherwise directed by our client.

Drill Method: Solid Stem Augers
Drill Date: October 2, 2017
Hole Size: 150mm
Drilling Contractor: Davis Drilling

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Checked by: K.R.
Sheet: 1 of 1

Log of Borehole No. 5

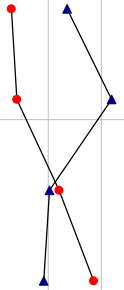
Project No: SM 177806-G
Project: 2095 Prospect St.
Location: Burlington, Ontario
Client: Ruth Victo & Associates

Project Manager: Kyle Richardson, P.Eng
Borehole Location: See Drawing No. 1
UTM Coordinates - N:
E:

Depth (ft)	Depth (m)	Elevation (m)	Description	Type	Number	Blow Counts	Blows/300mm	Recovery	PP (kgf/cm2)	U.Wt.(kN/m3)
		93.95	Ground Surface							
0	0	93.75	**Pavement Structure** Approximately 75 millimetres of asphaltic concrete over 125 millimetres of granular base.							
1			**Sand** Brown, trace to some silt, trace gravel, occasional clayey inclusion, loose to compact.	SS	1	3,3,3,5	6			
2	1			SS	2	4,4,4,7	8			
3		91.25		SS	3	7,7,17,22	24			
4	2		**Clayey Silt/Sandy Silt** Brown to grey, very stiff to hard.	SS	4	13,18,19,23	37			
5		90.25	End of Borehole							
6	3									
7										
8	4									
9										
10	5									
11										
12	6									
13										
14	7									
15										
16	8									
17										
18	9									
19										
20	10									
21										
22	11									
23										
24	12									
25										
26	13									
27										
28	14									
29										
30	15									
31										
32	16									
33										

Moisture Content w%
10 20 30 40

Standard Penetration Test blows/300mm
20 40 60 80



NOTES:
1. Borehole was advanced using solid stem auger equipment on October 2nd, 2017 to a termination depth of 3.7 metres.

2. Borehole was recorded as 'wet' at a depth of 1.8 metres upon completion of drilling and backfilled as per Ontario Regulation 903.

3. Soil samples will be discarded after 3 months unless otherwise directed by our client.

Drill Method: Solid Stem Augers
Drill Date: October 2, 2017
Hole Size: 150mm
Drilling Contractor: Davis Drilling

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Sheet: 1 of 1

Log of Borehole No. 6

Project No: SM 177806-G
Project: 2095 Prospect St.
Location: Burlington, Ontario
Client: Ruth Victo & Associates

Project Manager: Kyle Richardson, P.Eng
Borehole Location: See Drawing No. 1
UTM Coordinates - N:
E:

Depth (ft)	Depth (m)	Elevation (m)	Symbol	Description	Well Data	SAMPLE Type	SAMPLE Number	SAMPLE Blow Counts	SAMPLE Blows/300mm	SAMPLE Recovery	PP (kgf/cm2)	U.Wt.(kN/m3)
		93.90		Ground Surface								
0	0	93.72		**Pavement Structure** Approximately 50 millimetres of asphaltic concrete over 125 millimetres of granular base.								
1				**Sand** Brown, trace to some silt, trace gravel, occasional clayey inclusion, loose to compact.		SS	1	4,8,9,9	17			
2	1					SS	2	5,9,10,11	19			
3		91.80		End of Borehole								
4	2											
5												
6	3											
7												
8	4											
9												
10	5											
11												
12	6											
13												
14	7											
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16	8											
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25												
26												
27												
28												
29												
30												
31												
32												
33												

Moisture Content w%
10 20 30 40

Standard Penetration Test blows/300mm
20 40 60 80



NOTES:
1. Borehole was advanced using solid stem auger equipment on October 2nd, 2017 to a termination depth of 2.1 metres.

2. Borehole was recorded as 'dry' upon completion of drilling and backfilled as per Ontario Regulation 903.

3. Soil samples will be discarded after 3 months unless otherwise directed by our client.

Drill Method: Solid Stem Augers
Drill Date: October 2, 2017
Hole Size: 150mm
Drilling Contractor: Davis Drilling

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Checked by: K.R.
Sheet: 1 of 1

Log of Borehole No. 7

Project No: SM 177806-G
Project: 2095 Prospect St.
Location: Burlington, Ontario
Client: Ruth Victo & Associates

Project Manager: Kyle Richardson, P.Eng
Borehole Location: See Drawing No. 1
UTM Coordinates - N:
E:

Depth (ft / m)	Elevation (m)	Description	Type	Number	Blow Counts	Blows/300mm	Recovery	PP (kgf/cm2)	U.Wt.(kN/m3)
0 / 0	94.13	Ground Surface							
		Pavement Structure Approximately 100 millimetres of asphaltic concrete over to 50 millimetres of granular base.							
3 / 1		**Sand** Brown, trace to some silt, trace gravel, occasional clayey inclusion, loose to compact.	SS	1	2,3,4,6	7			
6 / 2			SS	2	2,3,3,3	6			
9 / 3			SS	3	1,2,2,3	4			
11 /	90.75		SS	4	4,14,20,20	34			
12 /	90.43	**Clayey Silt/Sandy Silt** Brown to grey, hard.							
13 / 4		End of Borehole							

Moisture Content w% (10 20 30 40)

Standard Penetration Test blows/300mm (20 40 60 80)

NOTES:
1. Borehole was advanced using solid stem auger equipment on October 2nd, 2017 to a termination depth of 3.7 metres.

2. Borehole was recorded as 'wet' at a depth of 2.6 metres and caved to 2.7 metres upon completion of drilling and backfilled as per Ontario Regulation 903.

3. Soil samples will be discarded after 3 months unless otherwise directed by our client.

Drill Method: Solid Stem Augers
Drill Date: October 2, 2017
Hole Size: 150mm
Drilling Contractor: Davis Drilling

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Checked by: K.R.
Sheet: 1 of 1

Log of Borehole No. 8

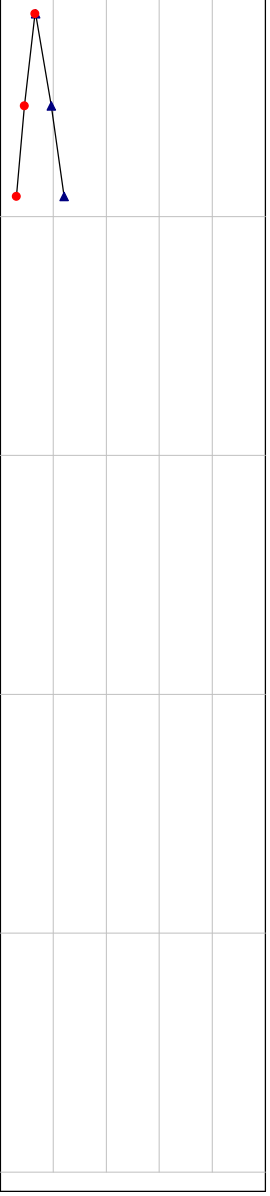
Project No: SM 177806-G
Project: 2095 Prospect St.
Location: Burlington, Ontario
Client: Ruth Victo & Associates

Project Manager: Kyle Richardson, P.Eng
Borehole Location: See Drawing No. 1
UTM Coordinates - N:
E:

Depth (ft)	Depth (m)	Elevation (m)	Description	Well Data	SAMPLE Type	SAMPLE Number	SAMPLE Blow Counts	SAMPLE Blows/300mm	SAMPLE Recovery	PP (kgf/cm2)	U.Wt.(kN/m3)
		94.10	Ground Surface								
0	0		**Topsoil** Approximately 150 millimetres of topsoil.		SS	1	4,6,7,16	13			
3	1		**Sand** Brown, trace to some silt, trace gravel, occasional clayey inclusion, loose to compact.		SS	2	4,4,5,5	9			
6	2	92.00			SS	3	2,2,4,5	6			
			End of Borehole								

Moisture Content w% (10 20 30 40)

Standard Penetration Test blows/300mm (20 40 60 80)



NOTES:
1. Borehole was advanced using solid stem auger equipment on October 2nd, 2017 to a termination depth of 2.1 metres.

2. Borehole was recorded as 'dry' upon completion of drilling and backfilled as per Ontario Regulation 903.

3. Soil samples will be discarded after 3 months unless otherwise directed by our client.

Drill Method: Solid Stem Augers
Drill Date: October 2, 2017
Hole Size: 150mm
Drilling Contractor: Davis Drilling

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Checked by: K.R.
Sheet: 1 of 1

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http://www.agatlabs.com

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT
130 LANCING DRIVE
HAMILTON, ON L8W3A1
(905) 318-7440

ATTENTION TO: Kyle Richardson

PROJECT: SM 177806

AGAT WORK ORDER: 17H268548

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Coordinator

DATE REPORTED: Oct 12, 2017

PAGES (INCLUDING COVER): 6

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

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Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested and to all the items tested
All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request

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Certificate of Analysis

AGAT WORK ORDER: 17H268548

PROJECT: SM 177806

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

ATTENTION TO: Kyle Richardson

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2017-10-05 **DATE REPORTED: 2017-10-12**

		SAMPLE DESCRIPTION:		BH1/SS1	BH3/SS1	BH4/SS1	BH7/SS1
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2017-10-02	2017-10-02	2017-10-02	2017-10-02
Parameter	Unit	G / S	RDL	8790592	8790603	8790604	8790606
Antimony	µg/g	1.3	0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	8	4	3	10
Barium	µg/g	220	2	109	51	37	30
Beryllium	µg/g	2.5	0.5	0.9	0.7	<0.5	<0.5
Boron	µg/g	36	5	7	6	<5	<5
Boron (Hot Water Soluble)	µg/g	NA	0.10	0.36	0.28	0.18	0.50
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	70	2	17	14	8	10
Cobalt	µg/g	21	0.5	9.8	8.1	3.9	4.6
Copper	µg/g	92	1	43	22	21	13
Lead	µg/g	120	1	14	8	6	20
Molybdenum	µg/g	2	0.5	0.6	<0.5	<0.5	<0.5
Nickel	µg/g	82	1	22	17	11	9
Selenium	µg/g	1.5	0.4	0.6	<0.4	<0.4	<0.4
Silver	µg/g	0.5	0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	2.5	0.5	0.5	<0.5	<0.5	0.8
Vanadium	µg/g	86	1	30	22	12	16
Zinc	µg/g	290	5	51	38	25	50
Chromium VI	µg/g	0.66	0.2	<0.2	<0.2	<0.2	<0.2
Cyanide	µg/g	0.051	0.040	<0.040	<0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10	0.23
Electrical Conductivity	mS/cm	0.57	0.005	0.395	**1.84**	0.531	0.416
Sodium Adsorption Ratio	NA	2.4	NA	**4.30**	1.02	**5.96**	**6.43**
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.54	7.71	7.24	7.34

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

8790592-8790606 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio.

Certified By: Amanjot Bhela

Results relate only to the items tested and to all the items tested

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Guideline Violation

AGAT WORK ORDER: 17H268548

PROJECT: SM 177806

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

ATTENTION TO: Kyle Richardson

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
8790592	BH1/SS1	ON T1 S RPI/ICC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	NA	2.4	4.30
8790603	BH3/SS1	ON T1 S RPI/ICC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity	mS/cm	0.57	1.84
8790604	BH4/SS1	ON T1 S RPI/ICC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	NA	2.4	5.96
8790606	BH7/SS1	ON T1 S RPI/ICC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	NA	2.4	6.43

Results relate only to the items tested and to all the items tested

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Quality Assurance

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

AGAT WORK ORDER: 17H268548

PROJECT: SM 177806

ATTENTION TO: Kyle Richardson

SAMPLING SITE:

SAMPLED BY:

Soil Analysis

RPT Date: Oct 12, 2017			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)															
Antimony	8793803		1.4	1.8	NA	< 0.8	108%	70%	130%	89%	80%	120%	79%	70%	130%
Arsenic	8793803		3	3	NA	< 1	110%	70%	130%	95%	80%	120%	93%	70%	130%
Barium	8793803		54	58	7.1%	< 2	110%	70%	130%	98%	80%	120%	99%	70%	130%
Beryllium	8793803		<0.5	<0.5	NA	< 0.5	104%	70%	130%	103%	80%	120%	108%	70%	130%
Boron	8793803		6	7	NA	< 5	78%	70%	130%	107%	80%	120%	92%	70%	130%
Boron (Hot Water Soluble)	8789916		0.48	0.48	NA	< 0.10	92%	60%	140%	100%	70%	130%	99%	60%	140%
Cadmium	8793803		<0.5	<0.5	NA	< 0.5	93%	70%	130%	101%	80%	120%	100%	70%	130%
Chromium	8793803		29	29	0.0%	< 2	87%	70%	130%	99%	80%	120%	94%	70%	130%
Cobalt	8793803		3.5	3.5	0.0%	< 0.5	102%	70%	130%	97%	80%	120%	96%	70%	130%
Copper	8793803		41	42	2.4%	< 1	101%	70%	130%	102%	80%	120%	94%	70%	130%
Lead	8793803		15	16	6.5%	< 1	113%	70%	130%	100%	80%	120%	96%	70%	130%
Molybdenum	8793803		1.1	1.0	NA	< 0.5	107%	70%	130%	106%	80%	120%	102%	70%	130%
Nickel	8793803		9	10	10.5%	< 1	106%	70%	130%	102%	80%	120%	97%	70%	130%
Selenium	8793803		0.6	0.6	NA	< 0.4	121%	70%	130%	102%	80%	120%	102%	70%	130%
Silver	8793803		<0.2	<0.2	NA	< 0.2	85%	70%	130%	98%	80%	120%	83%	70%	130%
Thallium	8793803		<0.4	<0.4	NA	< 0.4	97%	70%	130%	94%	80%	120%	91%	70%	130%
Uranium	8793803		<0.5	<0.5	NA	< 0.5	101%	70%	130%	97%	80%	120%	92%	70%	130%
Vanadium	8793803		19	19	0.0%	< 1	92%	70%	130%	94%	80%	120%	91%	70%	130%
Zinc	8793803		241	246	2.1%	< 5	107%	70%	130%	106%	80%	120%	76%	70%	130%
Chromium VI	8794672		<0.2	<0.2	NA	< 0.2	92%	70%	130%	97%	80%	120%	85%	70%	130%
Cyanide	8794451		<0.040	<0.040	NA	< 0.040	94%	70%	130%	90%	80%	120%	91%	70%	130%
Mercury	8793803		<0.10	<0.10	NA	< 0.10	96%	70%	130%	86%	80%	120%	83%	70%	130%
Electrical Conductivity	8793505		0.236	0.249	5.4%	< 0.005	96%	90%	110%	NA			NA		
Sodium Adsorption Ratio	8793803		9.98	10.6	6.0%	NA	NA			NA			NA		
pH, 2:1 CaCl2 Extraction	8790603	8790603	7.71	7.77	0.8%	NA	101%	80%	120%	NA			NA		

Comments: NA signifies Not Applicable.
Duplicate Qualifier: As the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Certified By: Amanjot Bhela

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AGAT Laboratories

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Method Summary

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

AGAT WORK ORDER: 17H268548

PROJECT: SM 177806

ATTENTION TO: Kyle Richardson

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Barium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	EPA SW 846 6010C; MSA, Part 3, Ch.21	ICP/OES
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Selenium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Silver	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Thallium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Uranium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium VI	INOR-93-6029	SM 3500 B; MSA Part 3, Ch. 25	SPECTROPHOTOMETER
Cyanide	INOR-93-6052	MOE CN-3015 & E 3009 A;SM 4500 CN	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Electrical Conductivity	INOR-93-6036	McKeague 4.12, SM 2510 B	EC METER
Sodium Adsorption Ratio	INOR-93-6007	McKeague 4.12 & 3.26 & EPA SW-846 6010B	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	MSA part 3 & SM 4500-H+ B	PH METER

Results relate only to the items tested and to all the items tested

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SR - S

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water intended for human consumption)

Report Information:

Company: Soil-Mat Engineers
Contact: Kyle Richardson
Address: 130 Lancing Drive, Hamilton, ON
Phone: 905-318-7440 Fax:
Reports to be sent to:
1. Email: Krichardson@soil-mat.ca,
2. Email: ssears@soil-mat.ca

Project Information:

Project: SM 177806
Site Location: 2095 Prospect St. Burlington, ON
Sampled By: Adam Roemmele
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☑ No ☐
Company:
Contact:
Address:
Email:

Regulatory Requirements:

☐ No Regulatory Requirement
(Please check all applicable boxes)

☑ Regulation 153/04
Table 1 *Indicate One*
☐ Ind/Com
☐ Res/Park
☐ Agriculture
Soil Texture *(Check One)*
☐ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region *Indicate One*

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
Indicate One

Is this submission for a **Record of Site Condition?** ☐ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☐ Yes ☐ No

Laboratory Use Only

Work Order #: 1771268548
Cooler Quantity: 1 BAG
Arrival Temperatures: 7.6 | 7.3 | 7.5 / 5.9 | 5.7 | 5.6
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes:

Turnaround Time (TAT) Required:

Regular TAT ☑ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
☐ 3 Business Days ☐ 2 Business Days ☐ 1 Business Day
OR Date Required (Rush Surcharges May Apply): 5 days
Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	(Check Applicable) ORPs: ☐ B-HWS ☐ Cr ☐ CN ☐ EC ☐ FOC ☐ NO_3/NO_2 ☐ Total N ☐ Hg ☐ pH ☐ SAR	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2/NO_3	Volatiles: ☑ VOC ☐ BTEX ☐ THM	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use
BH1/SS1	10/02/17	AM	1			☑														
BH3/SS1	10/02/17	AM	1			☑														
BH4/SS1	10/02/17	PM	1			☑														
BH7/SS1	10/02/17	PM	1			☑														

Samples Relinquished By (Print Name and Sign): Adam Roemmele — Date: Oct 5/17 — Time: 2:30pm
Samples Received By (Print Name and Sign): Daniella Jaic — Date: 10/5/17 — Time: 2:50pm
Samples Relinquished By (Print Name and Sign): Daniella Jaic — Date: 10/6/17 — Time: 12:55pm
Samples Received By (Print Name and Sign): — Date: 10/6/17 — Time: 1:00
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White Copy - Client | Yellow Copy - AGAT | Pink Copy - AGAT