GEOTECHNICAL INVESTIGATION REPORT

Proposed High-Rise Development
450 Dufferin Street
Toronto, Ontario

October 28, 2022

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TABLE OF CONTENTS

APPENDICES

1 INTRODUCTION

Terrapex Environmental Ltd. (Terrapex) has been retained by HM RK (450 Dufferin) LP to carry out a geotechnical investigation for a proposed high-rise development located at 450 Dufferin Street, Toronto, Ontario. Authorization to proceed with this study was given by Ms. Christina Glass of HM RK (450 Dufferin) LP.

The latest architectural drawings for the proposed development prepared by Superkul propose the construction of a 15-storey residential/commercial building at the site. The drawings also reveal that the building will include two levels of underground parking garage which will extend to 7.142 m below grade.

The purpose of this investigation was to characterize the underlying soil and groundwater conditions, to determine the relevant geotechnical properties of encountered soils and to provide recommendations with respect to foundation type and design, temporary shoring, basement slab construction, seismic site classification, and other geotechnical aspects of the design of the proposed development.

The geotechnical investigation was carried out in conjunction with the Phase Two Environmental Site Assessment (ESA) and Hydrogeological Assessment by Terrapex, reported under separate covers.

This report presents the results of the investigation performed in accordance with the general terms of reference outlined above and is intended for the guidance of the owner and the design architects or engineers only. It is assumed that the design will be in accordance with the applicable building codes and standards.

2 FIELDWORK

The fieldwork for this study was carried out during the period August 11 to 17, 2022. It consisted of four (4) boreholes advanced by a drilling contractor commissioned by **Terrapex**. The boreholes are designated as MW101, MW102, MW103D, and MW104D and were advanced to depths ranging from 10.3 to 13.8 m below ground surface (mbg).

Monitoring wells were installed in all four boreholes. Additional monitoring wells were installed adjacent to Boreholes MW103D and MW104D; designated as MW103S, MW103I, and MW104S, 'S' indicating the shallow monitoring well of the cluster, and 'I' indicating the monitoring well of intermediate depth of the cluster. The monitoring wells were installed for long-term monitoring of the groundwater table necessary for the Hydrogeological Assessment and for the Phase Two ESA.

The boreholes were located to obtain maximum site coverage in the areas accessible to a drill rig. The locations of the boreholes and monitoring wells are shown on Figure 2 'General Site Layout' in Appendix B.

Standard penetration tests (SPT) were carried out in the course of advancing the boreholes to take representative soil samples and to measure penetration index values (N-values) to characterize the condition of the various soil materials. The number of blows of the striking hammer required to drive the split spoon sampler through 300 mm depth increments was recorded and these are presented on the logs in Appendix C as penetration index values.

Groundwater level observations were made in all boreholes during their advancement, and subsequently in the monitoring wells.

The ground surface elevations at the locations of the boreholes were established utilizing a TopCon GNSS Receiver.

The fieldwork for this project was carried out under the supervision of an experienced technician from this office who laid out the positions of the boreholes in the field; arranged locates of buried services; effected the drilling, sampling and in situ testing; observed groundwater conditions; and prepared field borehole log sheets.

3 LABORATORY TESTS

The soil samples recovered from the split spoon sampler were properly sealed, labelled and brought to our laboratory. They were visually classified and water content tests were conducted on all samples retained from all four boreholes. The results of the classification, water contents, and Standard Penetration tests are presented on the borehole log sheets in Appendix C.

Grain-size analyses were carried out on six (6) soil samples and three (3) cohesive soil samples were subjected to Atterberg Limits tests. The results of these tests are enclosed in Appendix D of this report as Figures D-1 through D-7.

In addition, soil samples designated MW103D Sample 11 and MW104D Sample 11 were submitted to AGAT Laboratories for determination of pH and sulphate content to determine potential for sulphate attack on buried concrete. The results of these tests are enclosed in Appendix G; discussed in Section 5.10 of this report.

4 SITE AND SUBSURFACE CONDITONS

Full details of the subsurface and groundwater conditions at the site are given on the Borehole Log Sheets attached in Appendix C of this report.

The following paragraphs present a description of the site and a commentary on the engineering properties of the various soil materials contacted in the boreholes.

It should be 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 as exact planes of geological change.

4.1. SITE DESCRIPTION

The site is situated northwest of the intersection of Dufferin Street and Alma Avenue and has the municipal address 450 Dufferin Street, Toronto. It has a square shape with an approximate area of 1,495 m^2.

The east section of the site is currently occupied by a single storey commercial building with a single level basement. The west section of the property is covered with asphaltic concrete for surface parking.

The property is bounded by Dufferin Street to the east, Alma Avenue to the south, low-rise residential buildings to the north, and an industrial building to the west.

The ground surface topography of the site is relatively level. The ground surface elevations at the locations of the boreholes are within 48 cm.

4.2. ASPHALTIC CONCRETE PAVEMENT

Asphaltic concrete pavement is present at the ground surface at all boreholes. The thickness of the asphaltic concrete ranges from 25 to 50 mm.

The asphaltic concrete is underlain by a granular base course which extends to depths ranging from 0.3 to 1.5 mbg. The granular base course consists of brown, dark brown, and black sand and gravel with occasional clay pockets and some brick fragments, construction debris, and organics. SPT in the granular base course indicates the material possesses a compact to very loos compactness condition.

4.3. FILL MATERIAL

Fill material consisting of clayey silt and silty clay with trace organics is present below the granular base course of the asphaltic concrete pavement in Boreholes MW103D and MW104D. It extends to approximate depths 0f 0.9 and 1.7 mbg, respectively.

The fill is brown, dark brown, black, in colour and moist in appearance. The water content of the samples of fill material range from 13 to 19% by weight. SPT in the fill indicates the material possesses a firm to stiff consistency.

4.4. NATIVE SOIL

The native overburden soils below the fill material consist of sand, clayey silt till, silty sand and sandy silt till, and clayey sandy silt till.

4.4.1 Sand

Sand with trace to some silt and trace clay is present below the fill material in all boreholes with the exception of MW104D. It extends to depths ranging to 2.7 mbg. The sand is brown in colour and moist to wet in appearance. The water content of the samples of sand obtained from the boreholes range from 19 to 21%, by weight.

SPT carried out in the sand provided N-values ranging from 14 to 22, indicating a compact compactness condition.

Grain size analysis was carried out on one (1) sample of sand obtained from Borehole MW101; Sample 4A at 2.3 m depth. The test result are enclosed in Appendix D and Figure D-1 and reveal that the material consists of 91.5% sand, 6.1% silt, and 2.4% clay.

Based on the results of the grain size analysis, the Coefficient of Permeability (k) of the sand is estimated to be 7×10^{-3} cm/sec, corresponding to high relative permeability.

4.4.2 Upper Clayey Silt Till

Clayey silt till with trace to some sand and trace to some gravel is present in all boreholes below the sand in Boreholes MW101, MW102, and MW103D, and below the fill material in MW104D. It extends to depths ranging from 7.0 to 7.6 mbg. The clayey silt till is a glacial deposit consisting of a random mixture of soil particles ranging from clay to gravel, with silt and clay being the predominant fractions.

The clayey silt till is brown and grey in colour and moist in appearance. The water content of samples of clayey silt till range from 4 to 17%, by weight.

SPT carried out in the clayey silt till provided N-values ranging from 2 to 65 blows for 150 mm of penetration, indicating a very soft to hard consistency, more generally being firm.

Grain size analysis was carried out on two (2) samples of clayey silt till. Atterberg Limits tests were also carried out on one (1) of the samples. The test results are enclosed in Appendix D as Figures D-2, D-3, and D-7 and are summarized in the following table.

Sample No. and Depth	Sample Description	Gravel %	Sand %	Silt %	Clay %	Liquid Limit	Plastic Limit
MW101, Sample 6 3.8 m	CLAYEY SILT some sand, some gravel	11.1	16.5	49.0	23.4	26	15
MW104, Sample 8 5.3 m	SANDY CLAYEY SILT	0.0	22.4	47.9	29.7	-	-

The soil classification, based on the Plasticity Chart on Figure D-7, is CL – Inorganic Clay of Low Plasticity.

Based on the results of the grain size analysis, the Coefficient of Permeability (k) of the clayey silt till is estimated to be less than 10^{-8} cm/sec, corresponding to very low relative permeability.

4.4.3 Sandy Silt and Silty Sand Till, and Sandy Clayey Silt Till

Silty sand till with some gravel and trace clay, sandy silt till with some gravel to gravelly and some clay, and sandy clayey silt till with some gravel to gravelly are present below the firm clayey silt till in all boreholes. These soils are glacial deposits consisting of a random mixture of soil particles ranging from clay to gravel.

The lower glacial till deposits are grey in colour and moist in appearance. The water content of the samples of lower glacial tills range from 1% and 16%, by weight.

SPT carried out in the lower glacial tills provided N-values ranging from 29 to 50 blows for 25 mm of penetration, indicating a dense to very dense compactness condition or hard consistency.

Grain size analysis was carried out on three (3) samples of the lower glacial tills. Atterberg Limits tests were also carried out on two (2) of the samples. The test results are enclosed in Appendix D as Figures D-4 through D-7 and are summarized in the following table.

Sample No. and Depth	Sample Description	Gravel %	Sand %	Silt %	Clay %	Liquid Limit	Plastic Limit
MW101, Sample 9 7.6 m	GRAVELLY SAND and SILT some clay	22.8	33.4	32.6	11.2	17	12
MW103, Sample 10 6.8 m	SANDY CLAYEY SILT some gravel	18.1	25.7	39.9	16.3	-	-
MW103, Sample 13 9.9 m	GRAVELLY SILTY SAND some clay	22.9	35.6	26.8	14.7	20	12

The soil classifications, based on the Plasticity Chart on Figure D-7, are CL-ML – Inorganic Clay or Silt of Low Plasticity for the sandy silt till and CL – Inorganic Clay of Low Plasticity for the sandy clayey silt till.

Based on the results of the grain size analysis, the Coefficient of Permeability (k) of the lower glacial tills range from 2.3×10^{-6} cm/sec to less than 10^{-7} cm/sec, corresponding to a low to very low relative permeability.

4.5. SHALE

Shale of the Georgian Bay Formation is present below the lower glacial tills in all boreholes with the exception of MW104D. The rockhead is situated at depths ranging from approximately 11.5 to 13.7 mbg. The samples of shale recovered in the split spoon sampler reveal that the shale is grey in colour. It should be noted that the shale was not investigated (cored).

4.6. GROUNDWATER

Groundwater observations were made in the open boreholes during their advancement and groundwater level measurements were made in the monitoring wells following their installation. The groundwater levels are shown on the individual borehole logs and are summarized in the following table.

Borehole No.	Ground Surface Elevation (m)	Date	Groundwater Depth (mbgs)	Groundwater Elevation (m)
MW101	94.77	August 23, 2022	8.70	86.07
		September 6, 2022	8.63	86.14
		September 21, 2022	7.86	86.91
MW102	94.32	August 23, 2022	1.86	92.46
		September 6, 2022	4.40	89.92
		September 21, 2022	4.61	89.71
MW103D	94.65	August 23, 2022	5.17	89.48
		September 6, 2022	4.93	89.72
		September 21, 2022	4.92	89.73
MW103I	94.60	August 23, 2022	Dry	-
		September 6, 2022	Dry	-
		September 21, 2022	Dry	-
MW103S	94.62	August 23, 2022	Dry	-
		September 6, 2022	5.90	88.72
		September 21, 2022	5.41	89.21
MW104D	94.29	August 23, 2022	8.07	86.22
		September 6, 2022	5.18	89.11
		September 21, 2022	5.10	89.19
MW104S	94.30	August 23, 2022	Dry	-
		September 6, 2022	2.98	91.32
		September 21, 2022	1.78	92.52

The high groundwater level measured in MW104S is due to shallow water present in the sand, perched above the clayey silt. It should be noted that groundwater levels are subject to seasonal fluctuations. A higher groundwater level condition may also develop following significant rainfall events.

5 DISCUSSION AND RECOMMENDATIONS

The following discussions and recommendations are based on the factual data obtained from the boreholes advanced at the site by **Terrapex** and are intended for use by the client and design architects and engineers only.

We understand that it is proposed to demolish the existing building at the site and redevelop the property with a 15-storey building constructed over 2 levels of underground parking garage. The P2 floor slab will be situated 7.142 mbg. Given that the basement of the proposed building will extend below the groundwater table, it will be necessary to waterproof the substructure of the building requiring the use of a raft foundation to resist hydrostatic uplift forces. It is anticipated that the raft foundation will be founded approximately 9 to 9.5 mbg.

Contractors bidding on this project or conducting work associated with this project should make their own interpretation of the factual data and/or carry out their own investigations.

5.1. EXCAVATION

Based on the field results, excavations for the basement and foundations are not expected to pose any unusual difficulty. Excavation of the soils at this site can be carried out with hydraulic excavators.

It should be noted that most of the native soils at this site are glacial deposits, non-sorted sediment and therefore may contain boulders. Provisions must be made in the excavation and foundation installation contracts for the removal of possible boulders.

All excavations must be carried out in accordance with the Occupational Health and Safety Act (OHSA). With respect to the OHSA, the fill materials and predominantly firm clayey silt till are expected to conform to Type 3 soils. The sandy silt and silty sand till and sandy clayey silt till are expected to conform to Type 2 soils.

Temporary excavation side-walls in Type 3 soils should not exceed 1.0 horizontal to 1.0 vertical. Temporary excavation side-walls in Type 2 soils may be cut with vertical sidewalls within the lower 1.2 m height of excavation and 1.0 horizontal to 1.0 vertical above this height.

In the event very loose and/or soft soils are encountered at shallow depths or within zones of persistent seepage, it will be necessary to flatten the side slopes to achieve stable conditions.

For excavations through multiple soil types, the side slope geometry is governed by the soil with the highest number designation. Excavation side-slopes should not be unduly left exposed to inclement weather.

Where workers must enter excavations extending deeper than 1.2 m below grade, the excavation sidewalls must be suitably sloped and/or braced in accordance with the Occupational Health and

Safety Act and Regulations for Construction Projects.

As the basement walls of the proposed building will extend close to the property limits, it will be necessary to shore the basement excavation walls. While a soldier pile and wood lagging wall may be used as the shoring system, due to proximity of the neighbouring structures, it may be necessary to use a contiguous caisson wall for part or the entire shoring system. Shoring recommendations are provided in Section 5.8 of this report.

5.2. GROUNDWATER CONTROL

Based on observations made during drilling of the boreholes, and close examination of the soil samples extracted from the boreholes, significant groundwater seepage is not expected to occur during basement and footing excavations.

The native till soil possesses a very low permeability coefficient; the groundwater yield from the native soil is expected to be small.

It is expected that adequate control of groundwater seepage during foundation and basement excavation can be achieved with a series of filter sump pumps in the base of the excavation. Surface water should be directed away from open excavations.

The Hydrogeological Assessment Report should be referred to for further recommendations for groundwater control, the anticipated dewatering volumes during construction and during the service life of the building, and requirements for Environmental Activity and Sector Registry (EASR) or Permit to Take Water (PTTW).

5.3. REUSE OF ON-SITE EXCAVATED SOIL

On-site excavated inorganic soils, and soils free of construction debris and other deleterious materials are considered suitable for reuse as backfill provided their water content is within 2% of their optimum water contents (OWC) as determined by Standard Proctor test, and the materials are effectively compacted with a heavy sheepsfoot compactor.

While the quality of the on-site soils is considered suitable for backfilling; the moisture content of the soils and the lift thickness for compaction must be properly controlled during backfilling. Measured water content within the fill and native soils within the presumed excavation depth range from approximately 4 to 25%. Most of these water contents are at or slightly above the OWC of the material.

On-site soils that are wetter than their OWC should be dried sufficiently prior to use as backfill in order to achieve the specified degree of compaction.

5.4. FOUNDATION DESIGN

We understand that it is proposed to develop the site with a 15-storey building constructed over 2 levels of underground parking garage. The P2 floor slab will be situated 7.142 mbg. Given that the basement of the proposed building will extend below the groundwater table, and that the City of Toronto will not permit discharge of groundwater to the sewer system, it will be necessary to waterproof the substructure of the building which will require the use of a raft (mat) foundation slab. It is anticipated that the raft foundation will extend to approximate depth of 9 to 9.5 mbg.

It will be necessary to maintain the water table below the base of the excavation at all times during construction of the foundation, and until such time when the raft slab is sufficiently loaded to prevent its uplift resulting from hydrostatic forces.

Based on the findings of the boreholes, the soils at the base of the raft will consist of dense to very dense and hard glacial till deposits. Bearing capacity for the raft foundation should not be a concern; the prime control for raft foundation performance is settlement.

The raft foundation can be designed based on a bearing resistance of 500 kPa at Serviceability Limit States for total settlement which should not exceed 25 mm. For the structural design of the mat foundation an average modulus value of 10 MPa/m can be used.

5.5. BASEMENT FLOOR SLAB

As a raft foundation will be implemented, the floor slab may have to be constructed over a 500 to 600 mm thick layer of granular material such as 19 mm clear stone placed directly over the raft foundation to permit placement of sub-floor drainage piping and other utility lines.

5.6. LATERAL EARTH PRESSURE

Parameters used in the determination of earth pressure acting on structures subject to unbalanced pressures are defined below.

SOIL PARAMETERS

Parameter	Definition	Units
Φ'	angle of internal friction	degrees
γ	bulk unit weight of soil	kN/m^3
Ka	active earth pressure coefficient (Rankine)	dimensionless
Ko	at-rest earth pressure coefficient (Rankine)	dimensionless
Kp	passive earth pressure coefficient (Rankine)	dimensionless

The appropriate un-factored values for use in the design of structures subject to unbalanced earth pressures at this site are tabulated as follows:

SOIL PARAMETER VALUES

SOIL	Parameters				
	Φ'	γ	Ka	Kp	Ko
Fill Material, Sand, Upper Clayey Silt Till	28°	20.0	0.36	2.77	0.53
Silty Sand and Sandy Silt Till, Sandy Clayey Silt Till	34°	21.0	0.28	3.54	0.44

Notes:

1. Passive and sliding resistance within the zone subject to frost action (i.e. within 1.2 m below finished grade) should be disregarded in the lateral resistance computations.
2. Temporary and/or permanent surcharges at the ground surface should be considered in accordance with the applicable Soil Mechanics methods.

Walls or bracings subject to unbalanced earth pressures must be designed to resist a pressure that can be calculated based on the following formula:

$$\mathbf{P = K (\gamma h + q)}$$

where **P** = lateral pressure in kPa acting at a depth h (m) below ground surface

K = applicable lateral earth pressure coefficient (Use Ko for basement wall design)

γ = bulk unit weight of backfill (kN/m^3)

h = height at any point along the interface (m)

q = the complete surcharge loading (kPa)

This equation assumes that free-draining backfill and positive drainage is provided behind the basement walls.

Subsurface walls that are subject to unbalanced earth and hydrostatic pressures must be designed to resist a pressure that can be calculated based on the following formula:

$$\mathbf{P = K [\gamma (h - h_w) + \gamma' h_w + q] + \gamma_w h_w}$$

where **P** = lateral pressure in kPa acting at a depth h (m) below ground surface

K = applicable lateral earth pressure coefficient

H = height at any point along the interface (m)

$\mathbf{h_w}$ = depth below the groundwater level at point of interest (m)

γ = bulk unit weight of backfill (kN/m^3)

γ' = the submerged unit weight (kN/m^3) of exterior soil ($\gamma' = \gamma - \gamma_w$)

γ_w = unit weight of water, assume a value of 9.8 kN/m^3

q = the complete surcharge loading (kPa)

Resistance to sliding of earth retaining structures is developed by friction between the base of the footing and the soil. This friction (R) depends on the normal load on the soil contact (N) and the frictional resistance of the soil (tan Φ') expressed as: **R = N tan Φ'**. This is an ultimate resistance value and does not contain a factor of safety.

5.7. SHORING DESIGN

Given that the basement walls of the proposed development will extend close to the property limits, it will not be possible to slope the banks of the excavation, and it will be necessary to shore the basement excavation walls. While a soldier pile and wood lagging wall may be used as the shoring system, due to proximity of the neighbouring structures, it may be necessary to use a contiguous caisson wall for part or the entire shoring system.

The design of temporary shoring for the support of the excavation walls must account for the presence of structures and buried services on the adjacent properties, and the existing subsurface conditions at the site.

The lateral restraining force for the shoring system may be provided by employing either rakers or tieback anchors. The latter is favorable because they do not protrude into the excavations as is the case with rakers. The use of tieback anchors will depend on whether permission is obtained to extend the anchors to the required distance on to the neighboring properties.

Provisions should be made to install temporary liners for the excavation of the soldier pile holes. The shoring contractor must also provide construction method(s) to overcome any groundwater seepage into the pile holes during excavation and subsequent concreting of the piles to comply with good construction practice.

The shoring design should be based on the procedure detailed in the latest edition of the Canadian Foundation Engineering Manual.

The earth pressure coefficients applicable for the design of the shoring system are:

= $\mathbf{K_o}$ the 'at rest' earth pressure coefficient, applicable where no movement in the retained soil can be permitted, such as the presence of buried services or foundations close to the wall, = 0.45

= $\mathbf{K_a}$ the active pressure coefficient,

= 0.3 - where adjacent building footings or buried services fall outside an envelope formed by a 60^o line drawn from the base of the excavation wall to the ground surface

= 0.25 - where adjacent building footings or buried services are outside an envelope formed by a 45^o line drawn from the base of the excavation wall to the ground surface

Based on the borehole findings, excavation for the basement is anticipated to terminate in the native firm silty clay till. The minimum depth of penetration (d) of soldier piles may be estimated from the following expression:

$\mathbf{R = NB}\ (\frac{1}{2}\gamma \mathbf{d^2 K_p})$

where **R** = required toe resistance

$\mathbf{K_p}$ = passive earth pressure coefficient

N = factor according to three dimensional effect around an isolated pile,

B = diameter of concrete filled hole

d = required penetration depth

γ = bulk unit weight of soil

Raker footings should be designed in accordance with the design principals for shallow foundations subject to inclined loading. All raker footings should be located outside the zone of influence of the buried portion of soldier piles, and at a distance of no less than 1.5D from the piles, where D = Depth of penetration of the piles below the base of the excavation. No excavation should be made within two footing widths of the raker footings, on the side opposite the rakers.

Anchors extended into the dense very dense glacial tills may be designed based on soil/grout bond value of 75 kPa. Anchors extending up to 2 m into the shale may be designed based on soil/grout bond value of 200 kPa, and 600 kPa below 2 m. These values depend on the anchor installation method and grouting procedures. Gravity poured concrete can result in low bond values, while pressure grouted anchors will give higher values and produce a more satisfactory anchor.

It will be necessary to perform load tests on the tiebacks to confirm the bond stresses assumed in the design of anchors.

Movement of the shoring system is inevitable. Vertical movements will result from the vertical loads on the soldier piles resulting from the inclined tiebacks and inward horizontal movement will result from the earth and water pressures. The magnitude of this movement can be controlled by sound construction practices. The lateral and vertical movement of the shoring system must be monitored especially at locations in which settlement sensitive structures are present, to ensure that movements are kept within an acceptable range.

5.8. PAVEMENT DESIGN

It is anticipated that the majority of the pavement at the site will be situated on the parking garage roof slab. In this regard, the pavement may be comprised of a minimum of 75 mm thick layer of Granular 'A' topped with asphaltic concrete having a minimum thickness of 80 mm (40 mm HL8 and 40 mm HL3).

Pavement which will be supported by soil subgrade should comprise a minimum 300 mm compacted depth of OPSS Granular B Type I sub-base, followed by a minimum 150 mm compacted depth of Granular A base material, 50 mm of HL8 asphaltic concrete base course, and 40 mm of HL3 asphaltic concrete surface course.

The long-term performance of the proposed pavement structure is highly dependent upon the subgrade support conditions. Stringent construction control procedures should be maintained to ensure that uniform subgrade moisture and density conditions are achieved as much as is practical, and that the subgrade is not disturbed and weakened after it is exposed.

The subgrade must be compacted to at least 98% of the materials standard Proctor maximum dry density (SPMDD). The granular base and sub-base materials should be compacted to a minimum of 100% SPMDD. The asphaltic concrete materials should be compacted to a minimum of 97% of the materials bulk relative Marshall density.

The gradation and physical properties of the asphaltic concrete and granular materials shall conform to the OPSS standards. The asphaltic concrete materials should be rolled and compacted in accordance with OPSS 310 requirements.

The critical section of pavement will be at the transition between the pavement on subgrade and the pavement above the garage roof slab. In order to alleviate the detrimental effects of dynamic loading / settlement / pavement depression in the backfill to the rigid garage roof structure, it is recommended that an approach type slab be constructed at the entrance/exit points, by extending the granular sub-base to greater depths along the exterior garage wall.

Control of surface water is a significant factor in achieving good pavement life. Grading adjacent to the pavement areas must be designed so that water is not allowed to pond adjacent to the outside edges of the pavement or curb. In addition, the need for adequate drainage cannot be over-emphasized. The subgrade must be free of depressions and sloped (preferably at a minimum gradient of three percent) to provide effective drainage toward subgrade drains. Sub-drains are recommended to intercept excess subsurface moisture at the curb lines and catch basins. The invert of sub-drains should be maintained at least 0.3 m below subgrade level.

For fine-grained soils, as encountered at the site, the degree of compaction specification alone cannot ensure distress free subgrade. Proof-rolling must be carried out and witnessed by

Terrapex personnel for final recommendations of sub-base thicknesses.

In the event that pavement construction takes place in the spring thaw, the late fall, or following periods of significant rainfall, it should be anticipated that an increase in thickness of the granular sub-base layer will be required to compensate for reduced subgrade strength.

5.9. EARTHQUAKE DESIGN PARAMETERS

The Ontario Building Code (2006) stipulates the methodology for earthquake design analysis, as set out in Subsection 4.18.7. The determination of the type of analysis is predicated on the importance of the structure, the spectral response acceleration and the site classification.

The parameters for determination of the Site Classification for Seismic Site Response are set out in Table 4.1.8.4.A of the Ontario Building Code (2006). The classification is based on the determination of the average shear wave velocity in the top 30 metres of the site stratigraphy, where shear wave velocity (vs) measurements have been taken. In the absence of such measurements, the classification is estimated on the basis of empirical analysis of undrained shear strength or penetration resistance. The applicable penetration resistance is that which has been corrected to a rod energy efficiency of 60% of the theoretical maximum or the (N60) value.

Based on the borehole information, the subsurface stratigraphy generally comprises fill material, followed by compact sand, firm clayey silt till, followed by dense to very dense any hard lower glacial tills, followed by bedrock. Provided that the proposed building is founded dense to very dense and hard glacial till, the site designation for seismic analysis is Class C.

The site specific 5% damped spectral acceleration coefficients, and the peak ground acceleration factors are provided in the 2006 Ontario Building Code - Supplementary Standard SB-1 (August 15, 2006), Table 1.2, location Toronto, Ontario.

5.10. CHEMICAL CHARACTERIZATION OF SUBSURFACE SOIL

Two (2) native soil samples obtained from Boreholes MW103D (Sample 11; 7.6 m depth) and MW104D (Sample 11; 7.6 m depth) were submitted to AGAT Laboratories for pH index test and water-soluble sulphate content to determine the potential of attacking the subsurface concrete. The Certificate of Analysis provided by the analytical chemical testing laboratory is contained in Appendix G of this report.

The test results revealed that the pH index of the soil samples are 7.31 and 7.00; indicating a slight alkalinity.

The water-soluble sulphate content of the tested samples are 0.0311% and 0.0344%. The concentration of water-soluble sulphate content of the tested samples is below the CSA Standard

of 0.1% water-soluble sulphate (Table 12 of CSA A23.1, Requirements for Concrete Subjected to Sulphate Attack). Special concrete mixes against sulphate attack are therefore not required for the sub-surface concrete of the proposed building.

6 LIMITATIONS OF REPORT

The Limitations of Report, as quoted in Appendix 'A', are an integral part of this report.

Yours respectfully,
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APPENDIX A

LIMITATIONS OF REPORT

LIMITATIONS OF REPORT

The conclusions and recommendations in this report are based on information determined at the inspection locations. Soil and groundwater conditions between and beyond the test holes may differ from those encountered at the test hole locations, and conditions may become apparent during construction which could not be detected or anticipated at the time of the soil investigation.

The design recommendations given in this report are applicable only to the project described in the text, and then only if constructed substantially in accordance with details of alignment and elevations stated in the report. Since all details of the design may not be known to us, in our analysis certain assumptions had to be made as set out in this report. The actual conditions may, however, vary from those assumed, in which case changes and modifications may be required to our recommendations.

This report was prepared for HM RK (450 Dufferin) LP by Terrapex. The material in it reflects Terrapex's judgement in light of the information available to it at the time of preparation. Any use which a Third Party makes of this report, or any reliance on decisions which the Third Party may make based on it, are the sole responsibility of such Third Parties.

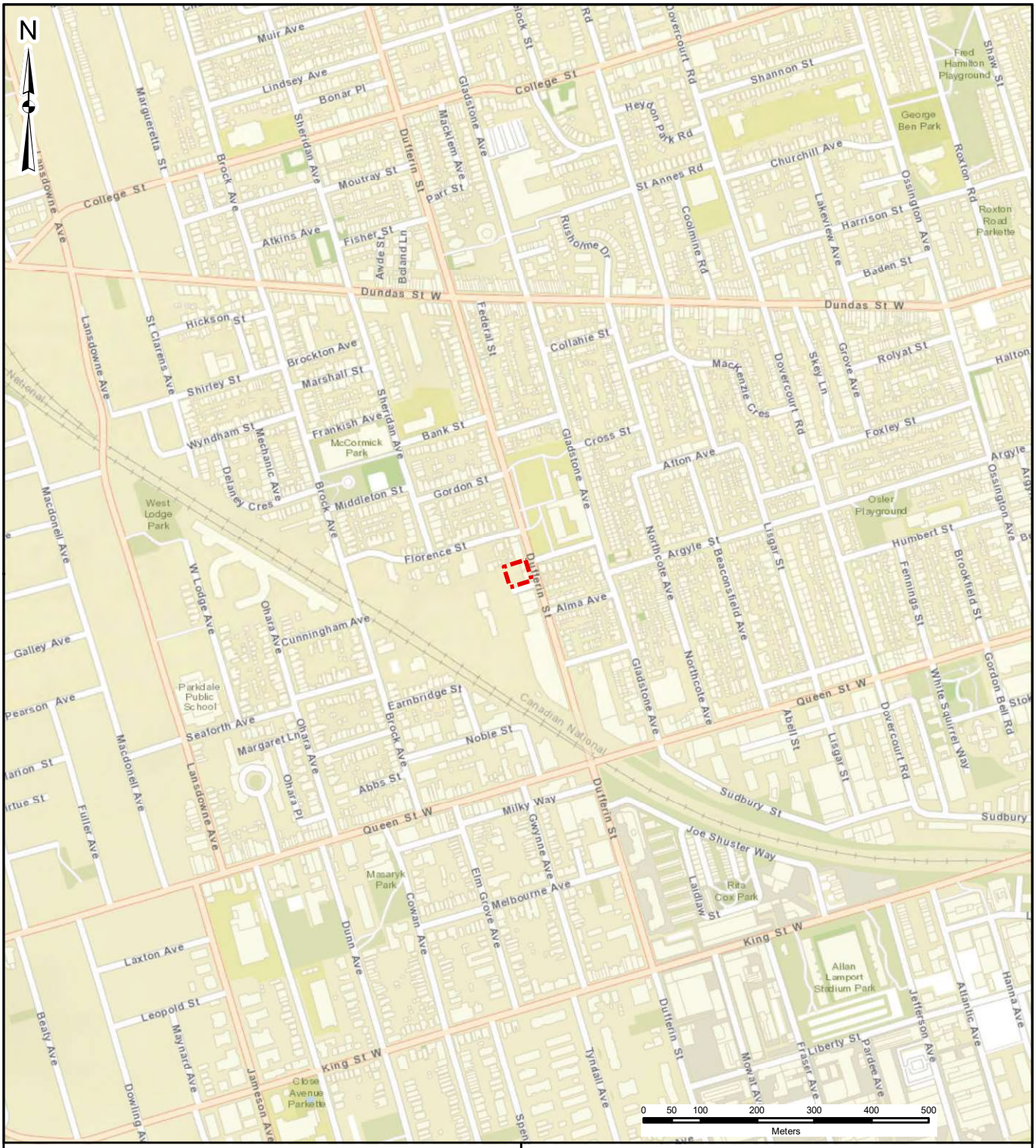
We recommend, therefore, that we be retained during the final design stage to review the design drawings and to verify that they are consistent with our recommendations or the assumptions made in our analysis. We recommend also that we be retained during construction to confirm that the subsurface conditions throughout the site do not deviate materially from those encountered in the test holes. In cases where these recommendations are not followed, the company's responsibility is limited to accurately interpreting the conditions encountered at the test holes, only.

The comments given in this report on potential construction problems and possible methods are intended for the guidance of the design engineers and architects, only. The number of inspection locations may not be sufficient to determine all the factors that may affect construction methods and costs. The contractors bidding on this project or undertaking the construction should, therefore, make their own interpretation of the factual information presented and draw their own conclusions as to how the subsurface conditions may affect their work.

APPENDIX B

SITE LOCATION PLAN AND

GENERAL SITE LAYOUT



LEGEND

SITE BOUNDARY

DATA SOURCE: ESRI
MAP PROJECTION: NAD 1983 UTM Zone 17N

CLIENT:
HULLMARK DEVELOPMENTS LTD.

SITE LOCATION:
450 DUFFERIN STREET EAST
TORONTO, ONTARIO

TERRAPEX

TITLE:
SITE LOCATION

DRAWN BY: SW	PROJECT NO.: CT3580.00	CHECKED BY: XX
REVISION: 00	DATE: JUNE 2022	**FIGURE: 1**

swilliams W:\PROJECTS\Toronto\CT3580.00 450 Dufferin Street East, Toronto\MXD\CT3580.00 FIG1 SITE LOCATION.mxd

LEGEND

- SITE BOUNDARY
- MONITORING WELL (BY TERRAPEX)
- MONITORING WELL (BY OTHERS)
- DESTROYED MONITORING WELL (BY OTHERS)

0 2 4 6 8 10
Metres

DATA SOURCE: ESRI, CITY OF TORONTO
MAP PROJECTION: NAD 1983 UTM ZONE 17N

CLIENT:
HULLMARK DEVELOPMENTS

SITE LOCATION:
450 DUFFERIN STREET
TORONTO, ONTARIO

TERRAPEX

TITLE:
GENERAL SITE LAYOUT

DRAWN BY:	PROJECT NO.:	CHECKED BY:
JS/SW	CT3580.00	XX
REVISION:	DATE:	FIGURE:
00	AUGUST 2022	**2**

W:\PROJECTS\Toronto\CT3580.00 450 Dufferin Street East, Toronto\MXD\Phase Two\CT3580.00 FIG2 GENERAL SITE LAYOUT.mxd

APPENDIX C

BOREHOLE LOG SHEETS

CLIENT: Hullmark Developments Ltd.		PROJECT NO.: CT3580.00	**RECORD OF: MW101**
ADDRESS: 450 Dufferin Street			
CITY/PROVINCE: Toronto, ON	NORTHING (m): 4833678.73	EASTING (m): 626596.23	ELEV. (m) 94.77
CONTRACTOR: Profile Drilling Inc.	METHOD: Hollow Stem Auger + Mud Rotary + Split Spoon Sampling		
BOREHOLE DIAMETER (cm): 20	WELL DIAMETER (cm): 5	SCREEN SLOT #: 10	SAND TYPE: 2	SEALANT TYPE: 2

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) 40 80 120 160 / N-VALUE (Blows/300mm) 20 40 60 80	WATER CONTENT (%) PL W.C. LL 20 40 60 80	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	SV/TOV (ppm or %LEL) (new title)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		Asphalt (50mm)	0	94.5	12	13 25	1A		79	15/1	M&I		Field duplicate: MW1000 (M&I)
		compact to very loose, moist dark brown sand and gravel some organics with construction debris (FILL)	0.5	94	2	44	1B			<5/0	PHCs/ BTEX PAHs		Field duplicate: MW3000 (PAHs)
			1	93.5			2		50	<5/1			50mm monitoring well was installed. water level measured on August 23, 2022: 8.70 mbg September 6, 2022: 8.63 mbg September 21, 2022: 7.86 mbg
		compact, wet, brown SAND trace to some silt, trace clay	1.5	93	14		3		8	<5/1			
			2	92.5		21							
			2.5	92	22	14	4A		100	<5/0	PHCs/ BTEX VOCs pH		Field duplicate: MW2000 (PHCs/BTEX, VOCs, pH)
		stiff to hard, moist CLAYEY SILT trace to some gravel trace to some sand (TILL)	3	91.5	19	15	4B			<5/1			
			3.5	91			5		83	<5/0			Bentonite
		brown/grey	4	90.5	13	12	6		71	<5/1			
			4.5	90									
			5	89.5									
		----------	5.5	89	12	14	7		100	<5/1			
			6	88.5									
		grey	6.5	88									
			7	87.5	65/150	14	8		100	30/0			Sand
			7.5	87		7							Screen + Sand
		very dense, moist, grey SANDY SILT some gravel to gravelly, some clay (TILL)	8	86.5	73/250		9		100	15/0			
			8.5	86	50/25		10		0				
			9										

TERRAPEX

LOGGED BY: EL	DRILLING DATE: 11-Aug-22
INPUT BY: EL/EMZ	MONITORING DATE: 06-September-2022
REVIEWED BY: SJS/KC	PAGE 1 OF 2

CLIENT: Hullmark Developments Ltd.	PROJECT NO.: CT3580.00	**RECORD OF: MW101**
ADDRESS: 450 Dufferin Street		
CITY/PROVINCE: Toronto, ON	NORTHING (m): 4833678.73	EASTING (m): 626596.23 ELEV. (m) 94.77
CONTRACTOR: Profile Drilling Inc.	METHOD: Hollow Stem Auger + Mud Rotary + Split Spoon Sampling	
BOREHOLE DIAMETER (cm): 20	WELL DIAMETER (cm): 5	SCREEN SLOT #: 10 SAND TYPE: 2 SEALANT TYPE: 2

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) 40 80 120 160 N-VALUE (Blows/300mm) 20 40 60 80	WATER CONTENT (%) ▲ PL W.C. LL 20 40 60 80	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	SV/TOV (ppm or %LEL) (new title)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		hard, moist, grey SANDY CLAYEY SILT some gravel to gravelly (TILL)	9.5	85.5									
			10	85									
			10.5	84.5									
			11	84	50/150 ▲	8 ■	11		67				
			11.5	83.5									
			12	83									
			12.5	82.5	50/25 ▲	11 ■	12		0				
			13	82	50/75 ▲	13 ■	13		100				
		grey, weathered SHALE											
		END OF BOREHOLE											

TERRAPEX

LOGGED BY: EL	DRILLING DATE: 11-Aug-22
INPUT BY: EL/EMZ	MONITORING DATE: 06-September-2022
REVIEWED BY: SJS/KC	PAGE 2 OF 2

CLIENT: Hullmark Developments Ltd. | PROJECT NO.: CT3580.00 | **RECORD OF: MW102**

ADDRESS: 450 Dufferin Street

CITY/PROVINCE: Toronto, ON | NORTHING (m): 4833666.05 | EASTING (m): 626618.70 | ELEV. (m) 94.32

CONTRACTOR: Profile Drilling Inc. | METHOD: Hollow Stem Auger + Split Spoon Sampling

BOREHOLE DIAMETER (cm): 20 | WELL DIAMETER (cm): 5 | SCREEN SLOT #: 10 | SAND TYPE: 2 | SEALANT TYPE: 2

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) ● 40 80 120 160 / N-VALUE (Blows/300mm) ▲ 20 40 60 80	WATER CONTENT (%) PL W.C. LL 20 40 60 80	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	SV/TOV (ppm or %LEL) (new title)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		Asphalt (25mm)	0	94	8	7 12	1A		54	75/0	PHCs/ BTEX PAHs M&I	Bentonite	
		loose, black/dark brown, moist gravelly sand occasional clay pockets some organics, construction debris (FILL)	0.5	93.5	9	18	1B		26				50mm monitoring well was installed. water level measured on August 23, 2022: 1.86 mbg September 6, 2022: 4.40 mbg September 21, 2022: 4.61 mbg
		loose to compact, moist to wet, brown SAND trace to some silt, trace clay	1	93			2		71	40/0			
			1.5	92.5	19	18	3		0				
		firm to very stiff, moist, grey CLAYEY SILT trace to some gravel trace to some sand (TILL)	2	92									
			2.5	91.5	9	13	4		100	25/0	PHCs/ BTEX VOCs pH		Field Duplicate: MW4000 (PHCs/BTEX, VOCs, pH)
			3	91	20	12	5		33	60/1		Sand	
			3.5	90.5								Screen + Sand	
			4	90	5	15	6		100	30/0			
			4.5	89.5	9	13	7		63	25/1			
			5	89									
			5.5	88.5	6	13	8		100	20/0			
			6	88	10	12	9		54	55/0			
			6.5	87.5	41	10 6	10A		71	35/0			
		dense, moist, grey SILTY SAND some gravel, trace clay (TILL)	7	87			10B			35/0			
			7.5	86.5									
		dense, moist, grey SANDY SILT some gravel to gravelly, some clay (TILL)	8	86									
			8.5	85.5	42	8	11		100				
			9										

TERRAPEX

LOGGED BY: EL | DRILLING DATE: 12-Aug-22

INPUT BY: EL/EMZ | MONITORING DATE: 06-September-2022

REVIEWED BY: SJS/KC | PAGE 1 OF 2

CLIENT: Hullmark Developments Ltd.		PROJECT NO.: CT3580.00	**RECORD OF: MW102**
ADDRESS: 450 Dufferin Street			
CITY/PROVINCE: Toronto, ON	NORTHING (m): 4833666.05	EASTING (m): 626618.70	ELEV. (m) 94.32
CONTRACTOR: Profile Drilling Inc.	METHOD: Hollow Stem Auger + Split Spoon Sampling		
BOREHOLE DIAMETER (cm): 20	WELL DIAMETER (cm): 5	SCREEN SLOT #: 10	SAND TYPE: 2	SEALANT TYPE: 2

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) 40 80 120 160 N-VALUE (Blows/300mm) 20 40 60 80	WATER CONTENT (%) PL W.C. LL 20 40 60 80	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	SV/TOV (ppm or %LEL) (new title)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		very dense, moist, grey SANDY SILT some gravel to gravelly, some clay (TILL)	9.5	85									
			10	84.5	61	7	12		100				
			10.5	84									
			11	83.5	87/250	5	13		75				
			11.5	83	50/50	11	14		100				
		grey, weathered SHALE											
		END OF BOREHOLE											

TERRAPEX

LOGGED BY: EL	DRILLING DATE: 12-Aug-22
INPUT BY: EL/EMZ	MONITORING DATE: 06-September-2022
REVIEWED BY: SJS/KC	PAGE 2 OF 2

CLIENT: Hullmark Developments Ltd.	PROJECT NO.: CT3580.00	**RECORD OF: MW103D**
ADDRESS: 450 Dufferin Street		
CITY/PROVINCE: Toronto, ON	NORTHING (m): 4833683.62	EASTING (m): 626613.52 ELEV. (m) 94.65
CONTRACTOR: Profile Drilling Inc.	METHOD: Hollow Stem Auger + Split Spoon Sampling	
BOREHOLE DIAMETER (cm): 20	WELL DIAMETER (cm): 5	SCREEN SLOT #: 10 SAND TYPE: 2 SEALANT TYPE: 2

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) ● 40 80 120 160 / N-VALUE ▲ (Blows/300mm) 20 40 60 80	WATER CONTENT (%) PL W.C. LL 20 40 60 80	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	SV/TOV (ppm or %LEL) (new title)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		Asphalt (40mm)	0	94.5	5	9	1		25	130/1	PHCs/ BTEX PAHs M&I		Bentonite
		loose, moist, brown gravelly sand trace construction debris (FILL)	0.5	94	8	13 8 9	2A 2B 2C		54	115/0 95/0 110/0			50mm monitoring well was installed. water level measured on August 23, 2022: 5.17 mbg September 6, 2022: 4.93 mbg September 21, 2022: 4.92 mbg
		stiff, moist, brown/dark brown silty clay trace organics (FILL)	1	93.5									
		loose, moist, brown SAND trace to some silt, trace clay	1.5	93	8	20	3		50	125/1			
		soft to very stiff, moist, grey CLAYEY SILT trace to some gravel trace to some sand (TILL)	2	92.5									
			2.5	92	17	18	4		67	135/1	PHCs/ VOCs		
			3	91.5	13	14	5		42	90/0			
			3.5	91									
			4	90.5	6	13	6		75	70/0			
			4.5	90									
			5	89.5	6	13	7		54	50/1			
			5.5	89	6	13	8		54	50/0			
			6	88.5									
			6.5	88	2	17	9		92	<5/0			
			7	87.5	14	9	10		100	65/0			
			7.5	87									
		dense to very dense, moist, grey SANDY SILT some gravel to gravelly, some clay (TILL)	8	86.5	41	5	11		94				
			8.5	86	56	6	12		92				
			9	85.5									

TERRAPEX

LOGGED BY: EL	DRILLING DATE: 15 and 16-Aug-22
INPUT BY: EL/EMZ	MONITORING DATE: 06-September-2022
REVIEWED BY: SJS/KC	PAGE 1 OF 2

CLIENT: Hullmark Developments Ltd. | PROJECT NO.: CT3580.00 | **RECORD OF: MW103D**

ADDRESS: 450 Dufferin Street

CITY/PROVINCE: Toronto, ON | NORTHING (m): 4833683.62 | EASTING (m): 626613.52 | ELEV. (m) 94.65

CONTRACTOR: Profile Drilling Inc. | METHOD: Hollow Stem Auger + Split Spoon Sampling

BOREHOLE DIAMETER (cm): 20 | WELL DIAMETER (cm): 5 | SCREEN SLOT #: 10 | SAND TYPE: 2 | SEALANT TYPE: 2

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) 40 80 120 160 / N-VALUE (Blows/300mm) 20 40 60 80	WATER CONTENT (%) ▲ PL W.C. LL 20 40 60 80	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	SV/TOV (ppm or %LEL) (new title)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		hard, moist, grey SANDY CLAYEY SILT some gravel to gravelly (TILL)	9.5	85									
			10	84.5	50/100 ▲	8 ■	13		100				
			10.5	84									Sand
			11	83.5									Screen + Sand
			11.5	83	50/50 ▲	1 ■	14		25				
			12	82.5	50/75 ▲	1 ■	15		100				
			12.5	82									
			13	81.5	50/50 ▲	3 ■	16		100				
			13.5	81	50/100 ▲	11 ■	17		100				
		grey, weathered SHALE											
		END OF BOREHOLE											

TERRAPEX

LOGGED BY: EL | DRILLING DATE: 15 and 16-Aug-22

INPUT BY: EL/EMZ | MONITORING DATE: 06-September-2022

REVIEWED BY: SJS/KC |

CLIENT: Hullmark Developments Ltd.	PROJECT NO.: CT3580.00	**RECORD OF:**	
ADDRESS: 450 Dufferin Street		**MW103I**	
CITY/PROVINCE: Toronto, ON	NORTHING (m): 4833683.93	EASTING (m): 626612.68	ELEV. (m) 94.60
CONTRACTOR: Profile Drilling Inc.	METHOD: Hollow Stem Auger		
BOREHOLE DIAMETER (cm): 20	WELL DIAMETER (cm): 5	SCREEN SLOT #: 10	SAND TYPE: 2	SEALANT TYPE: 2

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) ● 40 80 120 160 / N-VALUE (Blows/300mm) ▲ 20 40 60 80	WATER CONTENT (%) PL W.C. LL 20 40 60 80	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	SV/TOV (ppm or %LEL) (new title)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		Straight drilled to 9.14 mbg to install the monitoring well	0	94.5									Bentonite
			0.5	94									50mm monitoring well was installed. water level measured on August 23, 2022: Dry September 6, 2022: Dry September 21, 2022: Dry
			1	93.5									
			1.5	93									
			2	92.5									
			2.5	92									
			3	91.5									
			3.5	91									
			4	90.5									
			4.5	90									
			5	89.5									
			5.5	89									
			6	88.5									
			6.5	88									
			7	87.5									Sand
			7.5	87									Screen + Sand
			8	86.5									
			8.5	86									
			9	85.5									

TERRAPEX

LOGGED BY: EL	DRILLING DATE: 16-Aug-22
INPUT BY: EL/EMZ	MONITORING DATE: 06-September-2022
REVIEWED BY: SJS/KC	PAGE 1 OF 2

CLIENT: Hullmark Developments Ltd.	PROJECT NO.: CT3580.00	**RECORD OF: MW103I**
ADDRESS: 450 Dufferin Street		
CITY/PROVINCE: Toronto, ON	NORTHING (m): 4833683.93	EASTING (m): 626612.68 ELEV. (m) 94.60
CONTRACTOR: Profile Drilling Inc.	METHOD: Hollow Stem Auger	
BOREHOLE DIAMETER (cm): 20	WELL DIAMETER (cm): 5	SCREEN SLOT #: 10 SAND TYPE: 2 SEALANT TYPE: 2

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) 40 80 120 160 N-VALUE (Blows/300mm) 20 40 60 80	WATER CONTENT (%) ▲ PL W.C. LL 20 40 60 80	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	SV/TOV (ppm or %LEL) (new title)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		END OF BOREHOLE											

TERRAPEX	LOGGED BY: EL	DRILLING DATE: 16-Aug-22
	INPUT BY: EL/EMZ	MONITORING DATE: 06-September-2022
	REVIEWED BY: SJS/KC	PAGE 2 OF 2

CLIENT: Hullmark Developments Ltd.		PROJECT NO.: CT3580.00	**RECORD OF: MW103S**
ADDRESS: 450 Dufferin Street			
CITY/PROVINCE: Toronto, ON	NORTHING (m): 4833685.09	EASTING (m): 626613.00	ELEV. (m) 94.62
CONTRACTOR: Profile Drilling Inc.	METHOD: Hollow Stem Auger		
BOREHOLE DIAMETER (cm): 20	WELL DIAMETER (cm): 5	SCREEN SLOT #: 10	SAND TYPE: 2	SEALANT TYPE: 2

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) ● 40 80 120 160 / N-VALUE (Blows/300mm) ▲ 20 40 60 80	WATER CONTENT (%) PL W.C. LL 20 40 60 80	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	SV/TOV (ppm or %LEL) (new title)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		Straight drilled to 6.1 mbg to install the monitoring well	0	94.5								Bentonite	
			0.5	94									50mm monitoring well was installed. water level measured on August 23, 2022: Dry September 6, 2022: 5.90 mbg September 21, 2022: 5.41 mbg
			1	93.5									
			1.5	93									
			2	92.5									
			2.5	92								Sand	
			3	91.5								Screen + Sand	
			3.5	91									
			4	90.5									
			4.5	90									
			5	89.5									
			5.5	89									
			6										
		END OF BOREHOLE											

TERRAPEX

LOGGED BY: EL	DRILLING DATE: 16-Aug-22
INPUT BY: EL/EMZ	MONITORING DATE: 06-September-2022
REVIEWED BY: SJS/KC	PAGE 1 OF 1

CLIENT: Hullmark Developments Ltd.	PROJECT NO.: CT3580.00	**RECORD OF: MW104D**
ADDRESS: 450 Dufferin Street		
CITY/PROVINCE: Toronto, ON	NORTHING (m): 4833657.17	EASTING (m): 626599.29 ELEV. (m) 94.29
CONTRACTOR: Profile Drilling Inc.	METHOD: Hollow Stem Auger + Split Spoon Sampling	
BOREHOLE DIAMETER (cm): 20	WELL DIAMETER (cm): 5	SCREEN SLOT #: 10 SAND TYPE: 2 SEALANT TYPE: 2

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) / N-VALUE (Blows/300mm)	WATER CONTENT (%) PL W.C. LL	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	SV/TOV (ppm or %LEL) (new title)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		Asphalt (40mm)	0	94	9	11	1A		79	50/0		Bentonite	
		loose, moist, dark brown gravelly sand with brick fragments (FILL)	0.5				1B			50/0	M&I		
						16	1C			40/1	PHCs/ BTEX PAHs		50mm monitoring well was installed. water level measured on August 23, 2022: 8.07 mbg September 6, 2022: 5.18 mbg September 21, 2022: 5.10 mbg
		firm to stiff, moist, brown/black clayey silt trace organics (FILL)	1	93.5	5	19	2		17	35/0			
			1.5	93	10	22	3A		96	<5/1	PHCs/ BTEX		
		firm to stiff, moist CLAYEY SILT trace to some gravel trace to some sand (TILL)	2	92.5		16	3B			5/1			
			2.5	92	23	13	4		71	20/0			
		brown/grey	3	91.5									
			3.5	91	12	14	5		100	<5/1			
		----------	4	90.5	14	12	6		54	<5/1			
			4.5	90									
			5	89.5	6	14	7		100	5/0			
		grey	5.5	89	9	14	8		54	<5/1	PHCs/ VOCs		
			6	88.5									
			6.5	88	16	4	9		33	5/1			
		compact to dense, moist, grey SANDY SILT some gravel to gravelly, some clay (TILL)	7	87.5	29	7	10		83				Sand
			7.5	87									Screen + Sand
			8	86.5	33	4	11		100				
		hard, moist, grey SANDY CLAYEY SILT some gravel to gravelly (TILL)	8.5	86	50/75	16	12		44				
			9	85.5									

TERRAPEX

LOGGED BY: EL	DRILLING DATE: 17-Aug-22
INPUT BY: EL/EMZ	MONITORING DATE: 06-September-2022
REVIEWED BY: SJS/KC	PAGE 1 OF 2

CLIENT: Hullmark Developments Ltd.		PROJECT NO.: CT3580.00	**RECORD OF: MW104D**
ADDRESS: 450 Dufferin Street			
CITY/PROVINCE: Toronto, ON	NORTHING (m): 4833657.17	EASTING (m): 626599.29	ELEV. (m) 94.29
CONTRACTOR: Profile Drilling Inc.	METHOD: Hollow Stem Auger + Split Spoon Sampling		
BOREHOLE DIAMETER (cm): 20	WELL DIAMETER (cm): 5	SCREEN SLOT #: 10	SAND TYPE: 2	SEALANT TYPE: 2

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) 40 80 120 160 / N-VALUE (Blows/300mm) 20 40 60 80	WATER CONTENT (%) ▲ PL W.C. LL 20 40 60 80	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	SV/TOV (ppm or %LEL) (new title)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		hard, moist, grey SANDY CLAYEY SILT some gravel to gravelly (TILL)	9.5	85									
				84.5									
			10		82/275	11	13		76				
				84									
		END OF BOREHOLE											

TERRAPEX

LOGGED BY: EL	DRILLING DATE: 17-Aug-22
INPUT BY: EL/EMZ	MONITORING DATE: 06-September-2022
REVIEWED BY: SJS/KC	PAGE 2 OF 2

CLIENT: Hullmark Developments Ltd.		PROJECT NO.: CT3580.00	**RECORD OF: MW104S**
ADDRESS: 450 Dufferin Street			
CITY/PROVINCE: Toronto, ON	NORTHING (m): 4833656.49	EASTING (m): 626599.15	ELEV. (m) 94.30
CONTRACTOR: Profile Drilling Inc.	METHOD: Hollow Stem Auger		
BOREHOLE DIAMETER (cm): 20	WELL DIAMETER (cm): 5	SCREEN SLOT #: 10	SAND TYPE: 2	SEALANT TYPE: 2

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) ● 40 80 120 160 N-VALUE (Blows/300mm) ▲ 20 40 60 80	WATER CONTENT (%) PL W.C. LL 20 40 60 80	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	SV/TOV (ppm or %LEL) (new title)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		Straight drilled to 4.0 mbg to install the monitoring well	0 0.5 1 1.5 2 2.5 3 3.5	94 93.5 93 92.5 92 91.5 91 90.5								Bentonite Sand Screen + Sand	50mm monitoring well was installed. water level measured on August 23, 2022: Dry September 6, 2022: 2.98 mbg September 21, 2022: 1.78 mbg
		END OF BOREHOLE											

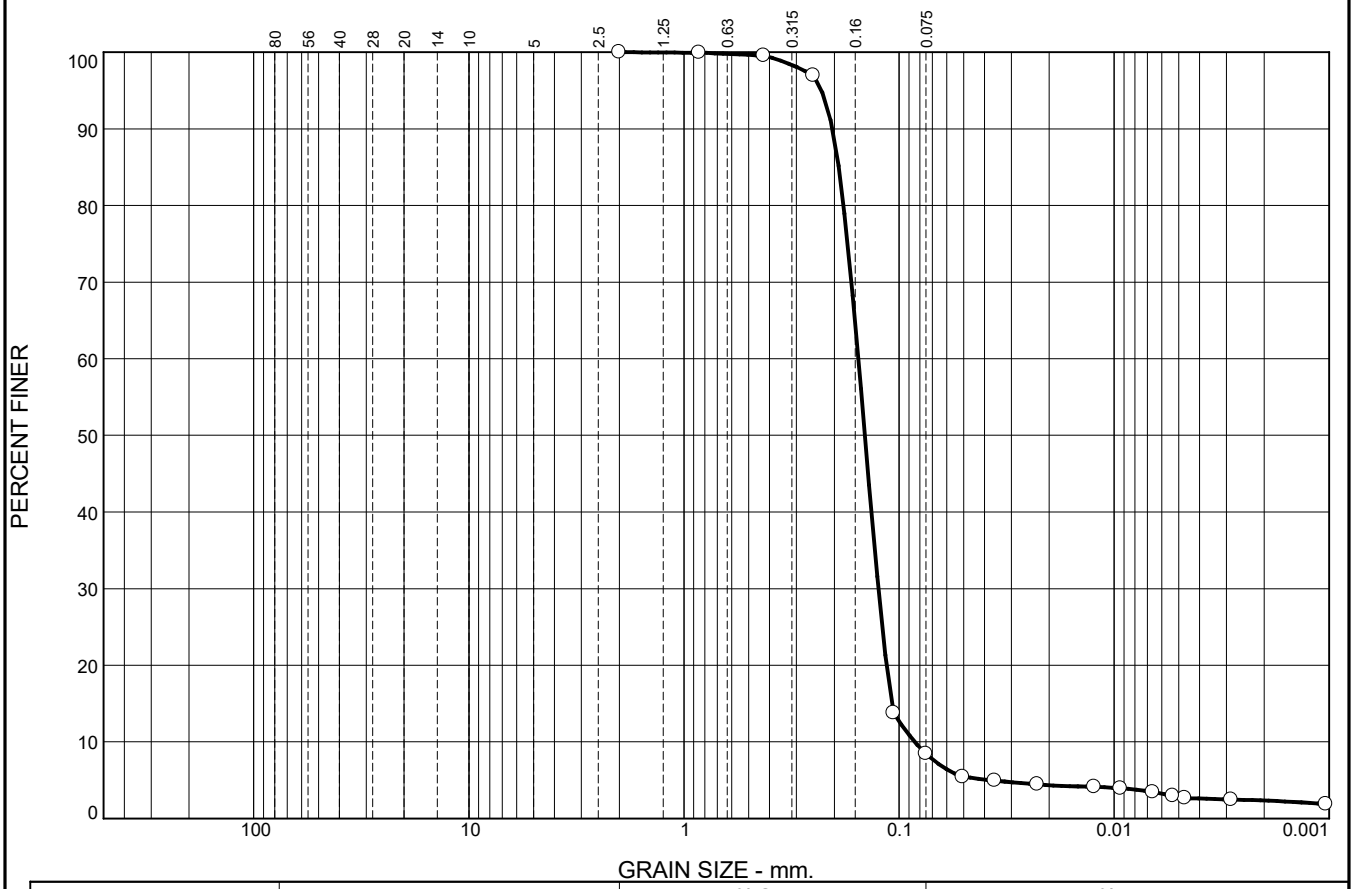
TERRAPEX

LOGGED BY: EL	DRILLING DATE: 17-Aug-22
INPUT BY: EL/EMZ	MONITORING DATE: 06-September-2022
REVIEWED BY: SJS/KC	PAGE 1 OF 1

APPENDIX D

LABORATORY TEST RESULTS

Particle Size Distribution Report



	% +75mm	% Gravel	% Sand		% Fines	
			Coarse	Fine	Silt	Clay
○	0.0	0.0	0.5	91.0	6.1	2.4

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○			0.1906	0.1546	0.1442	0.1247	0.1078	0.0844	1.19	1.83

Material Description	USCS	AASHTO
○ fine SAND, trace silt, trace clay		

Project No. CT3580 **Client:** Hullmark

Project: 450 Dufferin St

○ **Sample Number:** MW 101, Sample 4A

Remarks:

○HYDROMETER DETAILS: Spec. Grav. 2.75(assumed);Vb= 53cm^3; L2=13.8cm; L1=10.7cm; hs=0.16cm/Div; A=30.2cm^2; Mass of Disp. Agent=24g/1 Test Date: Sept.21, 2022

Terrapex

Figure D-1

Tested By: AM/CM

Particle Size Distribution Report

	% +75mm	% Gravel	% Sand		% Fines	
			Coarse	Fine	Silt	Clay
○	0.0	11.1	5.0	11.5	49.0	23.4

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○	26	15	0.5650	0.0266	0.0140	0.0038				

Material Description	USCS	AASHTO
○ CLAYEY SILT, some sand, some gravel	CL	A-6(5)

Project No. CT3580 **Client:** Hullmark

Project: 450 Dufferin St

○ **Sample Number:** MW 101, Sample 6

Terrapex

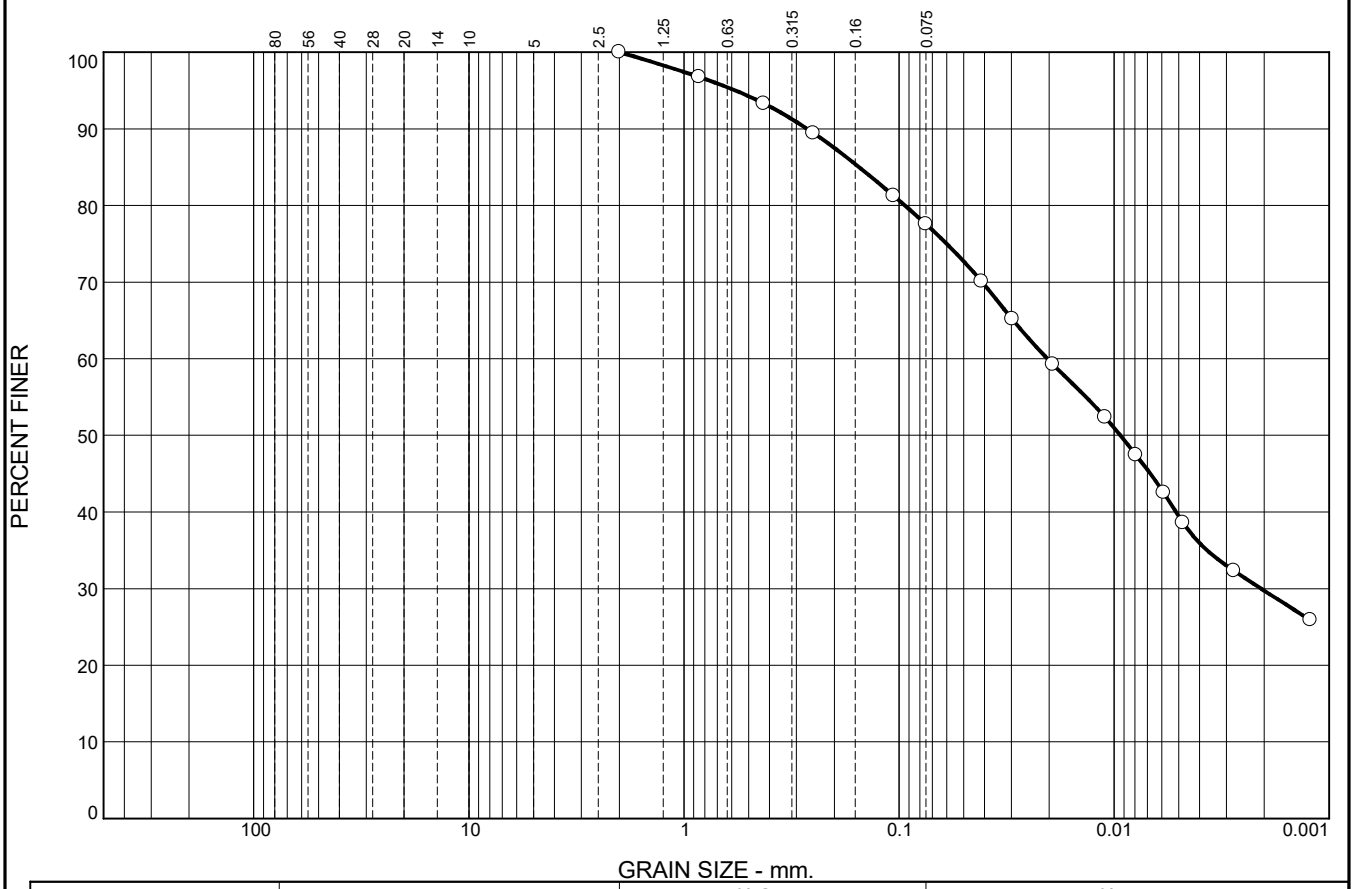
Remarks:

○HYDROMETER DETAILS: Spec. Grav. 2.75(assumed);Vb= 53cm^3; L2=13.8cm; L1=10.7cm; hs=0.16cm/Div; A=30.2cm^2; Mass of Disp. Agent=40g/1 Test Date: Sept.20, 2022

Figure D-2

Tested By: AM/CM

Particle Size Distribution Report



	% +75mm	% Gravel	% Sand		% Fines	
			Coarse	Fine	Silt	Clay
○	0.0	0.0	6.7	15.7	47.9	29.7

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○			0.1535	0.0204	0.0094	0.0021				

Material Description	USCS	AASHTO
○ SANDY CLAYEY SILT		

Project No. CT3580 **Client:** Hullmark

Project: 450 Dufferin St

○ **Sample Number:** MW 104, Sample 8

Remarks:

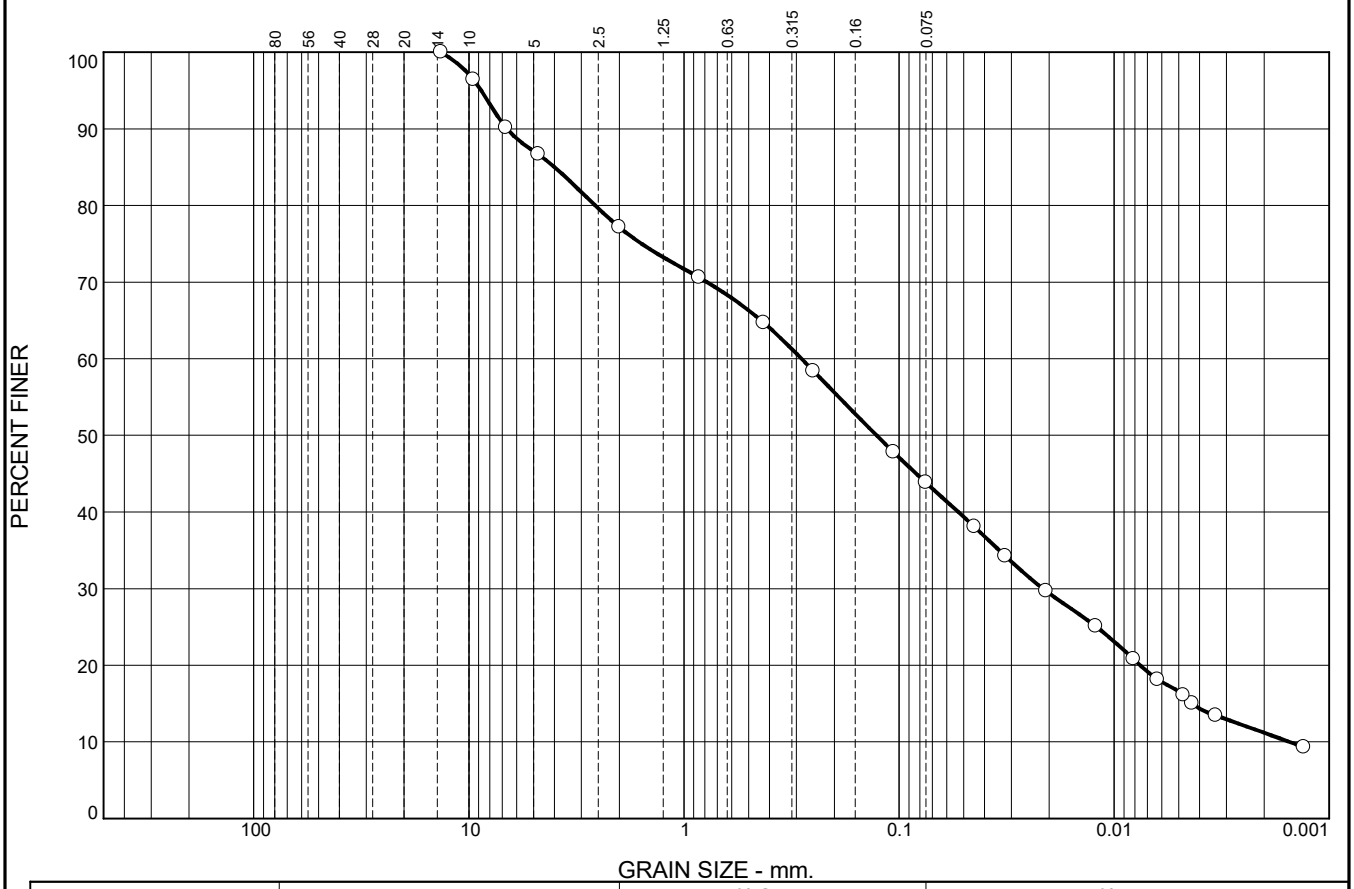
○HYDROMETER DETAILS: Spec. Grav. 2.75(assumed);Vb= 53cm^3; L2=13.8cm; L1=10.7cm; hs=0.16cm/Div; A=30.2cm^2; Mass of Disp. Agent=40g/1 Test Date: Sept.28, 2022

Terrapex

Figure D-3

Tested By: AM/CM

Particle Size Distribution Report



	% +75mm	% Gravel	% Sand		% Fines	
			Coarse	Fine	Silt	Clay
○	0.0	22.8	12.5	20.9	32.6	11.2

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○	17	12	3.9991	0.2842	0.1272	0.0214	0.0043	0.0015	1.05	185.80

Material Description	USCS	AASHTO
○ GRAVELLY SAND and SILT, some clay	SC-SM	A-4(0)

Project No. CT3580 **Client:** Hullmark

Project: 450 Dufferin St

○ **Sample Number:** MW 101, Sample 9

Terrapex

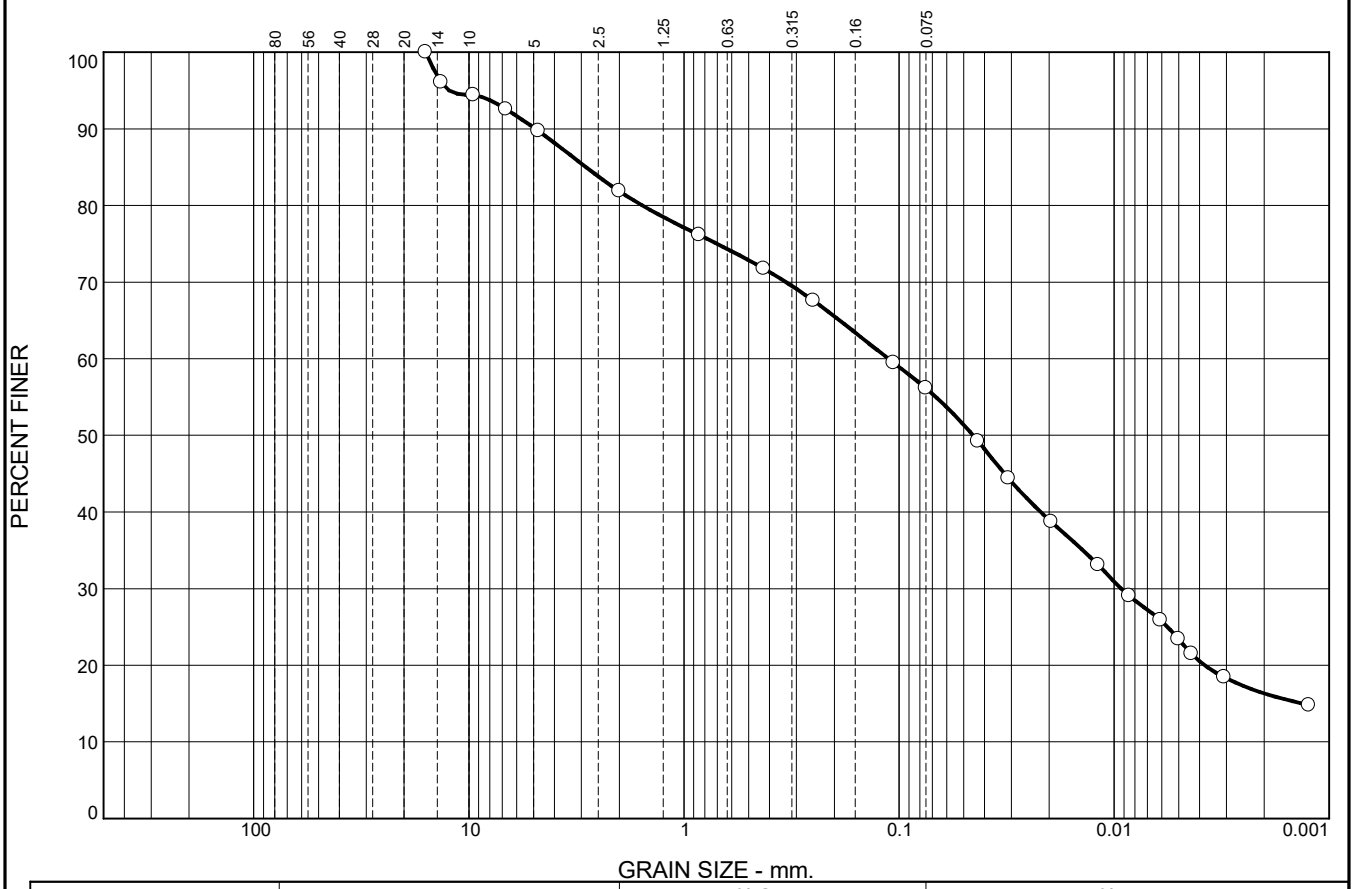
Remarks:

○HYDROMETER DETAILS: Spec. Grav. 2.75(assumed);Vb= 53cm^3; L2=13.8cm; L1=10.7cm; hs=0.16cm/Div; A=30.2cm^2; Mass of Disp. Agent=40g/1 Test Date: Sept.20, 2022

Figure D-4

Tested By: AM/CM

Particle Size Distribution Report



	% +75mm	% Gravel	% Sand		% Fines	
			Coarse	Fine	Silt	Clay
○	0.0	18.1	10.2	15.5	39.9	16.3

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○			2.8543	0.1122	0.0453	0.0093	0.0013			

Material Description	USCS	AASHTO
○ SANDY CLAYEY SILT, some gravel		

Project No. CT3580 **Client:** Hullmark

Project: 450 Dufferin St

○ **Sample Number:** MW 103, Sample 10

Terrapex

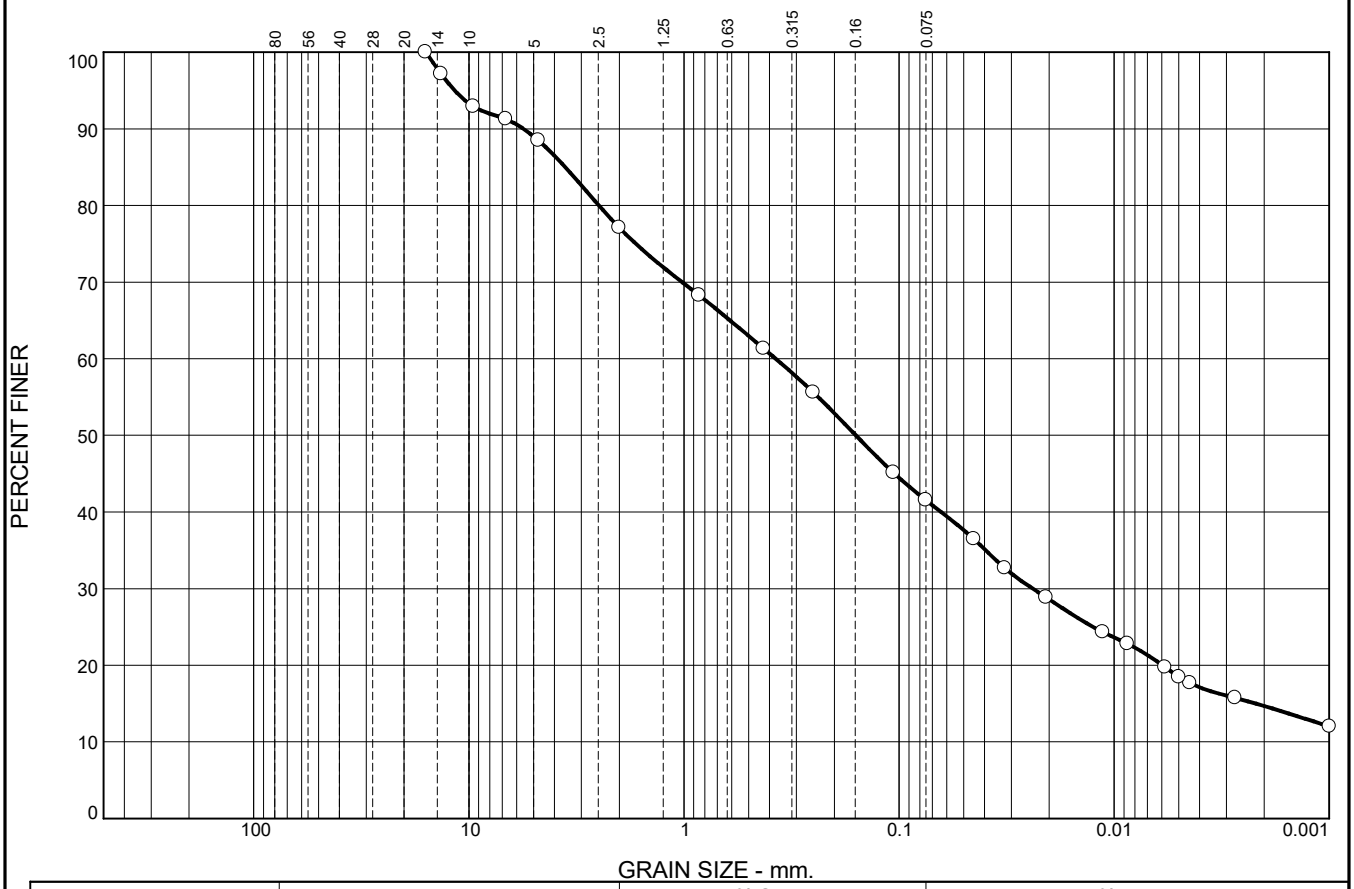
Remarks:

○HYDROMETER DETAILS: Spec. Grav. 2.75(assumed);Vb= 53cm^3; L2=13.8cm; L1=10.7cm; hs=0.16cm/Div; A=30.2cm^2; Mass of Disp. Agent=40g/1 Test Date: Sept.28, 2022

Figure D-5

Tested By: AM/CM

Particle Size Distribution Report



	% +75mm	% Gravel	% Sand		% Fines	
			Coarse	Fine	Silt	Clay
○	0.0	22.9	15.8	19.8	26.8	14.7

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○	20	12	3.5668	0.3748	0.1588	0.0239	0.0022			

Material Description	USCS	AASHTO
○ GRAVELLY SILTY SAND, some clay	SC	A-4(0)

Project No. CT3580 **Client:** Hullmark

Project: 450 Dufferin St

○ **Sample Number:** MW 103, Sample 13

Remarks:

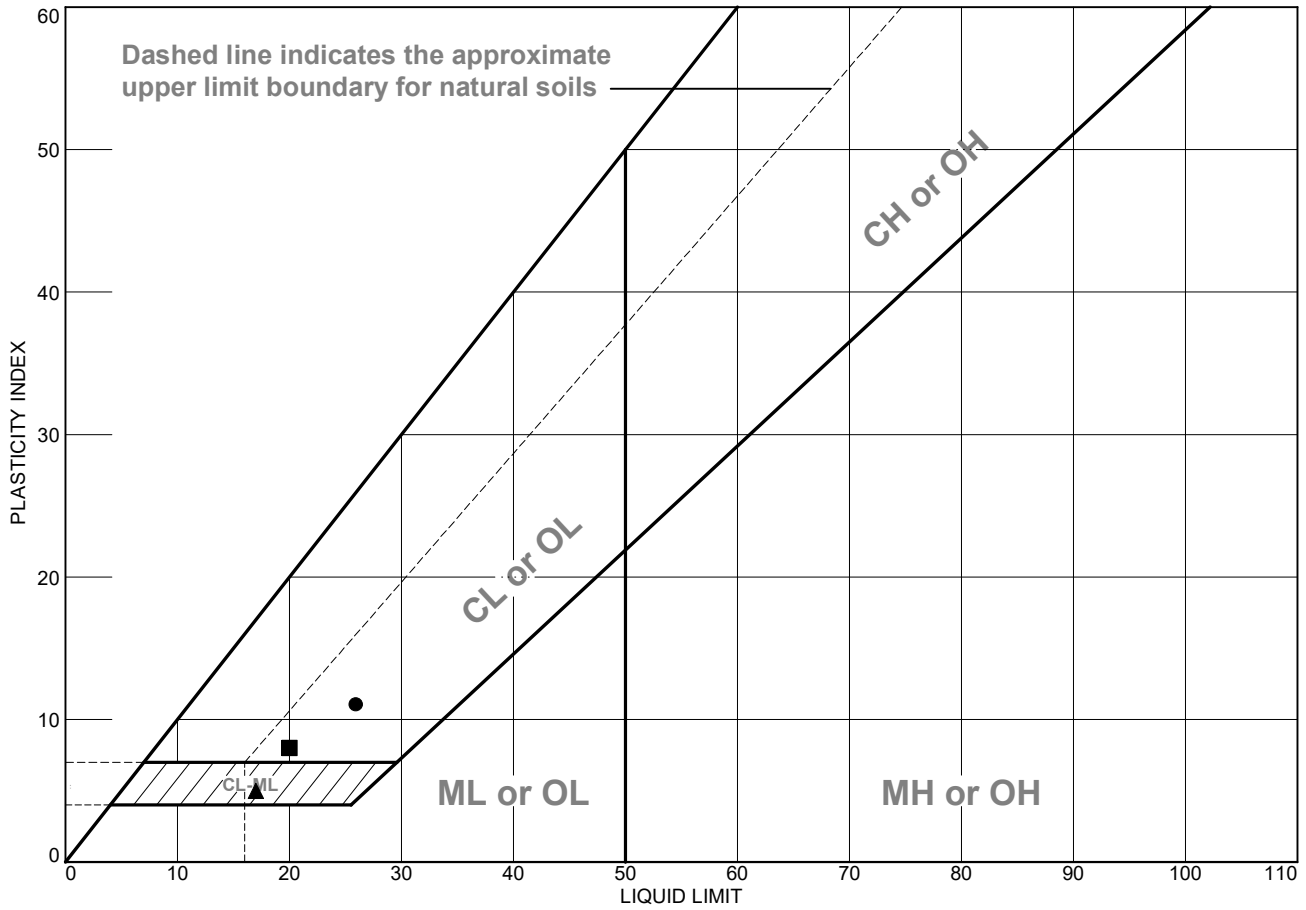
○HYDROMETER DETAILS: Spec. Grav. 2.75(assumed);Vb= 53cm^3; L2=13.8cm; L1=10.7cm; hs=0.16cm/Div; A=30.2cm^2; Mass of Disp. Agent=40g/1 Test Date: Sept.21, 2022

Terrapex

Figure D-6

Tested By: AM/CM

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	CLAYEY SILT, some sand, some gravel	26	15	11	83.9	72.4	CL
■	GRAVELLY SILTY SAND, some clay	20	12	8	61.3	41.5	SC
▲	GRAVELLY SAND and SILT, some clay	17	12	5	64.7	43.8	SC-SM

Project No. CT3580 **Client:** Hullmark

Project: 450 Dufferin St

●**Sample Number:** MW 101, Sample 6

■**Sample Number:** MW 103, Sample 13

▲**Sample Number:** MW 101, Sample 9

Remarks:

●Test Date: Sept. 28, 2022

■Test Date: Sept. 28, 2022

▲Test Date: Sept. 28, 2022

Terrapex

Figure D-7

Tested By: AM

APPENDIX E

CERTIFICATE OF CHEMICAL ANALYSIS

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: TERRAPEX ENVIRONMENTAL LIMITED
90 SCARSDALE RD
TORONTO, ON M3B2R7
(905) 474-5265
ATTENTION TO: Kellen Campbell
PROJECT: CT3580.00
AGAT WORK ORDER: 22T942731
SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer
DATE REPORTED: Sep 16, 2022
PAGES (INCLUDING COVER): 6
VERSION*: 2

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

*Notes

VERSION 2:V2 issued 2022-09-16. Sample matrix updated. Supersedes previous version.

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 22T942731

PROJECT: CT3580.00

CLIENT NAME: TERRAPEX ENVIRONMENTAL LIMITED

ATTENTION TO: Kellen Campbell

SAMPLING SITE:450 Dufferin St.

SAMPLED BY:EL/EM

(Soil) Inorganic Chemistry

DATE RECEIVED: 2022-09-08

DATE REPORTED: 2022-09-16

				SAMPLE DESCRIPTION:	MW103-SS11	MW104-SS11
				SAMPLE TYPE:	Soil	Soil
				DATE SAMPLED:	2022-08-16 11:00	2022-08-17 10:00
Parameter	Unit	G / S	RDL		4285833	4285834
Sulphate (2:1)	µg/g		2		311	344
pH (2:1)	pH Units		NA		7.31	7.00

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4285833-4285834 Sulphate was determined on the extract obtained from the 2:1 leaching procedure (2 parts DI water: 1 part soil).

pH was determined on the 0.01M CaCl2 extract obtained from 2:1 leaching procedure (2 parts extraction fluid:1 part wet soil).

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: TERRAPEX ENVIRONMENTAL LIMITED

AGAT WORK ORDER: 22T942731

PROJECT: CT3580.00

ATTENTION TO: Kellen Campbell

SAMPLING SITE:450 Dufferin St.

SAMPLED BY:EL/EM

Soil Analysis

RPT Date: Sep 16, 2022			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
(Soil) Inorganic Chemistry															
Sulphate (2:1)	4275109		289	293	1.5%	< 2	106%	70%	130%	103%	80%	120%	107%	70%	130%
pH (2:1)	4275109		11.5	11.5	0.0%	NA	102%	80%	120%						

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.

Certified By:

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Time Markers

AGAT WORK ORDER: 22T942731

PROJECT: CT3580.00

CLIENT NAME: TERRAPEX ENVIRONMENTAL LIMITED

ATTENTION TO: Kellen Campbell

Sample ID	Sample Description	Sample Type	Date Sampled	Date Received
4285833	MW103-SS11	Soil	16-AUG-2022	08-SEP-2022

(Soil) Inorganic Chemistry

Parameter	Date Prepared	Date Analyzed	Initials
Sulphate (2:1)	13-SEP-2022	13-SEP-2022	LC
pH (2:1)	13-SEP-2022	13-SEP-2022	VD

Sample ID	Sample Description	Sample Type	Date Sampled	Date Received
4285834	MW104-SS11	Soil	17-AUG-2022	08-SEP-2022

(Soil) Inorganic Chemistry

Parameter	Date Prepared	Date Analyzed	Initials
Sulphate (2:1)	13-SEP-2022	13-SEP-2022	LC
pH (2:1)	13-SEP-2022	13-SEP-2022	VD

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Method Summary

CLIENT NAME: TERRAPEX ENVIRONMENTAL LIMITED

AGAT WORK ORDER: 22T942731

PROJECT: CT3580.00

ATTENTION TO: Kellen Campbell

SAMPLING SITE:450 Dufferin St.

SAMPLED BY:EL/EM

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Sulphate (2:1)	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
pH (2:1)	INOR 93-6031	modified from EPA 9045D and MCKEAGUE 3.11	PH METER

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 22T942731
Cooler Quantity: Nil
Arrival Temperatures: 3.0 | 2.9 | 3.7
Custody Seal Intact: ☑ Yes ☐ No ☐ N/A
Notes: Book Fee

Report Information:

Company: TERRAPEX ENVIRONMENTAL LTD.,
Contact: KELLEN CAMPBELL
Address: 90 Scarsdale Road, Toronto, ON.
Phone: 647-250-8208 (Fax) 647-937-4962
Reports to be sent to:
1. Email: k.campbell@terrapex.com
2. Email: e.montag@terrapex.com

Regulatory Requirements: N/A

(Please check all applicable boxes)

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

☐ Excess Soils R406
Table _____ *Indicate One*
☐ Regulation 558
☐ CCME

☐ Sewer Use
☐ Sanitary ☐ Storm
_____ *Region*
☐ 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

Turnaround Time (TAT) Required:

Regular TAT ☑ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply): _____

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: CT 3580.00
Site Location: 450 Dufferin St.,
Sampled By: EL/EM
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: accountspayable@terrapex.com

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	Field Filtered - Metals, Hg, CrVI, DOC (Y/N)	O. Reg 153: Metals & Inorganics	O. Reg 153: Metals - ☐ CrVI, ☐ Hg, ☐ HWSB	O. Reg 153: BTEX, F1-F4 PHCs	O. Reg 153: Analyze F4G if required ☐ Yes ☐ No	O. Reg 153: PAHs	O. Reg 153: PCBs	O. Reg 153: VOC	O. Reg 558: Landfill Disposal Characterization TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 406: Excess Soils SPLP Rainwater Leach SPLP: ☐ Metals ☐ VOCs ☐ SVOCs	O. Reg 406: Excess Soils Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Salt - EC/SAR	pH	Water Soluble Sulphates						Potentially Hazardous or High Concentration (Y/N)
MW103-SS11	16/8/22	11:00 AM/PM	1	S														1	1						N/A
MW104-SS11	17/8/22	10:00 AM/PM	1	S														1	1						N/A
		AM/PM																							
		AM/PM																							
		AM/PM																							
		AM/PM																							
		AM/PM																							
		AM/PM																							
		AM/PM																							
		AM/PM																							
		AM/PM																							

Samples Relinquished By (Print Name and Sign): John P.	Date 7/9/22	Time 6:30 pm	Samples Received By (Print Name and Sign): A. Rivera	Date	Time
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

225EP 8 1:10

Page 1 of 1

N°: T 127245

Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT