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G5243 **FEBRUARY 2018**

GEOTECHNICAL REPORT
PROPOSED RESIDENTIAL DEVELOPMENT
Formerly 971 YONGE STREET (Now 989 Yonge Street)
BARRIE, ONTARIO

DISTRIBUTION

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PREPARED FOR:

ASA DEVELOPMENT INC.

91 SOLEIL BOULEVARD
AURORA, ON
L4G 0H3

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LIST OF ENCLOSURES

1.0 INTRODUCTION

MCR was retained by ASA Development Inc. to prepare a geotechnical report for the proposed residential development, to be located at 971 Yonge Street, in Barrie, Ontario.

The objective of the report was to determine design data required for foundations, dewatering, shoring/excavation, backfill, slab on grade and pavement. The above design and construction issues are addressed in the following report.

2.0 SITE CONDITIONS

The Site is legally described as Part of South ½ of Lot 16 Concession 11, Geographic Township of Innisfil, County of Simcoe with a PIN of 58092-0028 (LT). The municipal address for the Site is 971 Yonge Street, Barrie, Ontario.

The Site is located on the northeast corner of the intersection of Yonge Street and Lockhart Road. The Site has an irregular shape with an area of approximately 101,400 m2 and is currently an agricultural field.

3.0 SITE INVESTIGATIONS

A total of ten (10) boreholes were drilled, by MCR, at the subject site during the period of November 1 to 6/2017 at the locations shown on Drawing No. 1. The boreholes were advanced to depths ranging from 9.40 to 9.60 m. The Borehole Log Sheets are attached in Appendix A.

All soil samples were placed in clean, sealed glass jars in the field and were transported back to our laboratory where they were further examined for soil characterization.

Moisture Content and Grain Size Distribution Analyses were carried out on selected samples collected from the boreholes to determine the type of subsurface soils. The grain size distribution and moisture content test results are presented in Appendix A.

In addition, wells were installed in all the boreholes for long term groundwater monitoring and sampling.

Borehole elevations, referred to in this report, are geodetic and metric and are referenced to the local Benchmark, which was provided by Eplett Worobec Raikes Surveying Ltd., with a reported Elevation of 267.90 m, as shown on Drawing No. 1.

4.0 SOIL AND GROUNDWATER CONDITIONS

Subsurface conditions, encountered at the borehole locations, are shown on Borehole Log Sheets attached in Appendices A and B and summarized as follows:

Organic Sandy Silt/Reworked Native material A layer of sandy silt soil with organics (reworked native material) was encountered at the surface of all the boreholes and extended to approximate depth of 0.60 m. The brown to black, very loose to loose layer was in a moist condition and contained some to trace of rootlets, clay, gravel and stone fragments..

For the purpose of off site disposal, the type/quantity and extent of the existing organic material/reworked native material/fill (where encountered) should be explored by further test pit investigation, prior to contract award.

In addition, in order to determine the suitability of this organic material as topsoil, further organic content analysis should be carried out.

Clayey Silt Till/Clayey Silt Stiff to hard clayey silt till to clayey silt was detected below the organic layer in Boreholes 2, 7 and 9 and extended to the end of Borehole 2 and to approximate depth of 2.30 m in Boreholes 7 and 9. The Brown to grey clayey layer was in a moist to wet state and contained seams of sandy silt and some to trace of sand, gravel and stone fragments.

Sandy Silt Till/sandy Silt/Silty Sand to sand Compact to very dense sandy silt till/sandy silt to silty sand to sand deposit extended below the organic and clayey layers to an approximate depth of 2.30 m at Borehole 8 and the maximum explored depth of all the boreholes, except Borehole 2 and 8.

The brown, moist to wet deposit contained layers of very stiff to hard clayey silt and some to trace of clay, gravel and stone fragments.

Clayey Silt Very stiff to hard clayey silt was found below silty sand in Borehole 8 and extended to the maximum investigated depth of the borehole. The brown, moist to wet clayey silt contained trace of sand.

It should be noted that the till/sand soil is an unsorted sediment; therefore, boulders and cobbles are anticipated.

Groundwater Upon completion of borehole drilling, groundwater was not measured in the boreholes.

However, on November 9/2017, groundwater was measured, in the wells, at depths of 4.50, 2.20, 3.98 and 4.37 m in Boreholes BH 2, BH 4, BH 5 and BH 10, respectively.

In addition, on December 13/2017, groundwater was measured, in the wells installed an all the boreholes, at depths ranging from 1.80 to 6.50 m. The results are summarized on the Record of Borehole Sheets in Appendix A.

It should be noted that groundwater levels are subject to seasonal fluctuations. Consequently, definitive information on the long-term groundwater levels could not be obtained during this investigation.

In addition, groundwater monitoring will continue and the results will be presented in a separate report addressing the Geohydrology/Dewatering Induced Settlement issues, **if required**.

5.0 FOUNDATIONS

We understand that the proposed residential development will consist of 11 buildings varying from 6 to 12 storey (as shown on the proposed site concept plan attached in Appendix B), with a single or two levels of underground parking.

However, the number of floors/underground parking and design grades are not known at this stage. Therefore, our suggestions are considered preliminary and a further investigation/recommendation will be required when the proposed Site Plan becomes available.

Subject to design loads/grades and based on the encountered soil conditions, the proposed development, with a single or two levels of underground parking can be supported on conventional spread/strip footings, founded in the competent native undisturbed silt/silt till/silty sand and/or clayey silt soils.

Recommended founding depths/elevations and corresponding bearing resistance/factored bearing resistance for limit states (SLS and ULS) are presented in Table 1.

Table 1 – Founding Depths/Elevations and Bearing Resistance for Conventional Footings

Borehole No.	Borehole Elevation (m)	Depth (at or below) (m)	Elevation (at or below) (m)	Bearing Resistance At SLS (kPa)	Factored Bearing Resistance At ULS (kPa)
1	268.70	1.50/3.00	267.20/265.70	400/600	560/840
2	265.70	1.50/3.00	264.20/262.70	400/600	560/840
3	266.70	1.50/400	265.20/262.70	400/600	560/840
4	264.00	2.30/4.00	261.70/260.00	400/600	560/840
5	266.40	1.50/4.40	264.90/262.00	400/600	560/840
6	266.45	1.50/3.00	264.95/263.45	400/600	560/840
7	265.15	2.30/3.00	262.85/262.10	400/600	560/840
8	269.20	3.00/4.00	266.20/265.20	400/600	560/840
9	268.15	2.30/3.00	265.85/265.10	250/600	350/840
10	267.15	2.30/3.00	264.90/264.20	400/600	560/840

* The recommended bearing resistance, in the area of Boreholes 2, 3 and 6, should be confirmed by further borehole investigation and during excavation, due to the variable soil conditions.

In addition, due to the variable soil conditions and the presence of less competent soils, below the underside of proposed footings, we request that a preliminary foundation plan be prepared.

Our office must review the foundation plan and detailed settlement analyses must be carried out for the highest column load/bearing resistance combination.

The proposed settlement analyses will quantify the anticipated amount of the "during" and "post construction' settlement. The actual amount of settlement should be monitored during the construction of the buildings.

5.1 General Foundation Notes

Low strength concrete (to be determined by the structural engineer) could be placed to bring the subgrade up to specified underside of the proposed foundation.

It is essential that the groundwater be lowered a minimum of 1.0 m below the underside of the proposed excavations/footings. The wet clayey/silty and sandy soils encountered at the foundation level, will be subject to dilation/quick condition when saturated/subjected to hydrostatic pressure, subject to further investigation and groundwater monitoring results.

Till and interbedded sand soils, in southern Ontario are glacial/interglacial in origin and as such contain cobbles, boulders and other erratic rock, the precise placement and location of which cannot be determined without excavation. Removal of cobbles, boulders and other erratic rock will usually result in extra excavation and construction cost.

It is recommended that your excavation and construction contract provisions include unit prices for excavation into soils which may contain cobbles, boulders and erratic rock to minimize potential unexpected extra costs during excavation and foundation installations.

Adjacent foundations founded at different elevations must be stepped at 10 horizontal to 7 vertical.

For frost protection requirements, all exterior footings/underside of raft and footings/underside of raft in unheated underground parking P2 must have a minimum soil cover of 0.90 m and P1 soil cover of 1.60 m.

Furthermore, the recommended bearing resistance and foundation elevations have been calculated from the limited borehole information, and are intended for design purposes only.

More specific information with respect to soil/foundation conditions will be available when the proposed shoring/foundation construction is underway.
Therefore, the encountered soil/foundation conditions must be verified in the field, and all footings must be inspected and approved by our office prior to placement of concrete.

6.0 EARTHQUAKE CONSIDERATIONS

The building must be designed to resist a minimum earthquake force. The National Building Code specifies that the building be designed to withstand a minimum lateral seismic force, V, which is assumed to act non-currently in any direction on the building as per the following expression:

$$V = S(T_a)M_vI_EW / (R_dR_o)$$

It should be noted that V shall not be less than:

$$S(2.0)M_vI_EW / (R_dR_o)$$

In addition, the SFRS (Seismic Force Resisting System (s)) with R_d equal to or greater than 1.5, V should not be greater than:

$$2/3S(0.2)I_EW / (R_dR_o)$$

Where $S(T_a)$ shall be calculated by $S_a(T_a)F_a$ or $S_a(T_a)F_v$, depending on fundamental lateral period T_a. The terms, which are relevant to the geotechnical conditions at the site, are acceleration-based site coefficient F_a and velocity-based site coefficient F_v.

For the subject site, which is classified as Class C, the applicable values of F_a and F_v are 1.0 and 1.0 respectively. A structural consultant should review all factors.

7.0 BASEMENT WALLS

Basement walls should be designed to resist a pressure "p", at any depth, "h" below the surface, as given by the expression:

$$p = 0.40 [\gamma h + q]$$

Where: 0.40 is the earth pressure coefficient considered applicable

γ = 21.7 kN/m^3 is the unit weight of backfill

q = an allowance for surcharge.

The above equation assumes that perimeter drains will be provided and that the backfill against subsurface walls, where applicable, would be a free draining granular material.

However, subject to depth of excavation/groundwater conditions and the presence of the wet sandy soils, **all subject to depth of excavation and further groundwater monitoring results**, we suggest that perimeter walls below the groundwater level be designed for hydrostatic pressure to resist a pressure "p", at any depth "h" below the surface, as given by the expression:

$$p = \begin{cases} Kq + K\gamma_m h, & h \le D_w \\ Kq + K\gamma_m D_w + K(\gamma_s - \gamma_w)(h - D_w) + \gamma_w(h - D_w), & h > D_w \end{cases}$$

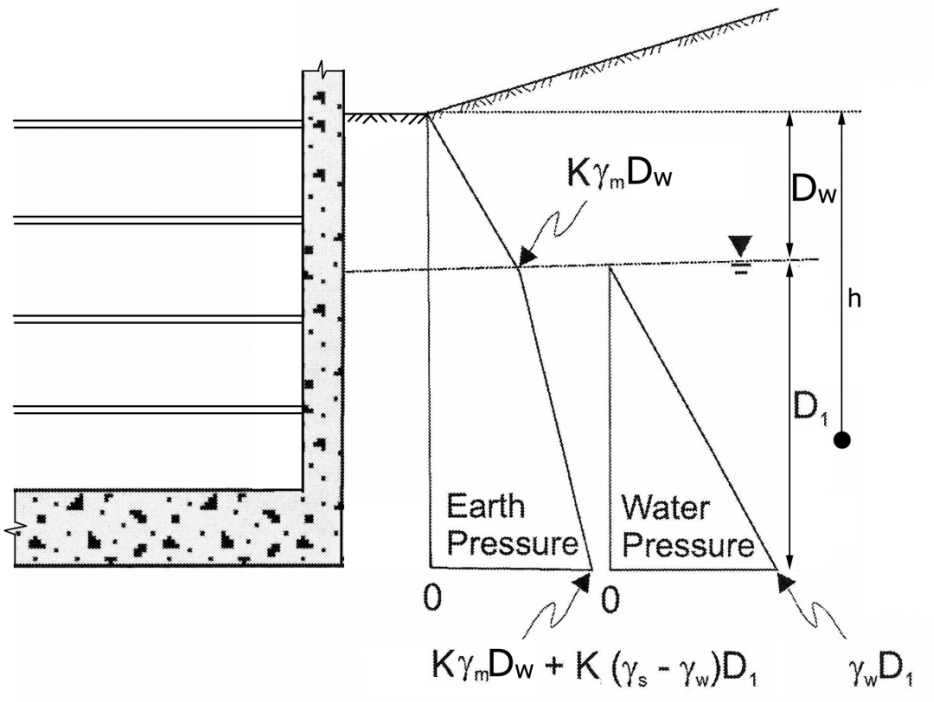
Where: K = 0.50 is the earth pressure coefficient considered applicable

γ_m = 20 kN/m^3 is moist or wet soil unit weight

γ_s = 21.7 kN/m^3 is saturated soil unit weight

γ_w = 9.80 kN/m^3 is the unit weight of water

q = an allowance for surcharge.



8.0 DEWATERING

The excavation for the proposed underground parking will extend below the groundwater table**,** subject to number of underground parking levels, depth of excavation and the long term monitoring results.

For soldier pile/lagging, to protect the sides of the excavation from being disturbed by excess groundwater pressure, i.e. to prevent quick sand/dilating silt conditions, the water table must be lowered to at least 1.0 m below the bottom of the excavation.

Positive dewatering, such as eductors/well points, will be required for the proposed excavation, subject to depth of excavation and the long term groundwater monitoring results.

.

The selected dewatering system, designed by a speciality contractor, will be most effective if it is installed and activated at the earliest opportunity during general excavation.

It is reiterated that on site soils might be subject to localized piping. Creation of piping channels might result in a substantial increase in the volume of both temporary dewatering and permanent drainage. It is critical that upon completion of general excavation **potential formation of localized piping be carefully evaluated and appropriate corrective measures implemented.**

A pre-construction survey of adjacent the structures/roads should be carried out prior to the dewatering/shoring construction stage. Potential adverse effects on adjacent structures, due to the dewatering must be assessed/quantified and suitable preventive/remedial measures implemented.

9.0 EXCAVATION AND BACKFILL

No major problems will be encountered for the anticipated depth of general excavations, carried out within a shoring wall enclosure.

For excavation above the water table, the anticipated water seepage, if any, into the excavations from the more permeable seams/lenses or surface run-off can be handled by conventional pumping methods.

A dewatering system such as eductor/well point system will be required for excavation below the groundwater level, **subject to depth and condition of excavation and long term groundwater monitoring results.**

The material to be used for backfilling in the service trenches (outside the buildings) should be suitable for compaction, i.e. free of organics and with natural moisture content, which is within 2% percent of the optimum moisture content. The backfill material should be compacted to at least 98% of the Standard Proctor Maximum Dry Density (SPMDD).

The backfill under floor slab and against the subsurface walls, where applicable, should be free draining granular fill, preferably conforming to the Ontario Provincial Standard Specification for granular base course, Granular B.

10.0 SHORING

A shoring system should be designed to protect adjacent structures, roads and services. The fourth edition of the Foundation Manual should be referred to for the design of the shoring system.

It should be noted that groundwater and boulders may be encountered during soldier pile/caisson construction, and the contractor must be prepared to deal with boulders and water seepage into the caisson shafts without undue delays.

Due to the localized wet silty/sandy soil conditions, it might be difficult to prevent groundwater from penetrating into the excavation through gaps in timber lagging.

The geotechnical parameters considered applicable for the design, are as follows:

Active earth pressure coefficient Ka = 0.45 for walls in areas where structures or sensitive services are being supported.

Active earth pressure coefficient Ka = 0.28 for remaining areas.

Natural unit weight of soil = 21.7 kN/m3

Any surcharge loads must be included in the lateral pressure calculations.

Lateral movements of the shoring wall, designed using Ka = 0.28, are expected to be in order of 15 mm. They are expected to be less if Ka value of 0.45 is used. The expected movements are based on a properly constructed system.

The horizontal and vertical movements should be monitored during construction to ensure a satisfactory performance of the shoring system.

The soil anchors should be designed for 40 kPa, based on the available borehole information and subject to confirmation by at least two load tests. **It is re-iterated that** subsurface conditions may vary beyond the site's confines. As a result, the design values must be confirmed by at least two load tests, carried out to twice the design load.

It is imperative that a stability analysis of the entire support system is undertaken prior to commencement of the shoring construction. Our office should review the final shoring design.

Schematic drawing for the proposed permanent water drainage system is enclosed as Drawing No. 2.

The shoring system and surrounding structures must be monitored for horizontal and vertical movements, prior to, during and after the excavation.

Potential adverse effects on adjacent structures, due to the shoring process, must be assessed/quantified and suitable preventive/remedial measures implemented.
In addition, the shoring system and surrounding structures must be monitored for horizontal and vertical movements, prior to, during and after the excavation.

11.0 SLAB ON GRADE AND PERMANENT DRAINAGE

The lowest garage floor slabs can be constructed as slab on grade (SOG) supported by competent native undisturbed sandy silt (till)/silty sand/clayey silt soils. Any soft spots revealed during proof-rolling should be sub-excavated and backfilled with suitable granular material, compacted to 98% SPMDD.

Upon completion of foundation work, the SOG should rest on a well compacted bed of size 19 mm clear stone at least 200 mm thick. The stone bed would act as a barrier and prevent capillary rise of moisture from the subgrade to the floor slab.

A permanent Private Water Drainage System (PWDS), as shown on Figures 2 and 3, where shoring is constructed, should be considered.

To minimize siltation, all drainage pipe connections must be solid slotted PVC, with elbows and Ts, no “butt” end connections should be permitted. The pipes should slope to a sump at a minimum 1% slope.

Perimeter drainage pipes, with a positive gravity outlet, should be solid and slotted PVC with a minimum of 0.5% slope. In addition, silt traps must be provided at convenient/accessible locations.

We request that PWDS drawings indicate design elevations for both perimeter and underfloor installation. MCR will provide calculations for sizing of permanent pumps, when required.

Upon completion of general excavation, scope and adequacy of the PWDS is to be re-evaluated. The installation of PWDS must be inspected by our office, prior to placement of filter stone.

Any design changes must be approved by the architect and reflected on mandatory as built drawings.*

* A copy of this page “Slab on grade and Permanent Water Drainage System” page should be posted at a site office as a permanent display.

In addition, the elevator pit should be fully waterproofed as shown on Figure 4.

12.0 PAVEMENT

The critical section of pavement will be at the transition from the infinitely rigid substructure onto soil/backfill subgrade. As a result, we suggest that an approach type slab be considered to protect underground utilities (on the City's property) at the entrance/exit points, as shown on Figure 5.

The approach slab will alleviate detrimental effects of dynamic loading/settlement/pavement depression in the backfill to the rigid substructure.

In the remaining pavement areas, any organic soil/topsoil/loose or unsuitable fill should be removed (subject to field inspection) and the base should be thoroughly proof-rolled. Any soft spots revealed during proof rolling should be sub-excavated and backfilled with suitable materials, compacted to 98 % SPMDD.

The natural soil is of a low permeability and frost susceptible. The pavement design is therefore mainly influenced by the need to minimize the effects of freezing and thawing. Consequently, the ground must not be unnecessarily disturbed and drainage must be provided.

The subgrade should be sloped at least 2% to facilitate drainage towards catch basins and the final subgrade should be compacted before the pavement is constructed.

It should be noted that the subgrade should be dry, not spongy, during the compaction and construction of the [sub] base. Soft or spongy subgrade areas should also be sub-excavated and properly replaced with suitable approved backfill, compacted to 98 % SPMDD.

The subgrade will suffer strength regression if water is allowed to infiltrate into the mantle. Therefore, sub-drains should be installed (subject to field inspection) to prevent surface water from infiltrating into the road subgrade.

For construction of concrete curbs, it is recommended that the concrete curbs be constructed on a granular base of at least 300 mm thick of granular A material, subject to pavement design.
In addition, in soft and/or wet areas Geotextile filter fabric may have to be used.

Pavement design, as per the Township of Barrie Standard Requirements, if different, is adequate for this project.

All granular materials used in the pavement construction should be compacted to 100 % of the Standard Proctor Maximum Dry Density.

Typical flexible pavement designs are as follows:

	Heavy Duty	Medium Duty	Light Duty
Asphaltic Concrete	40 mm HL3 65 mm HL8	40 mm HL3 50 mm HL8	50 mm HL3
19 mm Crushed Limestone	150 mm	150 mm	200 mm
Granular B Sub-base or 50 mm Crushed Limestone	300 mm	200 mm	-

Should the proposed roads be constructed during wet seasons, the moisture content in the subgrade will probably be above the optimum, and this will render its shear strength inadequate to support paving equipment traffic.
In the above case, the granular sub/base should be replaced by an equal thickness of compacted size 50 mm Crusher-Run Limestone.

A typical pavement structure above garage roof slab, please see Drawings 6 and 7.

13.0 METHANE GAS

The combustible vapour readings of all soil samples, presented on the attached borehole log sheets in Appendix A, are below the maximum MOE allowable limit of 5.0 % of Lower Explosive Limit (L.E.L.).

14.0 GENERAL COMMENTS

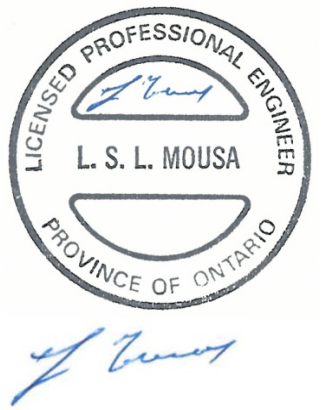
The comments given in this report are intended only as guidance for design engineers and are subject to field verification during construction. As more specific subsurface information, with respect to conditions between boreholes becomes available during excavations on the subject site, this report should be updated.

Contractors bidding on or undertaking the work should decide on their own investigations, as well as their own interpretations of the factual borehole results. This concern specifically applies to the classification of the subsurface soil and the potential reuse of these soils on/off site.

The contractors must draw their own conclusions as to how the near surface and subsurface conditions may affect them.

We trust this report contains information requested at this time. However, if any clarification is required or if we can be of further assistance, please call us.

Respectfully,
MCCLYMONT & RAK ENGINEERS INC.

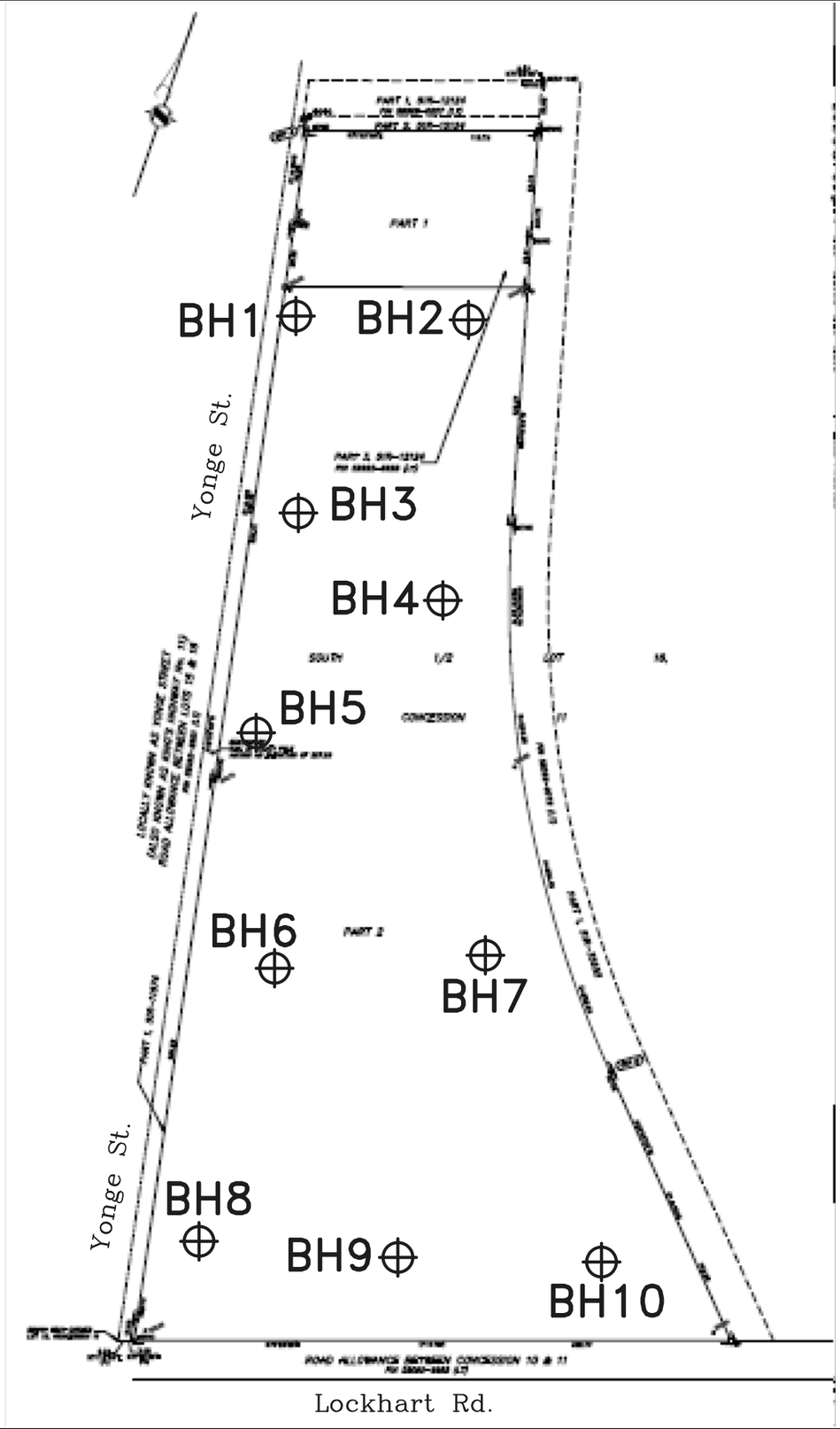


L.S. Mousa, P.Eng.

L.J. Rak, M.Eng., P.Eng.

FIGURES

971 YONGE STREET
BARRIE, ONTARIO



Legend

⊕ GROUNDWATER MONITORING WELL BY McCLYMONT & RAK ENGINEERS INC., NOVEMBER 2017

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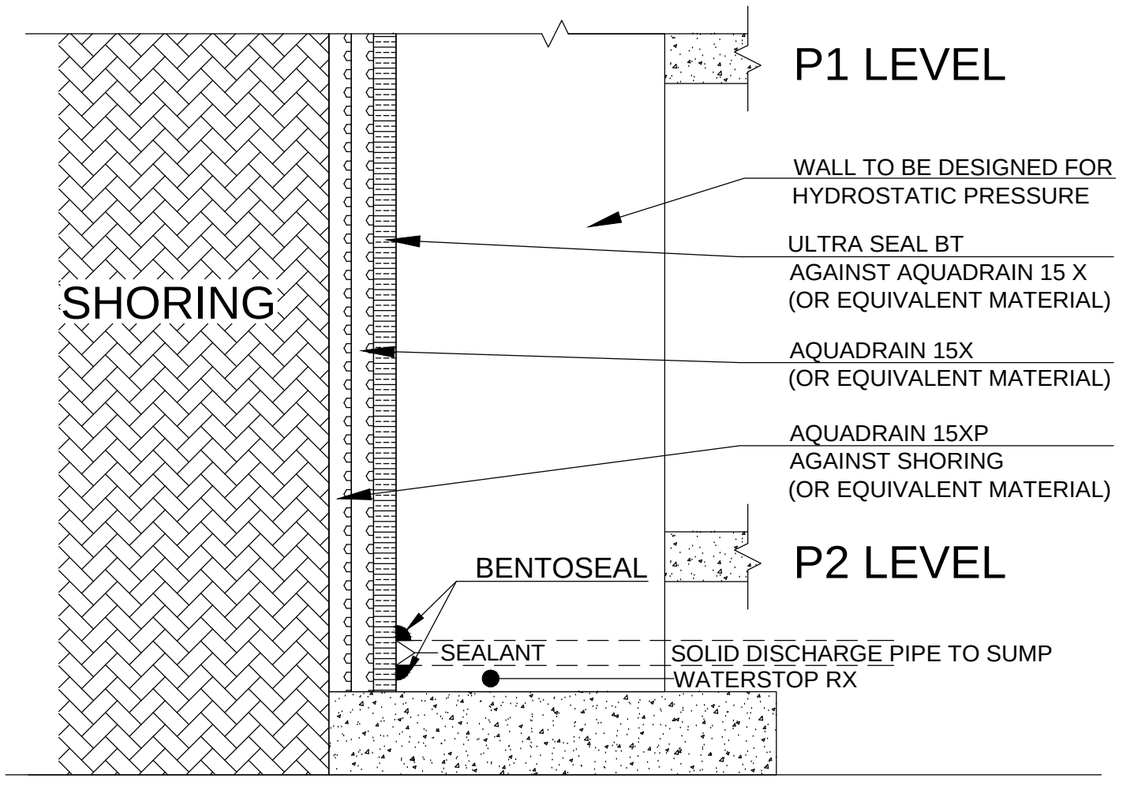
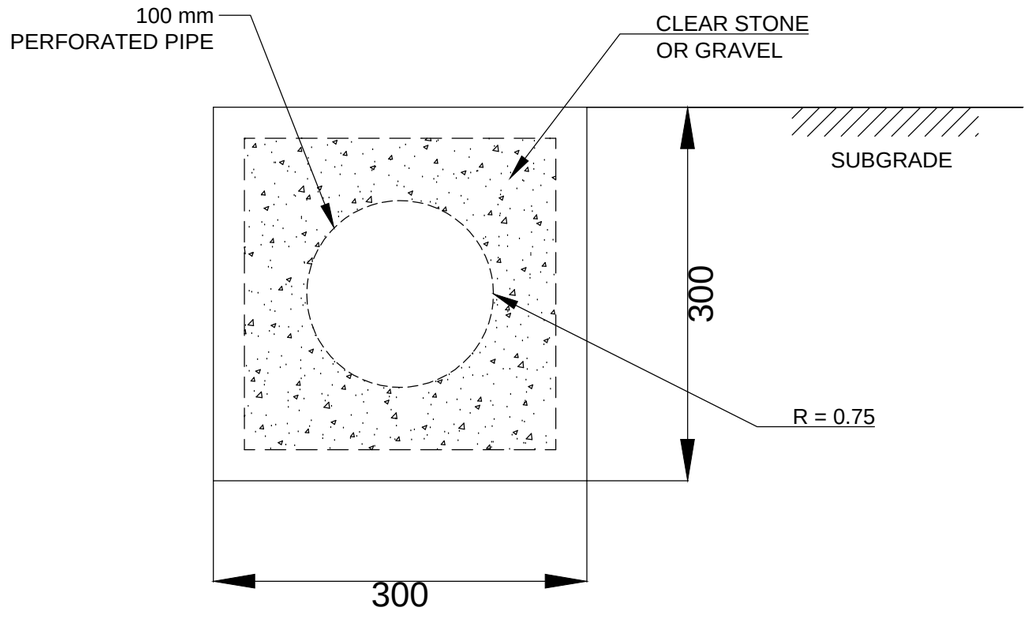
BOREHOLE LOCATION PLAN

Scale	Project No.
N/A	GE5243
Date	Drawing No.
FEBRUARY 2018	1

NOTE:
* TO MINIMIZE SILTATION OF THE DRAINAGE SYSTEM, ALL DRAINAGE PIPE CONNECTIONS MUST BE SOLID PVC ELBOWS AND Ts, NO "BUTT" END CONNECTIONS SHOULD BE PERMITTED.
* PERIMETER COLLECTION PIPE TO BE SOLID SLOTTED PIPE.





DETAILS OF SUB-FLOOR DRAINS
TO BE PLACED IN PARALLEL ROWS
6-8 m CENTERLINE TO CENTERLINE

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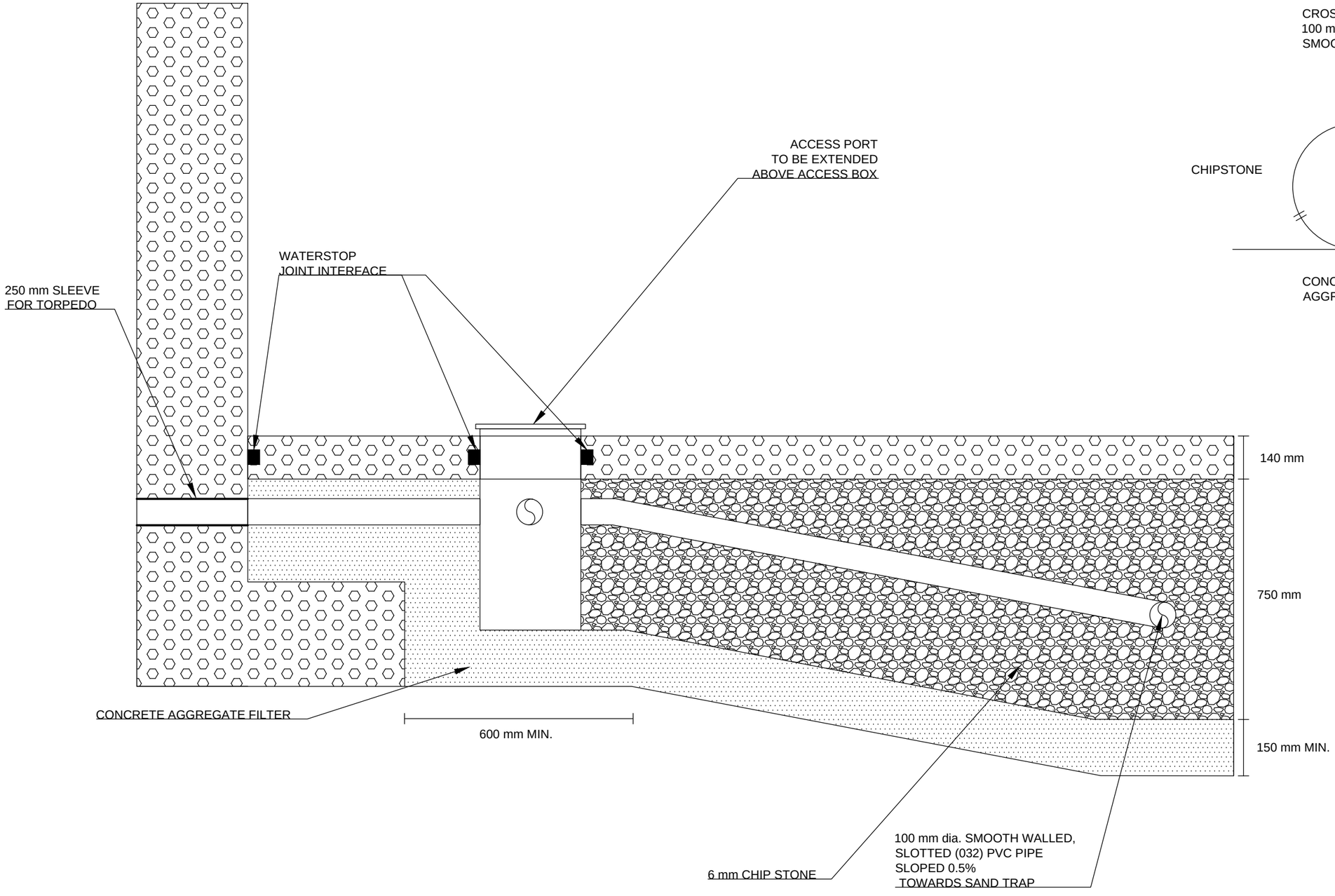
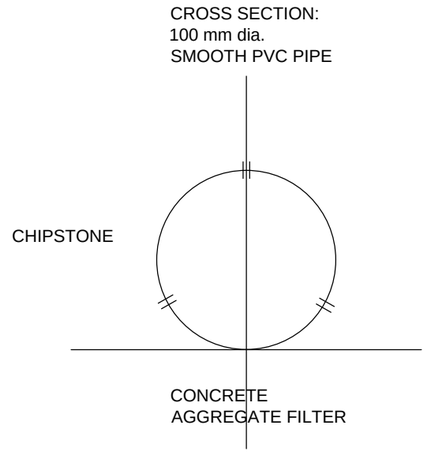
SUGGESTED EXTERIOR
DRAINAGE AGAINST SHORING

Scale:	Drawing No.
NTS	2





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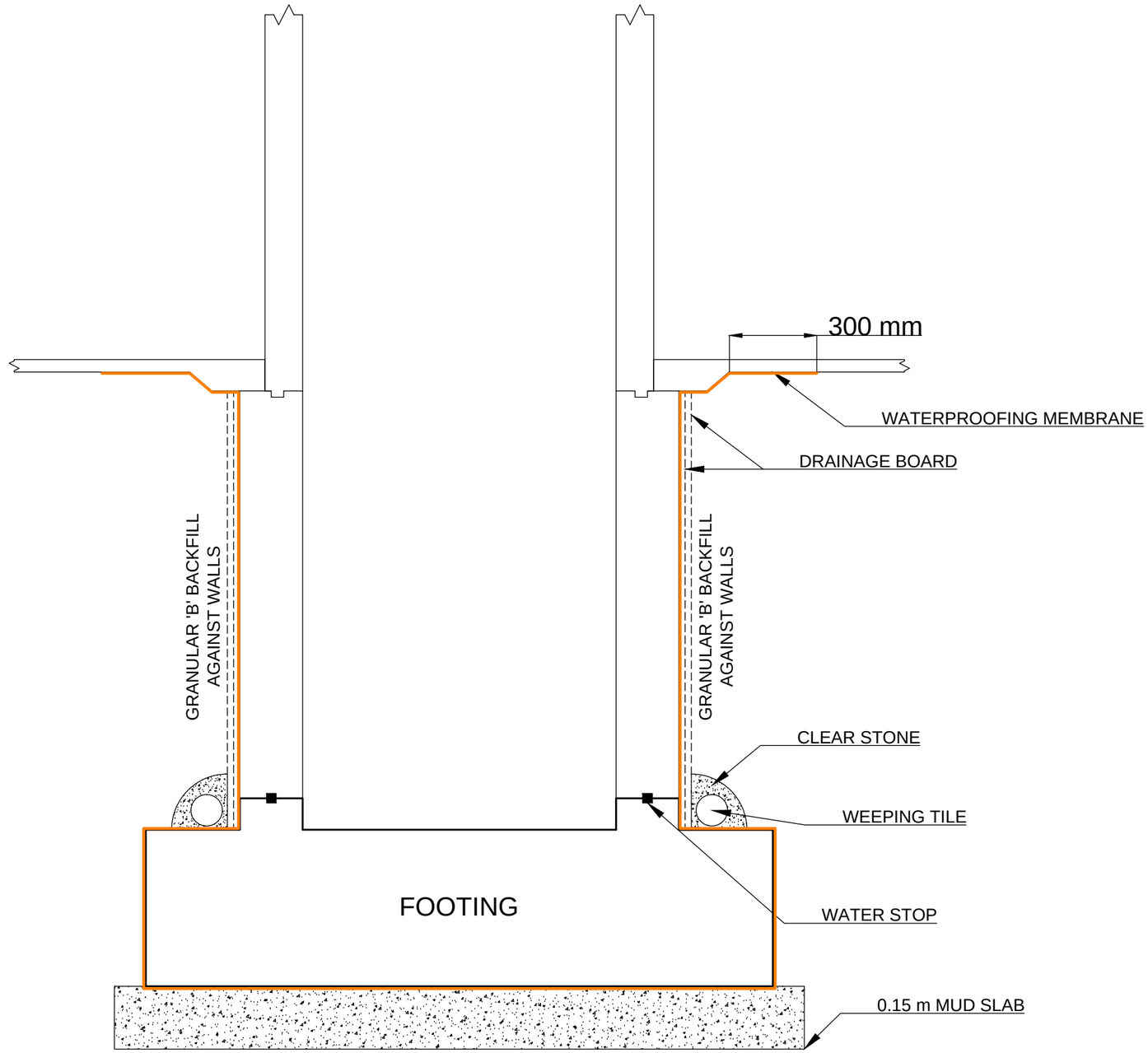
PRIVATE WATER DRAINAGE SYSTEM

Scale:	Drawing No.
NTS	3



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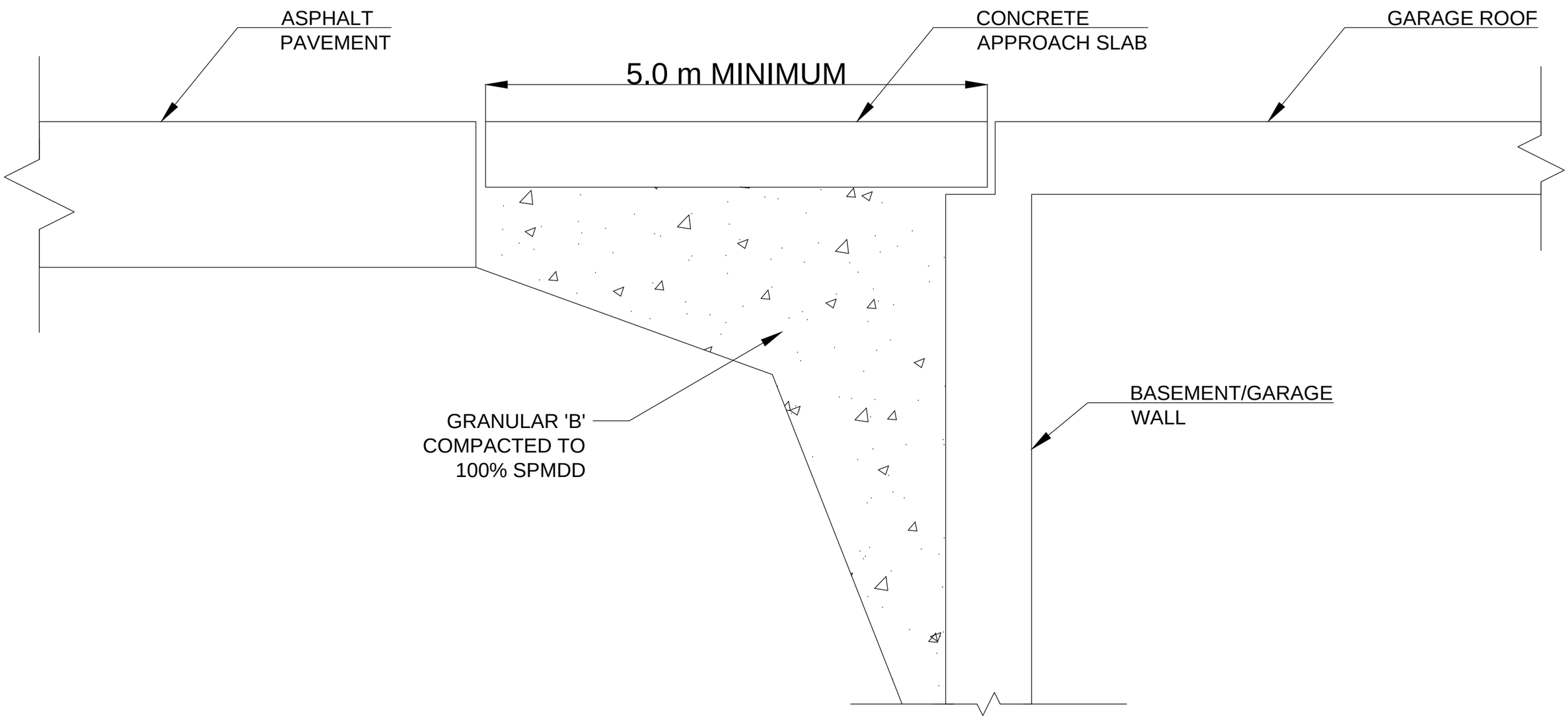
TYPICAL ELEVATOR PIT WATERPROOFING

Scale: NTS

Drawing No. 4



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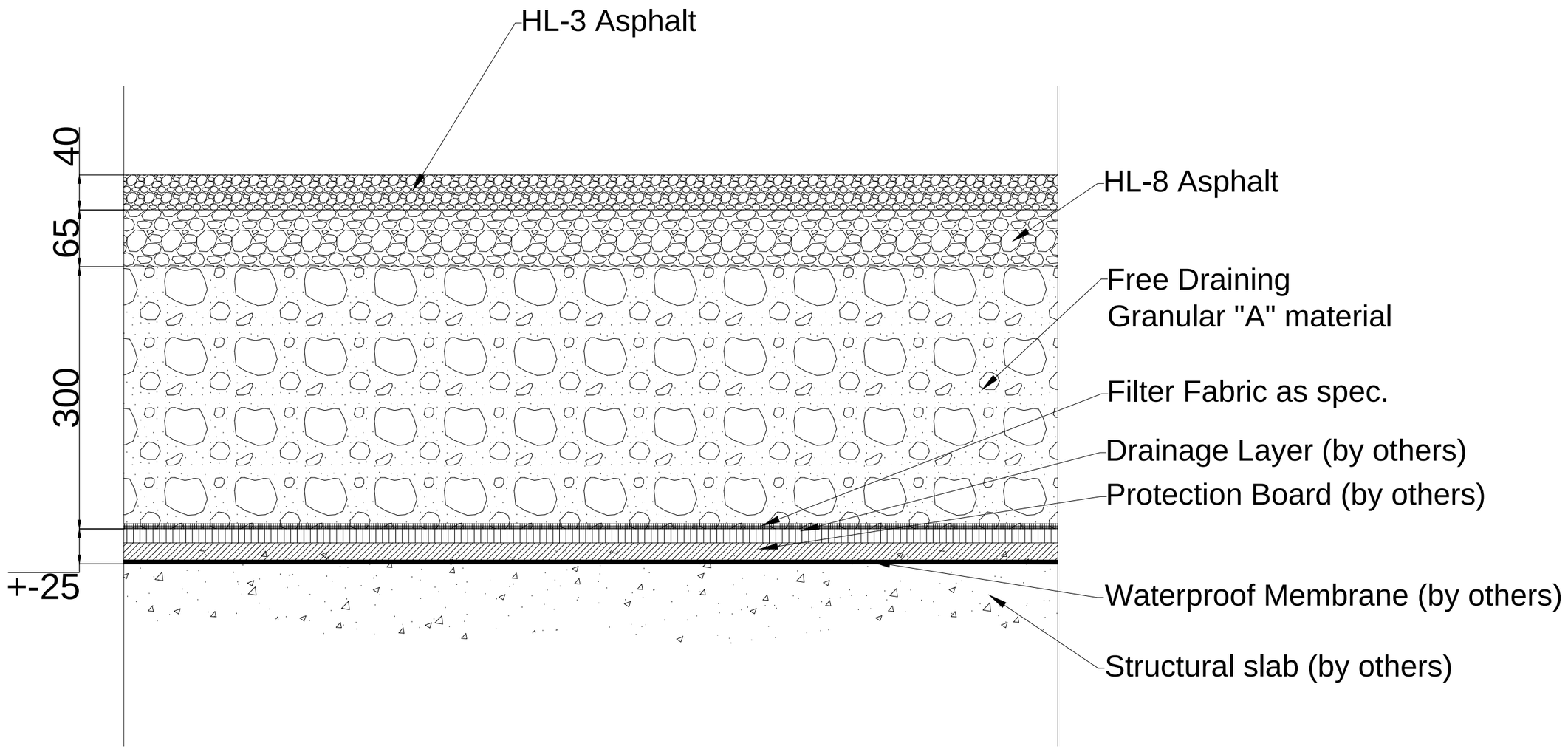
SUGGESTED APPROACH
SLAB DETAIL

Scale:	Drawing No.
NTS	5



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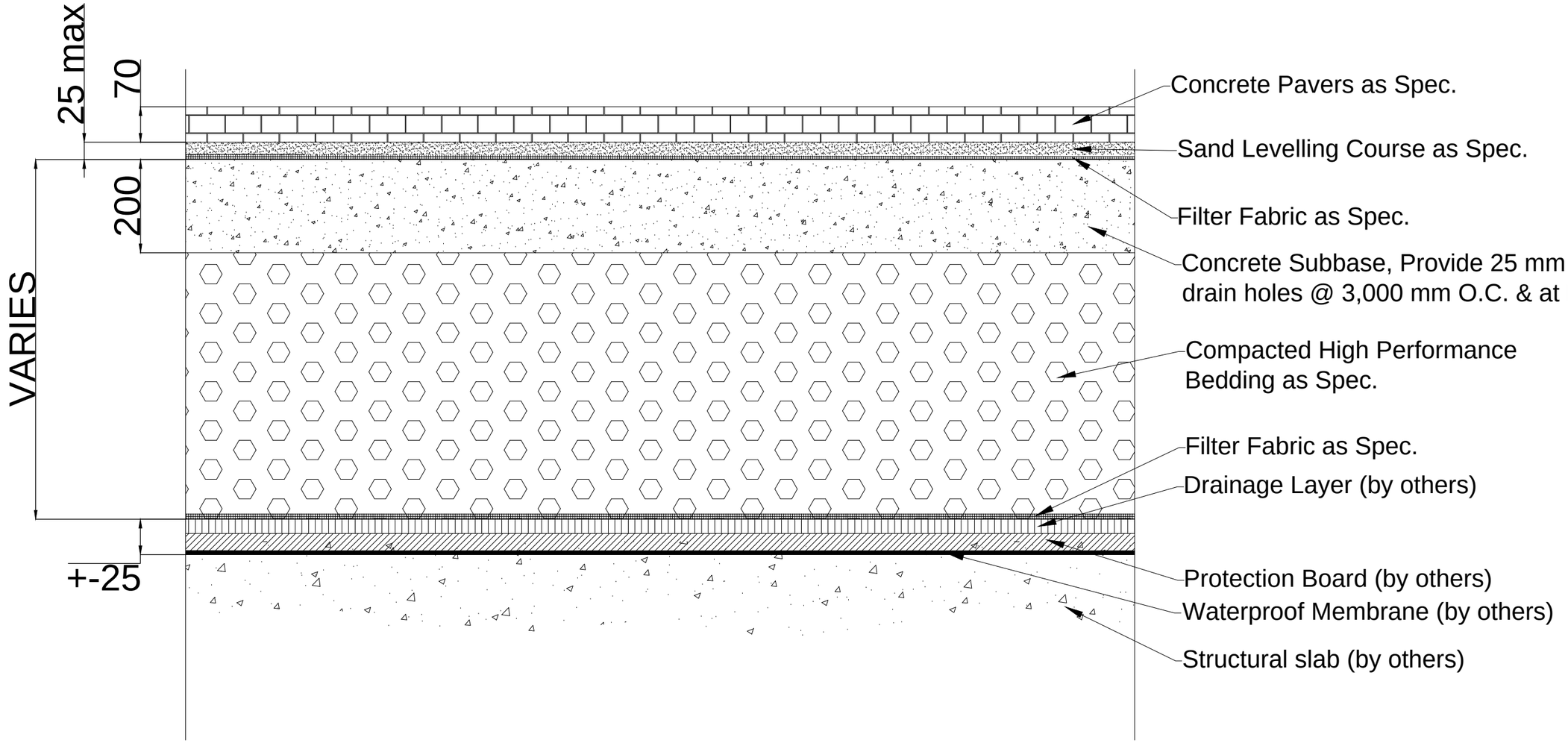
PAVEMENT ABOVE
GARAGE ROOF SLAB

Scale:	Drawing No.
NTS	6



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PAVEMENT ABOVE
GARAGE ROOF SLAB

Scale: NTS

Drawing No. 7

APPENDIX A

RECORD OF BOREHOLE 1

PROJECT : GE5243
LOCATION : 971 Yonge Street, Barrie, Ontario
STARTED : November 3, 2017
COMPLETED : November 3, 2017

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	ORGANIC VAPOUR READINGS (ppm) ⊗ 100 200 300 400 / % LEL - (hexane) □ 20 40 60 80	SHEAR STRENGTH: Cu, KPa nat V - ✤ rem V - ● Q - ✖ U - ▲ 20 40 60 80 / WATER CONTENT, PERCENT wp w wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		268.70							
	POWER BORING / HOLLOW STEM AUGER	SANDY SILT with ORGANICS: trace of clay, gravel and rootlets, brown to black, moist, loose.			1	SS	4				Protective Metal Casing
				268.09 / 0.61							
		SANDY SILT TILL: trace of clay, gravel and stone fragments, brown, moist, compact to dense.			2	SS	14				
					3	SS	39				Bentonite
2					4	SS	39				
				265.65 / 3.05							
		SANDY SILT: trace of clay, brown, moist, very dense.			5	SS	58				5.33 m Long 50 mm ID PVC Riser
4											
				264.13 / 4.57							264.13
		SILTY SAND: trace of clay, brown, moist, very dense.			6	SS	83				Silica Sand
											263.37
6					7	SS	74				▽
											3.05 m Long 50 mm ID PVC Screen
				261.08 / 7.62							
		SAND: trace of silt, brown, moist to wet, very dense.			8	SS	89				
8											260.32
											Bentonite
					9	SS	>100				
				259.12 / 9.58							259.12
		End of Borehole									
10		Note: 1) Water level was not measured on completion of drilling. 2) Soil samples were screened using a RKI Eagle gas meter with methane response mode off. 3) Water level was measured at 6.50 m bgs on December 13, 2017.									

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
WATER LEVEL: 6.50 m bgs

▼ DEEP/DUAL INSTALLATION
WATER LEVEL:

LOGGED : OM
CHECKED : LM

MCR BOREHOLE LOG 5243.GPJ 2/14/18

RECORD OF BOREHOLE 2

PROJECT : GE5243
LOCATION : 971 Yonge Street, Barrie, Ontario
STARTED : November 3, 2017
COMPLETED : November 3, 2017

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	ORGANIC VAPOUR READINGS (ppm) ⊗ 100 200 300 400 / % LEL - (hexane) □ 20 40 60 80	SHEAR STRENGTH: Cu, KPa nat V - ✤ rem V - ● Q - ✖ U - ▲ 20 40 60 80 / WATER CONTENT, PERCENT wp w wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		265.69							
	POWER BORING / HOLLOW STEM AUGER	SANDY SILT with ORGANICS: trace of clay, gravel and rootlets, brown to black, moist, very loose.			1	SS	3	20 ⊗			Protective Metal Casing
				265.08							
		CLAYEY SILT TILL: some sand, trace of gravel and stone fragments, grey, moist, very stiff to hard.		0.61	2	SS	25	0 ⊗			Bentonite
					3	SS	38	0 ⊗			
2				263.40							3.81 m Long 50 mm ID PVC Riser
		CLAYEY SILT: sandy silt seams, brown, moist, hard.		2.29	4	SS	47	0 ⊗			
		-moist to wet below 3.05 m depth.			5	SS	62	0 ⊗			262.64 Silica Sand
4											261.88 ▽
		-wet below 4.55 m depth.			6	SS	74	0 ⊗			
											3.05 m Long 50 mm ID PVC Screen
6					7	SS	62	0 ⊗			
											258.83
					8	SS	45	0 ⊗			Bentonite
8											
					9	SS	61	0 ⊗			256.09
				256.09							
		End of Borehole		9.60							
10		Note: 1) Water level was not measured on completion of drilling. 2) Soil samples were screened using a RKI Eagle gas meter with methane response mode off. 3) Water level was measured at 4.50 m bgs on November 9, 2017. 4) Water level was measured at 3.95 m bgs on December 13, 2017.									

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
WATER LEVEL: 3.95 m bgs

▼ DEEP/DUAL INSTALLATION
WATER LEVEL:

LOGGED : OM
CHECKED : LM

MCR BOREHOLE LOG 5243.GPJ 2/14/18

RECORD OF BOREHOLE 3

PROJECT : GE5243
LOCATION : 971 Yonge Street, Barrie, Ontario
STARTED : November 3, 2017
COMPLETED : November 3, 2017

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	ORGANIC VAPOUR READINGS (ppm) ⊗ 100 200 300 400 / % LEL - (hexane) □ 20 40 60 80	SHEAR STRENGTH: Cu, KPa nat V - ✤ rem V - ● Q - ✖ U - ▲ 20 40 60 80 / WATER CONTENT, PERCENT wp w wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		266.70							
	POWER BORING / HOLLOW STEM AUGER	SANDY SILT with ORGANICS: trace of clay, gravel and rootlets, brown to black, moist, very loose.			1	SS	3				Protective Metal Casing
				266.09 / 0.61							Bentonite
		SAND: some silt, trace of gravel, brown, moist, dense to very dense.			2	SS	30				2.29 m Long 50 mm ID PVC Riser
											265.18
					3	SS	47				Silica Sand
2											264.41
					4	SS	59				
				263.65 / 3.05							
		CLAYEY SILT: trace of sand, brown, wet, hard.			5	SS	35				
4											3.05 m Long 50 mm ID PVC Screen
				262.13 / 4.57							▽
		SAND: some silt, brown, moist to wet, very dense to dense.			6	SS	84				
											261.36
											Bentonite
6		-wet below 6.1 m depth.			7	SS	96				
					8	SS	49				
8											
					9	SS	>100				
				257.13 / 9.57							257.13
		End of Borehole									
10		Note: 1) Water level was not measured on completion of drilling. 2) Soil samples were screened using a RKI Eagle gas meter with methane response mode off. 3) Water level was measured at 4.08 m bgs on December 13, 2017.									

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
WATER LEVEL: 4.08 m bgs

▼ DEEP/DUAL INSTALLATION
WATER LEVEL:

LOGGED : OM
CHECKED : LM

MCR BOREHOLE LOG 5243.GPJ 2/14/18

RECORD OF BOREHOLE 4

PROJECT : GE5243
LOCATION : 971 Yonge Street, Barrie, Ontario
STARTED : November 2, 2017
COMPLETED : November 2, 2017

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	ORGANIC VAPOUR READINGS (ppm) ⊗ 100 200 300 400 / % LEL - (hexane) □ 20 40 60 80	SHEAR STRENGTH: Cu, KPa nat V - ✤ rem V - ● Q - ✖ U - ▲ 20 40 60 80 / WATER CONTENT, PERCENT wp w wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		264.01							
	POWER BORING / HOLLOW STEM AUGER	SANDY SILT with ORGANICS: trace of clay, gravel and rootlets, brown to black, moist, very loose.			1	SS	3	⊗ 15			Protective Metal Casing
				263.40							
		SANDY SILT TILL: trace of clay, gravel and stone fragments, brown, moist, compact.		0.61	2	SS	16	⊗ 20			0.91 m Long 50 mm ID PVC Riser
											263.10
											Silica Sand
				262.49							
		SILTY SAND: brown, wet, compact to dense.		1.52	3	SS	20	⊗ 0			▽
2											
					4	SS	35	⊗ 0			3.05 m Long 50 mm ID PVC Screen
				260.96							
		SAND: some silt, brown, wet, dense to very dense.		3.05	5	SS	43	⊗ 0			
											260.05
4											Bentonite
					6	SS	58	⊗ 0			
				257.91							
6		CLAYEY SILT: silty sand seams, brown, wet, hard.		6.10	7	SS	97	⊗ 0			
					8	SS	68	⊗ 0			
8											
				254.87							
		SILTY SAND: brown, wet, very dense.		9.14	9	SS	72	⊗ 0			254.41
				254.41							
		End of Borehole		9.60							
10		Note: 1) Water level was not measured on completion of drilling. 2) Soil samples were screened using a RKI Eagle gas meter with methane response mode off. 3) Water level was measured at 2.20 m bgs on November 9, 2017. 4) Water level was measured at 1.80 m bgs on December 13, 2017.									

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
WATER LEVEL: 1.80 m bgs

▼ DEEP/DUAL INSTALLATION
WATER LEVEL:

LOGGED : OM
CHECKED : LM

MCR BOREHOLE LOG 5243.GPJ 2/14/18

RECORD OF BOREHOLE 5

PROJECT : GE5243
LOCATION : 971 Yonge Street, Barrie, Ontario
STARTED : November 6, 2017
COMPLETED : November 6, 2017

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	ORGANIC VAPOUR READINGS (ppm) ⊗	% LEL - (hexane) □	SHEAR STRENGTH: Cu, KPa nat V - ✤ rem V - ● Q - ✖ U - ▲	WATER CONTENT, PERCENT wp w wl	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		266.42									
	POWER BORING / HOLLOW STEM AUGER	SANDY SILT with ORGANICS: trace of clay, gravel and rootlets, brown to black, moist, very loose.			1	SS	2	0					Protective Metal Casing
				265.81									Bentonite
		SANDY SILT: trace of clay and gravel, grey, moist, compact.		0.61	2	SS	26	15					2.29 m Long 50 mm ID PVC Riser
				264.90									264.90
2		SAND: some silt, brown moist, dense to very dense.		1.52	3	SS	44	0					Silica Sand
					4	SS	50	0					264.13
				263.37									
		CLAYEY SILT: trace of sand, brown, wet, very stiff.		3.05	5	SS	20	0					▽
4													3.05 m Long 50 mm ID PVC Screen
				261.85									
		SILTY SAND: sand seams, trace of clay, brown, moist to wet, very dense.		4.57	6	SS	67	0					
6					7	SS	94	0					261.08
													Bentonite
8					8	SS	93	0					
					9	SS	53	0					256.85
				256.82									
10		End of Borehole		9.60									

Note:
1) Water level was not measured on completion of drilling.
2) Soil samples were screened using a RKI Eagle gas meter with methane response mode off.
3) Water level was measured at 3.98 m bgs on November 9, 2017.
4) Water level was measured at 3.47 m bgs on December 13, 2017.

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
WATER LEVEL: 3.47 m bgs

▼ DEEP/DUAL INSTALLATION
WATER LEVEL:

LOGGED : OM
CHECKED : LM

MCR BOREHOLE LOG 5243.GPJ 2/14/18

RECORD OF BOREHOLE 6

PROJECT : GE5243
LOCATION : 971 Yonge Street, Barrie, Ontario
STARTED : November 6, 2017
COMPLETED : November 6, 2017

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

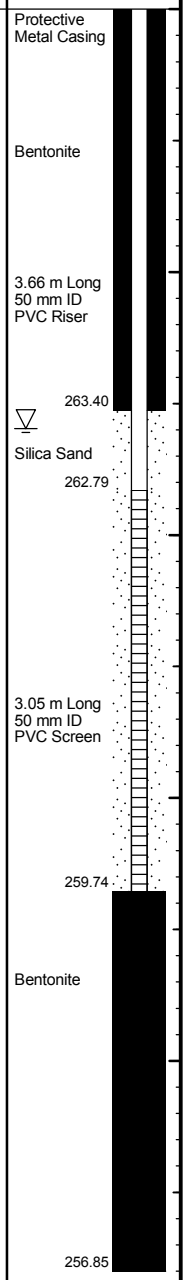
DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m
		GROUND SURFACE		266.45			
	POWER BORING / HOLLOW STEM AUGER	SANDY SILT with ORGANICS: trace of clay gravel and rootlets, brown to black, moist, very loose.		265.84 / 0.61	1	SS	3
		SANDY SILT TILL: some clay, trace of gravel and stone fragments, brown, moist, loose to very dense. -trace of roots in the upper 150 mm.			2	SS	8
2		-trace of clay and sand seams below 1.5 m depth.			3	SS	52
		SILTY SAND: trace of clay and stone fragments, brown, moist to wet, dense.		264.16 / 2.29	4	SS	46
		SANDY SILT TILL: trace of clay and gravel, brown, wet, very dense.		263.40 / 3.05	5	SS	57
4		SAND: some silt, brown, moist to wet, very dense.		261.88 / 4.57	6	SS	58
6		CLAYEY SILT: trace of sand, brown, moist to wet, hard.		260.35 / 6.10	7	SS	36
		SAND: some silt, trace of clay and gravel, grey, wet, very dense.		258.83 / 7.62	8	SS	88
8					9	SS	77
		End of Borehole		256.85 / 9.60			
10		Note: 1) Water level was not measured on completion of drilling. 2) Soil samples were screened using a RKI Eagle gas meter with methane response mode off. 3) Water level was measured at 3.19 m bgs on December 13, 2017.					

ORGANIC VAPOUR READINGS (ppm) ⊗ — 100 200 300 400
% LEL - (hexane) □ — 20 40 60 80

SHEAR STRENGTH: Cu, KPa — nat V - ✤ rem V - ● — Q - ✖ U - ▲ — 20 40 60 80
WATER CONTENT, PERCENT — wp ⊢ w ⊣ wl — 10 20 30 40

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION



GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
WATER LEVEL: 3.19 m bgs

▼ DEEP/DUAL INSTALLATION
WATER LEVEL:

LOGGED : OM
CHECKED : LM

MCR BOREHOLE LOG 5243.GPJ 2/14/18

RECORD OF BOREHOLE 7

PROJECT : GE5243
LOCATION : 971 Yonge Street, Barrie, Ontario
STARTED : November 2, 2017
COMPLETED : November 2, 2017

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	ORGANIC VAPOUR READINGS (ppm) ⊗ 100 200 300 400 / % LEL - (hexane) □ 20 40 60 80	SHEAR STRENGTH: Cu, KPa nat V - ✤ rem V - ● Q - ✖ U - ▲ 20 40 60 80 / WATER CONTENT, PERCENT wp w wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		265.13							
	POWER BORING / HOLLOW STEM AUGER	SANDY SILT with ORGANICS: trace of clay, gravel and rootlets, brown to black, moist, very loose.			1	SS	3	0			Protective Metal Casing
				264.52							
		CLAYEY SILT TILL: some sand, trace of gravel, silt seams, brown, moist to wet, stiff to very stiff.		0.61	2	SS	10	0			Bentonite
2					3	SS	23	0			3.81 m Long 50 mm ID PVC Riser
				262.84							
		SILTY SAND: trace of clay, brown, moist to wet, dense to very dense.. -trace of gravel in the upper 300 mm.		2.29	4	SS	40	5			
					5	SS	56	0			262.08 Silica Sand 261.32
4		-trace of gravel and wet below 4.55 m depth.			6	SS	54	0			
				259.03							3.05 m Long 50 mm ID PVC Screen
		CLAYEY SILT: trace of sand, brown, wet, hard.		6.10	7	SS	89	0			
6											258.27
				257.51							Bentonite
		SILTY SAND: trace of clay and gravel, brown, wet, very dense.		7.62	8	SS	97	0			
8											
				255.73	9	SS	>100	0			255.73
		End of Borehole		9.40							
10		Note: 1) Water level was not measured on completion of drilling. 2) Soil samples were screened using a RKI Eagle gas meter with methane response mode off. 3) Water level was measured at 2.43 m bgs on December 13, 2017.									

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
WATER LEVEL: 2.43 m bgs

▼ DEEP/DUAL INSTALLATION
WATER LEVEL:

LOGGED : OM
CHECKED : LM

MCR BOREHOLE LOG 5243.GPJ 2/14/18

RECORD OF BOREHOLE 8

PROJECT : GE5243
LOCATION : 971 Yonge Street, Barrie, Ontario
STARTED : November 1, 2017
COMPLETED : November 1, 2017

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	ORGANIC VAPOUR READINGS (ppm) ⊗ 100 200 300 400 / % LEL - (hexane) □ 20 40 60 80	SHEAR STRENGTH: Cu, KPa nat V - ✤ rem V - ● Q - ✖ U - ▲ 20 40 60 80 / WATER CONTENT, PERCENT wp w wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		269.18							
	POWER BORING / HOLLOW STEM AUGER	SANDY SILT with ORGANICS: trace of gravel, stone fragments and rootlets, brown to black, moist, very loose.			1	SS	3	10 ⊗			Protective Metal Casing
				268.57 0.61							
		SILTY SAND: trace of clay, gravel and stone fragments, brown, moist, dense.			2	SS	38	0 ⊗			
				267.66 1.52							
		SANDY SILT: brown, moist, compact.			3	SS	19	0 ⊗			Bentonite
2				266.89 2.29							
		CLAYEY SILT: trace of sand, brown, moist to wet, very stiff to hard.			4	SS	27	0 ⊗			
		-wet below 3.05 m depth.			5	SS	38	0 ⊗			▽ 6.10 m Long 50 mm ID PVC Riser
4					6	SS	96	0 ⊗			
											263.68 Silica Sand
6					7	SS	87	0 ⊗			263.08
											3.05 m Long 50 mm ID PVC Screen
8					8	SS	>100	0 ⊗			
											260.03
					9	SS	68	0 ⊗			
				259.58 9.60							
		End of Borehole									
10		Note: 1) Water level was not measured on completion of drilling. 2) Soil samples were screened using a RKI Eagle gas meter with methane response mode off. 3) Water level was measured at 3.48 m bgs on December 13, 2017.									

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
WATER LEVEL: 3.48 m bgs

▼ DEEP/DUAL INSTALLATION
WATER LEVEL:

LOGGED : OM
CHECKED : LM

MCR BOREHOLE LOG 5243.GPJ 2/14/18

RECORD OF BOREHOLE 9

PROJECT : GE5243
LOCATION : 971 Yonge Street, Barrie, Ontario
STARTED : November 1, 2017
COMPLETED : November 1, 2017

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	ORGANIC VAPOUR READINGS (ppm) ⊗	% LEL - (hexane) □	SHEAR STRENGTH: Cu, KPa nat V - ✤ rem V - ● Q - ✖ U - ▲	WATER CONTENT, PERCENT wp w wl	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		268.12									
	POWER BORING / HOLLOW STEM AUGER	SANDY SILT with ORGANICS: trace of clay, gravel and rootlets, brown to black, moist, loose.			1	SS	4	⊗ 5					Protective Metal Casing
				267.51 0.61									
		CLAYEY SILT: trace of sand, brown, moist, stiff.			2	SS	11	⊗ 0					
		-moist to wet below 1.5 m depth.			3	SS	9	⊗ 0					Bentonite
2				265.83 2.29									
		SANDY SILT: fine sand seams, brown, moist to wet, compact to very dense.			4	SS	24	⊗ 10					
		-some clay and moist below 3.05 m depth.			5	SS	64	⊗ 0					6.10 m Long 50 mm ID PVC Riser
4				263.55 4.57									▽
		SAND: some coarse sand, trace of silt. brown, wet, very dense to dense.			6	SS	77	⊗ 0					262.62
													Silica Sand
6					7	SS	35	⊗ 0					262.02
													3.05 m Long 50 mm ID PVC Screen
8					8	SS	98	⊗ 0					
				258.98 9.14									258.97
		SILTY SAND: brown, wet, very dense.			9	SS	85	⊗ 0					
				258.52 9.60									
		End of Borehole											
10		Note: 1) Water level was not measured on completion of drilling. 2) Soil samples were screened using a RKI Eagle gas meter with methane response mode off. 3) Water level was measured at 4.44 m bgs on December 13, 2017.											

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
WATER LEVEL: 4.44 m bgs

▼ DEEP/DUAL INSTALLATION
WATER LEVEL:

LOGGED : OM
CHECKED : LM

MCR BOREHOLE LOG 5243.GPJ 2/14/18

RECORD OF BOREHOLE 10

PROJECT : GE5243
LOCATION : 971 Yonge Street, Barrie, Ontario
STARTED : November 2, 2017
COMPLETED : November 2, 2017

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	ORGANIC VAPOUR READINGS (ppm) ⊗ 100 200 300 400 / % LEL - (hexane) □ 20 40 60 80	SHEAR STRENGTH: Cu, KPa nat V - ✤ rem V - ● Q - ✖ U - ▲ 20 40 60 80 / WATER CONTENT, PERCENT wp w wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		267.16							
	POWER BORING / HOLLOW STEM AUGER	SANDY SILT with ORGANICS: trace of clay, gravel and rootlets, brown to black, moist, very loose.			1	SS	3	⊗ 10			Protective Metal Casing
				266.55							
		SANDYSILT TILL: some clay, trace of gravel and stone fragments, brown, moist to wet, loose to compact,		0.61	2	SS	8	⊗ 0			
		-sand seams below 1.5 m depth.			3	SS	16	⊗ 15			Bentonite
2											
				264.87							
		SAND: trace of silt, brown, moist, dense to very dense.		2.29	4	SS	37	⊗ 0			
					5	SS	96	⊗ 0			6.10 m Long 50 mm ID PVC Riser
4											▽
		-some silt, trace of gravel and wet at 4.55 m depth.			6	SS	94	⊗ 0			
											261.66
											Silica Sand
6		-wet below 6.1 m depth.			7	SS	85	⊗ 0			261.06
											3.05 m Long 50 mm ID PVC Screen
					8	SS	82	⊗ 0			
8											
					9	SS	61	⊗ 0			
				257.56							258.01
		End of Borehole		9.60							
10		Note: 1) Water level was not measured on completion of drilling. 2) Soil samples were screened using a RKI Eagle gas meter with methane response mode off. 3) Water level was measured at 5.20 m bgs on November 9, 2017. 4) Water level was measured at 4.37 m bgs on December 13, 2017.									

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
WATER LEVEL: 4.37 m bgs

▼ DEEP/DUAL INSTALLATION
WATER LEVEL:

LOGGED : OM
CHECKED : LM

MCR BOREHOLE LOG 5243.GPJ 2/14/18

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1271 Denison St., Unit 45, Markham, Ontario L3R 4B5
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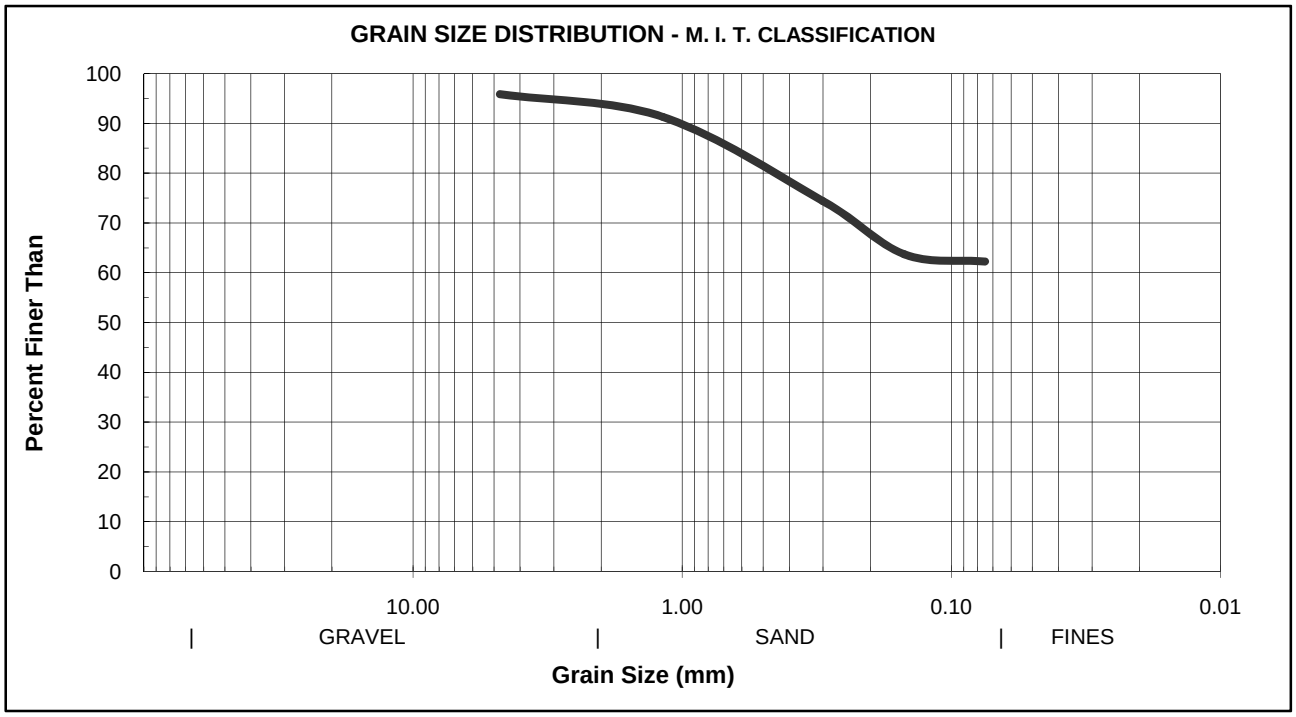
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/03/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-1 SS-3

Total weight of wet sample+container	300.1	Weight of wet sample+container(gm)	111
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	102.3
Weight of Wet sample(gm)	295.9	Weight of container(gm)	4.2
Weight of dry sample	271.8	Weight of dry sample(gm)	98.1
Moisture content	8.87	Weight of water(gm)	8.7
		Moisture content %	8.869

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	11.2	4.1	95.9	
16	1.2	23.6	8.7	91.3	
50	0.30	69.6	25.6	74.4	
100	0.150	98.7	36.3	63.7	
200	0.075	102.6	37.7	62.3	



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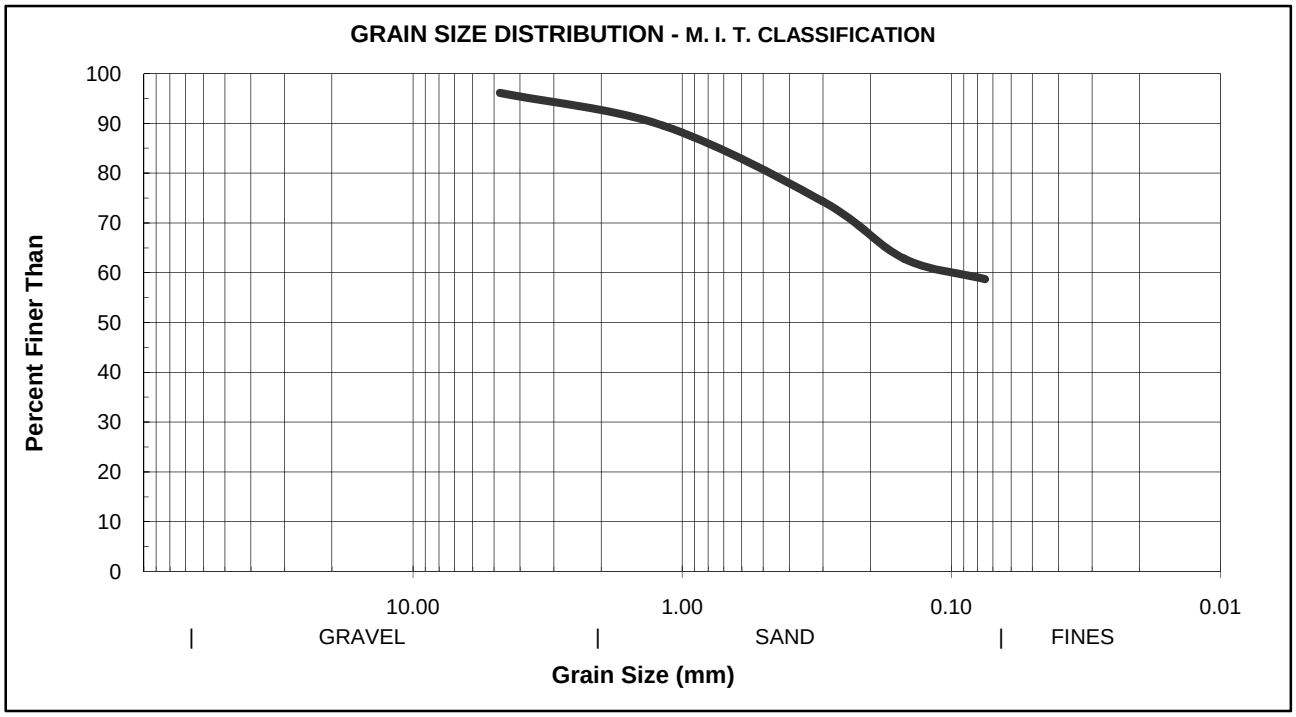
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/03/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-1 SS-5

Total weight of wet sample+container	301	Weight of wet sample+container(gm)	143.8
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	131.4
Weight of Wet sample(gm)	296.8	Weight of container(gm)	4.2
Weight of dry sample	270.4	Weight of dry sample(gm)	127.2
Moisture content	9.75	Weight of water(gm)	12.4
		Moisture content %	9.748

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	10.5	3.9	96.1	
16	1.2	28.2	10.4	89.6	
50	0.30	69.5	25.7	74.3	
100	0.150	100.5	37.2	62.8	
200	0.075	111.7	41.3	58.7	



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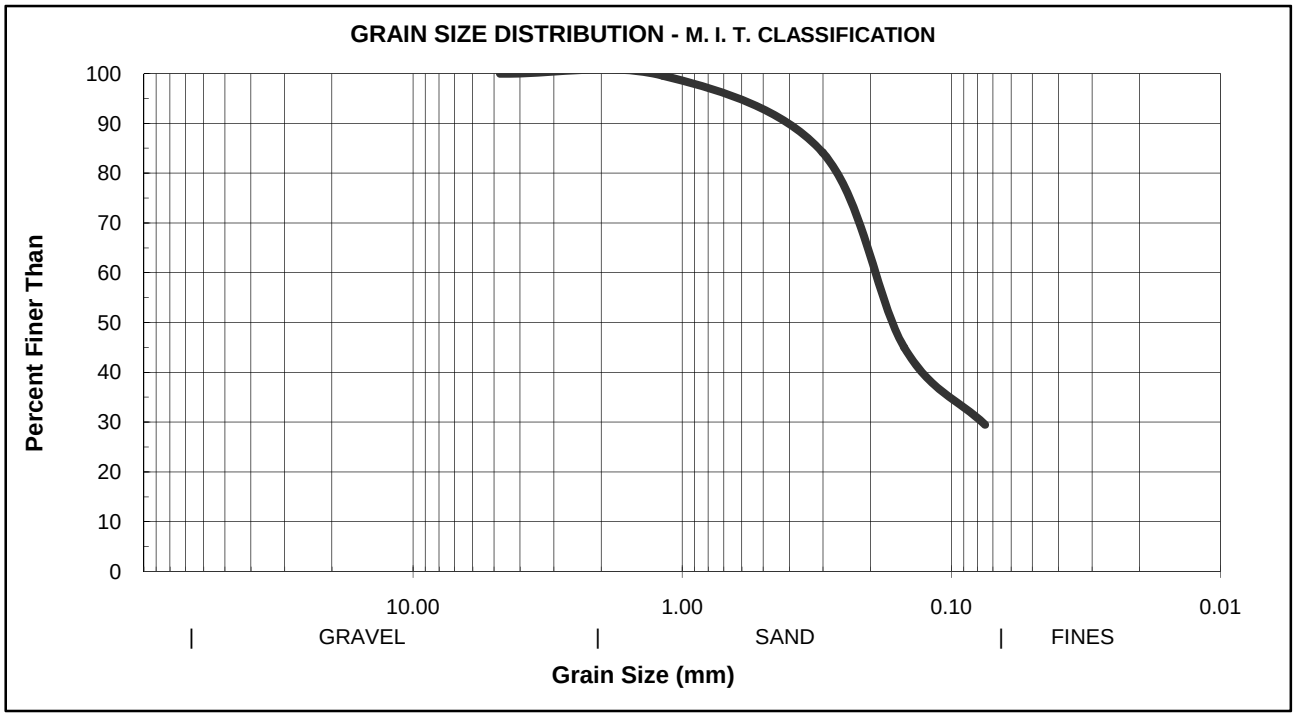
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/03/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-1 SS-6

Total weight of wet sample+container	291.6	Weight of wet sample+container(gm)	119.7
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	116.2
Weight of Wet sample(gm)	287.4	Weight of container(gm)	4.2
Weight of dry sample	278.7	Weight of dry sample(gm)	112
Moisture content	3.12	Weight of water(gm)	3.5
		Moisture content %	3.125

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	0.0	0.0	100.0	
16	1.2	1.1	0.4	99.6	
50	0.30	44.4	15.9	84.1	
100	0.150	153.3	55.0	45.0	
200	0.075	196.6	70.5	29.5	



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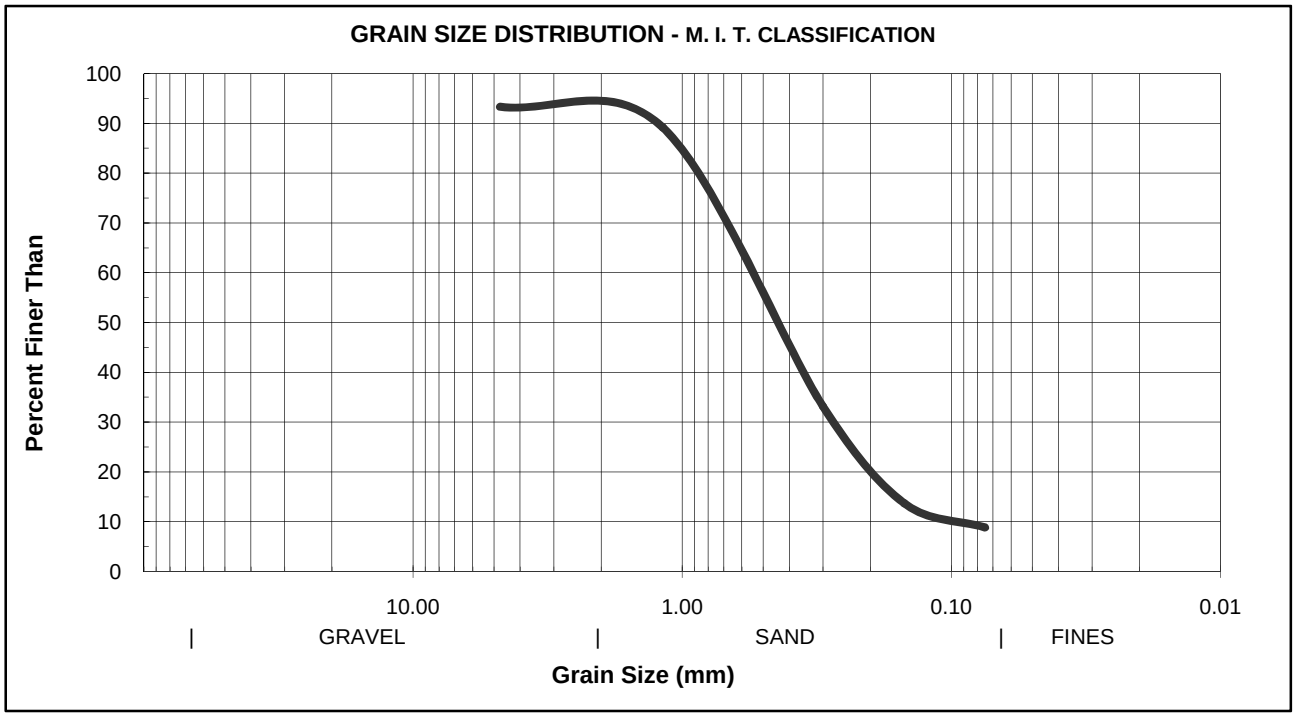
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/03/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-1 SS-8

Total weight of wet sample+container	302	Weight of wet sample+container(gm)	126
Weight of container(gm)	4.3	Weight of dry sample+container(gm)	109.5
Weight of Wet sample(gm)	297.7	Weight of container(gm)	4.3
Weight of dry sample	257.3	Weight of dry sample(gm)	105.2
Moisture content	15.7	Weight of water(gm)	16.5
		Moisture content %	15.68

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	17.2	6.7	93.3	
16	1.2	27.9	10.8	89.2	
50	0.30	172.0	66.8	33.2	
100	0.150	222.0	86.3	13.7	
200	0.075	234.7	91.2	8.8	



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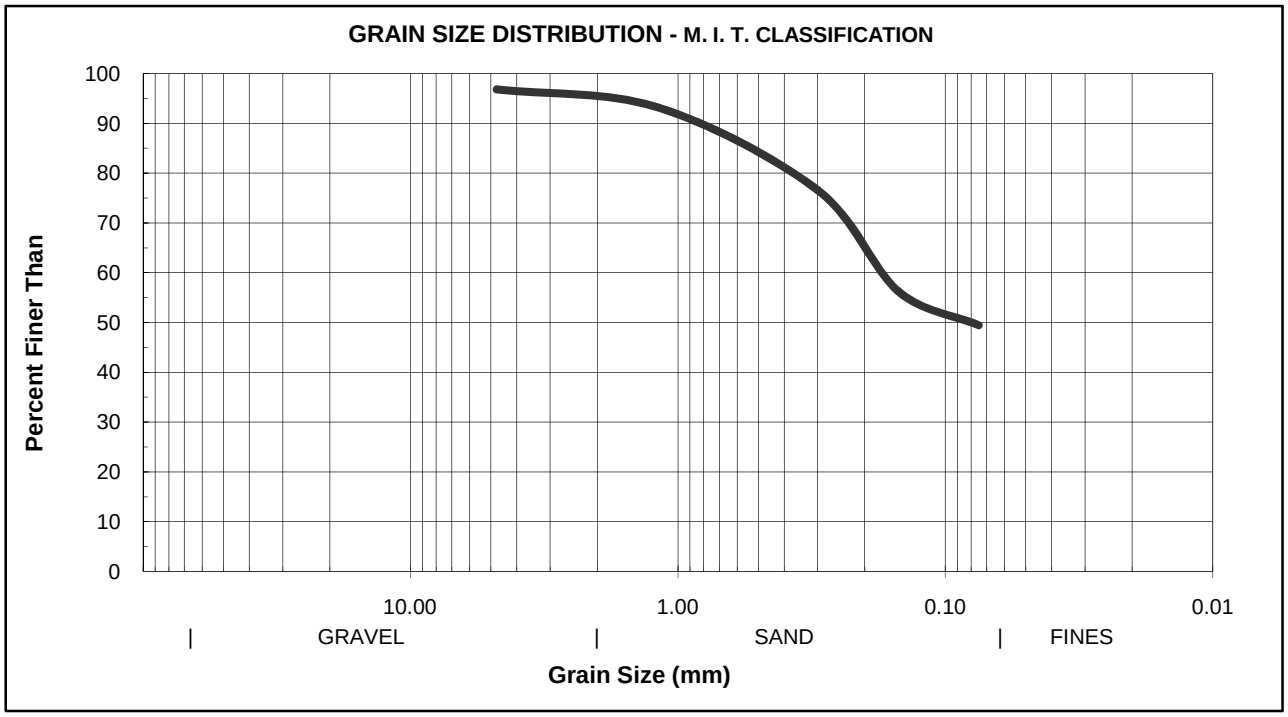
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/02/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-10 SS-3

Total weight of wet sample+container	240	Weight of wet sample+container(gm)	107
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	96.8
Weight of Wet sample(gm)	235.8	Weight of container(gm)	4.2
Weight of dry sample	212.4	Weight of dry sample(gm)	92.6
Moisture content	11.0	Weight of water(gm)	10.2
		Moisture content %	11.0

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	6.8	3.2	96.8	
16	1.2	14.5	6.8	93.2	
50	0.30	49.7	23.4	76.6	
100	0.150	92.7	43.6	56.4	
200	0.075	107.4	50.6	49.4	



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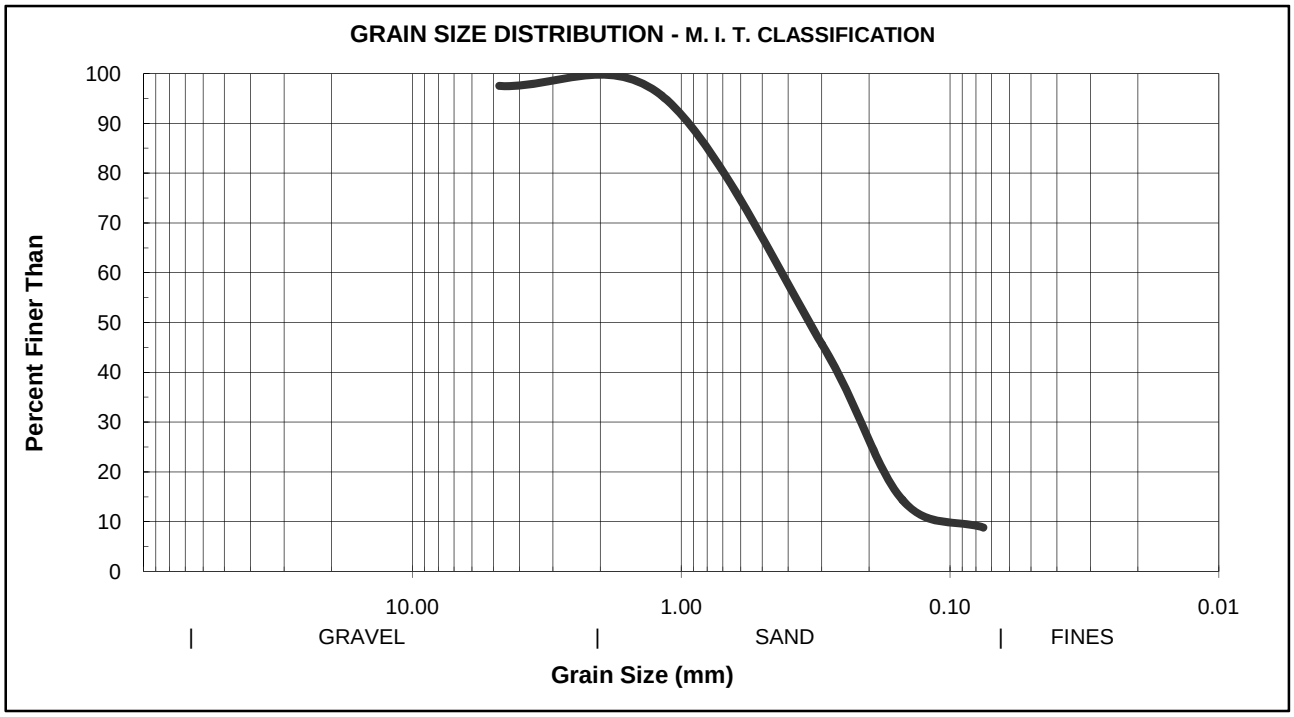
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/02/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-10 SS-4

Total weight of wet sample+container	250	Weight of wet sample+container(gm)	110
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	108.2
Weight of Wet sample(gm)	245.8	Weight of container(gm)	4.2
Weight of dry sample	241.6	Weight of dry sample(gm)	104
Moisture content	1.73	Weight of water(gm)	1.8
		Moisture content %	1.73

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	6.0	2.5	97.5	
16	1.2	10.8	4.5	95.5	
50	0.30	131.3	54.3	45.7	
100	0.150	207.0	85.7	14.3	
200	0.075	220.3	91.2	8.8	



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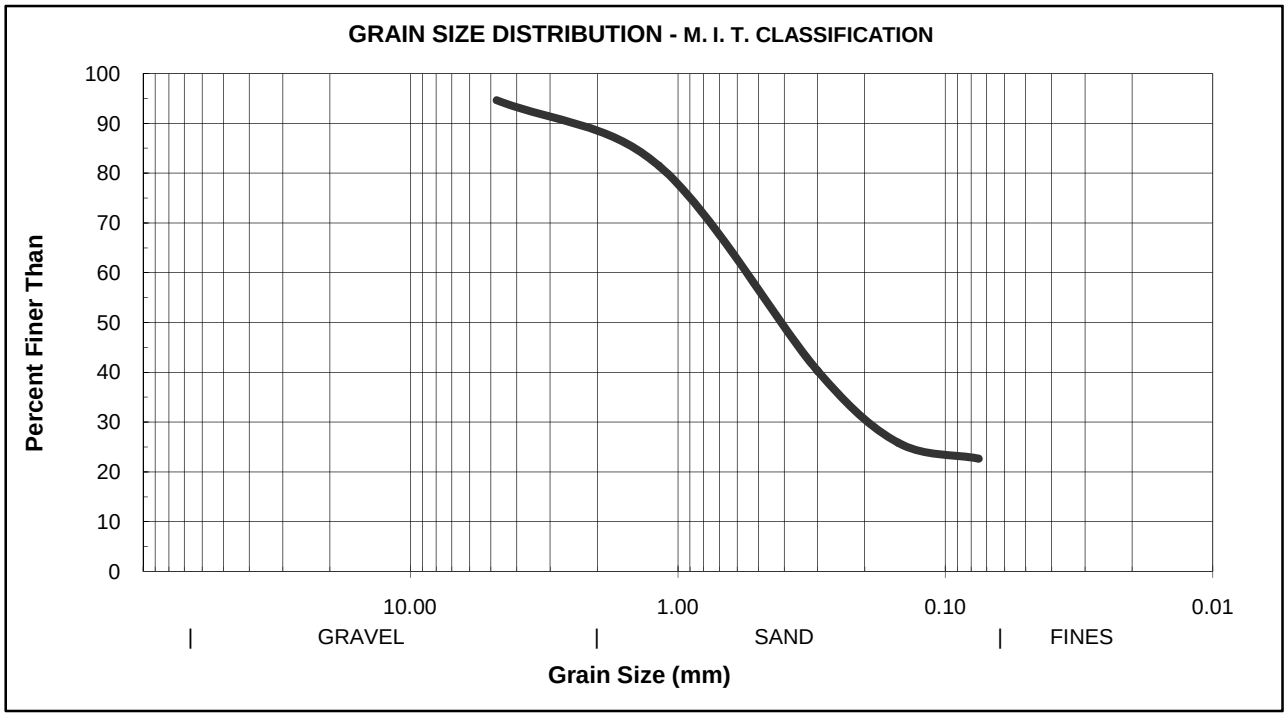
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/02/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-10 SS-6

Total weight of wet sample+container	250	Weight of wet sample+container(gm)	110
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	99.2
Weight of Wet sample(gm)	245.8	Weight of container(gm)	4.2
Weight of dry sample	220.7	Weight of dry sample(gm)	95
Moisture content	11.4	Weight of water(gm)	10.8
		Moisture content %	11.4

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	11.9	5.4	94.6	
16	1.2	40.8	18.5	81.5	
50	0.30	131.8	59.7	40.3	
100	0.150	163.6	74.1	25.9	
200	0.075	170.7	77.3	22.7	



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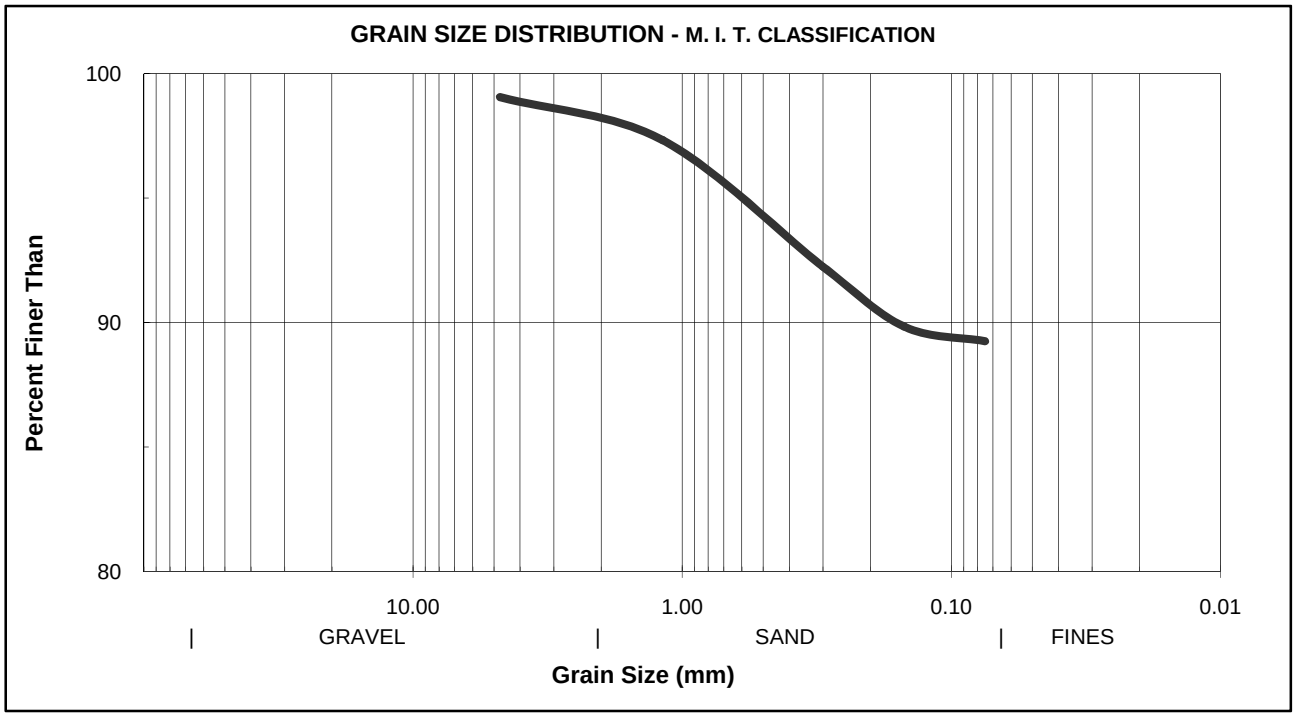
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/03/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-2 SS-3

Total weight of wet sample+container	293.2	Weight of wet sample+container(gm)	118.2
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	104.4
Weight of Wet sample(gm)	289	Weight of container(gm)	4.2
Weight of dry sample	254.0	Weight of dry sample(gm)	100.2
Moisture content	13.77	Weight of water(gm)	13.8
		Moisture content %	13.77

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	2.4	0.9	99.1	
16	1.2	6.8	2.7	97.3	
50	0.30	19.7	7.8	92.2	
100	0.150	25.8	10.2	89.8	
200	0.075	27.3	10.7	89.3	



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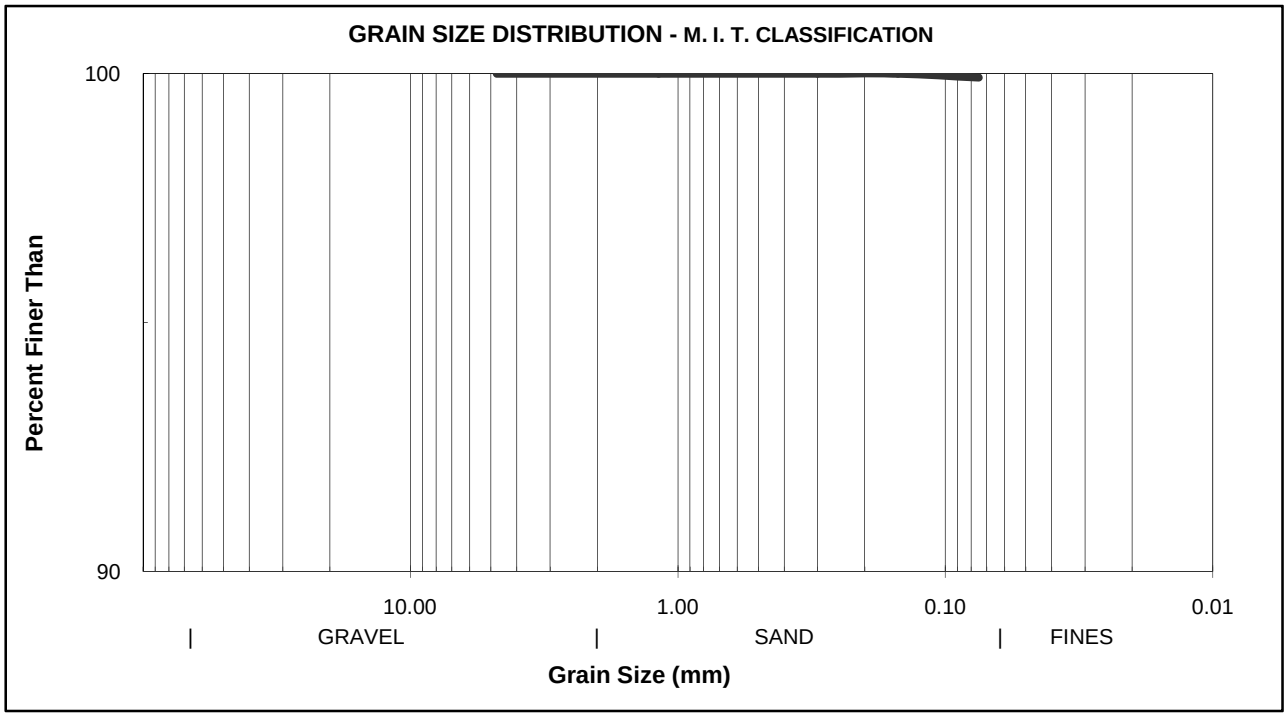
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/03/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-2 SS-5

Total weight of wet sample+container	302.6	Weight of wet sample+container(gm)	114
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	96.6
Weight of Wet sample(gm)	298.4	Weight of container(gm)	4.2
Weight of dry sample	251.8	Weight of dry sample(gm)	92.4
Moisture content	18.5	Weight of water(gm)	17.1
		Moisture content %	18.5

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	0.0	0.0	100.0	
16	1.2	0.0	0.0	100.0	
50	0.30	0.0	0.0	100.0	
100	0.150	0.0	0.0	100.0	
200	0.075	0.2	0.1	99.9	



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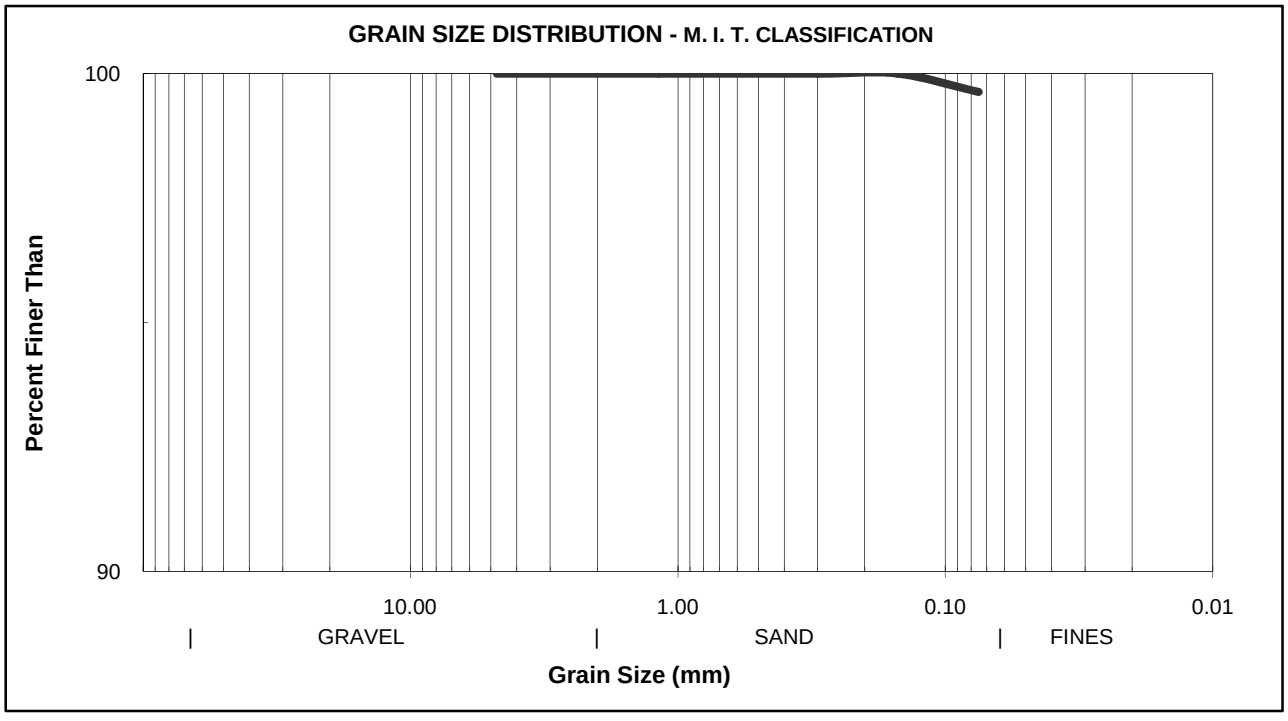
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/03/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-2 SS-6

Total weight of wet sample+container	297.2	Weight of wet sample+container(gm)	112
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	95.0
Weight of Wet sample(gm)	293	Weight of container(gm)	4.2
Weight of dry sample	245.9	Weight of dry sample(gm)	90.8
Moisture content	19.16	Weight of water(gm)	17.4
		Moisture content %	19.2

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	0.0	0.0	100.0	
16	1.2	0.0	0.0	100.0	
50	0.30	0.0	0.0	100.0	
100	0.150	0.0	0.0	100.0	
200	0.075	0.9	0.4	99.6	



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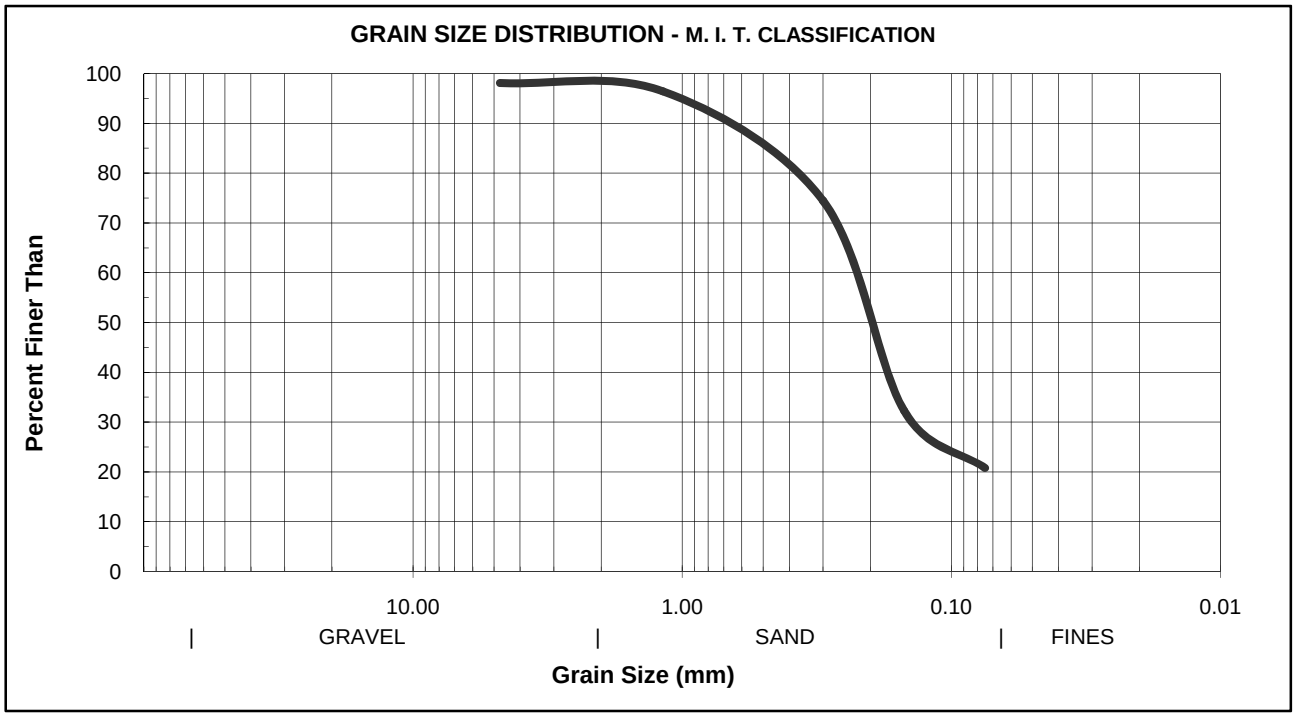
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/03/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-3 SS-3

Total weight of wet sample+container	301	Weight of wet sample+container(gm)	113.4
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	109.0
Weight of Wet sample(gm)	296.8	Weight of container(gm)	4.2
Weight of dry sample	284.8	Weight of dry sample(gm)	104.8
Moisture content	4.20	Weight of water(gm)	4.4
		Moisture content %	4.198

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	5.4	1.9	98.1	
16	1.2	10.2	3.6	96.4	
50	0.30	72.5	25.5	74.5	
100	0.150	192.9	67.7	32.3	
200	0.075	225.7	79.2	20.8	



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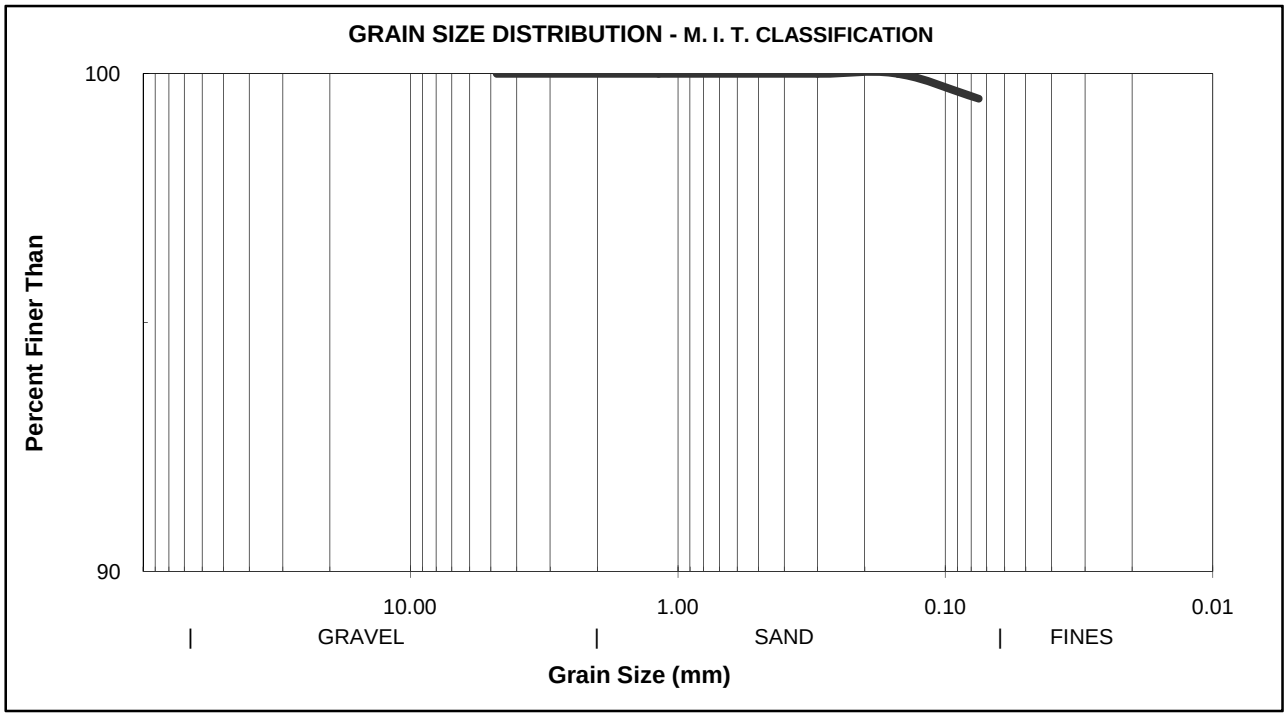
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/03/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-3 SS-5

Total weight of wet sample+container	294.5	Weight of wet sample+container(gm)	117
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	95.9
Weight of Wet sample(gm)	290.3	Weight of container(gm)	4.2
Weight of dry sample	236.6	Weight of dry sample(gm)	91.7
Moisture content	22.7	Weight of water(gm)	20.8
		Moisture content %	22.7

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	0.0	0.0	100.0	
16	1.2	0.0	0.0	100.0	
50	0.30	0.0	0.0	100.0	
100	0.150	0.0	0.0	100.0	
200	0.075	1.2	0.5	99.5	



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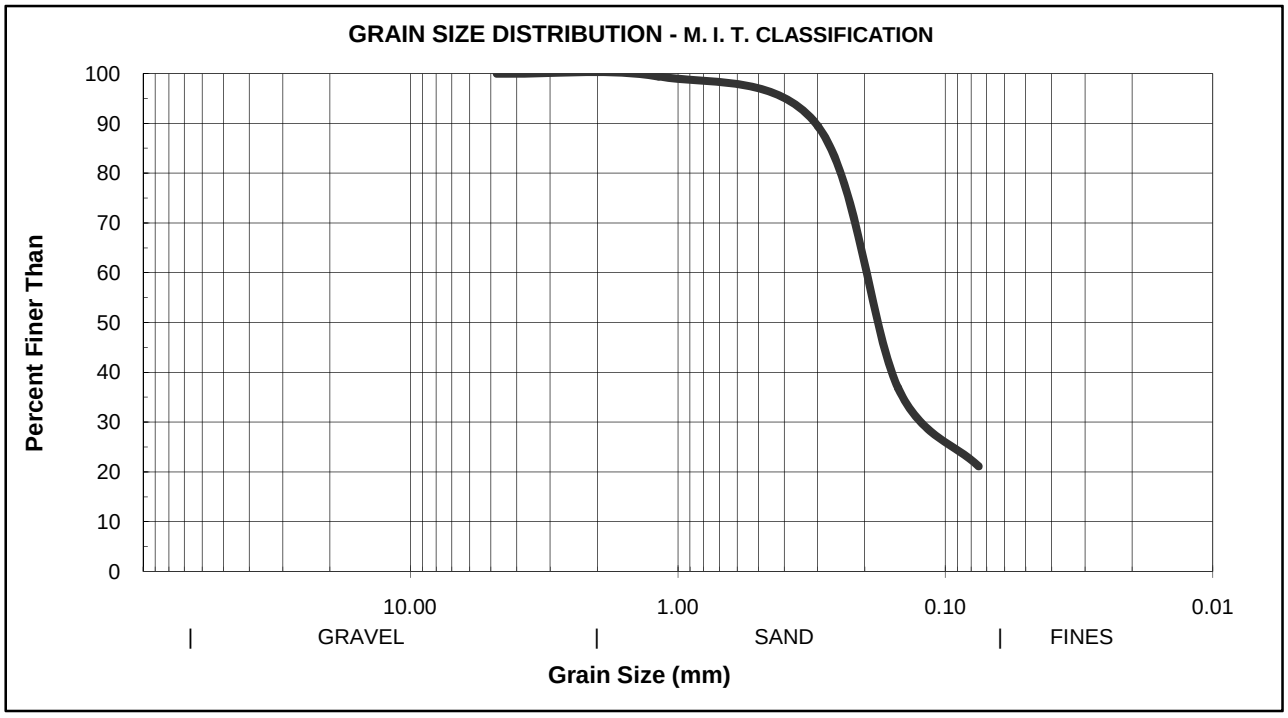
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/03/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-3 SS-6

Total weight of wet sample+container	306.6	Weight of wet sample+container(gm)	116
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	99.8
Weight of Wet sample(gm)	302.4	Weight of container(gm)	4.2
Weight of dry sample	259.5	Weight of dry sample(gm)	95.6
Moisture content	16.53	Weight of water(gm)	15.8
		Moisture content %	16.5

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	0.0	0.0	100.0	
16	1.2	1.5	0.6	99.4	
50	0.30	27.3	10.5	89.5	
100	0.150	163.9	63.2	36.8	
200	0.075	204.8	78.9	21.1	



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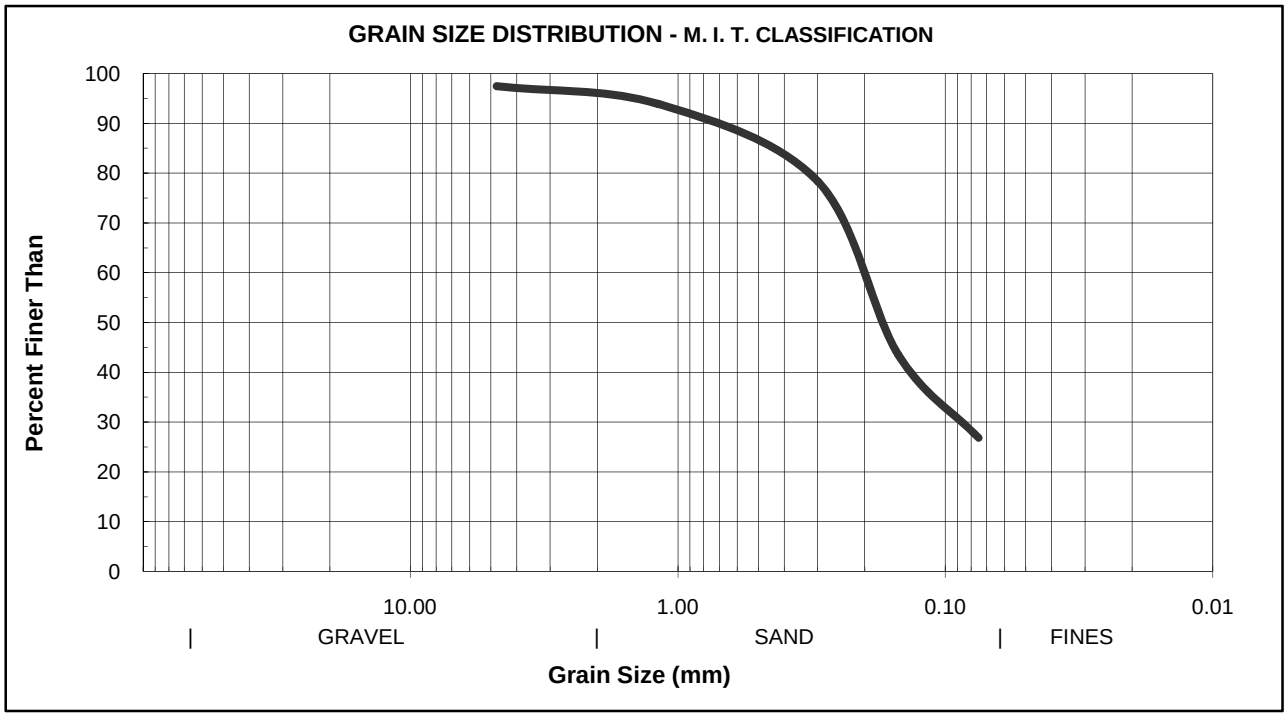
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/02/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-4 SS-3

Total weight of wet sample+container	178.9	Weight of wet sample+container(gm)	62.3
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	54.3
Weight of Wet sample(gm)	174.7	Weight of container(gm)	4.2
Weight of dry sample	150.6	Weight of dry sample(gm)	50.1
Moisture content	15.97	Weight of water(gm)	8
		Moisture content %	16

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	3.8	2.5	97.5	
16	1.2	9.2	6.1	93.9	
50	0.30	32.6	21.6	78.4	
100	0.150	85.0	56.4	43.6	
200	0.075	110.2	73.2	26.8	



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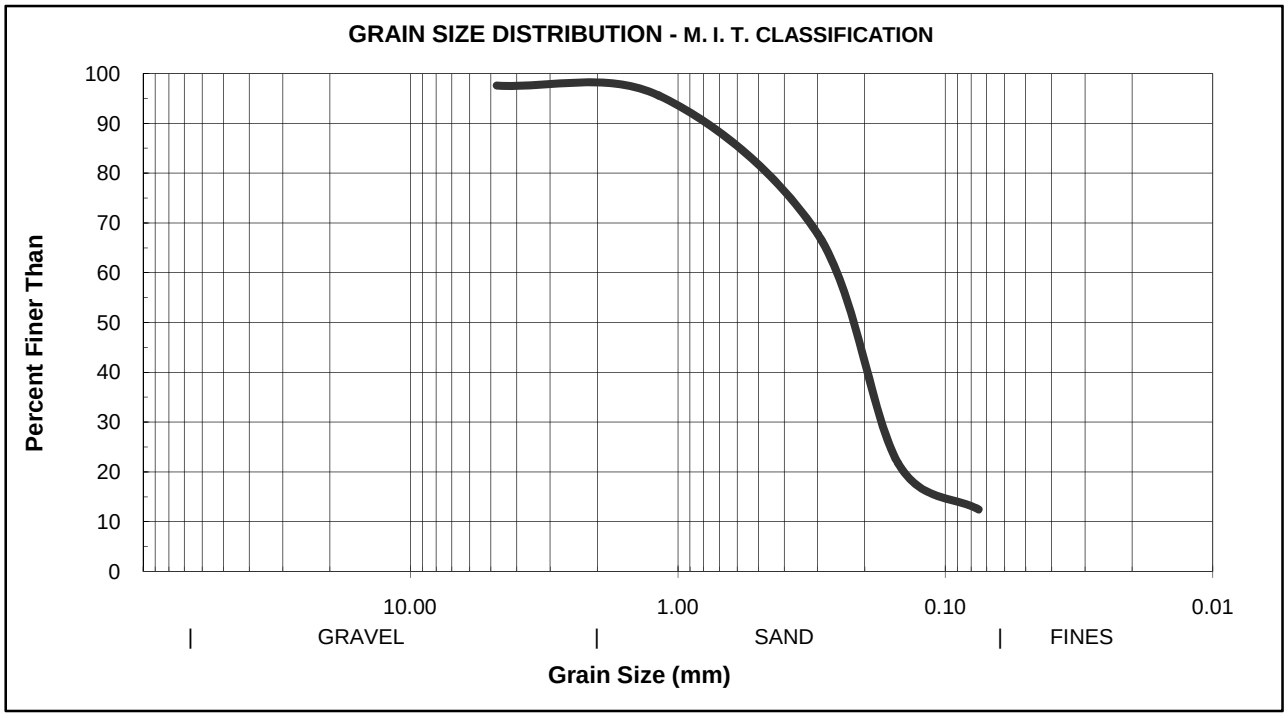
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/02/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-4 SS-5

Total weight of wet sample+container	300.4	Weight of wet sample+container(gm)	114
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	97.9
Weight of Wet sample(gm)	296.2	Weight of container(gm)	4.1
Weight of dry sample	253.7	Weight of dry sample(gm)	93.8
Moisture content	16.7	Weight of water(gm)	15.7
		Moisture content %	16.7

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	6.1	2.4	97.6	
16	1.2	11.2	4.4	95.6	
50	0.30	81.8	32.2	67.8	
100	0.150	198.5	78.2	21.8	
200	0.075	222.2	87.6	12.4	



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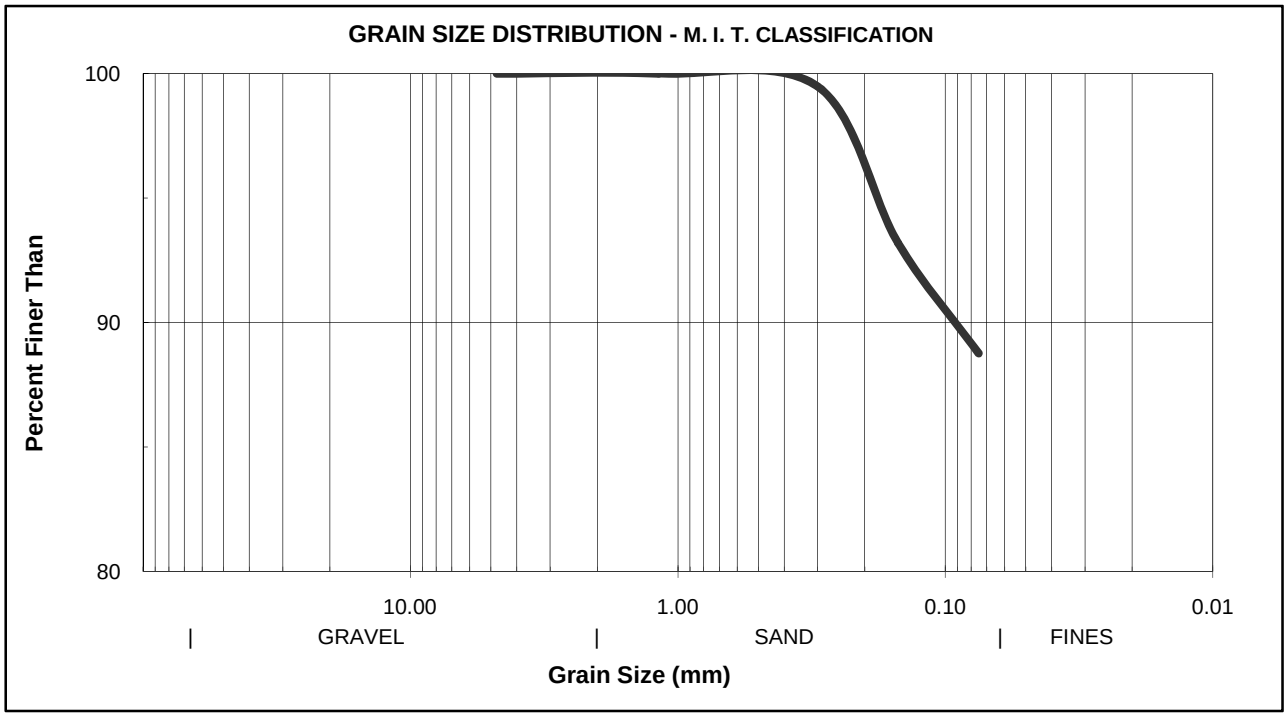
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/02/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-4 SS-7

Total weight of wet sample+container	252.1	Weight of wet sample+container(gm)	93
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	79.4
Weight of Wet sample(gm)	247.9	Weight of container(gm)	4.2
Weight of dry sample	209.9	Weight of dry sample(gm)	75.2
Moisture content	18.09	Weight of water(gm)	13.6
		Moisture content %	18.1

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	0.0	0.0	100.0	
16	1.2	0.0	0.0	100.0	
50	0.30	1.1	0.5	99.5	
100	0.150	14.3	6.8	93.2	
200	0.075	23.6	11.2	88.8	



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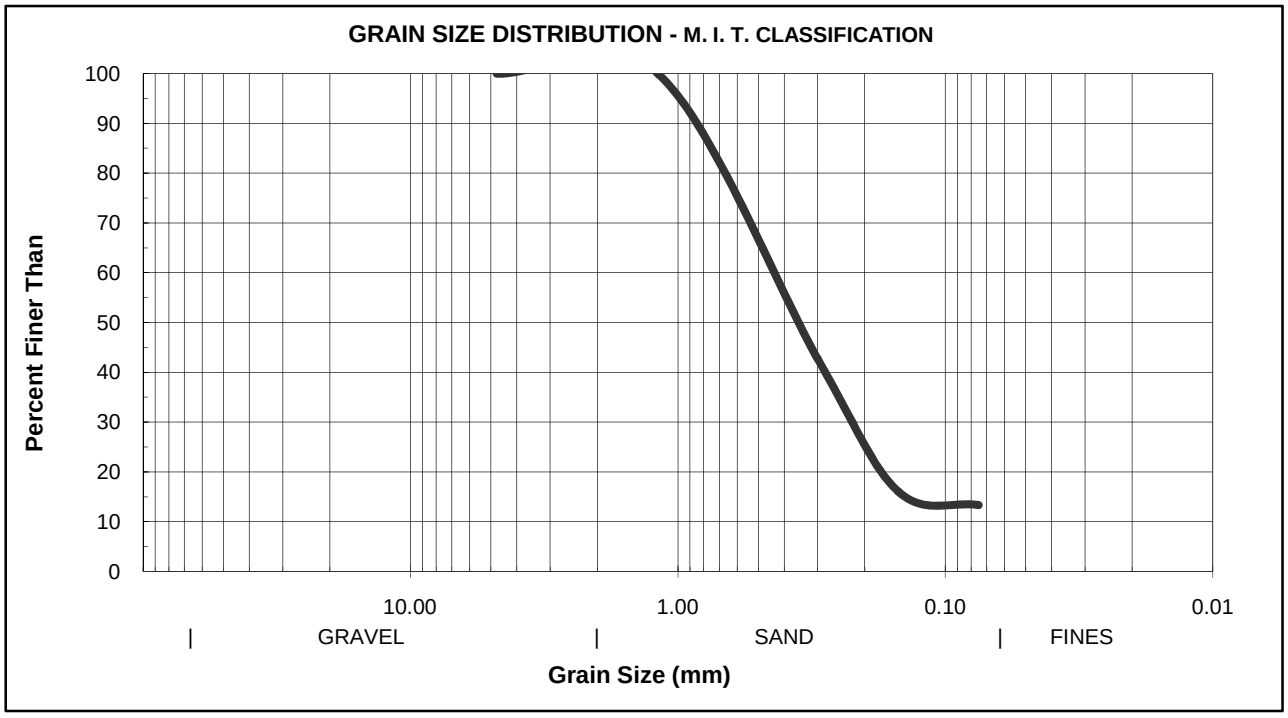
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/06/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-5 SS-3

Total weight of wet sample+container	80.7	Weight of wet sample+container(gm)	24.5
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	24.4
Weight of Wet sample(gm)	76.5	Weight of container(gm)	4.2
Weight of dry sample	76.1	Weight of dry sample(gm)	20.2
Moisture content	0.50	Weight of water(gm)	0.1
		Moisture content %	0.5

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	0.0	0.0	100.0	
16	1.2	0.1	0.1	99.9	
50	0.30	43.6	57.3	42.7	
100	0.150	63.9	83.9	16.1	
200	0.075	66.0	86.7	13.3	



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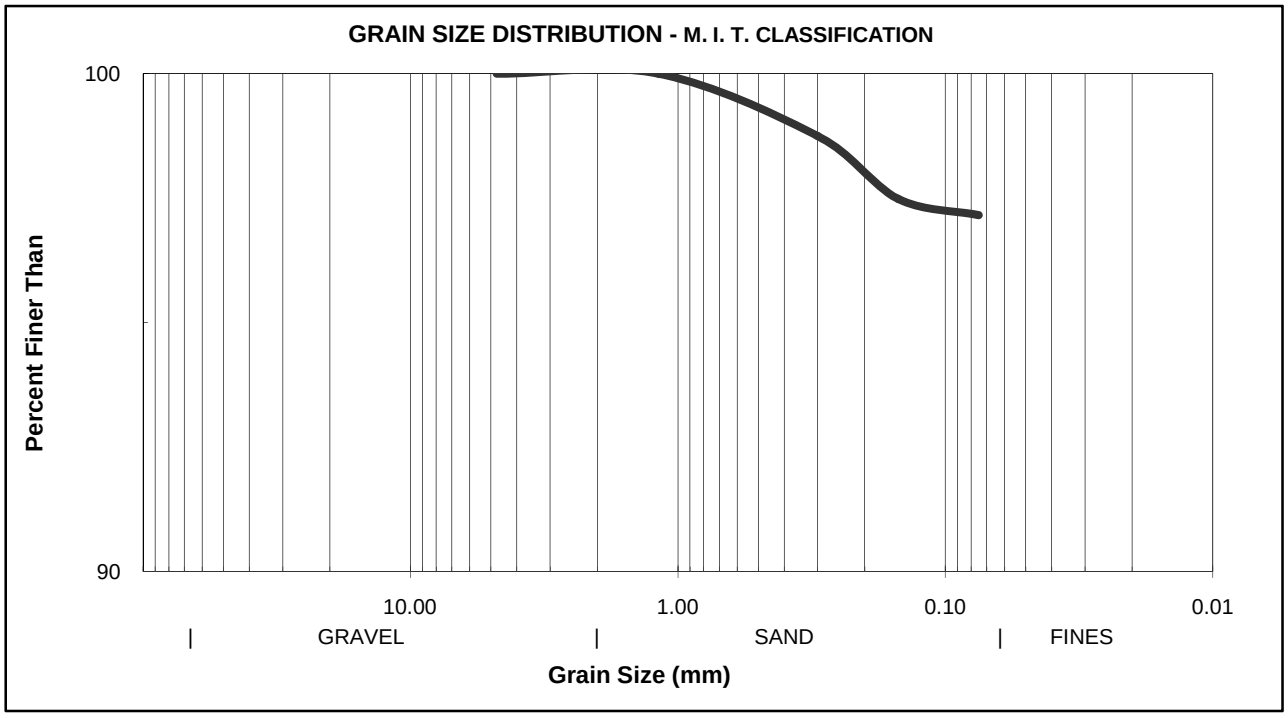
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/06/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-5 SS-5

Total weight of wet sample+container	224.5	Weight of wet sample+container(gm)	102
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	85.4
Weight of Wet sample(gm)	220.3	Weight of container(gm)	4.2
Weight of dry sample	182.9	Weight of dry sample(gm)	81.2
Moisture content	20.4	Weight of water(gm)	16.6
		Moisture content %	20.4

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	0.0	0.0	100.0	
16	1.2	0.0	0.0	100.0	
50	0.30	2.3	1.3	98.7	
100	0.150	4.6	2.5	97.5	
200	0.075	5.2	2.8	97.2	



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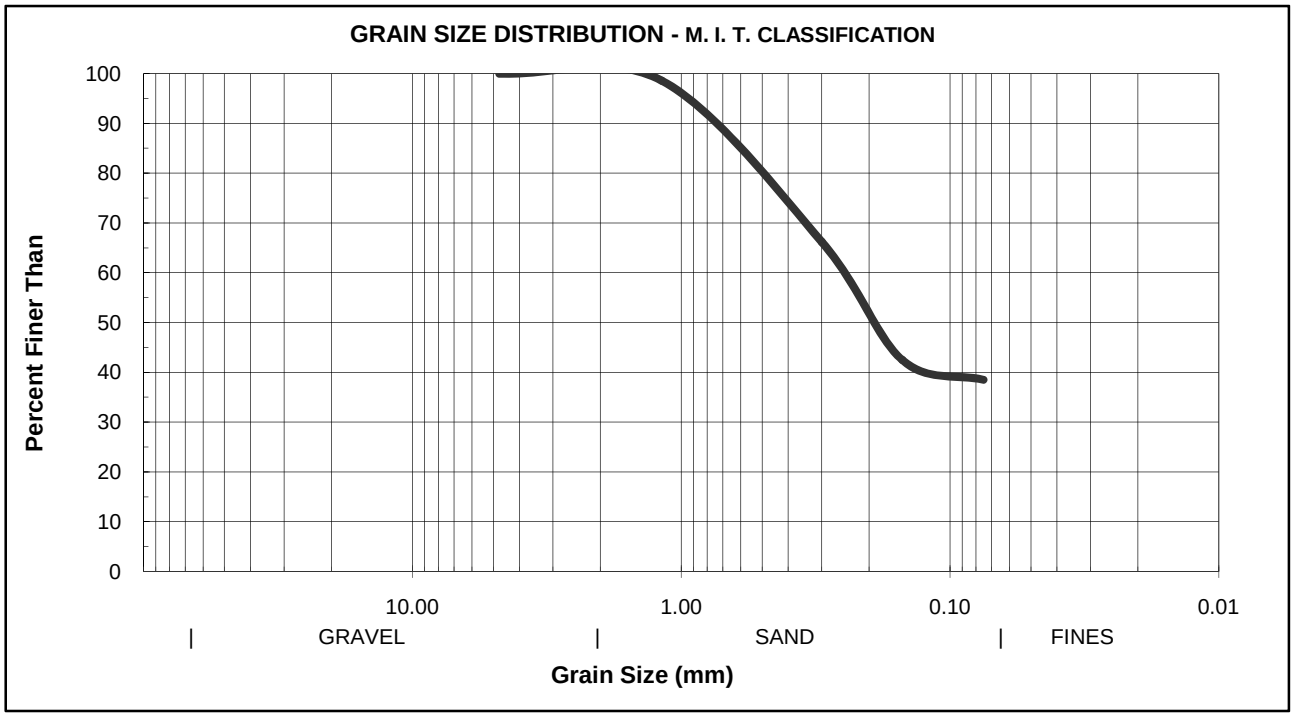
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/06/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-5 SS-6

Total weight of wet sample+container	240	Weight of wet sample+container(gm)	115
Weight of container(gm)	4.3	Weight of dry sample+container(gm)	100.8
Weight of Wet sample(gm)	235.7	Weight of container(gm)	4.4
Weight of dry sample	205.4	Weight of dry sample(gm)	96.4
Moisture content	14.73	Weight of water(gm)	14.2
		Moisture content %	14.7

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	0.0	0.0	100.0	
16	1.2	2.9	1.4	98.6	
50	0.30	69.5	33.8	66.2	
100	0.150	118.3	57.6	42.4	
200	0.075	126.4	61.5	38.5	



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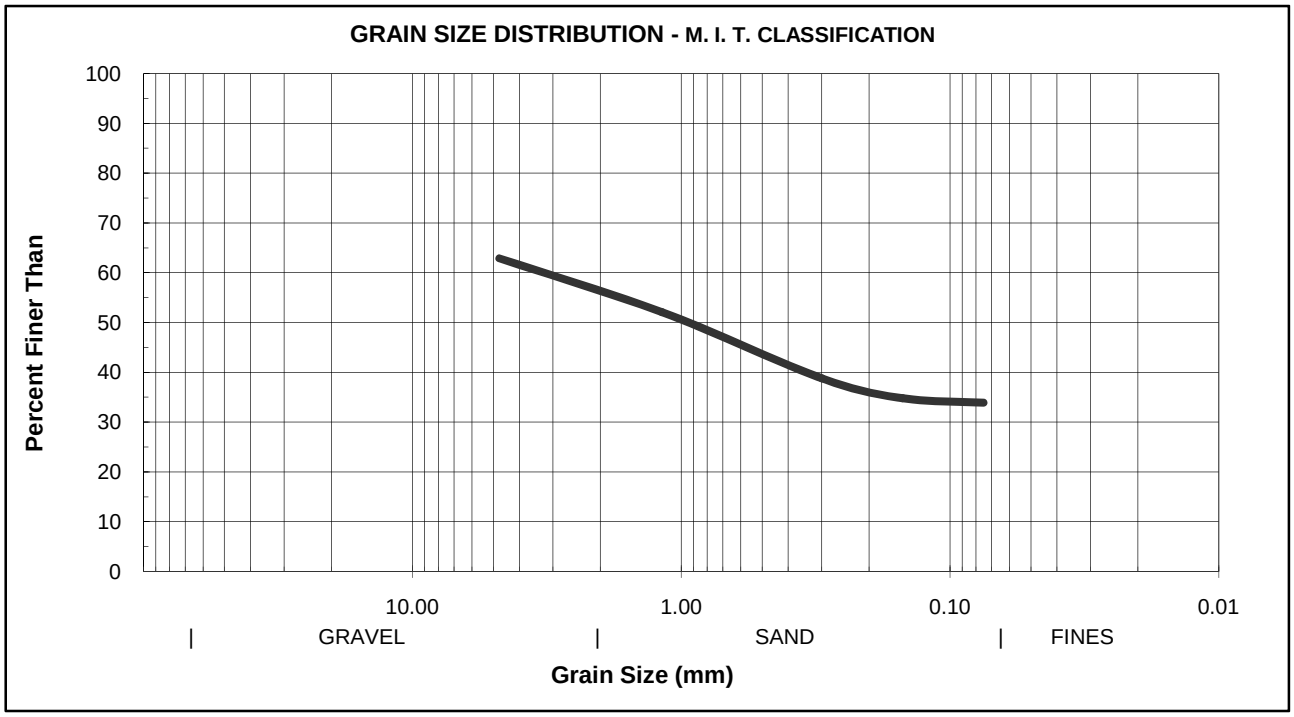
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/06/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-6 SS-3

Total weight of wet sample+container	259	Weight of wet sample+container(gm)	108
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	103.4
Weight of Wet sample(gm)	254.8	Weight of container(gm)	4.4
Weight of dry sample	243.5	Weight of dry sample(gm)	99
Moisture content	4.65	Weight of water(gm)	4.6
		Moisture content %	4.65

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	90.3	37.1	62.9	
16	1.2	116.6	47.9	52.1	
50	0.30	149.0	61.2	38.8	
100	0.150	158.7	65.2	34.8	
200	0.075	160.9	66.1	33.9	



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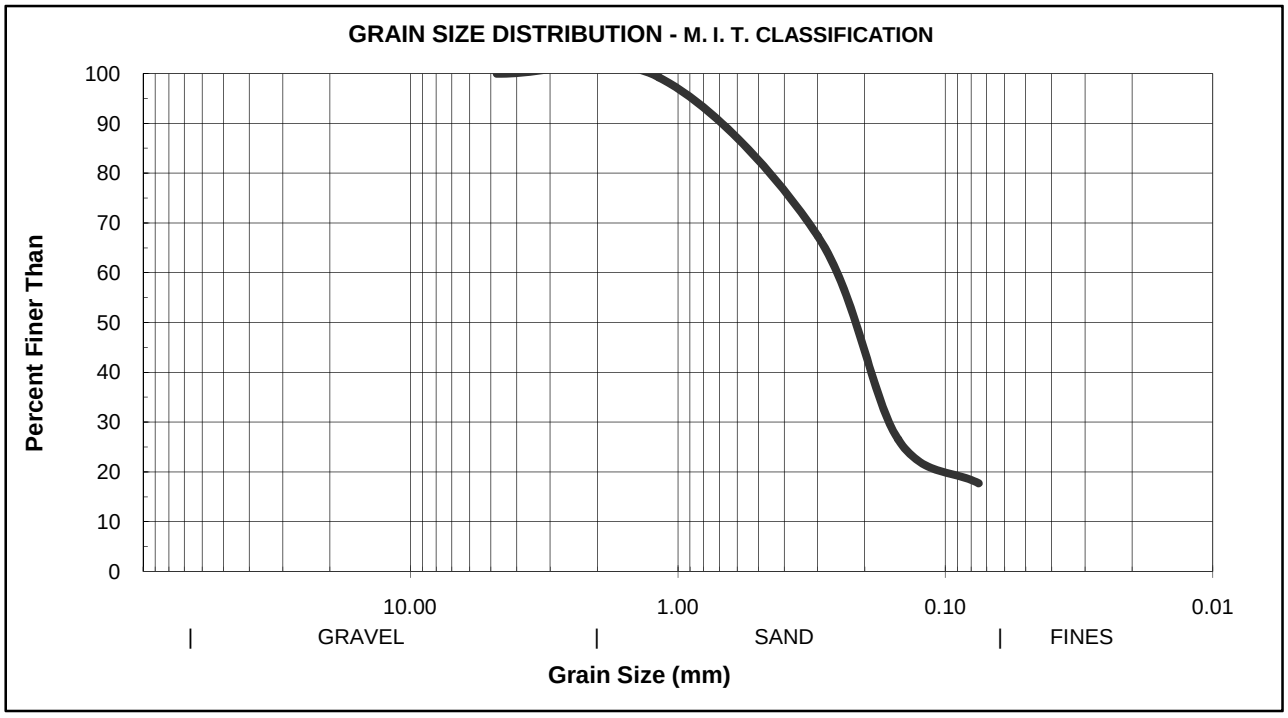
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/06/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-6 SS-6

Total weight of wet sample+container	218	Weight of wet sample+container(gm)	105
Weight of container(gm)	4.4	Weight of dry sample+container(gm)	90.6
Weight of Wet sample(gm)	213.6	Weight of container(gm)	4.2
Weight of dry sample	183.1	Weight of dry sample(gm)	86.4
Moisture content	16.7	Weight of water(gm)	14.4
		Moisture content %	16.7

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	0.0	0.0	100.0	
16	1.2	1.3	0.7	99.3	
50	0.30	59.7	32.6	67.4	
100	0.150	134.5	73.5	26.5	
200	0.075	150.7	82.3	17.7	



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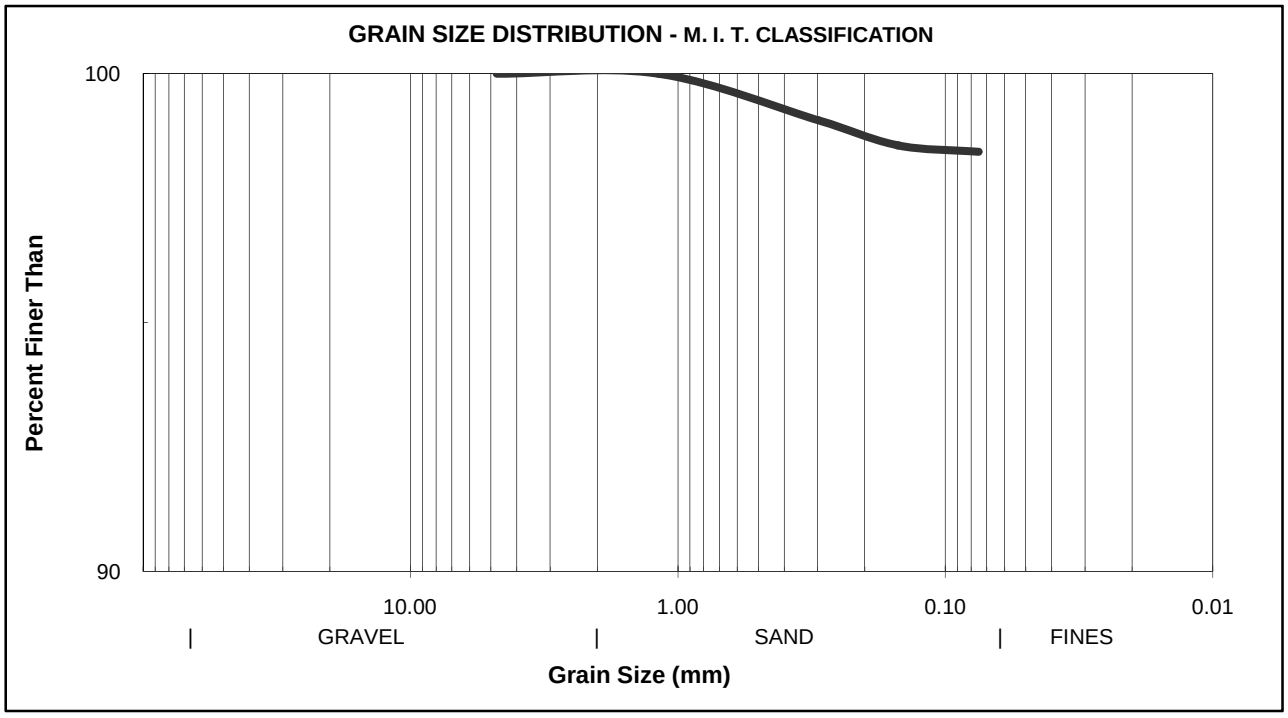
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/06/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-6 SS-7

Total weight of wet sample+container	280	Weight of wet sample+container(gm)	111
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	95.3
Weight of Wet sample(gm)	275.8	Weight of container(gm)	4.2
Weight of dry sample	235.3	Weight of dry sample(gm)	91.1
Moisture content	17.2	Weight of water(gm)	15.7
		Moisture content %	17.2

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	0.0	0.0	100.0	
16	1.2	0.0	0.0	100.0	
50	0.30	2.2	0.9	99.1	
100	0.150	3.4	1.4	98.6	
200	0.075	3.7	1.6	98.4	



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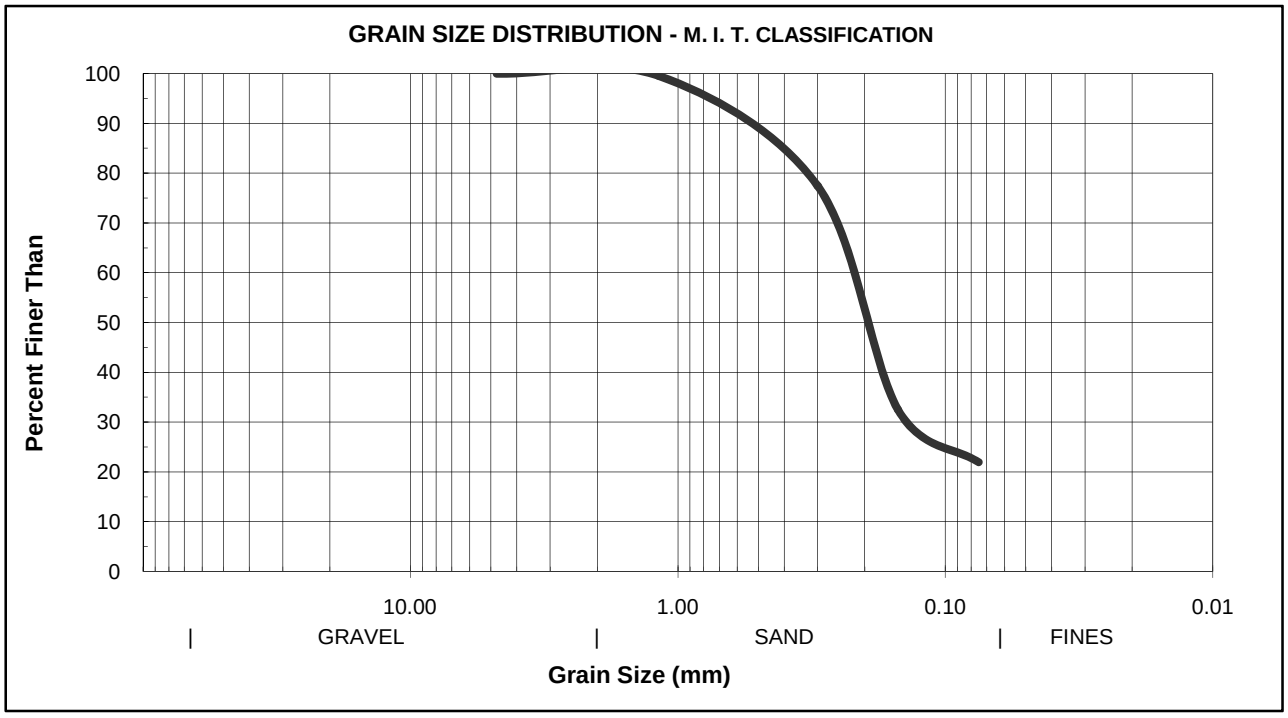
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/06/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-6 SS-8

Total weight of wet sample+container	240	Weight of wet sample+container(gm)	109
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	93.6
Weight of Wet sample(gm)	235.8	Weight of container(gm)	4.2
Weight of dry sample	201.2	Weight of dry sample(gm)	89.4
Moisture content	17.2	Weight of water(gm)	15.4
		Moisture content %	17.2

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	0.1	0.0	100.0	
16	1.2	1.0	0.5	99.5	
50	0.30	45.5	22.6	77.4	
100	0.150	135.8	67.5	32.5	
200	0.075	157.0	78.1	21.9	



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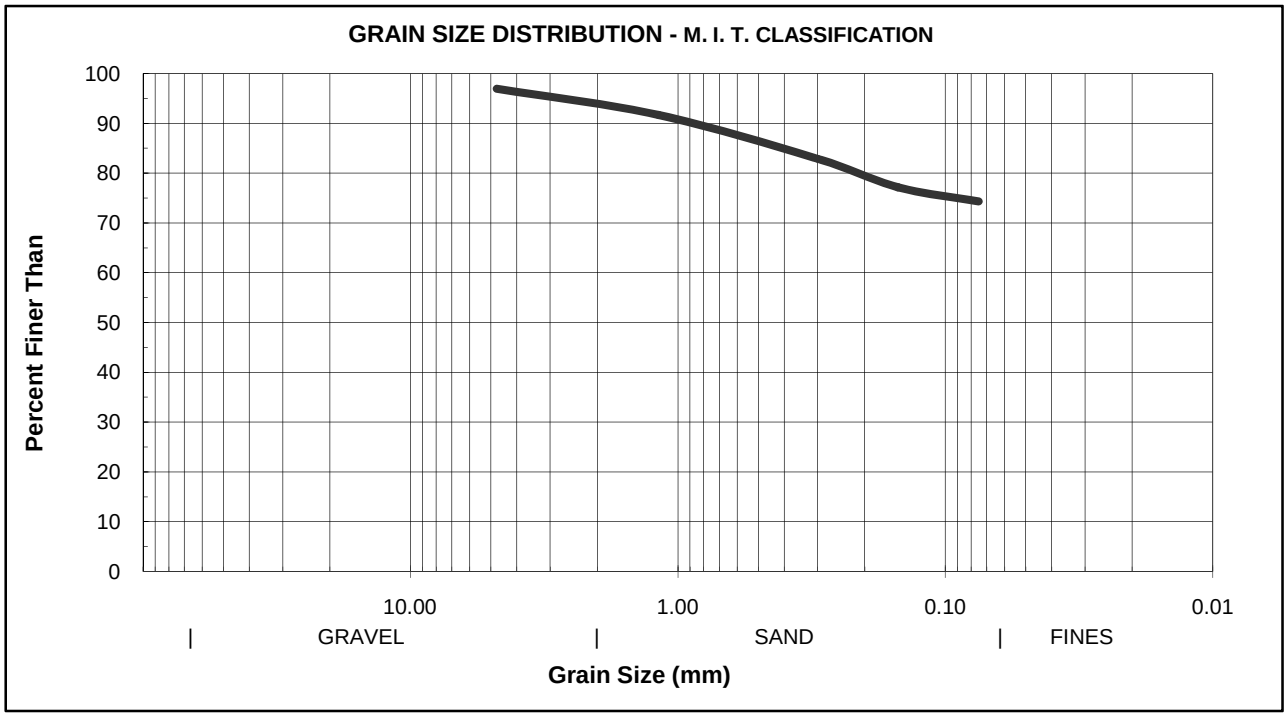
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/02/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-7 SS-3

Total weight of wet sample+container	250	Weight of wet sample+container(gm)	109
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	94.6
Weight of Wet sample(gm)	245.8	Weight of container(gm)	4.2
Weight of dry sample	212.0	Weight of dry sample(gm)	90.4
Moisture content	15.9	Weight of water(gm)	14.4
		Moisture content %	15.9

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	6.5	3.1	96.9	
16	1.2	17.6	8.3	91.7	
50	0.30	36.3	17.1	82.9	
100	0.150	48.4	22.8	77.2	
200	0.075	54.4	25.7	74.3	



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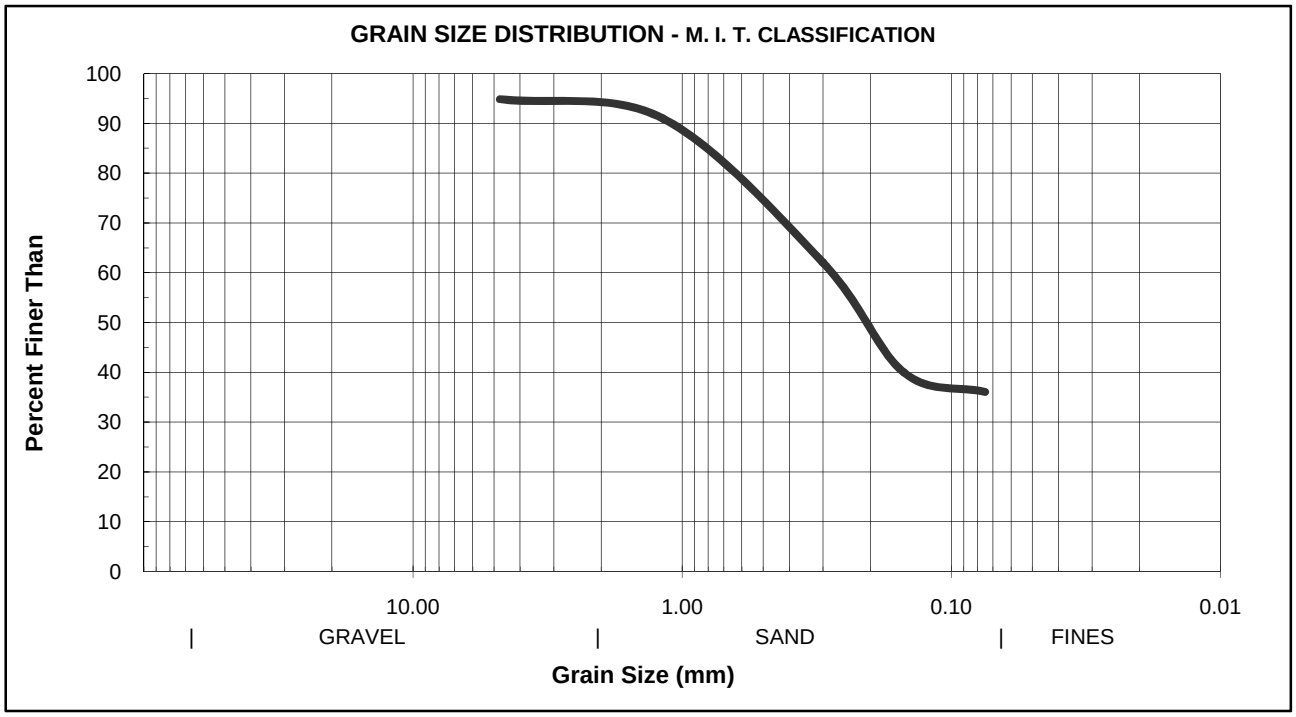
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/02/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-7 SS-4

Total weight of wet sample+container	248	Weight of wet sample+container(gm)	110
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	100.1
Weight of Wet sample(gm)	243.8	Weight of container(gm)	4.2
Weight of dry sample	221.0	Weight of dry sample(gm)	95.9
Moisture content	10.3	Weight of water(gm)	9.9
		Moisture content %	10.32

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	11.4	5.2	94.8	
16	1.2	20.0	9.1	90.9	
50	0.30	83.9	38.0	62.0	
100	0.150	132.8	60.1	39.9	
200	0.075	141.3	63.9	36.1	



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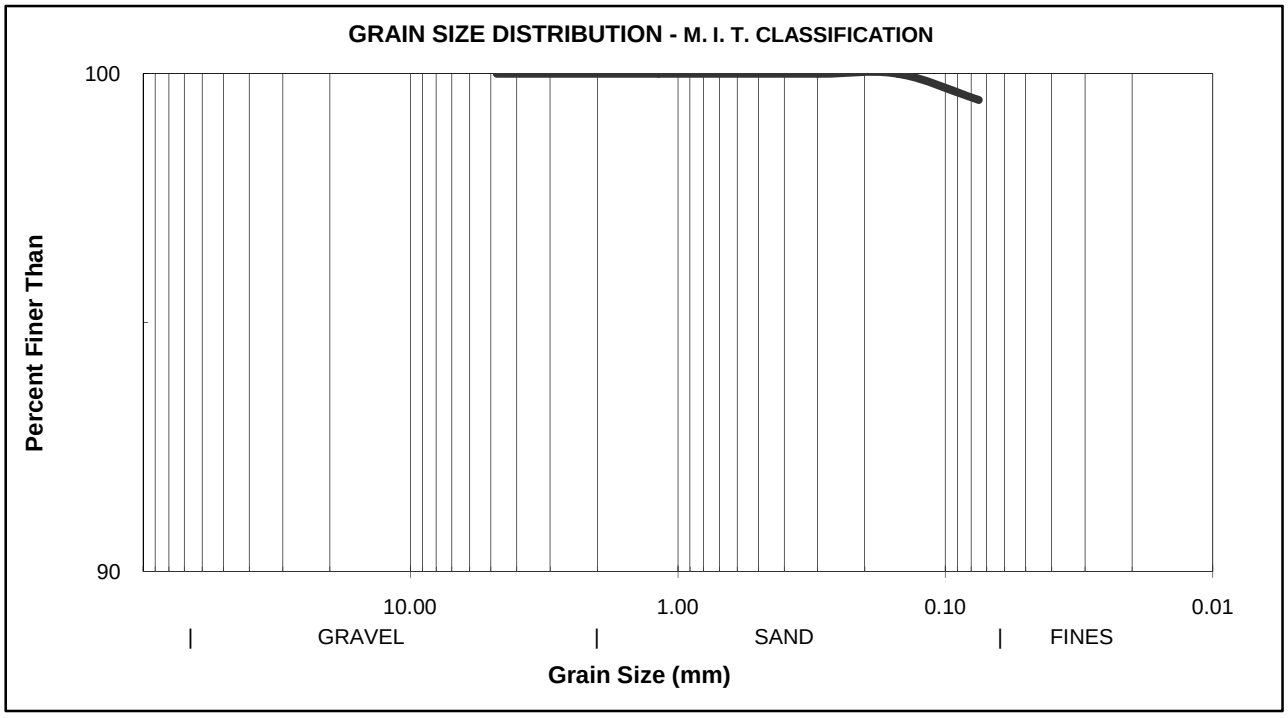
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/02/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-7 SS-7

Total weight of wet sample+container	249	Weight of wet sample+container(gm)	108
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	92.0
Weight of Wet sample(gm)	244.8	Weight of container(gm)	4.2
Weight of dry sample	207.1	Weight of dry sample(gm)	87.8
Moisture content	18.22	Weight of water(gm)	16
		Moisture content %	18.2

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	0.0	0.0	100.0	
16	1.2	0.0	0.0	100.0	
50	0.30	0.0	0.0	100.0	
100	0.150	0.0	0.0	100.0	
200	0.075	1.1	0.5	99.5	



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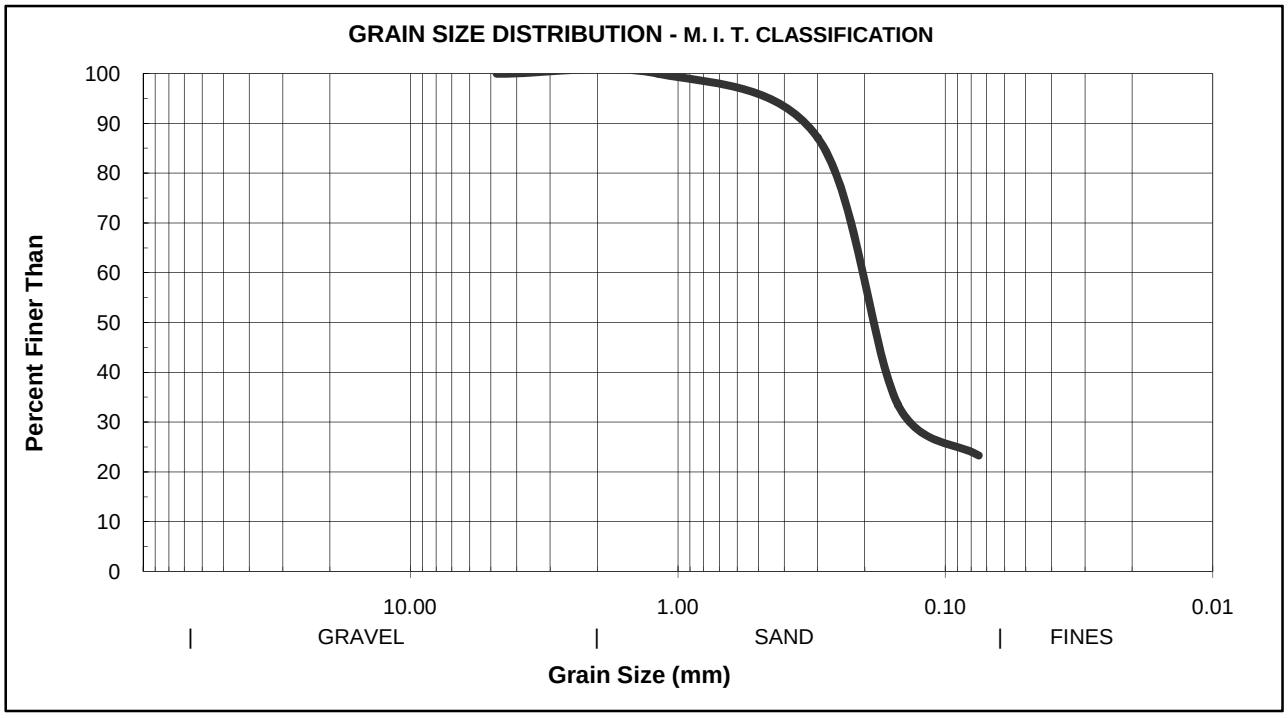
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/02/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-7 SS-8

Total weight of wet sample+container	245	Weight of wet sample+container(gm)	109
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	93.2
Weight of Wet sample(gm)	240.8	Weight of container(gm)	4.2
Weight of dry sample	204.5	Weight of dry sample(gm)	89
Moisture content	17.8	Weight of water(gm)	15.8
		Moisture content %	17.8

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	0.0	0.0	100.0	
16	1.2	0.0	0.0	100.0	
50	0.30	26.4	12.9	87.1	
100	0.150	136.1	66.6	33.4	
200	0.075	156.9	76.7	23.3	



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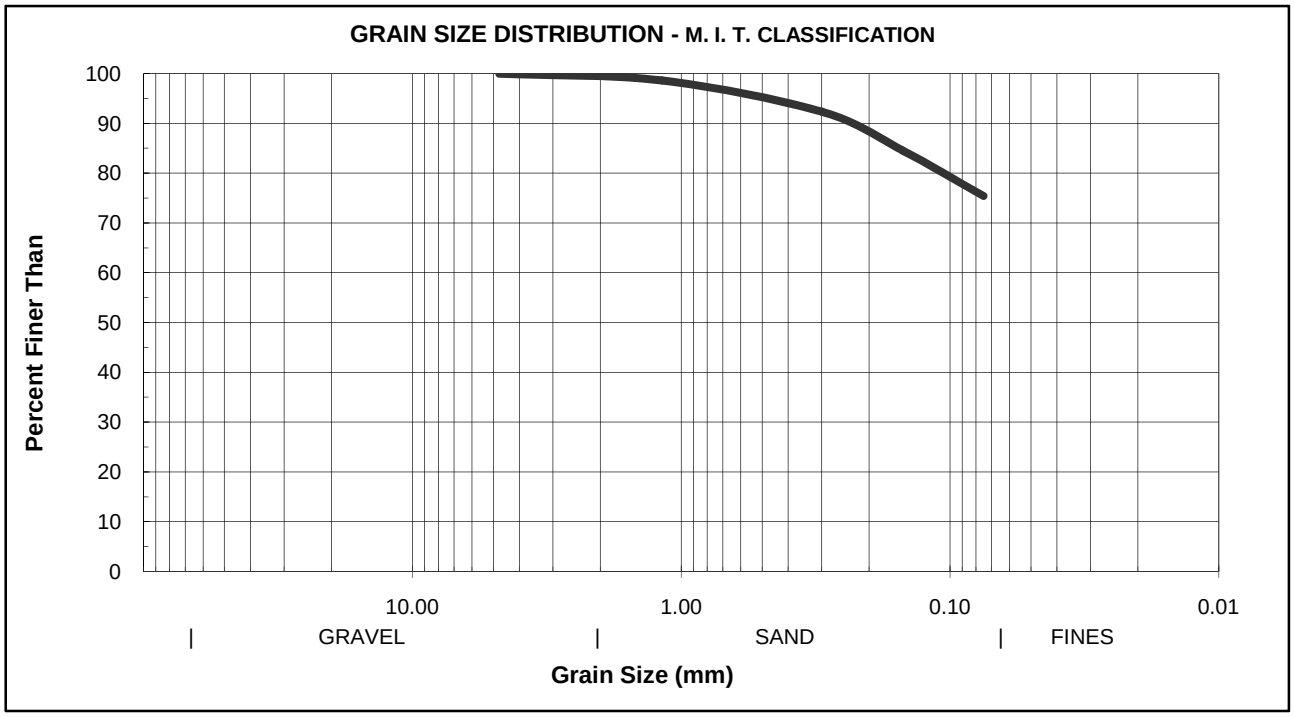
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/01/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-8 SS-3

Total weight of wet sample+container	250	Weight of wet sample+container(gm)	106
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	100.7
Weight of Wet sample(gm)	245.8	Weight of container(gm)	4.2
Weight of dry sample	233.0	Weight of dry sample(gm)	96.5
Moisture content	5.49	Weight of water(gm)	5.3
		Moisture content %	5.49

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	0.0	0.0	100.0	
16	1.2	3.2	1.4	98.6	
50	0.30	17.9	7.7	92.3	
100	0.150	36.0	15.5	84.5	
200	0.075	57.3	24.6	75.4	



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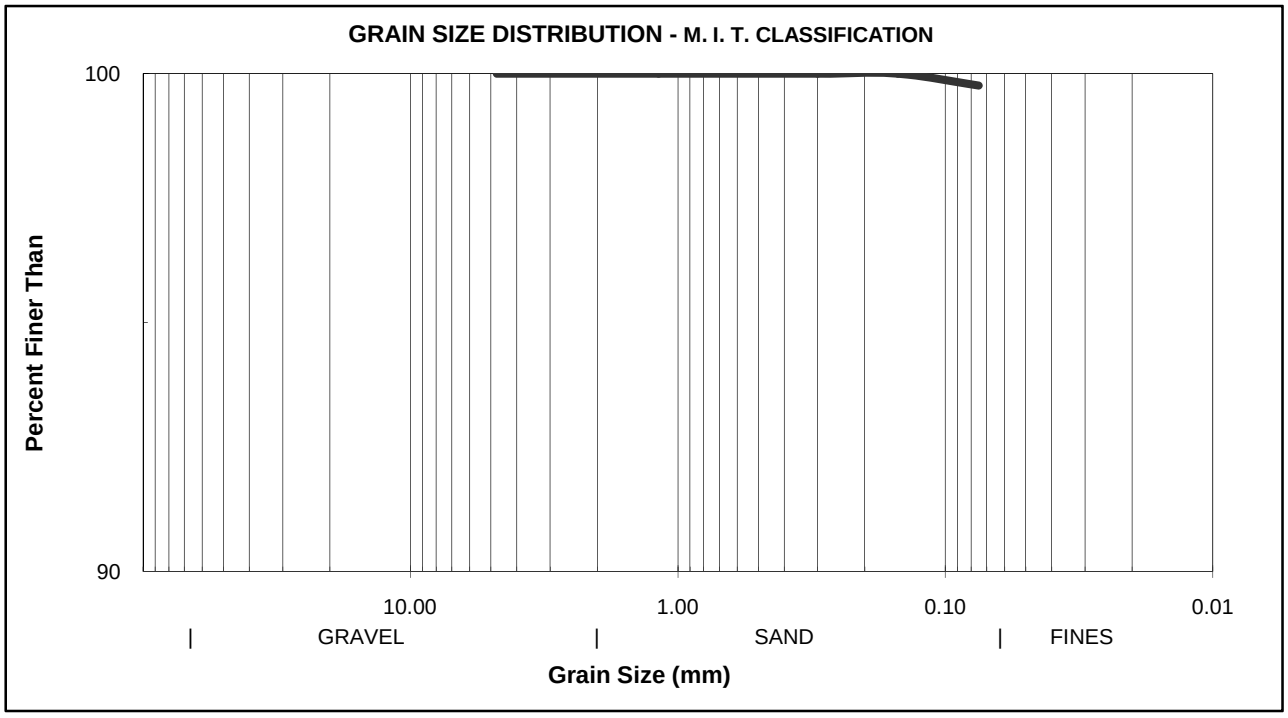
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/01/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-8 SS-4

Total weight of wet sample+container	250	Weight of wet sample+container(gm)	110
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	93.5
Weight of Wet sample(gm)	245.8	Weight of container(gm)	4.3
Weight of dry sample	207.4	Weight of dry sample(gm)	89.2
Moisture content	18.50	Weight of water(gm)	16.5
		Moisture content %	18.5

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	0.0	0.0	100.0	
16	1.2	0.0	0.0	100.0	
50	0.30	0.0	0.0	100.0	
100	0.150	0.0	0.0	100.0	
200	0.075	0.5	0.2	99.8	



McCLYMONT AND RAK ENGINEERS INC.
GEO-ENVIRONMENTAL CONSULTANTS

1271 Denison St., Unit 45, Markham, Ontario L3R 4B5
TEL: 905-470-0160 FAX: 905-475-6371

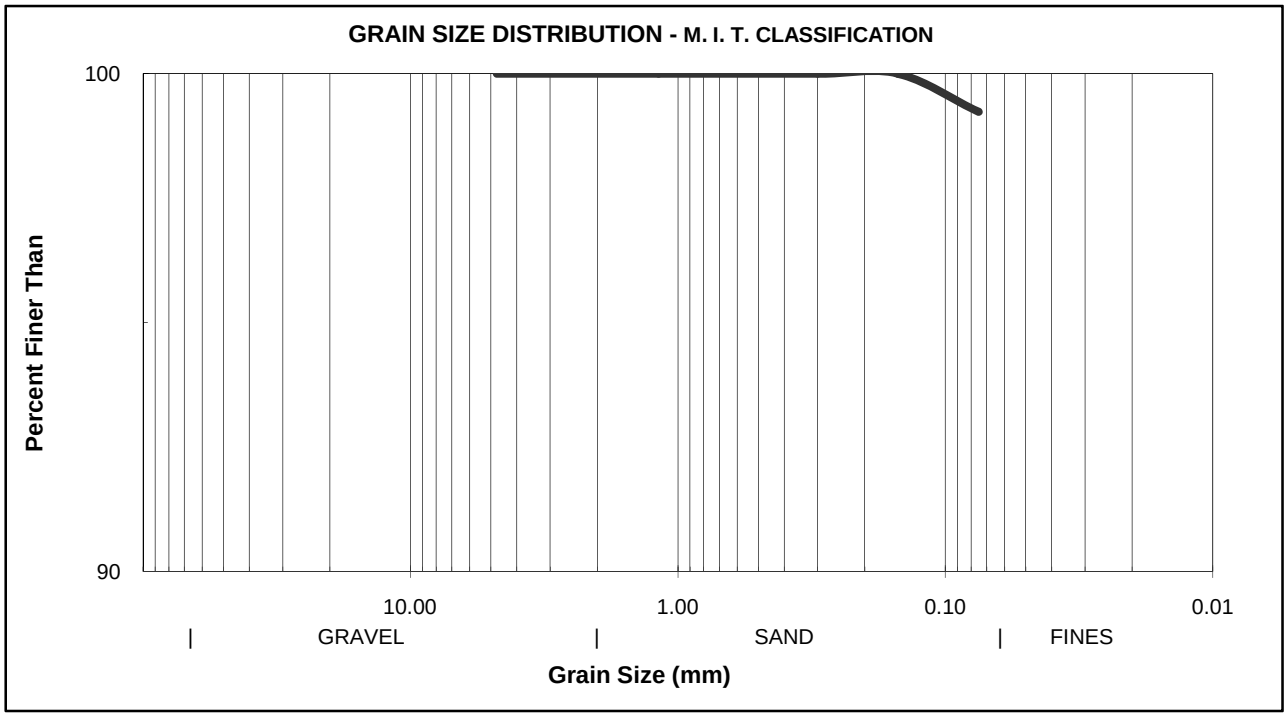
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/01/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-8 SS-7

Total weight of wet sample+container	250	Weight of wet sample+container(gm)	110
Weight of container(gm)	4.4	Weight of dry sample+container(gm)	93.8
Weight of Wet sample(gm)	245.6	Weight of container(gm)	4.4
Weight of dry sample	207.9	Weight of dry sample(gm)	89.4
Moisture content	18.12	Weight of water(gm)	16.2
		Moisture content %	18.1

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	0.0	0.0	100.0	
16	1.2	0.0	0.0	100.0	
50	0.30	0.0	0.0	100.0	
100	0.150	0.0	0.0	100.0	
200	0.075	1.6	0.8	99.2	



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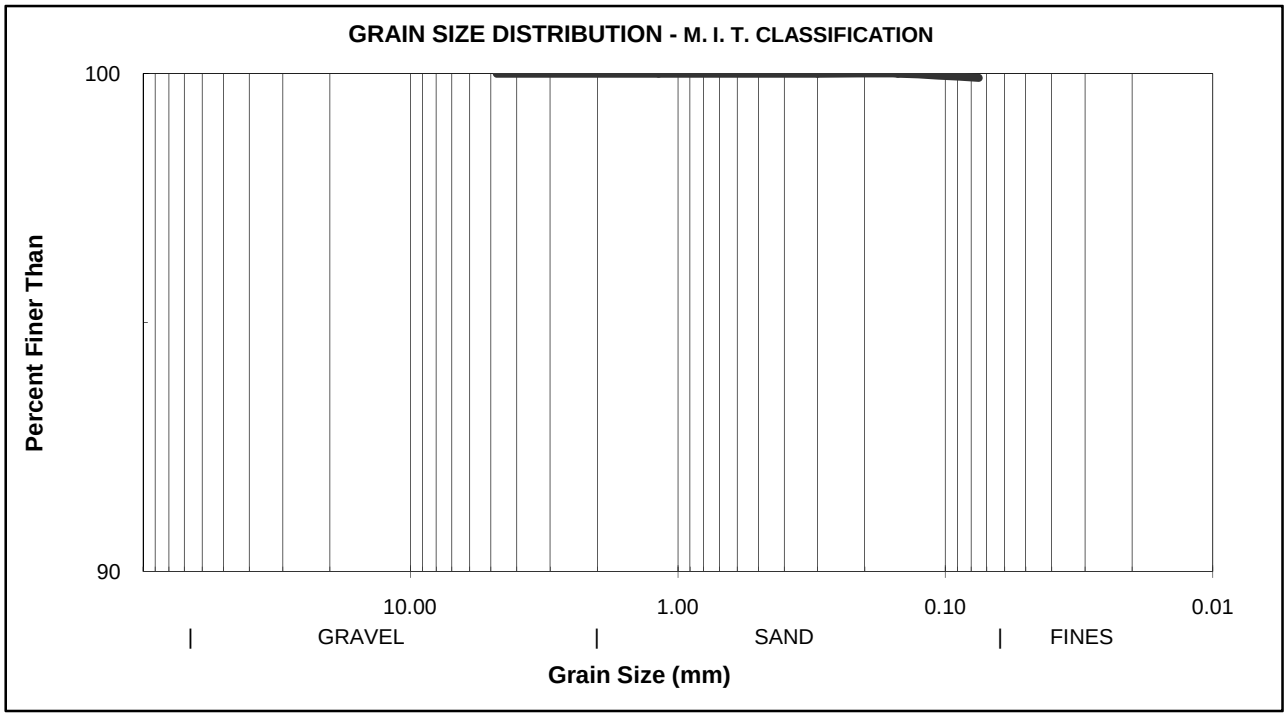
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/01/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-9 SS-3

Total weight of wet sample+container	270	Weight of wet sample+container(gm)	112
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	96.1
Weight of Wet sample(gm)	265.8	Weight of container(gm)	4.2
Weight of dry sample	226.6	Weight of dry sample(gm)	91.9
Moisture content	17.30	Weight of water(gm)	15.9
		Moisture content %	17.3

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	0.0	0.0	100.0	
16	1.2	0.0	0.0	100.0	
50	0.30	0.0	0.0	100.0	
100	0.150	0.0	0.0	100.0	
200	0.075	0.2	0.1	99.9	



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TEL: 905-470-0160 FAX: 905-475-6371

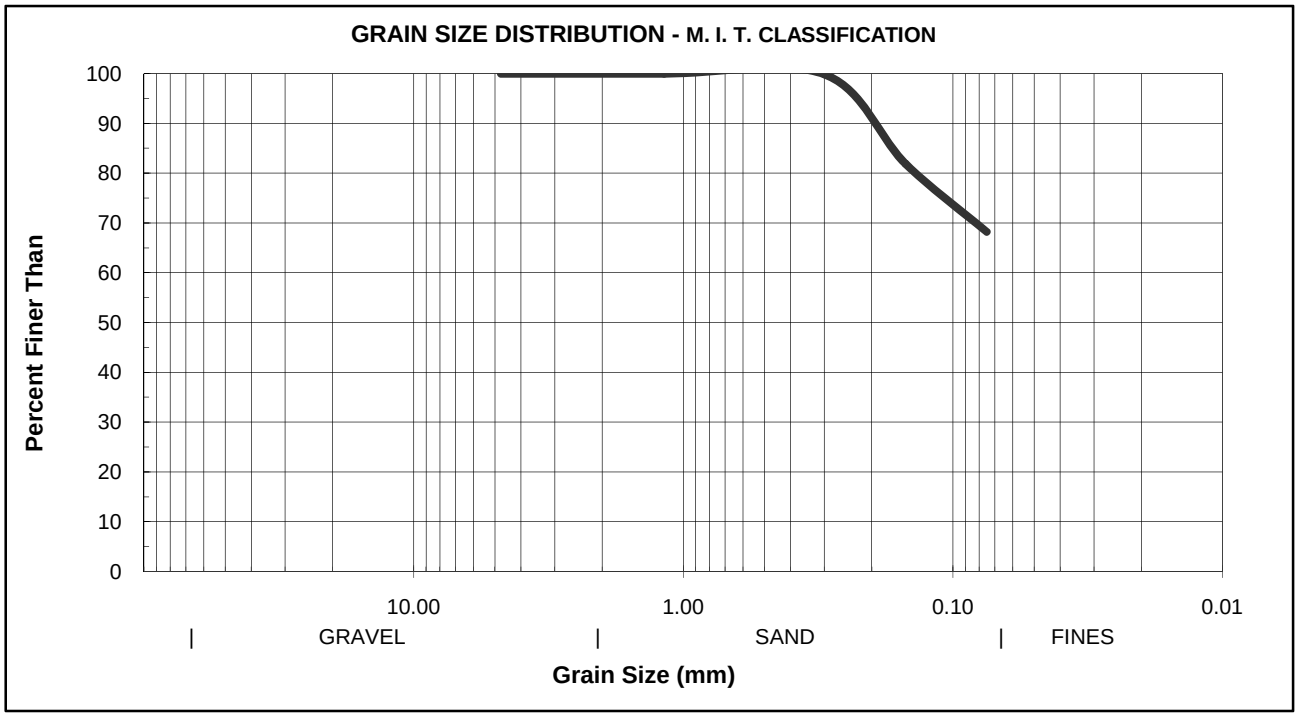
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/01/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-9 SS-5

Total weight of wet sample+container	240	Weight of wet sample+container(gm)	110
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	101.0
Weight of Wet sample(gm)	235.8	Weight of container(gm)	4.2
Weight of dry sample	215.7	Weight of dry sample(gm)	96.8
Moisture content	9.30	Weight of water(gm)	9
		Moisture content %	9.298

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	0.0	0.0	100.0	
16	1.2	0.0	0.0	100.0	
50	0.30	0.3	0.1	99.9	
100	0.150	39.0	18.1	81.9	
200	0.075	68.5	31.8	68.2	



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TEL: 905-470-0160 FAX: 905-475-6371

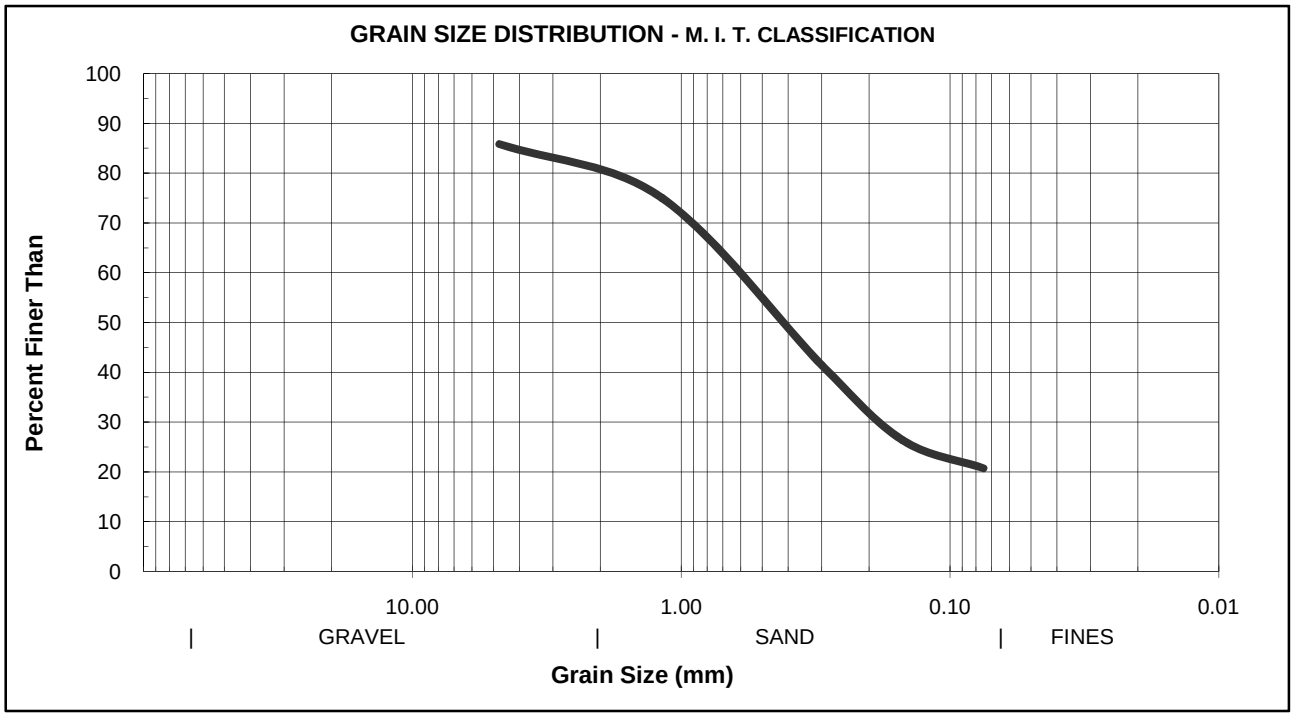
GRAIN SIZE ANALYSIS - MECHANICAL

Job No:	**GE5243**	Report No:	
Sample Type		Date Sampled:	11/01/017
Sampled by	OM	Date Tested:	12/15/017
Tested by	MA	Sample Location:	BH-9 SS-6

Total weight of wet sample+container	240	Weight of wet sample+container(gm)	112
Weight of container(gm)	4.2	Weight of dry sample+container(gm)	102.4
Weight of Wet sample(gm)	235.8	Weight of container(gm)	4.2
Weight of dry sample	214.8	Weight of dry sample(gm)	98.2
Moisture content	9.78	Weight of water(gm)	9.6
		Moisture content %	9.78

EXTRACTION/GRADATION TEST RESULTS

SIEVE		RETAINED		PERCENT PASSING	
#	SIZE mm	WEIGHT g	PERCENT %	SAMPLE %	SPECIFICATION %
4	4.8	30.4	14.2	85.8	
16	1.2	53.6	25.0	75.0	
50	0.30	125.8	58.6	41.4	
100	0.150	158.2	73.6	26.4	
200	0.075	170.3	79.3	20.7	



APPENDIX B

17-3963 971 YONGE STREET MASTERPLAN SP_3

Legend

11.15 ha. Original Land Holdings

1.01 ha. Severed Parcel

10.14 ha. Updated Land Holdings

0.09 ha. Proposed Metrolinx Corridor Widening

1.28 ha. Rail Buffer (25.0m)

0.69 ha. City of Barrie EA with Proposed Lockhart Road (Lands within Subject Lands)

0.36 ha. Servicing Easement (24.0m)

7.72 ha. Developable Area

Proposed Widening of Lockhart Road

Natural Heritage System as per JD Barnes OLS survey dated August 31, 2017

30.0m Metrolinx Building Setback

BUILDING STATISTICS

BUILDING	RESIDENTIAL	COMMERCIAL	PARKING
A1	064 UNITS	1000m2	26 + 41U/G
A2	072 UNITS	- m2	26 + 41U/G
A3	064 UNITS	1000m2	26 + 41U/G
A4	072 UNITS	- m2	26 + 41U/G
A5	058 UNITS	500m2	38 + 36U/G
A6	084 UNITS	- m2	26 + 51U/G
A7	058 UNITS	500m2	38 + 36U/G
A8	060 UNITS	- m2	45 + 36U/G
A9	060 UNITS	- m2	26 + 36U/G
A10	234 UNITS	- m2	146 + 284U/G
A11	390 UNITS	- m2	97 + 320U/G
TOTALS	1216 UNITS	3000m2	494 + 963U/G = 1457 SPOTS

Existing Residential (Future Mixed Use)

Lands Severed From Original Holdings

Vacant Future Resident

Future Recreation Centre

Future Mixed Use

Future Mixed Use

YONGE STREET

Natural Heritage System

LINE OF STAKES AS PER SITE WALK ON AUGUST 29, 2017

LINE OF STAKES AS PER SITE WALK ON AUGUS

Vacant Future Med / High Den Resident

269.25

265.07

A1 64 UNITS (6 STOREY) GRND FLR COMMERCIAL (1343 m2)

A2 72 UNITS (6 STOREY) (1343 m2)

A3 64 UNITS (6 STOREY) GRND FLR COMMERCIAL (1343 m2)

A4 72 UNITS (6 STOREY) (1343 m2)

A5 58 UNITS (6 STOREY) (1198 m2)

A6 84 UNITS (6 STOREY) (1679 m2)

A7 58 UNITS (6 STOREY) (1198 m2)

A8 60 UNITS (6 STOREY) (1198 m2)

A9 60 UNITS (6 STOREY) (1198 m2)

A10 234 UNITS (11 STOREY) (3482 m2)

A11 390 UNITS (12 STOREY) (3867 m2)

AMENITY AREA (8000m2)

4.5M HT GROUND FLOOR COMMERCIAL SPACE

540044

11°10'16"

268.02

307697

266.55

ORIGINAL ROA

LOCKHART ROAD

DRAWING No. A100

DRAWING SITE PLAN

PROJECT INFORMATION
PROJECT No.: 173963
DRAWN BY: JB
CHECKED BY: ISM
DATE: 10.30.2017
SCALE: 1:1000

PROJECT 971 YONGE STREET 25 ACRE MASTERPLAN

CLIENT ABDALLAH GURGUIS A.S.A. DEVELOPMENT INC. 55 SCHELDE BLVD. AURORA ON L4G 0H3 TEL: 416.458.5035 ADASSAF@ROGERS.COM

ORIENTATION

Do not scale drawings
The Contractor shall check and verify all dimensions and report all errors and omissions to the Architect before proceeding with the work.
A/B A Detail No. B Sheet No. where detailed.

STAMP ONTARIO ASSOCIATION OF ARCHITECTS IAN S. McCOLM LICENCE 2853

NO.	ISSUE/REVISION	DATE
1.	ISSUE FOR REVIEW	OCT 2017

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