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GEOTECHNICAL INVESTIGATION

PROPOSED DEVELOPMENT

Project Location:
6585 Highway 6, Fergus, Ontario

Prepared for:
1052367 Ontario Ltd.
6585 Highway 6
Fergus, Ontario N1M 2W3

Prepared by:
GRIT Engineering Inc.
133 Regent Street
Stratford, Ontario N5A 2W3

July 31, 2026
GRIT File No: GE26-1576-1-G-RPT-GI-R1-2026-07-31

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1.0 INTRODUCTION

GRIT Engineering Inc. (GRIT) was retained by 1052367 Ontario Ltd. (Client) to perform a geotechnical investigation for a proposed mixed-use development located southeast of the intersection of Nichol Road 15 and Highway 6 in the Community of Fergus, Municipal Number (MN) 6585 Highway 6 (Site), as shown in Figure A1 in Appendix A.

This work was authorized by the Client on March 30th, 2026, under the Engineering Fee Proposal GRIT-26-0202-1-E-G-R2-PRP-2026-03-24, dated March 24th, 2026.

In preparation of this Geotechnical Investigation Report, GRIT was provided with the following *Concept Plan* for review:

- Zelinka Priamo Ltd., *Draft Plan of Subdivision*, part of *Part of Lot 17, Concession 15 (Geographic Township of Nichol)*, 6585 Highway #6*,* Township of Centre Wellington, County of Wellington, Project No. KRS/FRG/25-01, dated July 2026.

Based on a review of the preliminary concept plan, the proposed development will comprise a residential and mixed-use community, accommodating a mix of dwelling unit types and densities, including single detached dwellings, various forms of townhouses, and apartments. The development will also feature a new public park, continuation of the public trail network, extension of the public road network, and a mixed-use/commercial block contemplated in the southeast corner of the subject lands. It is anticipated that the development of the subject lands will accommodate approximately 647 residential units and 54 mixed-use/ commercial units. The subject lands are also planned to accommodate a new school on a 4.96-hectare block at the northeast part of the subject lands. A stormwater management pond is proposed within the northwest part of the subject lands. It is assumed that the proposed development will be serviced with municipal water and sanitary sewers.

The purpose of this geotechnical investigation is to complete an evaluation of topsoil and fill thickness, native soil types, and groundwater conditions, and subsequently provide geotechnical comments and recommendations to support the proposed development, including site preparation, trench backfill, pipe bedding, excavations, dewatering, pavement design and subdrainage, foundations, basement design, testing and inspection, and excess soil management.

2.0 SITE CHARACTERIZATION

Based on a review of aerial photography dating from 2005 to present, the Site has contained a residential dwelling which fronts on Highway 6, and associated out-related structures including a barn, with the remaining lands being cultivated. The Site is rectangular in shape and comprises two parcels of land, with an approximate area of 29.2 hectares

The Site is bound by Highway 6 to the north, an existing residential subdivision development to the east, a wetland/Beatty Line North to the South, and agricultural lands to the west.

On April 1st, 2024, Ontario Regulation 41/24 came into effect, which replaced the 36 individual Conservation Authority Regulations (previously Ontario Regulation 150/06 for the Grand River Conservation Authority GRCA). Ontario Regulation 41/24 is implemented by the local Conservation Authority, by means of permit issuance for works in or near watercourses, valleys, wetlands, or shorelines, when required. It is noted that the wetlands along the southwest property limits are located within the Grand River Conservation Authority (GRCA) regulated area.

3.0 GEOLOGICAL SETTING

Based on Physiography of Southern Ontario mapping prepared by the Ontario Geology Survey (OGS), the Community of Fergus is located within the northwest limits of the Physiographic Region known as the Guelph Drumlin Field. Locally, the Site is set within drumlinized till plains and glacial spillways, with subgrade soils expected to be predominantly comprised of sand/sand and gravel and glacial till soils.

According to Surficial Geology mapping prepared by the OGS, the Site is predominantly underlain by stone-poor sandy silt to silty sand textured till, transitioning to sandy glaciofluvial deposits to the west, north, and east, and to organic peat, muck and marl deposits to the south within the wetlands area. The surficial geology of the Site and surrounding area is illustrated in Figure A2, in Appendix A.

The bedrock geology at the Site is composed of limestone, dolostone, shale, and siltstone of the Guelph Formation from the Upper to Lower Sillurian Period. Based on the Bedrock Topography mapping prepared by OGS and a review of the Ministry of Environment, Conservation and Parks (MECP) Well Record database, the depth to bedrock in the immediate area of the Site ranges between 18 and 27 m below existing grades.

4.0 FIELD AND LABORATORY PROGRAM

4.1 Field Investigation

The fieldwork for this investigation was completed by GRIT on April 17th, 20th & 21st, 2026. It involved drilling twelve (12) sampled boreholes (BH), equipped with monitoring wells (MW), herein referred to as Boreholes BH/MW1-26 to BH/MW12-26.

The boreholes were advanced to depths ranging from 8.1 to 8.2 meters below the existing ground surface (mbgs) using a track-mounted Diedrich D50 drill rig equipped with hollow stem augers, supplied and operated by London Soil Test Ltd. The approximate spatial locations and elevations of the boreholes are presented in Figure A3 in Appendix A and summarized in Table 4-1.

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Table 4-1 - Borehole Locations and Elevations

Borehole No.	Northing[1] (m)	Easting[1] (m)	Elevation[2] (m)
BH/MW1-26	548258	4840995	429.53
BH/MW2-26	548384	4840894	427.27
BH/MW3-26	548456	4840834	428.12
BH/MW4-26	548306	4840675	427.87
BH/MW5-26	548149	4840688	428.57
BH/MW6-26	548079	4840814	428.37
BH/MW7-26	548110	4840477	427.92
BH/MW8-26	547942	4840482	428.11
BH/MW9-26	547861	4840556	428.90
BH/MW10-26	547751	4840451	424.24
BH/MW11-26	547837	4840360	426.01
BH/MW12-26	547914	4840294	425.22

Note: *[1]Coordinates recorded with mobile GPS software (WGS84, UTM Zone 17N); [2]Elevations obtained by GRIT using a laser level, referenced to Site Benchmark 1 (SBM1): Spike in utility pole across Highway No. 6 adjacent to Pin 71383-0012 (Elevation = 430.89 m, provided by Van Harten Surveying Inc.).*

Public and private utilities were contacted before the start of drilling activities to demarcate underground utilities near the boring locations.

Representative overburden samples were recovered at regular intervals throughout the depths explored. Standard Penetration Tests (SPT) were performed during sampling operations in the boreholes using conventional split spoon equipment. The recorded SPT N-values are plotted on the borehole logs in Appendix B.

Each borehole was equipped with monitoring wells for the purpose of measuring the stabilized groundwater level across the site. The monitoring wells comprised 51 mm diameter pipes with slotted and filtered screens and bentonite seals near the ground surface. Details of the monitoring wells' installation, groundwater observations and measurements are provided on the borehole logs, in Appendix B.

The monitoring wells were installed in accordance with Ontario Regulation 468/10, which provides requirements for wells in the Province of Ontario. Completed well records will be submitted to the property owner and the MECP as per Ontario Regulation 468/10. A licensed well technician must properly decommission all standpipes before construction according to Regulation 903 (as amended) of the Ontario Water Resources Act.

The fieldwork was monitored throughout by a member of our geotechnical engineering staff, who documented the drilling and sampling procedures, recorded the results of the SPT and pocket penetrometer tests, documented soil stratigraphies, monitored groundwater conditions, and transported the recovered soil samples for visual classification and analysis.

4.2 Geotechnical Laboratory Testing

All soil samples collected during this investigation were returned to GRIT's office for visual examination and moisture content testing. Moisture content results are presented in the borehole logs in Appendix B. In addition, twelve (12) representative samples of the predominant water-bearing subgrade soils were selected for particle size distribution analysis. The results of the laboratory tests are summarized in Section 5.0 and provided in Appendix C.

The soil samples will be retained for 30 days from the collection date, after which they will be discarded unless prior arrangements have been made for extended storage.

5.0 SOIL CONDITIONS

5.1 Topsoil

Each borehole was surfaced with a layer of topsoil consisting of black organic silt. The topsoil thickness generally ranged from approximately 125 to 300 mm across the Site. The topsoil was observed to be in a moist state at the time of the fieldwork, based on visual and tactile observations. It should be noted that topsoil thicknesses are based solely on conditions observed at the borehole locations only and may vary significantly between the borehole locations, such as in areas with existing vegetation or tree cover, in topographic low spots across the Site, or in areas where tilling has occurred and mixed the topsoil with the underlying soil strata.

5.2 Silt/Sandy Silt

A near-surface silt/sandy silt stratum was encountered directly beneath the topsoil in each Borehole, with the exception of Boreholes BH/MW1-26 and BH/MW3-26. Organic inclusions were encountered within the silt layer in Borehole BH/MW6-26.

SPT N-values recorded within the silt/sandy silt stratum generally ranged from 2 to 9 blows per 300 mm of penetration, indicating very loose to loose soil conditions. Very dense soil conditions (recorded SPT N-value of over 50 blows) were encountered in Borehole BH7-26 at a depth of 4.6 mbgs. Measured in situ moisture contents within the silt varied from 10 % to 28 %, generally indicative of moist to wet conditions.

5.3 Sand/Silty Sand/Silt and Sand

Native interlayered deposits of sand, silty sand and silt and sand were encountered underlying the topsoil in Boreholes BH/MW1-26 and BH/MW3-26, and underlying the near-surface silt soils in the remaining boreholes. Each borehole, with the exception of Borehole BH/MW10-26, terminated within this layer. The native sand deposits were generally described as containing trace gravel and trace clay, with a noted variation in silt content across the Site and with depth.

The result of twelve particle grain size distribution analyses conducted on recovered samples of the sandy soils is provided in Appendix C and summarized in Table 5-1.

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Table 5-1 - Particle Grain Size Distribution Analysis Results (Sand)

Borehole ID / Sample No.	Sample Depth (mbgs)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
Sand, trace to some silt					
BH/MW1-26 / SS9	6.10 – 6.55	1	94	3	2
BH/MW2-26 / SS6	4.57 – 5.03	0	94	3	3
BH/MW3-26 / SS6	4.57 – 5.03	1	94	3	3
BH/MW4-26 / SS7	6.10 – 6.55	0	79	19	2
BH/MW6-26 / SS8	6.10 – 6.55	0	93	5	2
BH/MW8-26 / SS8	6.10 – 6.55	0	84	14	2
BH/MW11-26 / SS8	6.10 – 6.55	0	84	14	2
BH/MW12-26 / SS8	6.10 – 6.55	0	82	16	2
Silty Sand					
BH/MW9-26 / SS8	6.10 – 6.55	0	66	32	2
BH/MW10-26 / SS7	4.57 – 5.03	0	75	24	1
Sand and Silt					
BH/MW5-26 / SS8	6.10 – 6.55	0	57	40	3
BH/MW7-26 / SS8	6.10 – 6.55	0	60	36	4

Note: *mbgs=Metres Below the Existing Ground Surface; Gradation percentages rounded to the nearest unit*

SPT N-values within the sand strata generally ranged from 1 to 30 blows per 300 mm of penetration, indicating variable very loose to compact soil conditions, with a noted increase in density generally encountered at depths ranging from 2.3 mbgs to 3.1 mbgs across the Site. Measured in situ moisture contents within the sand ranged from 3 to 17 % above the stable groundwater table and were on the order of 10 to 28 % below the stabilized groundwater elevation.

5.4 Silt Till

A layer of silt till was encountered underlying the sand soils in Borehole BH/MW 10-26 at an approximate depth of 7.6 mbgs, and extending to the borehole termination depth. The composition of the till comprised silt, with trace sand, trace gravel and some clay.

A recorded SPT N-value taken in the glacial till was 10 blows per 300 mm penetration of the split spoon sampler, indicating compact soil conditions. An in situ moisture content determination conducted on a recovered sample of the till yielded a value of 26%, indicative of wet to saturated soil conditions.

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6.0 GROUNDWATER CONDITIONS

Groundwater observations and measurements were taken in the open boreholes at the time of drilling and are documented in the borehole logs (Appendix B).

Groundwater readings were measured by HCS in the monitoring wells installed by GRIT on May 4th, 2026, and are summarized in Table 6-1:

Table 6-1 – Monitoring Well Groundwater Readings

Borehole ID	Groundwater Level Measurement Date: May 4th, 2026		
	Borehole Elevation (m)	Groundwater Depth (mbgs)	Groundwater Elevation (m)
BH/MW1-26	429.53	4.92	424.61
BH/MW2-26	427.27	2.68	424.59
BH/MW3-26	428.12	3.91	424.21
BH/MW4-26	427.87	4.14	423.73
BH/MW5-26	428.57	4.68	423.89
BH/MW6-26	428.37	4.40	423.97
BH/MW7-26	427.92	4.88	423.04
BH/MW8-26	428.11	5.01	423.10
BH/MW9-26	428.90	5.61	423.29
BH/MW10-26	424.24	1.93	422.31
BH/MW11-26	426.01	3.95	422.06
BH/MW12-26	425.22	3.58	421.64

Note: *mbgs=Metres Below the Existing Ground Surface; Groundwater level readings taken by HCS - Hydrogeology Consulting Services Inc.; Groundwater elevations taken by GRIT.*

Based on the results of this investigation, shallow groundwater is contained within the near-surface sandy soils, at depths ranging from 1.9 to 5.6 mbgs (corresponding to Elevations 421.6 to 424.6 m) across the Site.

It should be noted that groundwater levels are subject to seasonal fluctuations and local variations and, as such, may differ at the time of construction. Where shallow groundwater is encountered, it is expected to generally follow the site topography, and flow towards the south/southwest

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7.0 DISCUSSION AND RECOMMENDATIONS

7.1 General

Based on a review of the preliminary concept plan, the proposed development will comprise a residential and mixed-use community, accommodating a mix of dwelling unit types and densities, including single detached dwellings, various forms of townhouses, and apartments. The development will also feature a new public park, continuation of the public trail network, extension of the public road network, and a mixed-use/commercial block contemplated in the southeast corner of the subject lands. It is anticipated that the development of the subject lands will accommodate approximately 701 dwelling units. The subject lands are also planned to accommodate a new school on a 4.96-hectare block at the northeast part of the subject lands. A stormwater management pond is proposed within the northwest part of the subject lands. It is assumed that the proposed development will be serviced with municipal water and sanitary sewers.

The subsurface stratigraphy at the site generally comprises a layer of topsoil overlying native silt, sand, and silt till deposits. Shallow groundwater was measured by HCS in the monitoring wells installed by GRIT on May 4th, 2026, at depths ranging from 1.9 to 5.6 mbgs (Elevation 421.6 to 424.6 m). Depending on the timing of construction, it is anticipated that seasonal conditions may cause variations in the stabilized groundwater level.

The following subsections of this report contain geotechnical recommendations for the proposed development, including site preparation, trench backfill, pipe bedding, excavations, dewatering, pavement design and subdrainage, foundations, basement design, testing and inspection, and excess soil management.

7.2 Site Preparation

Based on current Site conditions, it is anticipated that additional site grading works will be required to accommodate the proposed development. The first construction activity required will be the removal of existing topsoil and native subsoils to design grades. In calculating the approximate quantity of topsoil to be removed, GRIT recommends that the thickness provided on the individual borehole logs be increased by 50 mm to account for localized variations across the site. It should be noted that topsoil thicknesses are based on information provided at the borehole locations only and may vary in areas with existing vegetation and tree cover, or in areas where tilling has occurred and mixed the topsoil with the underlying soil strata. The topsoil material may be stockpiled onsite and re-used for landscaping fill to raise grades in amenity areas.

Should additional fill be required to achieve design grades for the proposed buildings at the Site, structural fill placement will be required. Structural fill pads should comprise OPSS Granular 'A' (or an approved equivalent) and extend a minimum of 0.3 m beyond the edge of the footing envelope and down to subgrade at an angle of 45 degrees to the horizontal. Full-time testing by geotechnical personnel is required during structural fill placement and compaction to monitor the material quality and lift thickness and verify the compaction by in-situ density testing (per the Ontario Building Code). The structural fill should be placed in maximum 300 mm thick lifts and uniformly compacted to 100 percent Standard Proctor Maximum Dry Density (SPMDD).

Alternatively, the onsite native soils, comprised of silt, sand, and silt till, are considered suitable for re-use as structural fill, provided that the material remains free of deleterious material, topsoil and organics, and remains at a workable moisture content (within 3 % of optimum moisture, as determined by Standard Proctor Testing). The near-surface silt soils encountered at depths ranging from 0.2 to 0.8 m below existing grades in Borehole BH/MW6-26 are not considered suitable for re-use as structural fill without the risk of undue settlements, due to the presence of organics within these soil layers. The suitability of the onsite soils for re-use should be subject to review and approval by the geotechnical consultant at the time of construction

The exposed subgrade shall be inspected by qualified geotechnical personnel. Soft or unstable areas shall be sub-excavated and replaced with compacted native soil or imported structural fill, to ensure subgrade stability.

The nature of the native subgrade soils renders the subgrade material highly susceptible to pumping/disturbance from heavy construction equipment. It is recommended that construction traffic be minimized on the finished subgrade, and the subgrade be sloped to promote rainwater drainage.

To minimize the effects of groundwater during construction, it is recommended that the work be carried out during the typically drier summer months.

If existing services are encountered within the proposed building footprint, they should be re-routed or properly decommissioned, as necessary. If any existing buried concrete slabs and/or other abandoned infrastructure are encountered within the future building footprint, they should be removed in its entirety, and the excavation restored with structural fill as outlined above.

Any soils that are free of organic material and remain at a workable moisture content may be placed in maximum 300 mm thick lifts and compacted to the minimum percentages of Standard Proctor Maximum Dry Density (SPMDD) outlined in Table 7-1.

Table 7-1 - Compaction Requirements

Fill Use	Minimum Compaction
Structural fill within proposed building footprint Pavement Structure Granular base/subbase	100 % SPMDD
Subgrade fill beneath local roadways or parking areas Trench Backfill < 1.0 m below road subgrade	98 % SPMDD
Trench Backfill > 1.0 m below road subgrade	95 % SPMDD
Fill in landscaped areas	90 % SPMDD

7.3 Excavations and Dewatering

Excavations should be carried out in strict conformance with the current Occupational Health and Safety Act (OHSA). Temporary excavations for the installation of underground utilities and foundations must comply with *O. Reg. 213/91 – Construction Projects*, under the *Occupational Health and Safety Act*. For the purpose of interpreting the act, the following soil classifications are provided:

- The native silt/sand soils encountered above the stabilized groundwater table, or where soils have been suitably dewatered, can be classified as Type 3 soil.

If affected by groundwater seepage, these soils must be considered as Type 4 soils. The highest number soil type identified in an excavation must govern the excavation slopes from top to bottom of the excavation. It will be necessary to flatten or support the excavation side slopes where groundwater seepage is occurring to ensure stability. Every excavation that a worker may be required to enter shall be kept reasonably free of water (O. Reg. 213/91, s. 230).

Stockpiles of excavated materials should be kept at least 3.0 m from the edge of any excavation to avoid slope instability, subject to confirmation by the geotechnical engineer. Care should also be taken to avoid overloading of any underground services/structures by stockpiles.

Minor groundwater inflow should be expected for shallow excavations above the groundwater table at the site. It is anticipated that conventional sump pumping techniques will be suitable to handle infiltrated surface water contained within the upper weathered native soils, as well as nominal seepage from the near-surface sand soils encountered above the stabilized groundwater elevation.

Based on the results of this investigation, shallow groundwater is contained within the near-surface sandy soils, at depths ranging from 1.9 to 5.6 mbgs (Elevations 421.6 to 424.6 m). Moderate groundwater inflow through the granular soils is expected where the excavations extend less than 0.3 m below the shallow groundwater table. It is believed that this groundwater inflow can be controlled using a gravity dewatering system with perimeter interceptor ditches and (high capacity) pumps and sump pits.

In order to facilitate excavations which extend more than 0.3 m below the stabilized groundwater table, a dewatering system installed by a specialist dewatering contractor may be required to lower the groundwater level prior to excavation. Soil permeability values for the water-bearing subgrade soils are provided in the following subsection to assist with determining appropriate construction dewatering methods. The design of the dewatering system should be left to the contractor's discretion, and should be sufficient to maintain stable excavated slopes, and to provide a dry and stable base for excavations and construction operations.

It should be noted that an Environmental Activity and Sector Registry (EASR) issued by the MECP may be required if the dewatering system/sumps result in water taking of more than 50,000 L/day. The contractor should notify the prime consultant if an EASR will be needed. Additional detailed dewatering recommendations will be provided by HCS in a separate report.

7.3.1 Hydraulic Conductivity and Infiltration Rates

The hydraulic conductivity (K) values were estimated using empirical formulas appropriate to the water-bearing soil types encountered at each monitoring well location. Hazen's method was applied to the sandy soils, whereas Kozeny-Carman's method was utilized for the silty sand/sand and silt soils.

The estimated design infiltration rates are based on recommendations found in the Low Impact Development Stormwater Management Planning and Design Guide, Appendix C, Version 1.0, 2011, published by the Toronto and Region (TRCA) and the Credit Valley (CVC) Conservation Authority, and the approximate relationship between hydraulic conductivity and infiltration rate. A Factor of Safety of 2.5 has been applied to the calculated infiltration rates provided in Table 7-2:

Table 7-2 - Hydraulic Conductivity & Design Infiltration Rates

Borehole ID / Sample ID	Sample Depth (mbgs)	Soil Type	Saturated Hydraulic Conductivity, k (m/sec)	Design Infiltration Rate (mm/hr)
Sand, trace to some silt				
BH/MW1-26 / SS9	6.10 – 6.55	SAND, trace Silt, trace Clay, trace Gravel	1.5E-04	70
BH/MW2-26 / SS6	4.57 – 5.03	SAND, trace Silt, trace Clay	1.3E-04	68
BH/MW3-26 / SS6	4.57 – 5.03	SAND, trace Silt, trace Clay	1.6E-04	72
BH/MW4-26 / SS7	6.10 – 6.55	SAND, some Silt, trace Clay	5.5E-06	29
BH/MW6-26 / SS8	6.10 – 6.55	SAND, trace Silt, trace Clay	9.2E-05	62

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Borehole ID / Sample ID	Sample Depth (mbgs)	Soil Type	Saturated Hydraulic Conductivity, k (m/sec)	Design Infiltration Rate (mm/hr)
BH/MW8-26 / SS8	6.10 – 6.55	SAND, some Silt, trace Clay	3.3E-05	47
BH/MW11-26 / SS8	6.10 – 6.55	SAND, some Silt, trace Clay	2.4E-05	44
BH/MW12-26 / SS8	6.10 – 6.55	SAND, some Silt, trace Clay	1.4E-05	38
Silty Sand				
BH/MW9-26 / SS8	6.10 – 6.55	SILTY SAND, trace Clay	1.3E-05	36
BH/MW10-26 / SS7	4.57 – 5.03	SILTY SAND, trace Clay	2.0E-05	41
Sand and Silt				
BH/MW5-26 / SS8	6.10 – 6.55	SAND and SILT, trace Clay	1.4E-05	37
BH/MW7-26 / SS8	6.10 – 6.55	SAND and SILT, trace Clay	1.9E-07	12

Note: *mbgs=Metres Below the Existing Ground Surface*

Several factors can influence the actual soil permeability and infiltration rate onsite during the site grading activities, including the use of onsite or imported materials to achieve design grades. It is recommended that geotechnical inspection of materials which are used onsite and in situ infiltration field testing be conducted during the construction phase of the project to confirm that the design infiltration rate noted above is representative of actual site conditions.

7.4 Site Servicing

Detailed servicing drawings were not provided to GRIT at the time of this report. Subgrade soils encountered at typical servicing depths are generally expected to consist of native silt and sand soils.

7.4.1 Pipe Bedding

No bearing problems are expected for pipes set on properly dewatered native inorganic subsoil or imported structural fill.

Bedding for underground pipes should be placed in accordance with the design requirements and current Ontario Provincial Standards specifications (OPSS), including Ontario Provincial Standard Drawing (OPSD) 802.10 for flexible pipes and OPSD 802.30, 802.31, and 802.32 for rigid pipes. It is recommended that a minimum of 150 mm thick bedding material (Class ‘B’ Type I, II or III, with 100 % passing 26.5-mm sieve) be placed below the pipe invert.

If the subgrade becomes excessively wet during excavation, the bedding course thickness may be increased. Granular 'A' aggregate should be placed around the pipe, extending at least 300 mm above it. Bedding aggregate must be compacted to a minimum of 95 % SPMDD. Water and sewer lines installed outside of heated areas should be provided with a minimum of 1.2 m of soil cover or equivalent insulation for frost protection.

A well-graded stone layer, such as 19 mm clear stone or an approved equivalent, may be used as bedding material below the pipe spring line in sewer trenches to facilitate sump pump dewatering, if required. The clear stone should be compacted using a plate tamper and wrapped in Class 1 non-woven geotextile to prevent fine particle migration from saturated soils.

7.4.2 Trench Backfilling

The trenches above the specified pipe bedding should be backfilled with inorganic soil placed in maximum 300 mm thick lifts and compacted following the guidelines outlined in Table 7-1. It is recommended that the onsite undisturbed and recompacted silt and sand soils be used as backfill in the trenches to prevent problems with differential frost heaving of imported subgrade materials, and to minimize excess soil generation.

Based on the observed soil moisture contents recorded in the borehole logs (and summarized in Section 5.0), the majority of the subgrade soils excavated from above the stabilized groundwater level are expected to be suitable for reuse from a geotechnical perspective; However, if construction occurs during seasonally wet periods or inclement weather, onsite review of the excavated soils should be conducted by experienced geotechnical personnel to confirm that the soil moisture content remains suitable (generally within 3% of optimum moisture, as determined by standard proctor density testing) to achieve the specified compaction levels. Material intended for re-use as trench backfill should not be stockpiled onsite for prolonged periods of time, particularly during wet periods or periods of inclement weather.

Wet or saturated soils excavated from below the stabilized groundwater table may not be considered suitable for reuse as trench backfill. If construction extends into the winter, then additional steps should be taken to minimize frost and ensure that frozen material is not used as backfill. If necessary, unsuitable trench backfill should be replaced with imported Granular ‘C’ (or an approved equivalent.) If necessary, compensation for wet trench backfill conditions can also be made with additional Granular 'B' in the pavement structure, as determined at the time of construction by a licensed Geotechnical Engineer. Additionally, unsuitable materials such as concrete, organic soils, boulders and cobbles should not be used for backfilling.

To minimize potential problems, backfilling operations should follow closely after excavation so that only a minimal length of trench is exposed. Care should be taken to protect side slopes of excavations by diverting surface run-off away from the excavations.

If the minimum clearance cannot be achieved between pipes, the pipes must be backfilled with unshrinkable fill as per OPSS 1359 and OPSS 401 (formerly OPSS 514.)

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7.5 Pavement Design and Subdrainage

It is understood that the proposed development will be accessed via local roadways which connect to Highway 6 to the north. The subgrade soil is expected to consist of native and recompacted silt/sand or imported structural fill.

The exposed subgrade should be proof rolled to identify weak zones and inspected by a geotechnical engineer. Weak or excessively wet areas should be sub-excavated and replaced with compacted, competent material to achieve stable, uniform conditions.

Based on the proposed pavement usage, frost-susceptibility and strength of the subgrade soils, GRIT recommends the pavement design outlined in Table 7-3:

Table 7-3 - Pavement Design Recommendations

Pavement Component	Local Roadways
Asphaltic Concrete	40 mm HL3 50 mm HL4
OPSS Granular ‘A’ Base	150 mm
OPSS Granular ‘B’ Subbase	450 mm

The design thicknesses noted above are not intended to support heavy or concentrated construction traffic. The design assumes that construction will be carried out during the drier time of the year and that the subgrade soil is stable as determined by proof-rolling inspected by qualified geotechnical personnel. Additional granular subbase may be required if the subgrade is wet and unstable, or if frequent construction traffic is anticipated while only a portion of the site pavements are in place, subject to review and inspection at the time of construction by the geotechnical consultant.

Samples of aggregates should be checked for conformance to OPSS 1010 prior to utilization on site and during construction. The Granular 'B' subbase and Granular 'A' base courses must be compacted to 100 % SPMDD, as verified by in situ density testing.

The asphaltic concrete paving materials should conform to the requirements of OPSS 1150. The asphalt should be placed and compacted in accordance with OPSS 310. The Performance Graded Asphalt Cement designation for the asphaltic concrete is 58-28.

A tack coat of diluted emulsified asphalt should be applied to all pavement surfaces to be covered with hot mix, as well as on all vertical joint surfaces. Tack coat acceptance shall be as per OPSS 308.

It is recommended that a 600 mm step joint be provided at all transitions with existing asphalt per OPSD 509.010.

Where the proposed development connects to the existing subdivision development, subgrade levels and pavement components should be tapered to match / tie-into existing pavement structures to minimize differential settlements at the transition from existing to new pavement.

The sandy subgrade soils have good natural drainage and therefore pavement subdrains are not anticipated. This should be confirmed by a geotechnical engineer at the time of subgrade preparation. If required, subdrains should comprise 150 mm diameter perforated corrugated steel or PVC pipe that are minimum 3.0m in length. The subdrains should be installed along both sides of the road, below the roadbed level, to ensure effective drainage in accordance with OPSD 216.021. The pipe for the subdrains should be wrapped in non-woven geotextile surrounded by a drainage zone of minimum 150 mm thickness.

A minimum slope of 2 % should be maintained across the paved sections (finished road surface) to ensure proper surface drainage. New pavement should slope towards the gutter. Routine maintenance, such as pothole repair and localized distortion repair are anticipated over the life of the roadway.

All materials and construction services required for the work should be in accordance with the relevant sections of the Ontario Provincial Standard Specifications.

7.6 Foundations

The founding elevations for the proposed residential dwellings were unknown at the time of this report. Considering the presence of loose sand/silt soils encountered at deeper depths within the boreholes drilled across the site, it is recommended that conventional spread footings be founded on the native inorganic soils encountered at depths of approximately 1.2 m to 2.3 m below existing grades, at the elevations specified in Table 7-4.

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Table 7-4- Geotechnical Bearing Resistance Values and Founding Elevations

Borehole No.	Borehole Surface Elevation (m)	Minimum Depth Below Existing Ground Surface (mbgs)	Founding Level at or Below Elevation (m)	Factored Geotechnical Bearing Resistance (kPa)
BH/MW1-26	429.53	1.2	428.33	100 SLS / 150 ULS
		2.3	427.23	150 SLS / 225 ULS
BH/MW2-26	427.27	1.2	426.07	100 SLS / 150 ULS
		3.1	424.17	150 SLS / 225 ULS
BH/MW3-26	428.12	1.2	426.92	100 SLS / 150 ULS
		2.3	425.82	150 SLS / 225 ULS
BH/MW4-26	427.87	1.2	426.67	100 SLS / 150 ULS
		2.3	425.57	150 SLS / 225 ULS
BH/MW5-26	428.57	1.2	427.37	100 SLS / 150 ULS
		2.3	426.27	150 SLS / 225 ULS
BH/MW6-26	428.37	1.2	427.17	100 SLS / 150 ULS
		2.3	426.07	150 SLS / 225 ULS
BH/MW7-26	427.92	1.2	426.72	100 SLS / 150 ULS
		1.5	426.42	150 SLS / 225 ULS
BH/MW8-26	428.11	1.2	426.91	75 SLS / 115 ULS
		3.1	425.01	150 SLS / 225 ULS
BH/MW9-26	428.90	1.2	427.70	100 SLS / 150 ULS
		1.5	427.40	150 SLS / 225 ULS
BH/MW10-26	424.24	1.2	423.04	100 SLS / 150 ULS
		1.5	422.74	150 SLS / 225 ULS
BH/MW11-26	426.01	1.2	424.81	75 SLS / 115 ULS
		2.3	423.71	150 SLS / 225 ULS
BH/MW12-26	425.22	1.2	424.02	150 SLS / 225 ULS

Note: *SLS – Serviceability Limit States, ULS - Ultimate Limit States; Elevations obtained by GRIT using a laser level, referenced to Site Benchmark 1 (SBM1): Spike in utility pole across Highway No. 6 adjacent to Pin 71383-0012 (Elevation = 430.89 m, provided by Van Harten Surveying Inc.).*

It should be noted that variable very loose to loose soil conditions may be encountered in the near-surface silt/sand soils at the time of building construction. Subgrade improvement in the form of re-compaction or sub-excavation and replacement with approval structural fill material may be appropriate where unsuitable soils are encountered. The footing areas must be inspected by a geotechnical engineer to ensure that the soil conditions encountered at the time of construction are suitable to support the design resistance.

Conventional spread footings founded on approved structural fill may be designed for a factored geotechnical bearing resistance at Ultimate Limit State (ULS) of 225 kPa, and soil bearing resistance for 25 mm of settlement at Serviceability Limit State (SLS) of 150 kPa. If the footing excavation extends below the shallow groundwater elevation, the area will need to be suitably dewatered prior to fill placement to achieve suitable compaction levels.

The recommended bearing capacities for the approved structural fill mat are contingent upon full-time inspection and testing by a licensed geotechnical engineer during placement and compaction, following the guidelines outlined in Section 7.2. If geotechnical supervision is not provided, or if the geotechnical consultant cannot certify the fill mat, further site investigation and intrusive testing may be necessary to confirm the soil's bearing capacity for foundations set on fill materials.

Where step footings are constructed, the vertical rise between horizontal portions shall not exceed 600 mm and the horizontal distance between the risers shall not be less than 600 mm as per Section 9.15.3.9 of the Ontario Building Code.

The native mineral soils are susceptible to disturbance by workers during foundation construction and, therefore, it is recommended that a working slab of lean concrete (mud slab) be placed in the footing areas immediately after excavation and inspection to protect the founding soils during placement of formwork and reinforcing steel.

Properly constructed footings within the native deposits are expected to undergo total settlements of less than 25 mm and differential settlements of less than 12 mm. The foundation settlement should be calculated by the foundation designer once the final foundation details are known.

All exterior footings, as well as footings outside of heated areas, must be provided with a minimum of 1.2 m of soil cover, or equivalent insulation, for frost protection and the foundation shall be designed to prevent damage resulting from freezing and frost jacking. If construction is undertaken during the Winter, the footing subgrade should be protected from freezing.

A Site Classification 'D' should be used for earthquake load and effects in accordance with Table 4.1.8.4.-B of the Ontario Building Code 2024.

7.7 Concrete Slab-on-Grade Construction

The floor slab for the proposed buildings may be constructed using conventional concrete slab on grade techniques following the removal of all existing loose soils, and proof rolling of the subgrade to evaluate the subgrade soil. Any soft areas encountered during proof-rolling should be sub-excavated and backfilled with well-compacted sand or sand and gravel materials.

The site is suitable for support of light floor loads. Where high floor loads are anticipated, specific considerations will be required concerning the size and magnitude of the loaded area, as well as its location relative to the proposed structure.

A minimum 200 mm thick layer of Granular 'A' material uniformly compacted to 100% SPMDD should be provided directly beneath the floor slab for leveling and support purposes. No special underfloor drains are required provided that the exterior grades are lower than the concrete slab and positively sloped away from the building.

For the design of floor slabs, a modulus of subgrade reaction (k) of 30 MPa/m is recommended for native soils. The slab-on-grade floor should be isolated from all load-bearing walls and columns.

For external concrete slabs, or where slab-on-grade concrete is placed in unheated areas, consideration may be given to provide insulation below the slabs.

7.8 Basement Construction

Based on the results of this investigation, shallow groundwater is contained within the near-surface sandy soils, at depths ranging from 1.9 to 5.6 mbgs (Elevations 421.6 to 424.6 m). Groundwater levels are subject to seasonal fluctuations and may differ from those observed during this investigation.

Based on the groundwater measurements obtained during this investigation, basement construction may be feasible within portions of the Site; however, the feasibility of basements will vary depending on the final building locations, proposed grades, and foundation elevations. Where basement floor elevations are proposed within or near the stabilized groundwater table, permanent groundwater control measures, enhanced waterproofing, and potentially revised foundation elevations may be required. Once final design details for the proposed residential dwellings are known, a review should be conducted by GRIT to confirm that building foundations will be set a minimum of 0.3 m above the stabilized groundwater level.

Basements must be provided with perimeter weeping tile systems as per the Ontario Building Code. The drain tile or pipe should be laid on undisturbed or well compacted soil so that the top of the tile or pipe (minimum 100 mm diameter) is below the underside of the basement floor slab.

The top and sides of the drain tile or pipe shall be surrounded with not less than 150 mm of crushed stone or other clean coarse granular material containing no more than 10% of material that will pass the 4 mm sieve. The crushed stone should be wrapped with filter cloth. The weeping tile must drain to a suitable frost-free outlet or sump equipped with an automatic pump that will discharge water into a storm sewer service or other frost-free outlet.

The portion of the exterior basement wall and floor slab below finished ground level must be waterproofed as per the Ontario Building Code (Subsection 9.13.3). Free-draining sand materials should be used for basement wall backfill. The basement wall backfill should be graded to allow drainage away from the foundation.

The basement walls should be designed to resist lateral earth pressures exerted by the surrounding backfill. For free-draining, level, compacted granular backfill, the lateral earth pressure, P, at any depth h below the surface can be estimated using the following equation (Bowles, 1996):

$$P = K\gamma h + Kq$$

Where:

P = lateral earth pressure (KPa) acting at a depth h
K = earth pressure coefficient for drained compacted granular, a value of 0.5 may be assumed
h = depth to point of interest (m)
γ = unit weight of backfill (kN/m³), a value of 20.0 kN/m^3 may be assumed

q = equivalent value of any surcharge on the ground surface (kPa)

Earth pressure computations must also take the groundwater level into account. Above the groundwater level, it is assumed that the perimeter drainage system prevents the build-up of hydrostatic pressures behind the wall, and the earth pressure is computed using the bulk unit weight of the retained soil. Below the groundwater level, the earth pressures are computed using the submerged unit weight of the soil. Hydrostatic pressure is also applied if the retained soil is not fully drained.

The subgrade for the basement floor slabs should comprise undisturbed native soil or well compacted fill. A minimum 100 mm thick layer of coarse clean granular material containing not more than 10% material that will pass a 4 mm sieve shall be placed beneath slabs in houses as per Subsection 9.16.2 of the Ontario Building Code. If shallow groundwater is present at or near to the floor elevation, consideration may be given to enhanced damp proofing measures, such as subfloor drains connected to a sump pump. This can be confirmed by a licensed Geotechnical Engineer at the time of construction, if required.

If a moisture-sensitive floor finish is to be applied to the slab, it is recommended that a 15-mil polyethylene moisture vapour barrier be installed directly beneath the slab as per Article 9.13.2.7 of the Ontario Building Code. The purpose of the vapour barrier is to reduce moisture transfer by diffusion as per Article 5.5.1.2 of the Ontario Building Code. Joints in the vapour barrier should be lapped not less than 100 mm.

7.9 Concrete Curb, Gutter and Sidewalks

The concrete for curbs, gutters and sidewalks should be proportioned, mixed, placed and cured in accordance with the requirements of OPSS 353, and OPSS 1350.

Unless otherwise specified, the concrete shall meet the following requirements:

- Minimum compressive strength = 32 MPa at 28 days, for Class C-2 Exposure Conditions;
- Air entrainment = 7.0 ± 1.5%;
- Coarse aggregate 19.0 mm nominal max. size; and
- Maximum slump = 60 mm for curbs and gutters; 70 mm for sidewalks.

A minimum of 300 mm of OPSS 1010 Granular ‘A’ material compacted to at least 100% SPMDD is required as a base for any curb installation. During cold weather, any freshly placed concrete must be covered with insulating blankets to protect against freezing.

The subgrade for concrete sidewalks shall consist of undisturbed native mineral soil or well-compacted fill. A minimum 100 mm thick layer of compacted OPSS 1010 Granular ‘A’ material shall be placed beneath all sidewalk slabs.

Field sampling and testing of concrete shall be performed in accordance with OPSS 904. Three cylinders from each day's pour (per mix design) should be taken for compressive strength testing. Air entrainment, temperature, and slump tests should be made from the same batch of concrete from which test cylinders are made.

7.10 Inspection and Testing

The geotechnical recommendations provided in this Report apply only to the project described in the text and only if constructed substantially following the details stated in this Report. As not all design elements may be known at the time of report preparation, it is recommended that GRIT be retained during the final design stage to verify the correct interpretation of geotechnical recommendations. For further clarification or elaboration on geotechnical aspects, GRIT should be contacted. Retention of GRIT's services during construction is advised to confirm that subsurface conditions are consistent with those encountered in the boreholes and to ensure proper understanding and implementation of the recommendations provided in this report. Quality assurance testing and inspection during construction are necessary to evaluate subsurface conditions.

7.11 Excess Soils Management

Ontario Regulation 406/19, established under the Environmental Protection Act on November 28, 2019, came into effect on January 1, 2023. The new regulation dictates the testing protocol that is required for the management and disposal of excess soils. As outlined in the regulation, specific analytical testing protocols will need to be implemented and followed based on the quality and quantity of the soils to be managed. The quality of the soils is assessed through an Assessment of Past Uses (APU) including the provision of an Ecolog ERIS database report to be determined if there are any Areas of Potential Concern (APEC). Minimum sample frequency and analytical testing requirements have been specified in the regulation, but the required minimum test parameters can be affected by the findings of the APU. The testing protocols are specific as to whether the soils are stockpiled or in situ, the volume of excess soils to be generated, and the intended destination of the excess soils.

At this time GRIT has not implemented a soil management program or completed a Soil Characterization Report that would satisfy the requirements of Ontario Regulation 406/19. We would however be pleased to implement such a program if required.

7.12 Conclusion

Based on the results of the geotechnical investigation completed at the proposed development located at 6585 Highway 6, Fergus, Ontario, the Site is considered geotechnically suitable for the proposed residential, mixed-use, institutional, and stormwater management development contemplated on the Draft Plan of Subdivision. The proposed development consists of a mix of single detached dwellings, townhouse units, apartment buildings, a school block, public roadways, a stormwater management facility, and supporting municipal infrastructure.

The subsurface conditions encountered across the Site generally comprise a thin layer of topsoil overlying native silt, sandy silt, sand, silty sand, and localized silt till deposits. While variable very loose to loose soils were encountered near surface in portions of the Site, the investigation also identified competent native soils at relatively shallow depths suitable for foundation support following conventional site preparation measures. Groundwater was encountered within the native sandy soils at depths generally ranging from approximately 1.9 m to 5.6 mbgs.

Based on the findings of this investigation, there are no geotechnical constraints that would preclude the proposed development, provided that the recommendations contained herein are incorporated into the detailed design and construction phases of the project. Conventional spread footings, slab-on-grade construction, municipal servicing, roadway construction, and associated site development works can be supported using standard engineering design and construction practices.

The principal geotechnical considerations for the proposed development include removal of topsoil, management of localized loose or unsuitable soils, implementation of appropriate structural fill placement and compaction procedures, groundwater management during deeper excavations, and geotechnical inspection and testing during construction. Areas containing organic-bearing soils, such as those encountered in the near-surface silt layer at Borehole BH/MW6-26, should be addressed as outlined in this report prior to construction.

Basement construction may be feasible within portions of the Site; however, the suitability of basements will depend upon the final grading plan, foundation elevations, and proximity to the stabilized groundwater table. Detailed review of proposed basement elevations should be completed during final design to confirm that adequate separation from groundwater can be maintained and that appropriate waterproofing and drainage measures are incorporated where required.

Subject to implementation of the recommendations provided in this report, and confirmation of final grading, servicing, stormwater management, and foundation designs, it is our opinion that the Site is suitable for the proposed development and that no adverse geotechnical conditions were identified that would prohibit development of the lands as currently proposed.

8.0 STATEMENT OF CONDITIONS AND LIMITATIONS

This Report has been prepared in a manner consistent with that level of care and skill ordinarily exercised by other members of the engineering profession currently practicing in the same or similar locality, under the same or similar conditions, subject to the time limits and financial, physical, or other constraints applicable to the Services.

The recommendations provided in this report apply only to the specific site, development, design objectives, and purposes described in the text and then only if constructed substantially following the details stated in this report. Since all details of the final design were unknown at the time of report preparation, GRIT recommends being retained during the final design phase to verify that the recommendations have been correctly interpreted in the design.

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STRATFORD, ON N5A 3W2
519.305.5727
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A geotechnical investigation involves a limited number of samples of site material at specific test hole locations, and the recommendations in the Report are based on this limited information. It must be recognized that the passage of time, natural occurrences, and direct or indirect human interference at or near the site have the potential to alter the subsurface conditions. If subsurface conditions encountered are materially different from those used in the design and as indicated on the drawings, the design shall be reassessed by the designer. If during construction, climatic or any other conditions (i.e., seepage, excavations, chemical spills, etc.) have changed the properties of the soil, rock, or groundwater, the design shall be reassessed by the designer (as per Article 4.2.2.3 of the Ontario Building Code, as amended, if applicable).

The elevations provided in this report should be verified by a registered surveyor before use for other purposes such as planning, development, layout, and construction.

We trust this information satisfies the existing requirements. However, if you have any questions or concerns, please do not hesitate to contact GRIT.

Authored By:

Montana Wilson, EMBA, MENG, PENG, PMP
CEO & Founder
montana@gritengineering.ca

APPENDIX A – SUPPORTING INFORMATION

Figure A1 – Site Location

Figure A2 – Surficial Geology

Figure A3 – Site Plan

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STRATFORD, ON N5A 3W2
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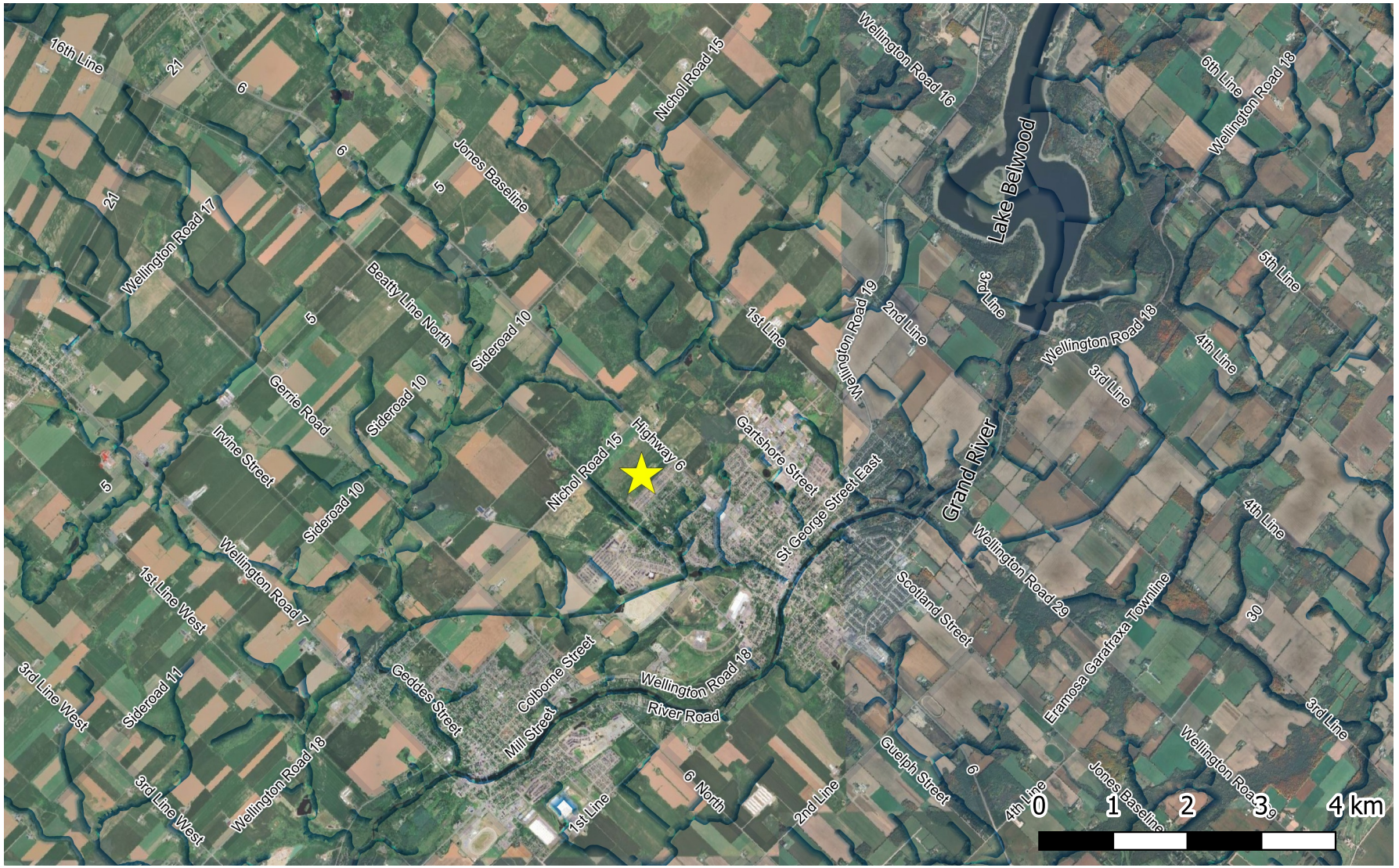

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Legend:

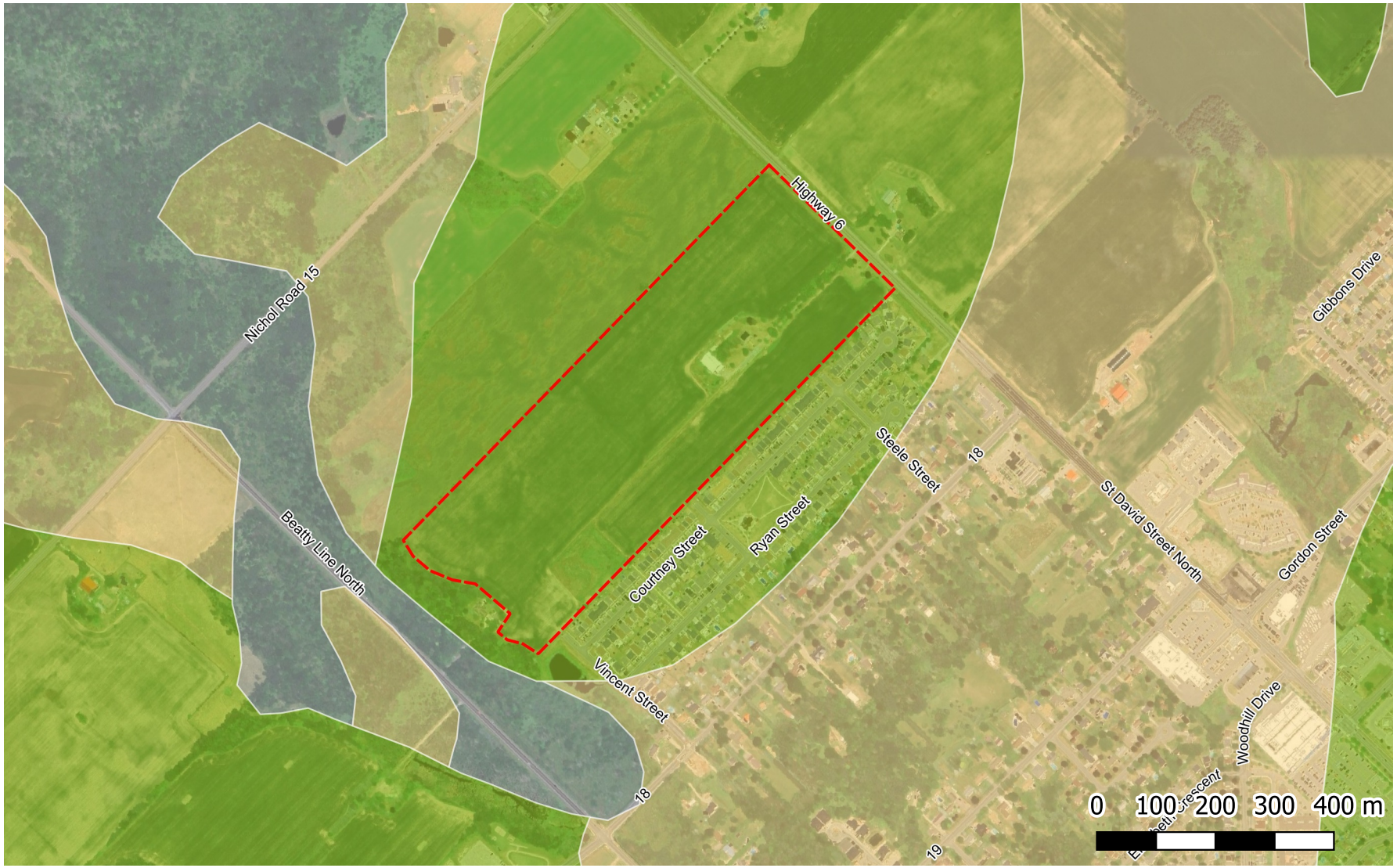
- SITE LOCATION
- WATERCOURSE

Reference: Aerial imagery from Google Earth (most recent imagery available at the time of reporting)

Project:
GE26-1576-1
PROPOSED DEVELOPMENT
6582-6585 HIGHWAY 6, CENTRE WELLINGTON, ONTARIO

Figure Title:
SITE LOCATION
GEOTECHNICAL INVESTIGATION

Figure No: A1



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Legend:

SITE

SURFICIAL GEOLOGY

TILL - stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain

GLACIOFLUVIAL DEPOSITS - river deposits and delta topset facies, sandy deposits

ORGANIC DEPOSITS - peat, muck, marl

Reference: Surficial Geology Map from Ontario Geological Survey 2010

Project:
GE26-1576-1
PROPOSED SUBDIVISION
6582-6585 HIGHWAY 6, CENTRE WELLINGTON, ONTARIO

Figure Title:
SURFICIAL GEOLOGY
GEOTECHNICAL INVESTIGATION

Figure No: A2

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Legend:

- SITE
- BOREHOLE
- SITE BENCHMARK (SBM1) - Spike in utility pole across Highway No. 6 adjacent to Pin 71383-0012 (provided by Van Harten Surveying Inc.)
  TBM ELEVATION = 430.89 m

Reference: Aerial imagery from Google Earth (most recent imagery available at the time of reporting)

Project:
GE26-1576-1
PROPOSED DEVELOPMENT
6582-6585 HIGHWAY 6, CENTRE WELLINGTON, ONTARIO

Figure Title:
SITE PLAN
GEOTECHNICAL INVESTIGATION

Figure No: A3

APPENDIX B – BOREHOLE LOGS

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BOREHOLE BH/MW1-26

PROJECT NUMBER GE26-1576-1
PROJECT NAME Proposed Development
PROJECT ADDRESS 6585 Highway 6, Centre Wellington, Ontario
CLIENT 1052367 Ontario Ltd.

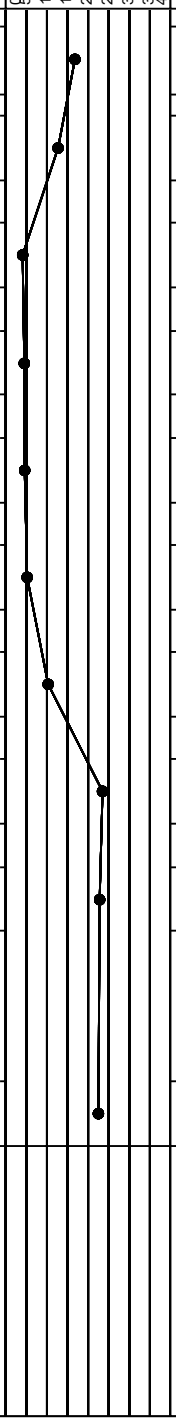
DRILLING COMPANY London Soil Test (LST)
DRILL TECH Shawn Baetz
DRILL RIG DIEDRICH D50
DRILLING METHOD Hollow Stem Auger
TOTAL DEPTH 8.08 mbgs

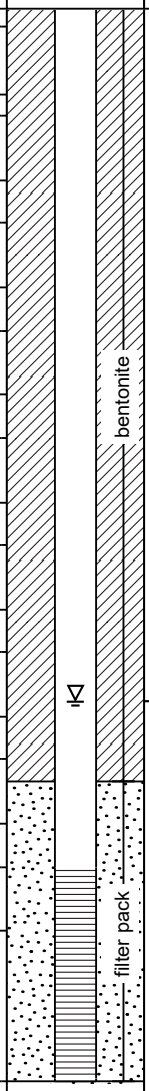
ELEVATION 429.53 m
SITE BENCHMARK (SBM1) Spike in utility pole across Highway No. 6 adjacent to Pin 71383-0012 (provided by Van Harten Surveying Inc.)
SBM1 ELEVATION 430.89 m
DRILLING DATE 2026-04-17

COMPLETION 2026-04-17

LEGEND mbgs=metres below ground surface

Depth (m)	Elevation (m)	Material Description	Samples	% Recovery	Standard Penetration Test (SPT)
0	429.5	TOPSOIL: black (organic) silt, very moist (127 mm)	SS1	80	6
0.5	429	SILTY SAND: loose, brown, silty sand, very moist			
1	428.5	SAND: loose, brown sand, trace silt, very moist	SS2	85	6
1.5	428	very loose to loose, moist	SS3	90	4
2	427.5				
2.5	427	compact	SS4	85	17
3	426.5		SS5	65	22
3.5	426				
4	425.5		SS6	75	16
4.5	425	very moist	SS7	70	24
5	424.5				
5.5	424	compact to dense, saturated	SS8	80	30
6	423.5	loose, trace clay, trace gravel	SS9	90	6
6.5	423				
7	422.5				
7.5	422	compact	SS10	100	18
8	421.5	Termination depth at: 8.08 mbgs (421.45 m)			
8.5	421				
9	420.5				
9.5	420				





Groundwater in MW at 4.92 mbgs (424.61 m) (2026-05-04)

BOREHOLE BH/MW2-26

PROJECT NUMBER GE26-1576-1
PROJECT NAME Proposed Development
PROJECT ADDRESS 6585 Highway 6, Centre Wellington, Ontario
CLIENT 1052367 Ontario Ltd.

DRILLING COMPANY London Soil Test (LST)
DRILL TECH Shawn Baetz
DRILL RIG DIEDRICH D50
DRILLING METHOD Hollow Stem Auger
TOTAL DEPTH 8.08 mbgs

ELEVATION 427.27 m
SITE BENCHMARK (SMB1) Spike in utility pole in hydro pole 3095 approximately 6m northwest of 6585 driveway entrance (set by others)
SBM1 ELEVATION 430.89 m
DRILLING DATE 2026-04-20

COMPLETION 2026-04-20

LEGEND mbgs=metres below ground surface

Depth (m)	Elevation (m)	Material Description	Samples	% Recovery	Standard Penetration Test (SPT)
0	427	TOPSOIL: black (organic) silt, moist (203 mm)			
0.5		SILT: very loose to loose, brown, silt, some sand, very moist	SS1	30	4
1	426.5	SAND: very loose to loose, brown, sand, trace silt, very moist	SS2	65	4
1.5	426	loose	SS3	65	8
2	425.5				
2.5	425		SS4	70	7
3	424.5	compact, wet	SS5	50	13
3.5	424				
4	423.5				
4.5	423	loose, trace clay	SS6	100	6
5	422.5				
5.5	422				
6	421.5		SS7	100	7
6.5	421				
7	420.5				
7.5	420				
8	419.5	compact	SS8	95	12
8.5	419	Termination depth at: 8.08 mbgs (419.19 m)			
9	418.5				
9.5	418				
	417.5				

Moisture Content (%): 0, 5, 10, 15, 20, 25, 30, 35, 40

Well Installation Details: bentonite; filter pack; ▽

Additional Observations: Groundwater in MW at 2.68 mbgs (424.59 m) (2026-05-04)

BOREHOLE BH/MW3-26

PROJECT NUMBER GE26-1576-1
PROJECT NAME Proposed Development
PROJECT ADDRESS 6585 Highway 6, Centre Wellington, Ontario
CLIENT 1052367 Ontario Ltd.

DRILLING COMPANY London Soil Test (LST)
DRILL TECH Shawn Baetz
DRILL RIG DIEDRICH D50
DRILLING METHOD Hollow Stem Auger
TOTAL DEPTH 8.08 mbgs

ELEVATION 428.12 m
SITE BENCHMARK (SBM1) Spike in utility pole across Highway No. 6 adjacent to Pin 71383-0012 (provided by Van Harten Surveying Inc.)
TBM ELEVATION 430.89 m
DRILLING DATE 2026-04-21

COMPLETION 2026-04-21

LEGEND mbgs=metres below ground surface

Depth (m)	Elevation (m)	Material Description	Samples	% Recovery	Standard Penetration Test (SPT)
0	428	TOPSOIL: black (organic) silt, moist (300 mm)			
0.5	427.5	SILTY SAND: very loose to loose, brown, silty sand, moist	SS1	25	4
1	427	SAND: loose, brown, sand, trace silt, moist	SS2	40	5
1.5	426.5		SS3	85	6
2	426				
2.5	425.5	compact, very moist	SS4	60	12
3	425		SS5	75	24
3.5	424.5				
4	424				
4.5	423.5	trace clay, wet to saturated	SS6	80	18
5	423				
5.5	422.5				
6	422		SS7	100	11
6.5	421.5				
7	421				
7.5	420.5		SS8	100	13
8	420	Termination depth at: 8.08 mbgs (420.04 m)			
8.5	419.5				
9	419				
9.5	418.5				

Moisture Content (%): 0, 5, 10, 15, 20, 25, 30, 35, 40

Well Installation Details: bentonite; filter pack

Additional Observations: Groundwater in MW at 3.91 mbgs (424.21 m) (2026-05-04)

BOREHOLE BH/MW4-26

PROJECT NUMBER GE26-1576-1
PROJECT NAME Proposed Development
PROJECT ADDRESS 6585 Highway 6, Centre Wellington, Ontario
CLIENT 1052367 Ontario Ltd.

DRILLING COMPANY London Soil Test (LST)
DRILL TECH Shawn Baetz
DRILL RIG DIEDRICH D50
DRILLING METHOD Hollow Stem Auger
TOTAL DEPTH 8.08 mbgs

ELEVATION 427.87 m
SITE BENCHMARK (SBM1) Spike in utility pole across Highway No. 6 adjacent to Pin 71383-0012 (provided by Van Harten Surveying Inc.)
SBM1 ELEVATION 430.89 m
DRILLING DATE 2026-04-17

COMPLETION 2026-04-17

LEGEND mbgs=metres below ground surface

Depth (m)	Elevation (m)	Material Description	Samples	% Recovery	Standard Penetration Test (SPT)
0	427.87	TOPSOIL: black (organic) silt, moist (178 mm)			
0.5	427.5	SANDY SILT: very loose to loose, brown, sandy silt, very moist	SS1	20	4
1	427	SAND: very loose, brown, sand, trace silt, very moist	SS2	70	3
1.5	426.5	very loose to loose	SS3	65	4
2	426				
2.5	425.5	loose to compact, moist	SS4	90	10
3	425	compact, trace silt, wet to saturated	SS5	80	26
3.5	424.5				
4	424				
4.5	423.5		SS6	80	13
5	423				
5.5	422.5				
6	422	dense, some silt, trace clay	SS7	90	31
6.5	421.5				
7	421				
7.5	420.5	compact	SS8	100	14
8	420				
8.5	419.5	Termination depth at: 8.08 mbgs (419.79 m)			
9	419				
9.5	418.5				
	418				

Moisture Content (%): 0, 5, 10, 15, 20, 25, 30, 35, 40

Well Installation Details: bentonite; filter pack; ▽

Additional Observations: Groundwater in MW at 4.14 mbgs (423.73 m) (2026-05-04)

BOREHOLE BH/MW5-26

PROJECT NUMBER GE26-1576-1
PROJECT NAME Proposed Development
PROJECT ADDRESS 6585 Highway 6, Centre Wellington, Ontario
CLIENT 1052367 Ontario Ltd.

DRILLING COMPANY London Soil Test (LST)
DRILL TECH Shawn Baetz
DRILL RIG DIEDRICH D50
DRILLING METHOD Hollow Stem Auger
TOTAL DEPTH 8.08 mbgs

ELEVATION 428.57 m
SITE BENCHMARK (SBM1) Spike in utility pole across Highway No. 6 adjacent to Pin 71383-0012 (provided by Van Harten Surveying Inc.)
SBM1 ELEVATION 430.89 m
DRILLING DATE 2026-04-20

COMPLETION 2026-04-20

LEGEND mbgs=metres below ground surface

Depth (m)	Elevation (m)	Material Description	Samples	% Recovery	Standard Penetration Test (SPT)
0	428.5	TOPSOIL: black (organic) silt, moist (150 mm)			
		SANDY SILT: very loose to loose, brown, sandy silt, moist	SS1	45	4
0.5	428				
1	427.5	SAND: very loose, brown, sand, some silt, very moist	SS2	40	2
1.5	427	trace silt	SS3	85	2
2	426.5				
2.5	426	compact, moist	SS4	80	28
3	425.5	dense	SS5	80	34
3.5	425				
4	424.5	compact to dense	SS6	75	30
4.5	424	compact, wet to saturated	SS7	65	20
5	423.5				
5.5	423				
6	422.5	SAND and SILT: compact, brown, sand and silt, trace clay, wet to saturated	SS8	95	18
6.5	422				
7	421.5				
7.5	421	loose	SS9	100	5
8	420.5	Termination depth at: 8.08 mbgs (420.49 m)			
8.5	420				
9	419.5				
9.5	419				

Moisture Content (%): 0, 5, 10, 15, 20, 25, 30, 35, 40

Well Installation Details: bentonite; filter pack; ▽

Additional Observations: Groundwater in MW at 4.68 mbgs (423.89 m) (2026-05-04)

BOREHOLE BH/MW6-26

PROJECT NUMBER GE26-1576-1
PROJECT NAME Proposed Development
PROJECT ADDRESS 6585 Highway 6, Centre Wellington, Ontario
CLIENT 1052367 Ontario Ltd.

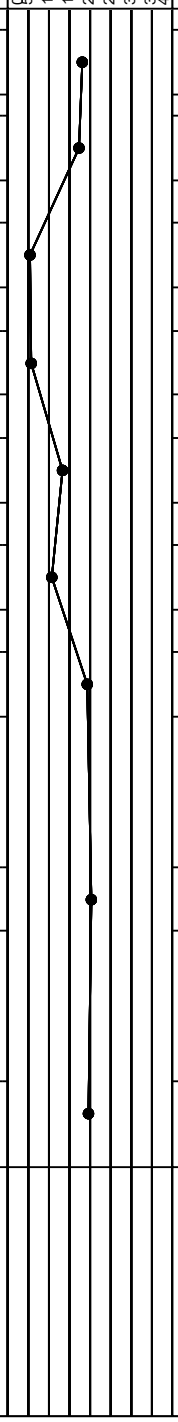
DRILLING COMPANY London Soil Test (LST)
DRILL TECH Shawn Baetz
DRILL RIG DIEDRICH D50
DRILLING METHOD Hollow Stem Auger
TOTAL DEPTH 8.23 mbgs

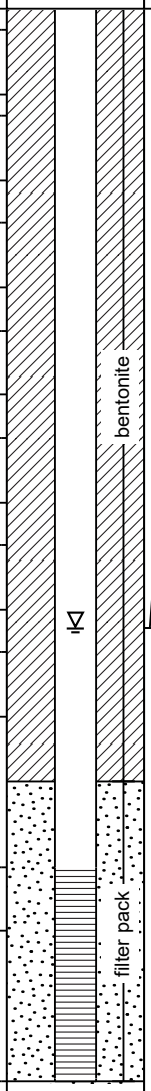
ELEVATION 428.37 m
SITE BENCHMARK (SBM1) Spike in utility pole across Highway No. 6 adjacent to Pin 71383-0012 (provided by Van Harten Surveying Inc.)
SBM1 ELEVATION 430.89 m
DRILLING DATE 2026-04-17

COMPLETION 2026-04-17

LEGEND mbgs=metres below ground surface

Depth (m)	Elevation (m)	Material Description	Samples	% Recovery	Standard Penetration Test (SPT)
0	428.37	TOPSOIL: black (organic) silt, moist (150 mm)			
0.5	428	SILT: very loose, brown, silt, some sand, very moist (organics present)	SS1	30	3
1	427.5	SILTY SAND: very loose to loose, brown, silty sand, trace gravel, very moist	SS2	85	4
1.5	427	SAND: loose, brown, sand, moist	SS3	60	9
2	426.5				
2.5	426	compact, trace silt	SS4	75	14
3	425.5				
3.5	425	very moist	SS5	80	19
4	424.5		SS6	60	13
4.5	424				
5	423.5	loose, wet to saturated	SS7	75	7
5.5	423				
6	422.5				
6.5	422	compact, trace clay	SS8	100	14
7	421.5				
7.5	421				
8	420.5	very loose to loose	SS9	100	4
8.5	420	Termination depth at: 8.23 mbgs (420.14 m)			
9	419.5				
9.5	419				
	418.5				





Groundwater in MW at 4.40 mbgs (423.97 m) (2026-05-04)

GRIT ENGINEERING INC

BOREHOLE BH/MW7-26

PROJECT NUMBER GE26-1576-1
PROJECT NAME Proposed Development
PROJECT ADDRESS 6585 Highway 6, Centre Wellington, Ontario
CLIENT 1052367 Ontario Ltd.

DRILLING COMPANY London Soil Test (LST)
DRILL TECH Shawn Baetz
DRILL RIG DIEDRICH D50
DRILLING METHOD Hollow Stem Auger
TOTAL DEPTH 8.08 mbgs

ELEVATION 427.92 m
SITE BENCHMARK (SBM1) Spike in utility pole across Highway No. 6 adjacent to Pin 71383-0012 (provided by Van Harten Surveying Inc.)
TBM ELEVATION 430.89 m
DRILLING DATE 2026-04-21

COMPLETION 2026-04-21

LEGEND mbgs=metres below ground surface

Depth (m)	Elevation (m)	Material Description	Samples	% Recovery	Standard Penetration Test (SPT)
0		TOPSOIL: black (organic) silt, moist (229 mm)			
0.5	427.5	SANDY SILT: very loose to loose, brown, sandy silt, very moist	SS1	30	4
1	427	SAND: very loose to loose, brown, sand, trace silt, very moist	SS2	60	4
1.5	426.5	loose to compact, very moist	SS3	60	10
2	426				
2.5	425.5	compact	SS4	75	17
3	425		SS5	75	27
3.5	424.5				
4	424		SS6	70	23
4.5	423.5	wet to saturated	SS7	50	15
5	423				
5.5	422.5				
6	422	some silt, trace clay	SS8	60	19
6.5	421.5				
7	421				
7.5	420.5				
8	420		SS9	95	20
8.5	419.5	Termination depth at: 8.08 mbgs (419.84 m)			
9	419				
9.5	418.5				
	418				

Moisture Content (%): 0, 5, 10, 15, 20, 25, 30, 35, 40

Well Installation Details: bentonite; filter pack; ▽

Additional Observations: Groundwater in MW at 4.88 mbgs (423.04 m) (2026-05-04)

BOREHOLE BH/MW8-26

PROJECT NUMBER GE26-1576-1
PROJECT NAME Proposed Development
PROJECT ADDRESS 6585 Highway 6, Centre Wellington, Ontario
CLIENT 1052367 Ontario Ltd.

DRILLING COMPANY London Soil Test (LST)
DRILL TECH Shawn Baetz
DRILL RIG DIEDRICH D50
DRILLING METHOD Hollow Stem Auger
TOTAL DEPTH 8.08 mbgs

ELEVATION 428.11
SITE BENCHMARK (SBM1) Spike in utility pole across Highway No. 6 adjacent to Pin 71383-0012 (provided by Van Harten Surveying Inc.)
SBM1 ELEVATION 430.89 m
DRILLING DATE 2026-04-20

COMPLETION 2026-04-20

LEGEND mbgs=metres below ground surface

Depth (m)	Elevation (m)	Material Description	Samples	% Recovery	Standard Penetration Test (SPT)
0	428	TOPSOIL: black (organic) silt, moist (228 mm)			
0.5	427.5	SANDY SILT: very loose to loose, brown, sandy silt, very moist	SS1	35	4
1	427	loose	SS2	75	9
1.5	426.5	SAND: very loose, brown, sand, trace silt, very moist	SS3	50	2
2	426				
2.5	425.5	some silt	SS4	35	2
3	425	compact, moist	SS5	85	12
3.5	424.5				
4	424	very moist	SS6	95	26
4.5	423.5		SS7	80	16
5	423				
5.5	422.5				
6	422	some silt, trace clay, wet to saturated	SS8	100	17
6.5	421.5				
7	421				
7.5	420.5	trace silt	SS9	90	15
8	420	Termination depth at: 8.08 mbgs (420.03 m)			
8.5	419.5				
9	419				
9.5	418.5				

Moisture Content (%): 0, 5, 10, 15, 20, 25, 30, 35, 40

Well Installation Details: bentonite; filter pack

Additional Observations: Groundwater in MW at 5.01 mbgs (423.10 m) (2026-05-04)

GRIT ENGINEERING INC

BOREHOLE BH/MW9-26

PROJECT NUMBER GE26-1576-1
PROJECT NAME Proposed Development
PROJECT ADDRESS 6585 Highway 6, Centre Wellington, Ontario
CLIENT 1052367 Ontario Ltd.

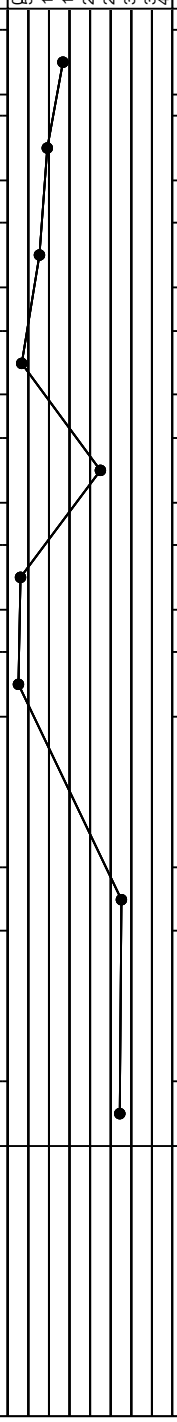
DRILLING COMPANY London Soil Test (LST)
DRILL TECH Shawn Baetz
DRILL RIG DIEDRICH D50
DRILLING METHOD Hollow Stem Auger
TOTAL DEPTH 8.08 mbgs

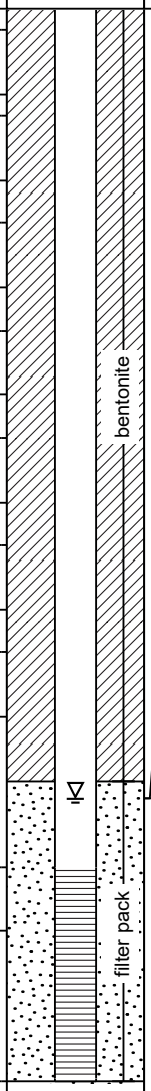
ELEVATION 428.90 m
SITE BENCHMARK (SBM1) Spike in utility pole across Highway No. 6 adjacent to Pin 71383-0012 (provided by Van Harten Surveying Inc.)
SBM1 ELEVATION 430.89 m
DRILLING DATE 2026-04-17

COMPLETION 2026-04-17

LEGEND mbgs=metres below ground surface

Depth (m)	Elevation (m)	Material Description	Samples	% Recovery	Standard Penetration Test (SPT)
0	428.9	TOPSOIL: black (organic) silt, moist (150 mm)			
0.5	428.5	SANDY SILT: very loose, brown, sandy silt, very moist	SS1	35	3
1	428	SAND: loose, brown, sand, trace silt, moist	SS2	45	5
1.5	427.5	loose to compact, very moist	SS3	55	10
2	427				
2.5	426.5	compact, moist	SS4	90	15
3	426				
3.5	425.5	SILTY SAND: compact, brown silty sand, very moist	SS5	70	15
4	425	SAND: compact, brown, sand, moist	SS6	80	27
4.5	424.5				
5	424		SS7	90	21
5.5	423.5				
6	423				
6.5	422.5	SILTY SAND: compact, brown, silty sand, trace clay, wet to saturated	SS8	90	21
7	422				
7.5	421.5				
8	421		SS9	90	14
8.5	420.5	Termination depth at: 8.08 mbgs (420.82 m)			
9	420				
9.5	419.5				
	419				





Groundwater in MW at 5.61 mbgs (423.29 m) (2026-05-04)

BOREHOLE BH/MW10-26

PROJECT NUMBER GE26-1576-1
PROJECT NAME Proposed Development
PROJECT ADDRESS 6585 Highway 6, Centre Wellington, Ontario
CLIENT 1052367 Ontario Ltd.

DRILLING COMPANY London Soil Test (LST)
DRILL TECH Shawn Baetz
DRILL RIG DIEDRICH D50
DRILLING METHOD Hollow Stem Auger
TOTAL DEPTH 8.08 mbgs

ELEVATION 424.24 m
SITE BENCHMARK (SBM1) Spike in utility pole across Highway No. 6 adjacent to Pin 71383-0012 (provided by Van Harten Surveying Inc.)
SBM1 ELEVATION 430.89 m
DRILLING DATE 2026-04-17

COMPLETION 2026-04-17

LEGEND mbgs=metres below ground surface

Depth (m)	Elevation (m)	Material Description	Samples	% Recovery	Standard Penetration Test (SPT)
0	424	TOPSOIL: black (organic) silt, moist (254 mm)			
0.5	423.5	SANDY SILT: very loose, brown, sandy silt, wet	SS1	35	2
1	423	very loose to loose	SS2	65	4
1.5	422.5	SAND: very loose to loose, brown, sand, trace silt, wet			
2	422	SANDY SILT: compact, brown, sandy silt, trace clay, wet	SS3	45	13
2.5	421.5	SILT and SAND: compact, brown, silt and sand, wet to saturated (dilatant)	SS4	60	14
3	421	SAND: loose to compact, brown, sand, wet	SS5	80	10
3.5	420.5	compact, trace silt, wet	SS6	100	15
4	420				
4.5	419.5	SILTY SAND: compact, brown, silty sand, trace clay, saturated	SS7	100	12
5	419				
5.5	418.5				
6	418	loose, grey, some clay, wet	SS8	55	8
6.5	417.5				
7	417				
7.5	416.5				
8		SILT TILL: loose to compact, grey, silt, some clay, trace gravel, trace sand, wet	SS9	85	10
	416	Termination depth at: 8.08 mbgs (416.16 m)			
8.5	415.5				
9	415				
9.5	414.5				

Moisture Content (%): 0, 5, 10, 15, 20, 25, 30, 35, 40

Well Installation Details: bentonite; filter pack; ▽

Additional Observations: Groundwater in MW at 1.93 mbgs (422.31 m) (2026-05-04)

BOREHOLE BH/MW11-26

PROJECT NUMBER GE26-1576-1
PROJECT NAME Proposed Development
PROJECT ADDRESS 6585 Highway 6, Centre Wellington, Ontario
CLIENT 1052367 Ontario Ltd.

DRILLING COMPANY London Soil Test (LST)
DRILL TECH Shawn Baetz
DRILL RIG DIEDRICH D50
DRILLING METHOD Hollow Stem Auger
TOTAL DEPTH 8.08 mbgs

ELEVATION 426.01 m
SITE BENCHMARK (SBM1) Spike in utility pole across Highway No. 6 adjacent to Pin 71383-0012 (provided by Van Harten Surveying Inc.)
SBM1 ELEVATION 430.89 m
DRILLING DATE 2026-04-21

COMPLETION 2026-04-21

LEGEND mbgs=metres below ground surface

Depth (m)	Elevation (m)	Material Description	Samples	% Recovery	Standard Penetration Test (SPT)
	426	TOPSOIL: black (organic) silt, moist (254 mm)			
0.5	425.5	SANDY SILT: very loose, brown, sandy silt, very moist	SS1	20	2
1	425	very loose to loose	SS2	80	4
1.5	424.5	SAND: very loose, brown, sand, some silt, very moist	SS3	80	1
2	424				
2.5	423.5	compact, moist	SS4	75	18
3	423		SS5	80	15
3.5	422.5				
4	422	wet to saturated	SS6	80	16
4.5	421.5		SS7	80	20
5	421				
5.5	420.5				
6	420				
6.5	419.5	trace clay	SS8	100	14
7	419				
7.5	418.5				
8	418	loose	SS9	100	9
8.5	417.5	Termination depth at: 8.08 mbgs (417.93 m)			
9	417				
9.5	416.5				

Moisture Content (%): 0, 5, 10, 15, 20, 25, 30, 35, 40

Well Installation Details: bentonite; filter pack; ▽

Additional Observations: Groundwater in MW at 3.95 mbgs (422.06 m) (2026-05-04)

BOREHOLE BH/MW12-26

PROJECT NUMBER GE26-1576-1
PROJECT NAME 6585 Highway 6 Subdivision
PROJECT ADDRESS 6585 Highway 6, Centre Wellington, Ontario
CLIENT 1052367 Ontario Ltd.

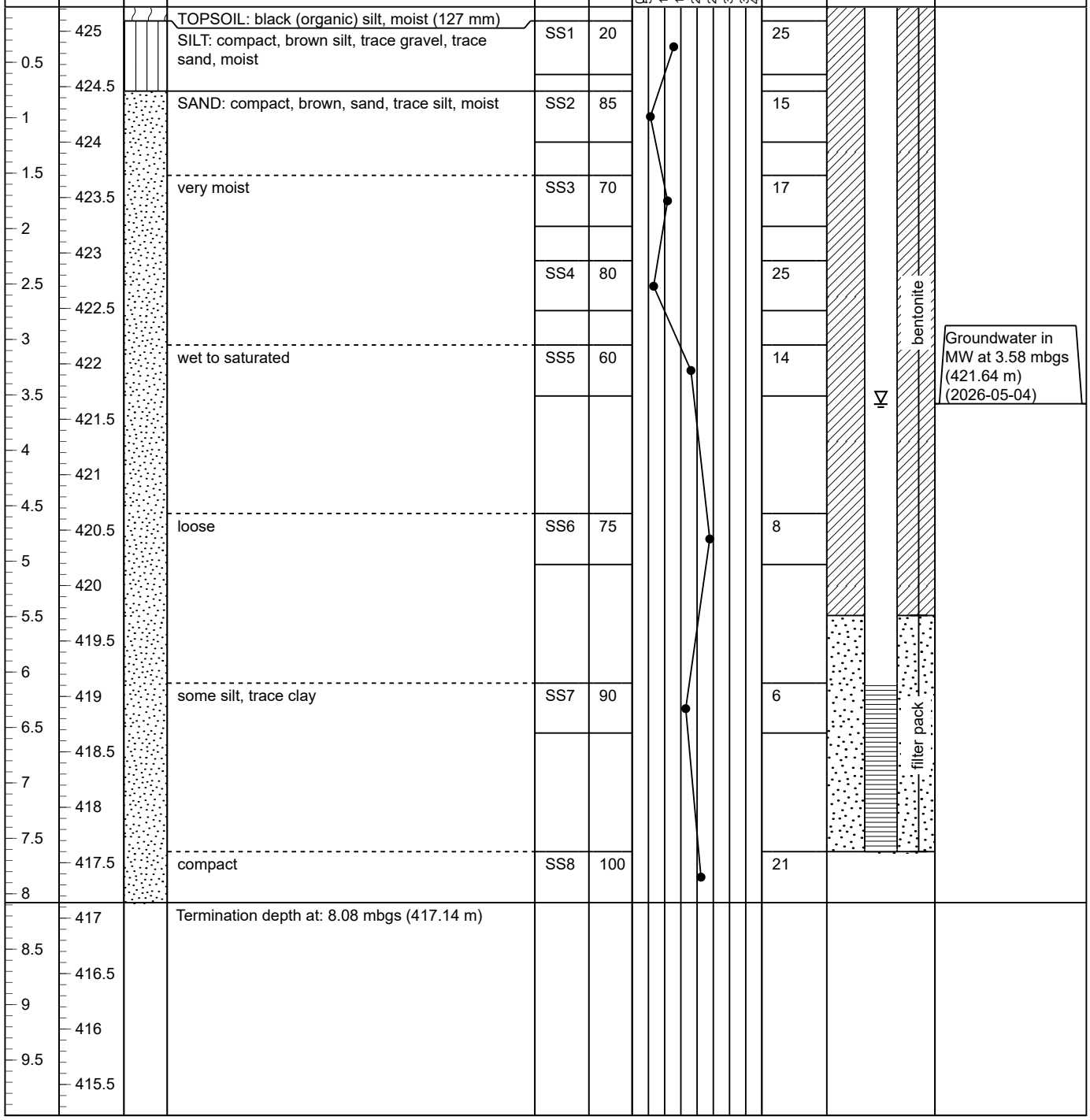
DRILLING COMPANY London Soil Test (LST)
DRILL TECH Shawn Baetz
DRILL RIG DIEDRICH D50
DRILLING METHOD Hollow Stem Auger
TOTAL DEPTH 8.08 mbgs

ELEVATION 425.22 m
SITE BENCHMARK (SBM1) Spike in utility pole across Highway No. 6 adjacent to Pin 71383-0012 (provided by Van Harten Surveying Inc.)
SBM1 ELEVATION 430.89 m
DRILLING DATE 2026-04-21

COMPLETION 2026-04-21

LEGEND mbgs=metres below ground surface

Depth (m)	Elevation (m)	Material Description	Samples	% Recovery	Standard Penetration Test (SPT)
0	425	TOPSOIL: black (organic) silt, moist (127 mm)			
0.5	424.5	SILT: compact, brown silt, trace gravel, trace sand, moist	SS1	20	25
1	424	SAND: compact, brown, sand, trace silt, moist	SS2	85	15
1.5	423.5	very moist	SS3	70	17
2	423				
2.5	422.5		SS4	80	25
3	422	wet to saturated	SS5	60	14
3.5	421.5				
4	421				
4.5	420.5	loose	SS6	75	8
5	420				
5.5	419.5				
6	419	some silt, trace clay	SS7	90	6
6.5	418.5				
7	418				
7.5	417.5	compact	SS8	100	21
8	417	Termination depth at: 8.08 mbgs (417.14 m)			
8.5	416.5				
9	416				
9.5	415.5				



GRIT ENGINEERING INC

APPENDIX C – GEOTECHNICAL LABORATORY TEST RESULTS

133 REGENT STREET
STRATFORD, ON N5A 3W2
519.305.5727
gritengineering.ca

Gradation Analysis Report

Project Name	*Proposed Development (6585 Highway 6, Fergus, Ontario)*	Project No.:	*GE26-1576-1*
Client	*1052367 Ontario Ltd*	Sample ID:	*BH1-26, SS9*
Lab No.:	*151*	Depth:	*6.10-6.55m*
Sampled By:	*Shawn Baetz*	Date:	*2026-04-17,20,21*

Grain Size Analysis

Sieve Size (mm)	% Passing
53.0	100
37.5	100
26.5	100
19.00	100
13.2	99
9.5	99
4.75	99
2	99
1.18	98.5
0.6	98.0
0.3	87.3
0.15	15.5
0.075	4.5

Hydrometer Analysis

Diameter (mm)	% Passing
0.030	3.8
0.020	3.1
0.017	3.4
0.01	3.4
0.007	3.4
0.005	3.4
0.002	1.9
0.001	1.2

Gradation Proportions %

Gravel	1.1
Sand	94.4
Silt	2.5
Clay	1.9

Soil Description

SAND, trace Silt, trace Clay, trace Gravel

Effective Particle Size %

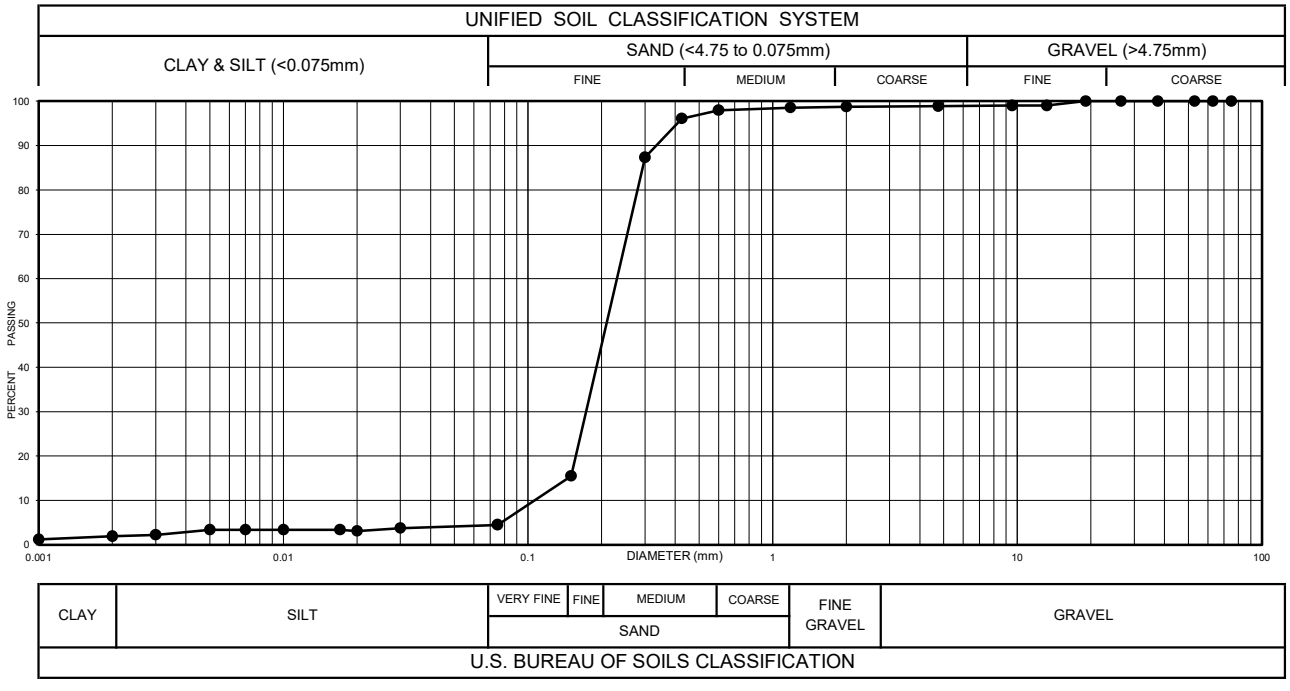
D_{60}	D_{30}	D_{10}
0.243	0.180	0.112

Coefficients

C_u	C_c
2.160	1.189

Hydraulic Conductivity m/sec 1.5E-04

Particle Size Distribution LS 702



Comments

Kozeny Carman

Reviewed By: _____

Kyle Hillar, C. Tech

Gradation Analysis Report

Project Name	*Proposed Development (6585 Highway 6, Fergus, Ontario)*	Project No.:	*GE26-1576-1*
Client	*1052367 Ontario Ltd*	Sample ID:	*BH2-26, SS6*
Lab No.:	*152*	Depth:	*4.57-5.03m*
Sampled By:	*Shawn Baetz*	Date:	*2026-04-17,20,21*

Grain Size Analysis	
Sieve Size (mm)	**% Passing**
53.0	100
37.5	100
26.5	100
19.00	100
13.2	100
9.5	100
4.75	100
2	100
1.18	100.0
0.6	99.3
0.3	71.1
0.15	15.3
0.075	6.3

Hydrometer Analysis	
Diameter (mm)	**% Passing**
0.030	4.6
0.020	3.9
0.017	4.2
0.01	3.4
0.007	3.4
0.005	3.4
0.002	2.8
0.001	1.8
Gradation Proportions %	
Gravel	0.0
Sand	93.7
Silt	3.5
Clay	2.8

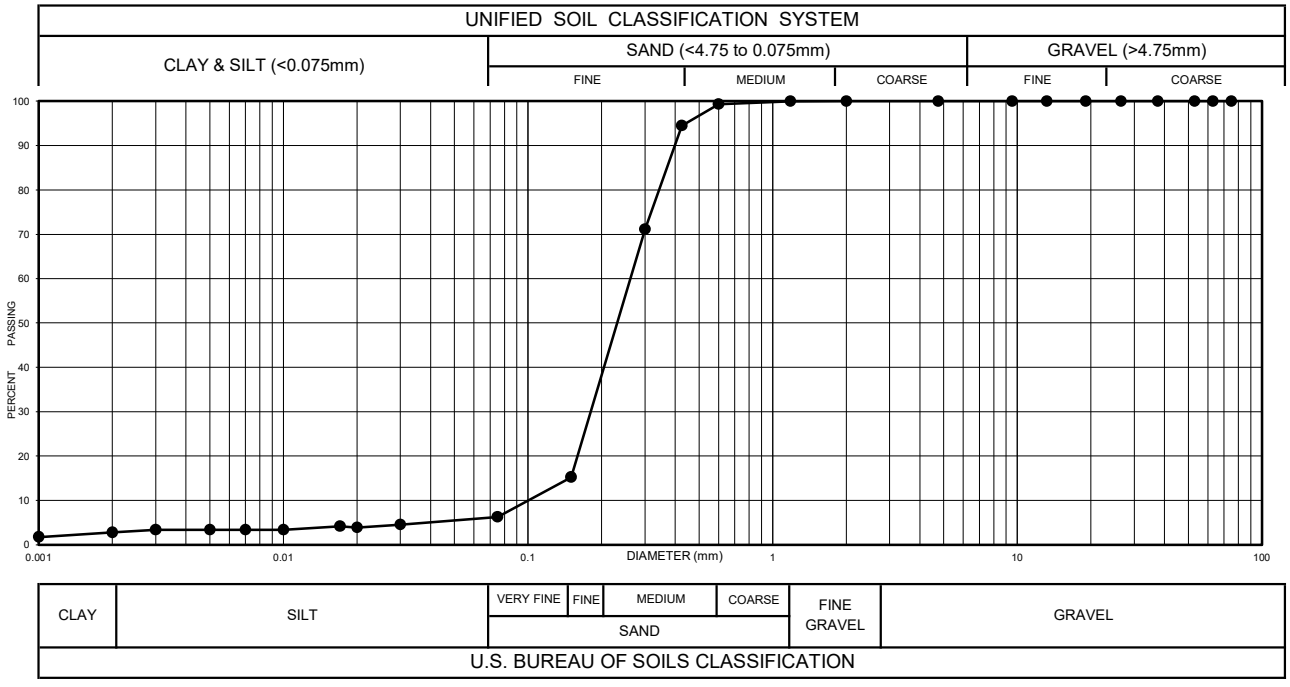
Soil Description	
SAND, trace Silt, trace Clay	

Effective Particle Size %		
D_{60}	**D_{30}**	**D_{10}**
0.270	0.190	0.106

Coefficients	
C_u	**C_c**
2.547	1.254

Hydraulic Conductivity m/sec	1.3E-04

Particle Size Distribution LS 702



Comments

Kozeny Carman

Reviewed By: _____

Kyle Hillar, C. Tech

Gradation Analysis Report

Project Name	*Proposed Development (6585 Highway 6, Fergus, Ontario)*	Project No.:	*GE26-1576-1*
Client	*1052367 Ontario Ltd*	Sample ID:	*BH3-26, SS6*
Lab No.:	*153*	Depth:	*4.57-5.03m*
Sampled By:	*Shawn Baetz*	Date:	*2026-04-17,20,21*

Grain Size Analysis

Sieve Size (mm)	% Passing
53.0	100
37.5	100
26.5	100
19.00	100
13.2	100
9.5	100
4.75	100
2	100
1.18	99.9
0.6	99.5
0.3	70.6
0.15	13.1
0.075	5.6

Hydrometer Analysis

Diameter (mm)	% Passing
0.030	4.7
0.020	4.0
0.017	4.3
0.01	4.3
0.007	3.4
0.005	3.4
0.002	2.8
0.001	1.8

Gradation Proportions %

Gravel	0.0
Sand	94.4
Silt	2.8
Clay	2.8

Soil Description

SAND, trace Silt, trace Clay

Effective Particle Size %

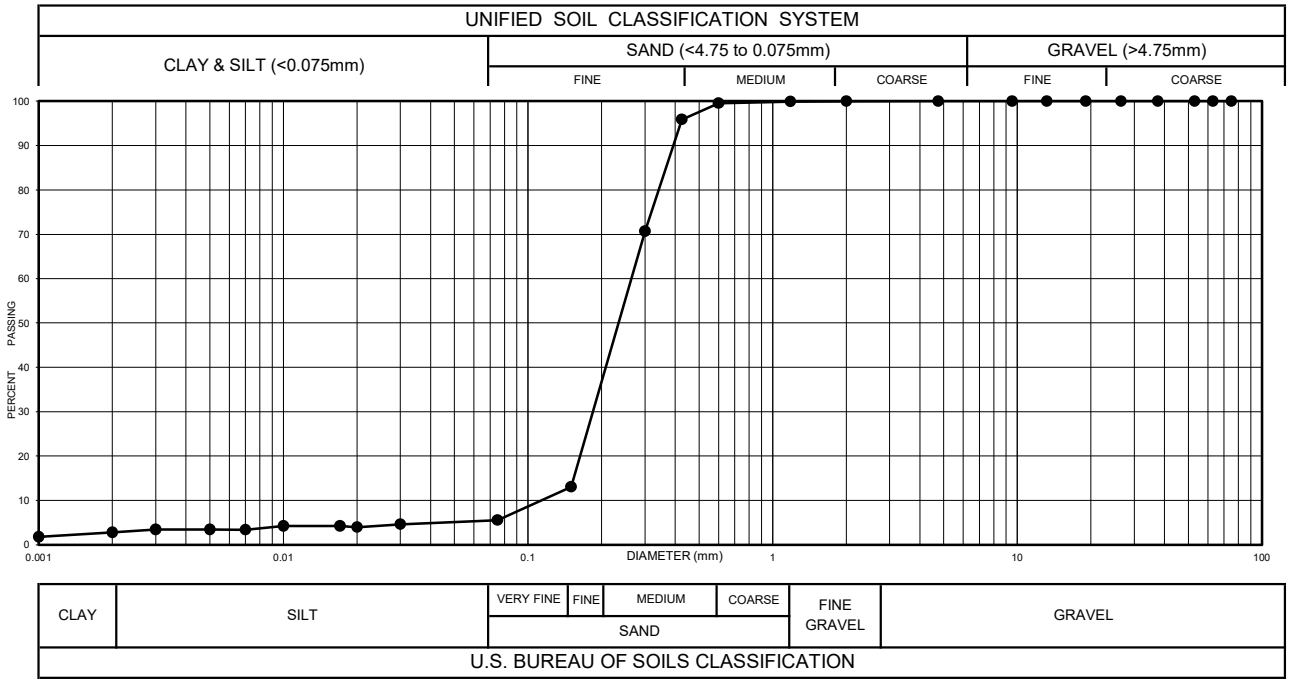
D_{60}	D_{30}	D_{10}
0.272	0.194	0.119

Coefficients

C_u	C_c
2.284	1.161

Hydraulic Conductivity m/sec 1.6E-04

Particle Size Distribution LS 702



Comments

Kozeny Carman

Reviewed By: _____

Kyle Hillar, C. Tech

Gradation Analysis Report

Project Name	*Proposed Development (6585 Highway 6, Fegus, Ontario)*	Project No.:	*GE26-1576-1*
Client	*1052367 Ontario Ltd*	Sample ID:	*BH4-26, SS7*
Lab No.:	*154*	Depth:	*6.10-6.55m*
Sampled By:	*Shawn Baetz*	Date:	*2026-04-17,20,21*

Grain Size Analysis

Sieve Size (mm)	% Passing
53.0	100
37.5	100
26.5	100
19.00	100
13.2	100
9.5	100
4.75	100
2	100
1.18	100.0
0.6	99.9
0.3	95.8
0.15	43.5
0.075	20.7

Hydrometer Analysis

Diameter (mm)	% Passing
0.030	9.5
0.020	7.0
0.017	6.0
0.01	5.2
0.007	3.4
0.005	3.5
0.002	2.2
0.001	1.2

Gradation Proportions %

Gravel	0.0
Sand	79.3
Silt	18.4
Clay	2.2

Soil Description

SAND, some Silt, trace Clay

Effective Particle Size %

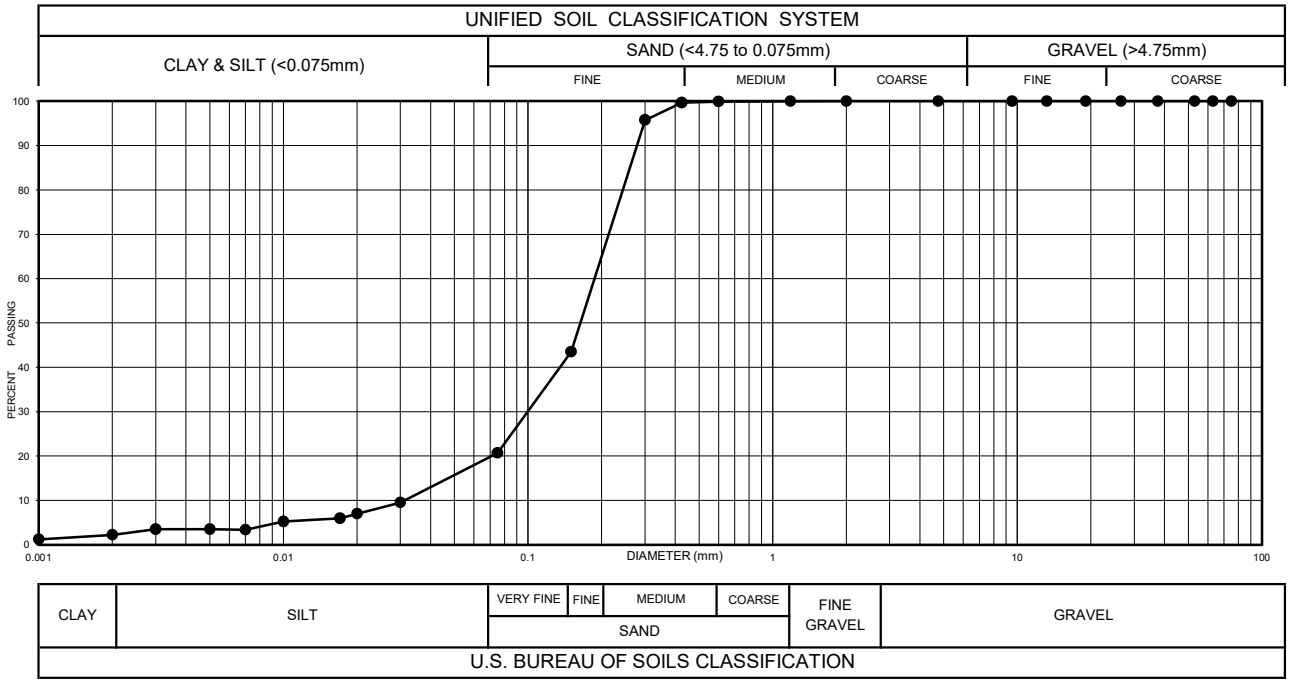
D_{60}	D_{30}	D_{10}
0.197	0.106	0.032

Coefficients

C_u	C_c
6.198	1.776

Hydraulic Conductivity m/sec 5.5E-06

Particle Size Distribution LS 702



Comments

Kozeny Carman

Reviewed By: _____

Kyle Hillar, C. Tech

Gradation Analysis Report

Project Name	*Proposed Development (6585 Highway 6, Centre Wellington, Ontario)*	Project No.:	*GE26-1576-1*
Client	*1052367 Ontario Ltd*	Sample ID:	*BH5-26, SS8*
Lab No.:	*155*	Depth:	*6.10-6.55m*
Sampled By:	*Shawn Baetz*	Date:	*2026-04-17,20,21*

Grain Size Analysis		Hydrometer Analysis	
Sieve Size (mm)	**% Passing**	**Diameter (mm)**	**% Passing**
53.0	100	0.030	6.0
37.5	100	0.020	5.7
26.5	100	0.017	6.1
19.00	100	0.01	5.8
13.2	100	0.007	5.0
9.5	100	0.005	4.2
4.75	100	0.002	3.3
2	100	0.001	2.3
1.18	100.0	**Gradation Proportions %**	
0.6	100.0	Gravel	0.0
0.3	98.5	Sand	56.8
0.15	87.1	Silt	39.9
0.075	43.2	Clay	3.3

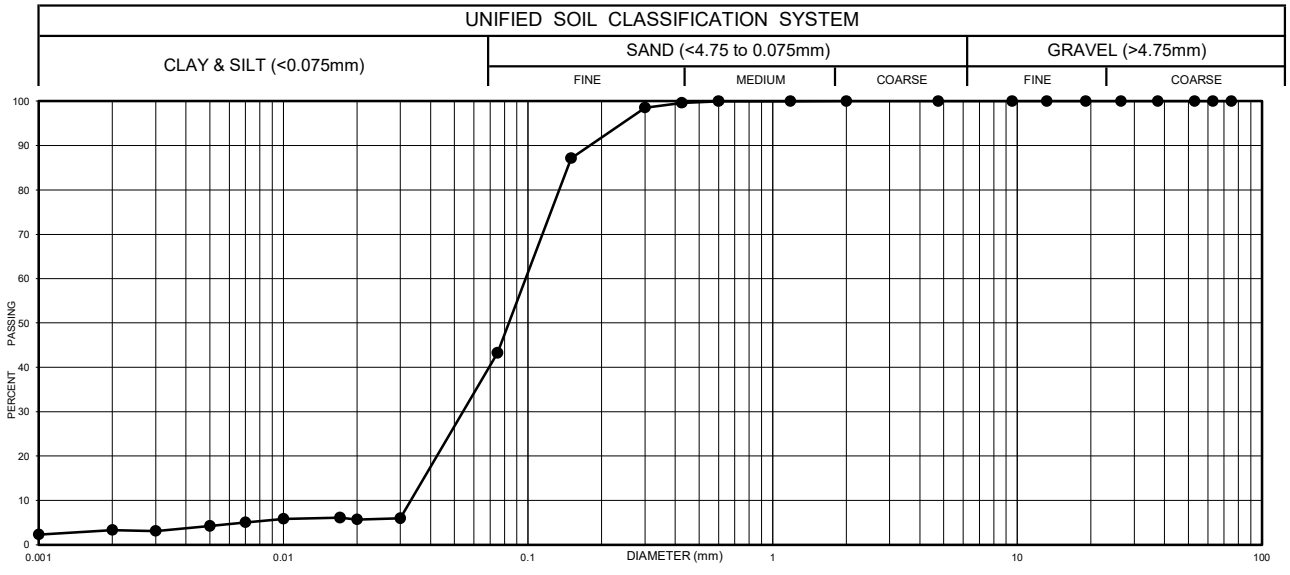
Soil Description	
SAND and SILT, trace Clay	

Effective Particle Size %		
D_{60}	D_{30}	D_{10}
0.104	0.059	0.035

Coefficients	
C_u	C_c
2.973	0.964

Hydraulic Conductivity m/sec	1.4E-05

Particle Size Distribution LS 702



CLAY	SILT	SAND: VERY FINE	SAND: FINE	SAND: MEDIUM	SAND: COARSE	FINE GRAVEL	GRAVEL

U.S. BUREAU OF SOILS CLASSIFICATION

Comments

Kozeny Carman

Reviewed By: _____

Kyle Hillar, C. Tech

Gradation Analysis Report

Project Name	*Proposed Development (6585 Highway 6, Fergus, Ontario)*	Project No.:	*GE26-1576-1*
Client	*1052367 Ontario Ltd*	Sample ID:	*BH6-26, SS8*
Lab No.:	*156*	Depth:	*6.10-6.55m*
Sampled By:	*Shawn Baetz*	Date:	*2026-04-17,20,21*

Grain Size Analysis		Hydrometer Analysis	
Sieve Size (mm)	**% Passing**	**Diameter (mm)**	**% Passing**
53.0	100	0.030	3.9
37.5	100	0.020	3.2
26.5	100	0.017	3.5
19.00	100	0.01	3.5
13.2	100	0.007	3.5
9.5	100	0.005	2.6
4.75	100	0.002	1.7
2	100	0.001	1.2
1.18	100.0	**Gradation Proportions %**	
0.6	99.9	Gravel	0.0
0.3	89.3	Sand	93.1
0.15	24.0	Silt	5.1
0.075	6.9	Clay	1.7

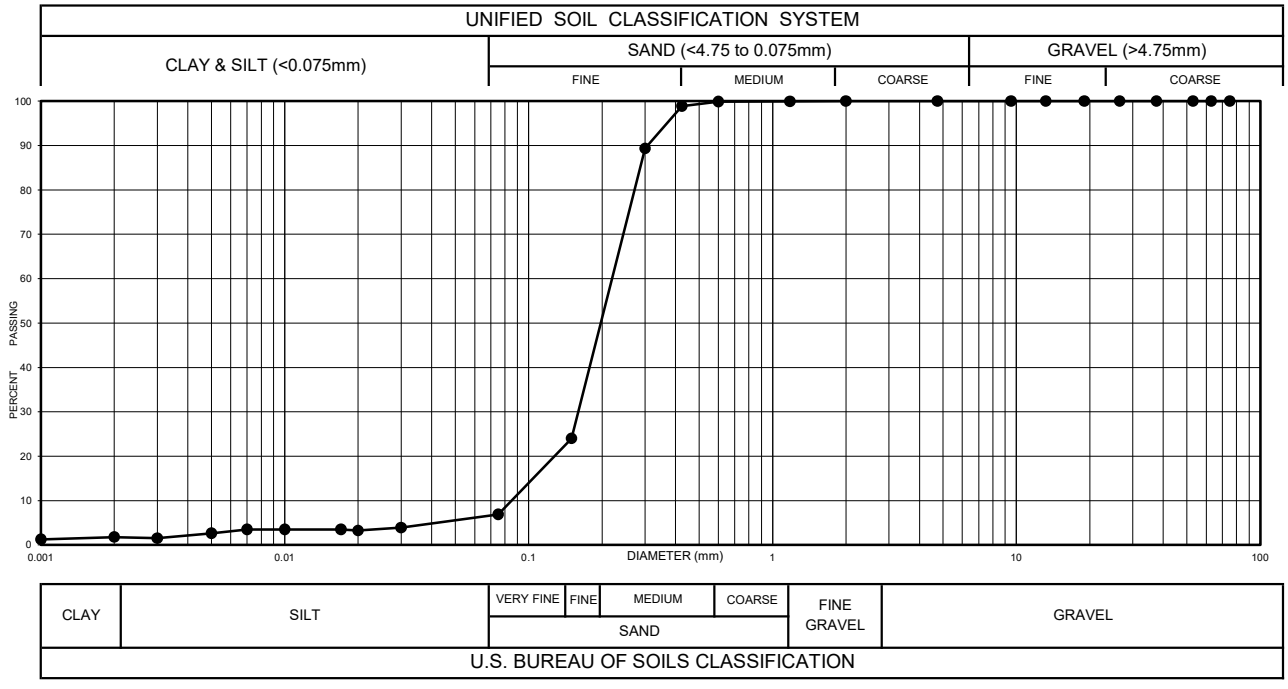
Soil Description	
SAND, trace Silt, trace Clay	

Effective Particle Size %		
D_{60}	D_{30}	D_{10}
0.233	0.164	0.089

Coefficients	
C_u	C_c
2.623	1.300

Hydraulic Conductivity m/sec	9.2E-05

Particle Size Distribution LS 702



Comments

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Reviewed By: _____

Kyle Hillar, C. Tech

Gradation Analysis Report

Project Name	*Proposed Development (6585 Highway 6, Fergus, Ontario)*	Project No.:	*GE26-1576-1*
Client	*1052367 Ontario Ltd*	Sample ID:	*BH7-26, SS8*
Lab No.:	*157*	Depth:	*6.10-6.55m*
Sampled By:	*Shawn Baetz*	Date:	*2026-04-17,20,21*

Grain Size Analysis		Hydrometer Analysis	
Sieve Size (mm)	**% Passing**	**Diameter (mm)**	**% Passing**
53.0	100	0.030	20.5
37.5	100	0.020	18.6
26.5	100	0.017	15.6
19.00	100	0.01	11.1
13.2	100	0.007	8.5
9.5	100	0.005	6.8
4.75	100	0.002	4.4
2	100	0.001	2.9
1.18	100.0	**Gradation Proportions %**	
0.6	100.0	Gravel	0.0
0.3	99.6	Sand	59.4
0.15	66.9	Silt	36.2
0.075	40.6	Clay	4.4

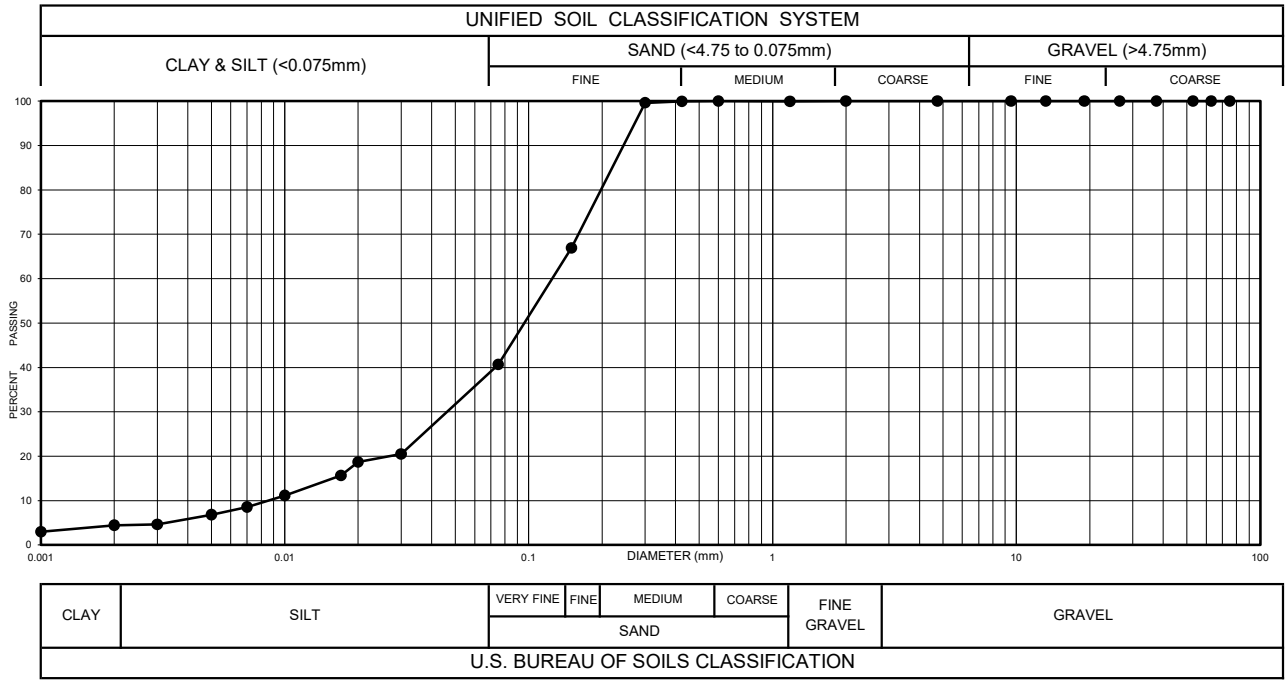
Soil Description	
SAND and SILT, trace Clay	

Effective Particle Size %		
D_{60}	D_{30}	D_{10}
0.130	0.051	0.009

Coefficients	
C_u	C_c
14.981	2.324

Hydraulic Conductivity m/sec	1.9E-07

Particle Size Distribution LS 702



Comments

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Reviewed By: _____

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Gradation Analysis Report

Project Name	*Proposed Development (6585 Highway 6, Fergus, Ontario)*	Project No.:	*GE26-1576-1*
Client	*1052367 Ontario Ltd*	Sample ID:	*BH8-26, SS8*
Lab No.:	*158*	Depth:	*6.10-6.55m*
Sampled By:	*Shawn Baetz*	Date:	*2026-04-17,20,21*

Grain Size Analysis		Hydrometer Analysis	
Sieve Size (mm)	**% Passing**	**Diameter (mm)**	**% Passing**
53.0	100	0.030	3.4
37.5	100	0.020	4.2
26.5	100	0.017	3.6
19.00	100	0.01	3.4
13.2	100	0.007	3.4
9.5	100	0.005	3.4
4.75	100	0.002	2.5
2	100	0.001	1.8
1.18	100.0	**Gradation Proportions %**	
0.6	99.8	Gravel	0.0
0.3	99.1	Sand	83.7
0.15	61.1	Silt	13.8
0.075	16.3	Clay	2.5

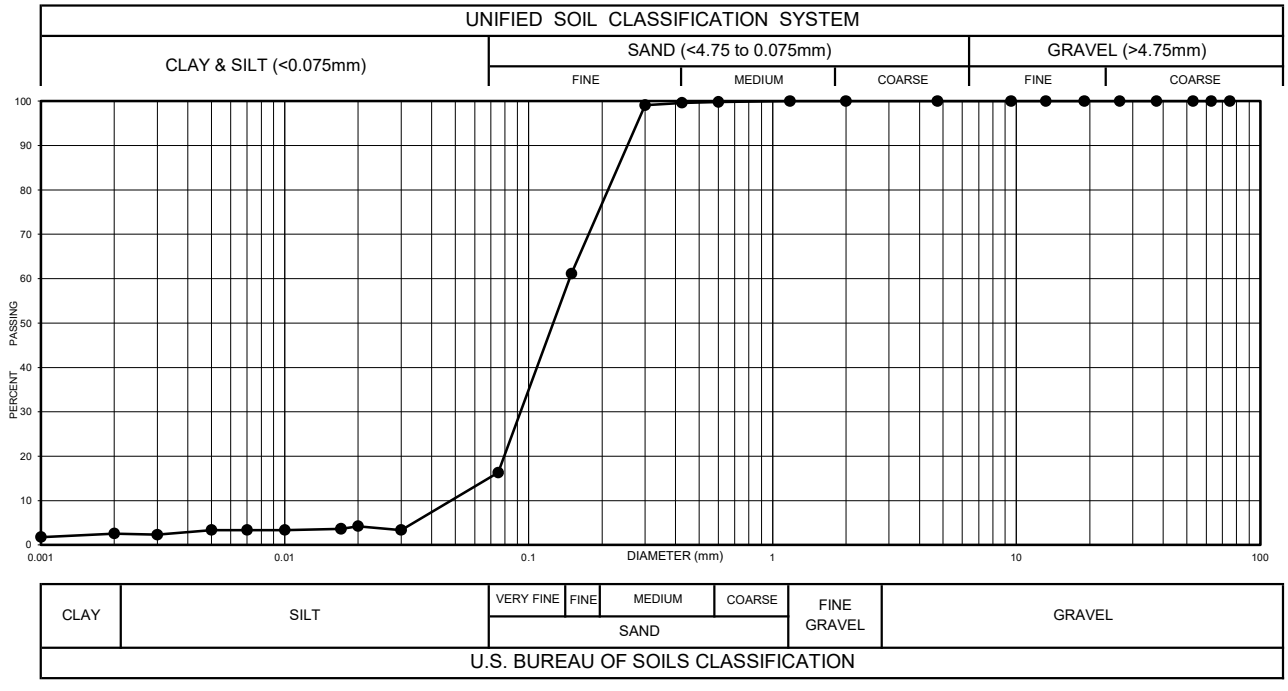
Soil Description	
SAND, some Silt, trace Clay	

Effective Particle Size %		
D_{60}	D_{30}	D_{10}
0.148	0.098	0.053

Coefficients	
C_u	C_c
2.787	1.219

Hydraulic Conductivity m/sec	3.3E-05

Particle Size Distribution LS 702



Comments

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Reviewed By: _____

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Gradation Analysis Report

Project Name	*Proposed Development (6585 Highway 6,Fergus, Ontario)*	Project No.:	*GE26-1576-1*
Client	*1052367 Ontario Ltd*	Sample ID:	*BH9-26, SS8*
Lab No.:	*159*	Depth:	*6.10-6.55m*
Sampled By:	*Shawn Baetz*	Date:	*2026-04-17,20,21*

Grain Size Analysis	
Sieve Size (mm)	**% Passing**
53.0	100
37.5	100
26.5	100
19.00	100
13.2	100
9.5	100
4.75	100
2	100
1.18	100.0
0.6	100.0
0.3	99.1
0.15	83.2
0.075	33.9

Hydrometer Analysis	
Diameter (mm)	**% Passing**
0.030	6.7
0.020	4.3
0.017	4.2
0.01	3.6
0.007	3.6
0.005	3.6
0.002	2.1
0.001	1.2
Gradation Proportions %	
Gravel	0.0
Sand	66.1
Silt	31.8
Clay	2.1

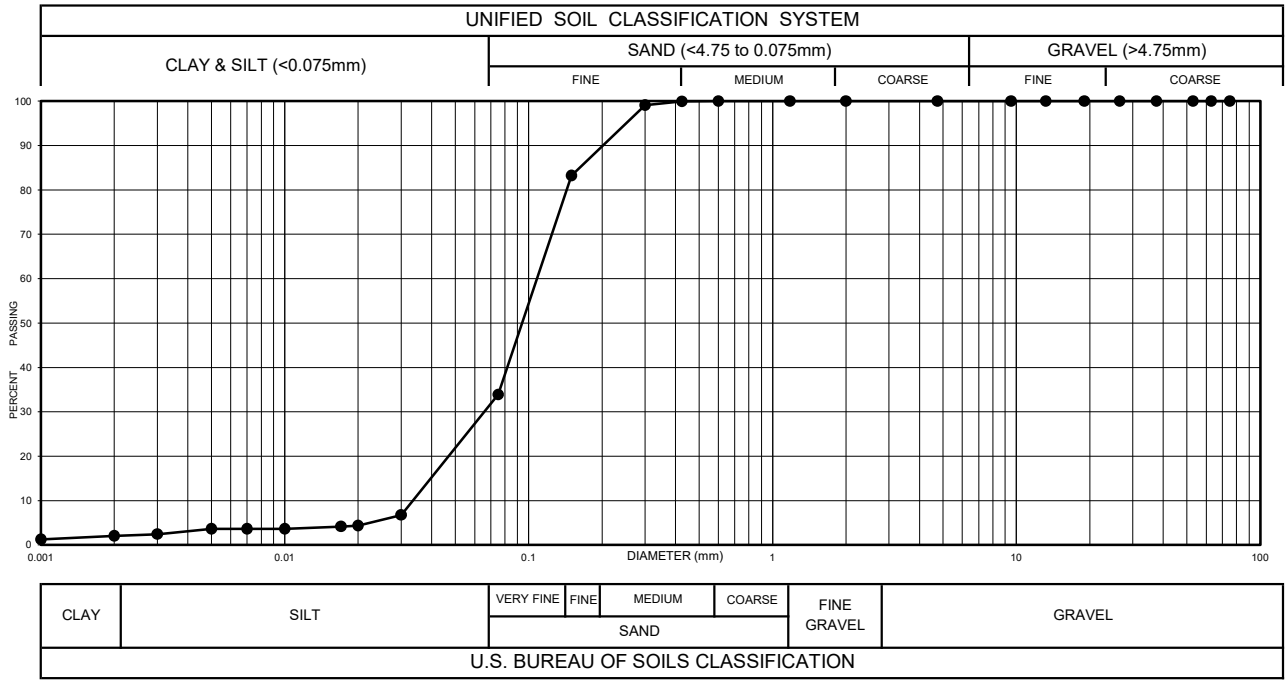
Soil Description	
SILTY SAND, trace Clay	

Effective Particle Size %		
D_{60}	D_{30}	D_{10}
0.115	0.069	0.035

Coefficients	
C_u	C_c
3.235	1.155

Hydraulic Conductivity m/sec	1.3E-05

Particle Size Distribution LS 702



Comments

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Reviewed By: _____

Kyle Hillar, C. Tech

Gradation Analysis Report

Project Name	*Proposed Development (6585 Highway 6, Fergus, Ontario)*	Project No.:	*GE26-1576-1*
Client	*1052367 Ontario Ltd*	Sample ID:	*BH10-26, SS7*
Lab No.:	*160*	Depth:	*4.57-5.03m*
Sampled By:	*Shawn Baetz*	Date:	*2026-04-17,20,21*

Grain Size Analysis		Hydrometer Analysis	
Sieve Size (mm)	**% Passing**	**Diameter (mm)**	**% Passing**
53.0	100	0.030	4.4
37.5	100	0.020	3.0
26.5	100	0.017	3.5
19.00	100	0.01	3.5
13.2	100	0.007	3.5
9.5	100	0.005	2.7
4.75	100	0.002	1.4
2	100	0.001	0.6
1.18	100.0	**Gradation Proportions %**	
0.6	99.9	Gravel	0.0
0.3	98.9	Sand	75.2
0.15	76.7	Silt	23.4
0.075	24.8	Clay	1.4

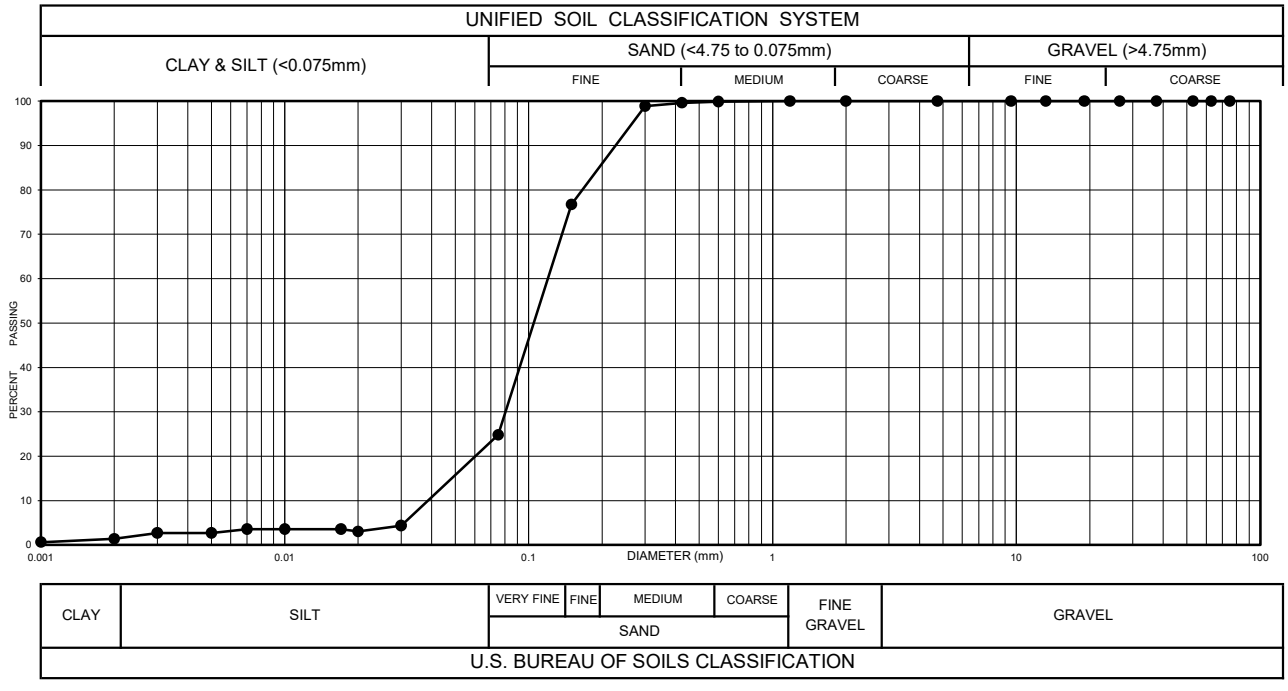
Soil Description	
SILTY SAND, trace Clay	

Effective Particle Size %		
D_{60}	D_{30}	D_{10}
0.126	0.083	0.042

Coefficients	
C_u	C_c
2.967	1.276

Hydraulic Conductivity m/sec	2.0E-05

Particle Size Distribution LS 702



Comments

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Reviewed By: _____

Kyle Hillar, C. Tech

Gradation Analysis Report

Project Name	*Proposed Development (6585 Highway 6, Fergus, Ontario)*	Project No.:	*GE26-1576-1*
Client	*1052367 Ontario Ltd*	Sample ID:	*BH11-26, SS8*
Lab No.:	*161*	Depth:	*6.1-6.55m*
Sampled By:	*Shawn Baetz*	Date:	*2026-04-17,20,21*

Grain Size Analysis		Hydrometer Analysis	
Sieve Size (mm)	**% Passing**	**Diameter (mm)**	**% Passing**
53.0	100	0.030	4.9
37.5	100	0.020	5.4
26.5	100	0.017	4.8
19.00	100	0.01	3.6
13.2	100	0.007	2.7
9.5	100	0.005	2.7
4.75	100	0.002	1.8
2	100	0.001	1.3
1.18	100.0	**Gradation Proportions %**	
0.6	99.8	Gravel	0.0
0.3	97.0	Sand	84.0
0.15	47.7	Silt	14.2
0.075	16.0	Clay	1.8

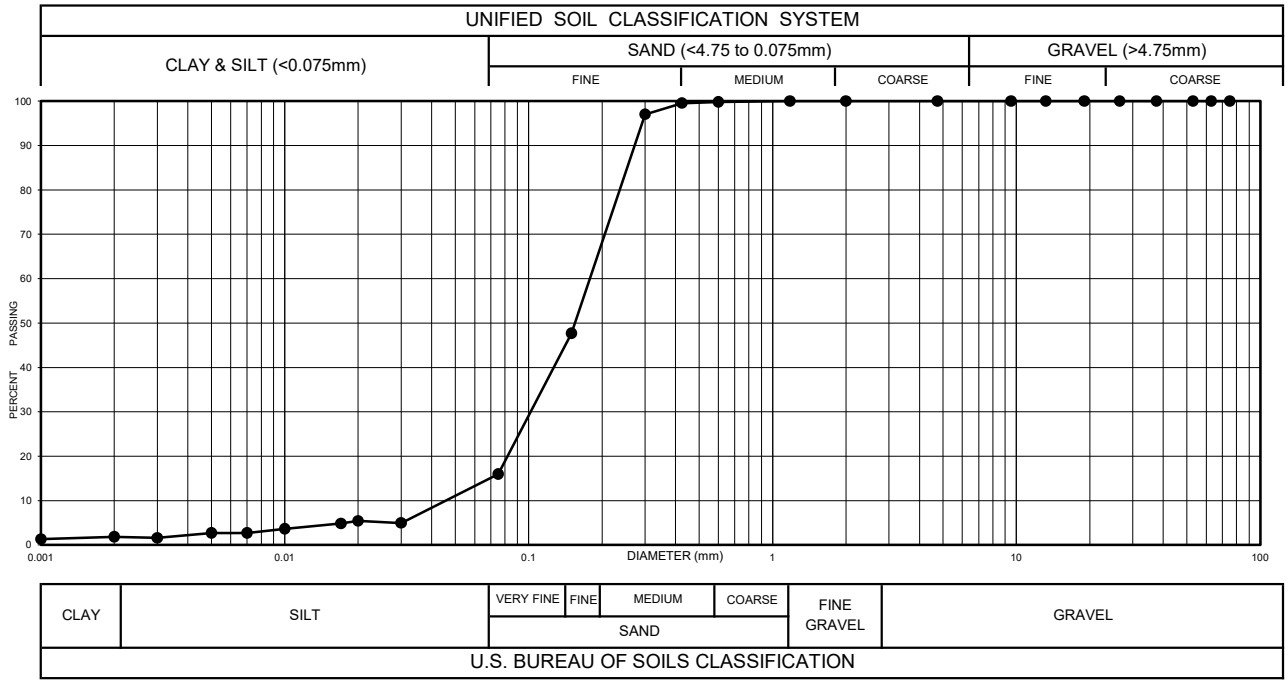
Soil Description	
SAND, some Silt, trace Clay	

Effective Particle Size %		
D_{60}	D_{30}	D_{10}
0.187	0.108	0.051

Coefficients	
C_u	C_c
3.701	1.233

Hydraulic Conductivity m/sec	2.4E-05

Particle Size Distribution LS 702



Comments

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Kyle Hillar, C. Tech

Gradation Analysis Report

Project Name	*Proposed Development (6585 Highway 6, Centre Wellington, Ontario)*	Project No.:	*GE26-1576-1*
Client	*1052367 Ontario Ltd*	Sample ID:	*BH12-26, SS7*
Lab No.:	*162*	Depth:	*6.1-6.55m*
Sampled By:	*Shawn Baetz*	Date:	*2026-04-17,20,21*

Grain Size Analysis		Hydrometer Analysis	
Sieve Size (mm)	**% Passing**	**Diameter (mm)**	**% Passing**
53.0	100	0.030	6.2
37.5	100	0.020	4.8
26.5	100	0.017	4.7
19.00	100	0.01	3.6
13.2	100	0.007	3.6
9.5	100	0.005	3.6
4.75	100	0.002	2.0
2	100	0.001	1.3
1.18	100.0	**Gradation Proportions %**	
0.6	99.9	Gravel	0.0
0.3	93.8	Sand	81.7
0.15	42.2	Silt	16.3
0.075	18.3	Clay	2.0

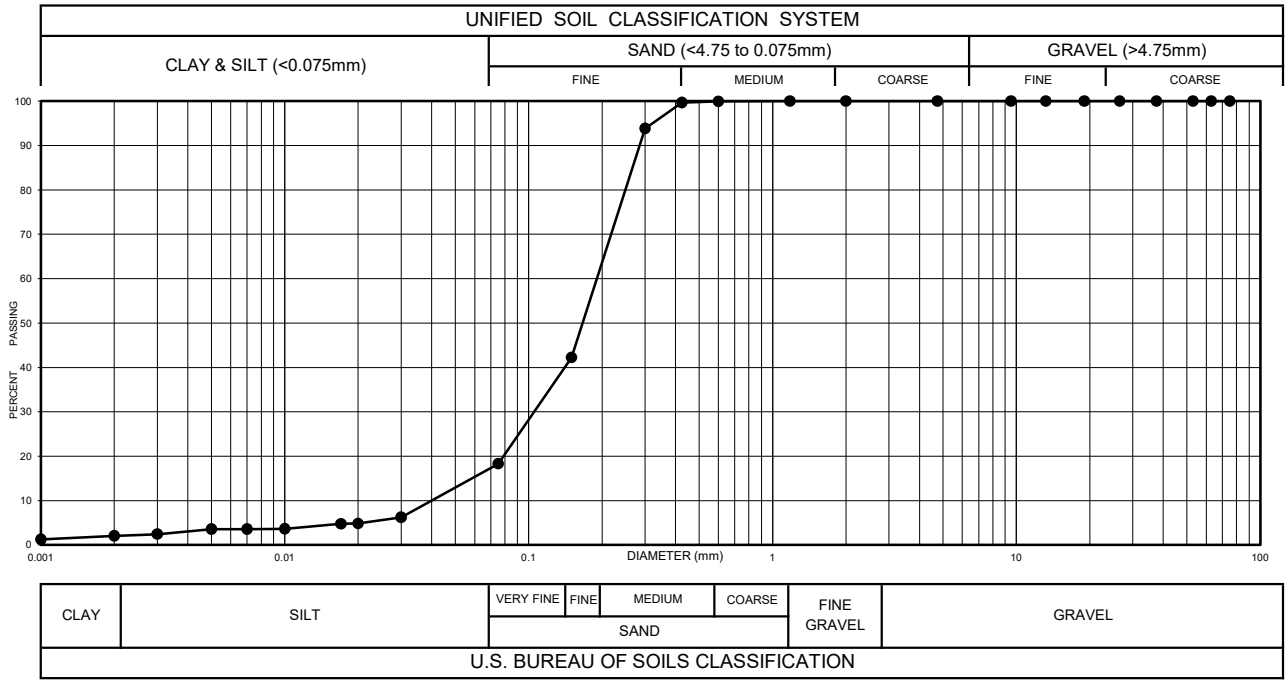
Soil Description	
SAND, some Silt, trace Clay	

Effective Particle Size %		
D_{60}	D_{30}	D_{10}
0.202	0.112	0.044

Coefficients	
C_u	C_c
4.561	1.404

Hydraulic Conductivity m/sec	1.4E-05

Particle Size Distribution LS 702



Comments

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Kyle Hillar, C. Tech