Geotechnical Investigation - Upper Mill Pond Norwood Residential Development, Norwood, ON

April 7, 2025

Prepared for:
CAP Norwood Developments Inc.

Cambium Reference: 14288-007

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1.0 Introduction

Cambium Inc. (Cambium) was retained by CAP Norwood Developments Inc. (Client) to complete a geotechnical investigation in support of the proposed residential development located at 52 Mill Street, in the town of Norwood, Ontario (Site), as illustrated in Figure 1. The Site is bound by Mill Street to the southwest, agricultural land to the southeast, Asphodel 10th Line to the northeast, a CP Rail right-of-way to the northeast, and several single-family residential homes to the south, east, and west.

The development encompasses approximately 87 acres (35.5 ha) in size. The Site is mainly agricultural land and is currently used for cash crops. An existing barn and single residence are to be removed prior to development. A cell tower is currently situated in the centre of the site, which is understood to have a lease until 2034, at which time it will be removed. The Site slopes gently from east to west.

It is proposed that the property be subdivided with approximately 403 low density residential units and 240 medium density residential units that will be constructed with basements where possible. A water management facility is to be situated on the west side of the Site and parkland is proposed to surround the location of the cell tower in the center of the Site. Safety berms and acoustic fence are to be placed along the northwest edge of the Site, along the CP Rail right-of-way.

This report presents the methodology and findings of the geotechnical investigation at the Site and addresses requirements and constraints for the design and construction of the subdivision.

2.0 Methodology

2.1 Borehole and Test Pit Investigation

A borehole investigation and test pit investigation were conducted on April 20, 21, 26, and 27, 2022, to assess subsurface conditions at the Site. A total of 17 boreholes, designated BH101-22 through BH117-22, and twenty-four (24) test pits, designated TP118-22 through TP141-22, were advanced at the Site for geotechnical and hydrogeological purposes and are shown on Figure 2.

A supplemental borehole investigation was completed on November 8, 2024, to further assess groundwater conditions and to meet the requirements of the geotechnical peer review. A total of four boreholes, designated BH201-24 through BH204-24, were advanced within the central portion of the Site.

Drilling and sampling for the boreholes was completed using a track-mounted drill rig, under the supervision of a Cambium technician. The boreholes were advanced to their terminated depths by means of continuous flight solid stem augers with 50 mm O.D. split spoon samplers. Standard Penetration Test (SPT) N values were recorded for the sampled intervals as the number of blows required to drive a split spoon (SS) sampler 305 mm into the soil using a 63.5 kg drop hammer falling 750 mm, as per ASTM D1586 procedures. The SPT N values are used in this report to assess consistency of cohesive soils and relative density of non-cohesive materials. Soil samples were collected at 0.75 m intervals from 0 m below existing grade (mbeg) to 5.03 mbeg. Borehole logs are provided in Appendix A.

The test pits were excavated to a predetermined depth of 3 mbeg using a Cambium sourced backhoe, under the supervision of a Cambium technician. Dynamic Probe Penetration Test (DPT) values were recorded for the sampled intervals as the number of blows required to drive a 19 mm diameter steel rod 150 mm into the soil with an 8 kg hammer falling 750 mm. Although DPT testing is not a certified method, Cambium used this subjective method, in conjunction with SPT N data from boreholes, to provide a general indication of the condition of the soil to supplement the results of the SPTs.

Boreholes BH104-22, BH105-22, BH112-22, BH115-22 and BH201-24 through BH204-24 were equipped as monitoring wells with stick-up monuments, to allow for the assessment of groundwater elevations over time. Well configurations are outlined in the borehole logs provided in Appendix A.

The encountered soil units were logged in the field using visual and tactile methods, and samples were placed in labelled plastic bags for transport, future reference, possible laboratory testing, and storage. Open test pits and boreholes were checked for groundwater and general stability prior to backfilling. All test pits were backfilled to as close to pre-existing conditions as possible. All boreholes not equipped as monitoring wells were backfilled and sealed in accordance with Ontario Regulation (O.Reg.) 903.

Borehole and test pit locations were surveyed in the field using a Sokia RTK unit. Elevations were measured in relation to the top nut of the fire hydrant located at the intersection of King Street and Mill Street. Geodetic elevation of the fire hydrant was provided by Jewel Engineering to be 206.05 masl (meters above sea level). The ground surface at the location of each borehole and test pit has been measured relative to this elevation, with an accuracy of 0.01m. The location and elevation of each test pit and borehole is accurate to 0.05 m with respect to the benchmark.

Borehole and test pit logs are provided in Appendix A. Site soil and groundwater conditions are described, and geotechnical recommendations are discussed in the following sections of this report.

2.2 Physical Laboratory Testing

Physical laboratory testing, including eight (8) particle size distribution analyses (LS-702,705), was completed on selected soil samples to confirm textural classification and to assess geotechnical parameters. Moisture content testing (LS-701) was completed on all retrieved soil samples. Results are presented in Appendix B and are discussed in subsequent sections of this report.

3.0 Subsurface Conditions

Subsurface conditions at the Site generally consist of layer of loose to compact, dark brown silt topsoil underlain by moist silty sand, which extends to a depth of 0.3 mbeg to 2.1 mbeg in locations BH101-22, BH102-22, BH105-22 to BH113-22, BH115-22 to BH117-22, TP118-22 to TP122-22, TP126-21 to TP130-22, TP132-22 to TP141-22, and BH202-24 and BH203-24 and 3.6 mbeg in TP121-22, and 4.11 mbeg in BH201-24. In test pits and boreholes BH102-22, BH103-22, BH107-22, BH110-22, BH112-22, and BH117-22, loose, moist to wet, silt dominant soils were found underlying the silty sand soil, extending to depths of 1.4 mbeg to 2.9 mbeg. Moist to saturated, gravel and sand dominant soils were found to extend from the base of the aforementioned soils to termination depth in all locations except BH107-22, TP121-22, TP137-22, and TP138-22. The gravel and sand was found to have a dense to very dense relative density.

Bedrock was encountered at depths ranging from 1.5 mbeg to 7.09 mbeg in TP119-22, TP127-22, and TP134-22 to TP138-22, and all boreholes, except BH101-22 and BH103-22.

Groundwater was generally found to be at a depth of at least 1.5 mbeg throughout the site, and often at depths greater than 3 mbeg, except in the location of BH112-22, where it was found to be at a depth of 0.76 mbeg. Ground water levels in monitoring wells ranged from 1.24 mbeg in BH112-22 to depths of 3.72 mbeg.

The individual soil units are described in detail below and shown on the borehole and test pit logs provided in Appendix A and Appendix B.

3.1 Topsoil

All test pits and boreholes encountered a dark brown silt topsoil with trace sand at surface. The topsoil contains some to frequent rootlets and varying amounts of gravel and cobble. The topsoil ranged in thickness from 150 mm to 300 mm in all locations, except boreholes BH104-22 and BH204-24, which had a thickness of 600 mm and 686 mm respectively. The topsoil was generally found to be moist at the time of the investigation.

3.2 Silty Sand

Light brown to brown silty sand, and silt and sand with trace to some clay and gravel was encountered immediately below topsoil or below relatively thin layers of silt in all locations except BH107-22, BH111-22, BH114-22, BH115-22, TP124-22, TP125-22, and TP131-22 extending to depths of 0.3 mbeg to termination depth within these locations. The silty sand was free of organics and was found to be moist to wet at the time of investigation. SPT and DPT blow counts provide evidence that the silty sand ranged from a loose to dense relative density.

Laboratory particle size distribution analyses were completed on one (1) sample of the silty sand material taken from the test pits and boreholes and depths described in Table 1. The soil samples and analysis results are based on the Unified Soil Classification System (USCS) scale, with full results provided in Appendix B.

Table 1 Particle Size Distribution Analysis

Test Pit	Depth (mbeg)	Description	% Gravel	% Sand	% Silt	% Clay	% Moisture Content
BH102-22 SS4	2.3 – 2.7	Silt some Clay	0	3	86	11	27.8
BH104-22 SS3	1.5 – 2.0	Sand and Silt some Clay some Gravel	10	42	35	13	8.2
BH105-22 SS3	1.5 – 2.0	Sandy Silt	0	28	72		23.7
BH107-22 SS3	1.5 – 2.0	Sandy Silt	0	28	72		16.1
BH109-22 SS3	1.5 – 2.0	Gravelly Sand and Silt	21	40	39		8.2
BH111-22 SS2	0.8 – 1.2	Gravelly Silty Sand	27	44	24	5	6.3
BH115-22 SS3	1.5 – 2.0	Gravelly Silty Sand	34	46	20		6.4
BH117-22 SS3	1.5 – 2.0	Gravelly Sand some Silt	20	65	15		4.7

3.3 Silt

Brown silt dominant soils with variable amounts of clay and sand were encountered in boreholes BH102-22 to BH103-22, BH105-22 through BH108-22, BH110-22, BH112-22, BH113-22, BH115-22, BH117-22, and TP121-22. These soils were generally found within 3m of surface, except in BH107-22 where it extends to bedrock at a depth of 4.4 mbeg. The silt soils were encountered immediately below topsoil or as interbedded horizons within the silty

sand units. The silt was found to range from moist to wet at the time of the investigation. SPT and DPT blow counts provide evidence of a loose relative density.

Laboratory particle size distribution analyses were completed on three (3) samples of the silt dominant material taken from the test pits and boreholes and depths described in Table 1. The soil samples and analysis results are based on the Unified Soil Classification System (USCS) scale, with full results provided in Appendix B.

3.4 Sand and Gravel

Light brown to brown to grey gravel and sand dominant soils with variable amounts of silt and trace amounts of clay were encountered generally at the base of, or throughout boreholes BH102-22, BH110-22 through BH117-22, BH201-24 through BH204-24, and all test pits except TP121-22, TP137-22 and TP138-22. The gravel and sand soils were also present as interbedded layers within the sandy silt at depths less than 2.0 mbeg in boreholes BH101-22, BH104-22, and BH117-22. The gravel and sand soil was found to range from moist to saturated with increasing depth at the time of investigation. SPT and DPT blow counts provide evidence that the gravel and sand had a range of dense to very dense relative density.

Laboratory particle size distribution analyses were completed on four (4) samples of the gravel and sand material taken from the test pits and boreholes and depths described in Table 1. The soil samples and analysis results are based on the Unified Soil Classification System (USCS) scale, with full results provided in Appendix B.

3.5 Bedrock

All boreholes were terminated on auger refusal on presumed bedrock at depths between 1.98 mbeg and 7.09 mbeg, except for BH101-22 and BH103-22. Test pits TP119-22, TP127-22, and TP134-22 to TP138-22 were terminated on excavator refusal on bedrock at depths between 1.5 mbeg and 3.3 mbeg. The depth to bedrock and bedrock elevation is summarized in Table 2. Overall, the bedrock elevation at the site varies from 197.04 masl to 211.59 masl, with shallower bedrock encountered in the east end of the site and the deepest bedrock encountered in the west end of the site. Coring of the bedrock was not part of the scope of

work for this project. It is possible that some occurrences of auger refusal are on boulders above the bedrock, but overall bedrock is shallow across the site.

Table 2 Bedrock Depth and Elevation

Location (Boreholes)	Surface Elevation (masl)	Depth to Bedrock (mbeg)	Elevation of Bedrock (masl)
BH102-22	205.33	3.05	202.28
BH104-22	208.93	3.15	205.78
BH105-22	202.46	4.42	198.04
BH106-22	208.34	4.57	203.77
BH107-22	204.31	4.42	199.89
BH108-22	210.41	4.67	205.74
BH109-22	209.64	4.88	204.76
BH110-22	209.74	3.96	205.78
BH111-22	210.21	4.88	205.33
BH112-22	209.28	2.67	206.61
BH113-22	211.70	1.98	209.72
BH114-22	213.02	3.35	209.67
BH115-22	210.83	2.59	208.24
BH116-22	210.41	2.59	207.82
BH117-22	210.34	4.57	205.77
BH201-24	210.50	7.09	203.41
BH202-24	209.76	4.95	204.81
BH203-24	205.34	5.56	199.78
BH204-24	208.96	2.69	206.27
Location (Test Pits)	Surface Elevation (masl)	Depth to Bedrock (mbeg)	Elevation of Bedrock (masl)
TP119-22	203.59	3.30	200.29
TP127-22	208.81	2.55	206.26
TP134-22	213.61	2.25	211.36
TP135-22	211.98	1.95	210.03
TP136-22	213.09	1.50	211.59
TP137-22	210.37	1.95	208.42
TP138-22	209.88	1.50	208.38

Note: Boreholes not shown in Table 2 did not encounter bedrock within 5 m of existing grade. Test pits not shown did not encounter bedrock with 3 m of existing grade.

3.6 Groundwater

Boreholes BH101-22, BH103-22, BH104-22, BH106-22, BH109-22, BH110-22, BH113-22, BH114-22, BH116-22, and BH202-24 through BH204-24 were dry on completion of drilling. The remaining boreholes had unstabilized groundwater levels at depths varying from 0.76 mbeg to 4.57 mbeg upon completion of drilling. Boreholes BH105-22 and BH112-22 had sloughing, on completion, below depths of 4.11 mbeg and 2.59 mbeg, respectively. All other boreholes remained open upon completion.

Groundwater levels were measured in the initial four (4) monitoring wells, BH104-22, BH105-22, BH112-22, and BH115-22, on May 4, 2022, and found to range from 1.24 mbeg to 2.72 mbeg, with no water present in BH104-22. Four (4) additional monitoring wells, BH201-24 through BH204-24 were installed on November 8, 2024. Groundwater levels were measured in these additional boreholes on November 18, 2024, and found to range from 2.94 mbeg and 3.96 mbeg in BH201-24 and BH202-24 respectively, with BH203-24 and BH204-24 being dry.

Test pits TP121-22, TP128-22, TP129-22, TP130-22, TP132-22, TP133-22, and TP140-22 had groundwater seepage on completion of excavation, to depths varying from 1.05 mbeg to 3.3 mbeg. The remaining test pits were dry on completion of excavation. Test pits TP121-22, TP 122-22, TP128-22, TP138-22, and TP140-22 had sidewall caving to depths ranging from 0.60 mbeg and 3.3 mbeg on completion. All other test pits remained open upon completion.

Grey soils indicating the long-term presence of the water table were encountered in BH101-22, BH103-22, BH104-22, BH105-22, BH201-24, BH202-24, BH204-24 and TP 121-22, at depths ranging from 1.2 mbeg to 4.05 mbeg.

A summary of the measured water levels as well as water level on completion and the depth to grey soils is provided in Table 3.

Table 3 Groundwater Level Measurement and Elevation

Location	Surface Elevation (masl)	First Encounter of Groundwater (m) / Elev (masl)	Water Level on Completion (m) / Elev (masl)	Grey Soils Below Depth (m) / Elev (masl)	Measured Water Leve (m) / Elev (masl)
BH101-22	204.43	-	-	2.1 / 202.33	
BH102-22	205.33	1.52 / 203.81	3.05 / 202.28	-	
BH103-22	206.10	-	-	4.05 / 202.05	
BH104-22	208.93	-	-	1.2 / 207.73	No water level found[1]
BH105-22	202.46	1.52 / 200.94	3.05 / 199.41	2.35 / 200.11	2.72 / 199.74[1]
BH107-22	204.31	4.42 / 199.89	4.42 / 199.89	-	
BH108-22	210.41	1.52 / 208.89	2.13 / 208.28	-	
BH111-22	210.21	3.05 / 207.16	1.83 / 208.38	-	
BH112-22	209.28	0.76 / 208.52	0.76 / 208.52	-	1.24 / 208.04[1]
BH115-22	210.83	1.52 / 209.31	1.68 / 209.15	-	2.02 / 208.82[1]
BH117-22	210.34	2.29 / 208.05	4.57 / 205.77	-	
TP121-22	203.75	3.3 / 200.45	3.6 / 200.15	1.5 / 202.25	
TP128-22	208.28	2.4 / 205.88	2.55 / 205.73	-	
TP129-22	210.85	2.4 / 208.45	2.85 / 208.00	-	
TP130-22	210.10	1.8 / 208.30	3.0 / 207.10	-	
TP132-22	209.94	2.4 / 207.54	2.85 / 207.10	-	
TP133-22	210.92	1.05 / 209.87	-	-	
TP140-22	209.73	1.95 / 207.78	2.85 / 206.88	-	
BH201-24	210.50	4.57/205-93	-	4.05/206.45	3.72/206.78[2]
BH202-24	209.76	-	-	4.05/205.71	2.94/206.82[2]
BH203-24	205.34	-	-	-	No water level found[2]
BH204-24	208.96	-	-	1.83/207.13	No water level found[2]

Note: All boreholes and test pits not shown in Table 3 did not encounter any sign of groundwater, including grey soils.

1. *Static groundwater levels were measured on May 4, 2022, for BH104-22, BH105-22, BH112-22, and BH115-22.*
2. *Static groundwater levels were measured on November 18, 2024, for BH201-24 through BH204-24.*

Further to these initial readings, water loggers were installed in all monitoring wells to monitor groundwater levels over time. Table 4 provides a summary of all min and maximum water levels in each of the wells, and the associated timeframe over which they were recorded.

Complete details pertaining to the groundwater levels may be found in Cambium's accompanying hydrogeological assessment.

Table 4 Long-Term Water Level Monitoring Summary

Location	Surface Elevation (masl)	Max Water Level (mbeg) / (masl)	Date of High Groundwater	Initiation of Long-Term Monitoring	Last Date of Data Collection	Continuing to Monitor
BH104-22	208.93	Dry[1]	-	Mar. 7, 2024	February 9, 2025	No[2]
BH105-22	202.46	2.48 / 199.29	May 1, 2024	Mar. 7, 2024	Nov. 14, 2024	Yes[3]
BH112-22	209.28	0.32 / 208.96	Apr. 12, 2024	Mar. 7, 2024	Feb. 9, 2025	Yes
BH115-22	210.83	1.67 / 209.16	Apr. 17, 2024	Mar. 7, 2024	Nov. 14, 2024	Yes[3]
BH201-24	210.50	2.04 / 208.46	Jan. 10, 2025	Nov. 15, 2024	Feb. 9, 2025	Yes
BH202-24	209.76	3.11 / 206.65	Feb. 2, 2025	Nov. 15, 2024	Feb. 9, 2025	Yes
BH203-24	205.34	Dry[1]	-	Nov. 15, 2024	Feb. 9, 2025	Yes
BH204-24	208.96	Dry[1]	-	Nov. 15, 2024	Feb. 9, 2025	Yes

1. *Water level assumed to be below the depth of the loggers within the borehole.*
2. *Water logger from BH104-22 was removed and moved to BH204-24 on Nov. 14, 2024.*
3. *Loggers were frozen in the hole at the time of the Feb. 9, 2024, data collection, and data was not retrievable.*

In general, groundwater was encountered at depths greater than 1.5 mbeg and as such, significant groundwater seepage into excavations for foundations is not anticipated within the assumed excavation depths. In areas where deeper excavations extend below groundwater level, as would be the case with underground services, a permit to take water or registration in ESAR may be required and is discussed further in the accompanying hydrogeological report.

It is noted that groundwater levels vary seasonally and in response to climatic activity. Given the variability in soil types and water levels at the site, it is recommended that groundwater levels continue to be measured until late spring to establish seasonal high groundwater levels for all monitoring wells to determine the best conditions for construction.

4.0 Geotechnical Considerations

This section of the report provides engineering information and recommendations for the geotechnical design aspects of the project based on our interpretation of the borehole and test pit information, the laboratory test data and on our understanding of the project requirements. The following recommendations are provided to assist designers. It is possible that subsurface conditions beyond the borehole and test pit locations may vary from those observed. Recommendations should not be construed as providing instructions to contractors, who should form their own opinions about site conditions. Contractors bidding on or undertaking any work at the Site should examine the factual results of the investigation, satisfy themselves as to the adequacy of the information for construction and make their own interpretation of the factual data as it affects their proposed construction techniques, schedule, equipment capabilities, costs, sequencing, and the like. If significant variations are found before or during construction, Cambium should be contacted so that we can reassess our findings, if necessary.

It should be noted that proposed grades and structural loadings for the buildings were not available at the time of preparation of this report.

Cambium will not assume any responsibility for construction-related decisions made by contractors based on this report.

4.1 Site Preparation

Any and all vegetation and organic soils, including topsoil, should be removed from beneath the proposed homes, roadways and utilities. The exposed subgrade should be proof-rolled and inspected by qualified geotechnical engineering personnel prior to the placement of any fill or bedding material. Any loose/soft soils identified at the time of proof-rolling that are unable to be uniformly compacted should be sub-excavated and removed. The excavations created through the removal of these materials should be backfilled with approved engineered fill consistent with the recommendations provided below.

4.2 Frost Penetration

Based on the Ontario Provincial Standard Drawing (OPSD) 3090.101, the typical frost penetration depth is expected to be approximately 1.4 mbeg.

All footings should be placed below frost penetration depth or be adequately insulated

It is assumed that the pavement structure thickness will be less than 1.4 m, so grading and drainage are important for good pavement performance and life expectancy.

Any services/utilities should be located below this depth or be appropriately insulated.

4.3 Excavations and Shoring

All excavations must be carried out in accordance with the latest edition of the Occupational Health and Safety Act (OHSA). Loose native soils may be classified as Type 4 soils in accordance with the OHSA and may be excavated with unsupported side slopes no steeper than 3H:1V. The generally compact native soils may be classified as Type 3 soils above the groundwater table in accordance with OHSA and may be excavated with unsupported side slopes no steeper than 1H:1V. Below the groundwater table these soils may be considered Type 4 soils. The dense native soils, generally encountered at greater depths, may be classified as Type 2 soils above the groundwater table in accordance with OHSA. Type 2 soils may be excavated with unsupported side slopes no steeper than 1H:1V within 1.2 m of the base of the excavation. Test excavations should be carried out at the time of construction to assess the soil integrity and water levels to determine any shoring requirements.

Excavation side slopes should be protected from exposure to precipitation and associated ground surface runoff and should be inspected regularly for signs of instability. If localized instability is noted during excavation or if wet conditions are encountered, the side slopes should be flattened as required to maintain safe working conditions or the excavation sidewalls must be fully supported (shored).

Based on bedrock elevation at the site, there will be some need for removal of bedrock in order to properly install the underground services to the required depth. It is understood that excavations will be made to approximately 3.0 mbeg to 3.5 mbeg, and as such up to 2 m of

bedrock will need to be removed in some areas, but generally much less. It is possible that near surface weathered bedrock may be scraped off with a large excavator in places, however if the bedrock is massive and unweathered with minimal fractures hoe ramming or blasting of the rock may be required. The Town of Norwood should be consulted prior to either operation to ensure the work falls within their bylaws and that proper monitoring and inspections are completed.

Competent bedrock may be excavated with vertical sidewalls to the full extent of the excavations required for this project. Should the bedrock be weathered or the quality be in question, side slope 1.2 m above the base of the excavation should be flattened to a minimum of 1H:1V or be inspected by a geotechnical engineer.

It should be noted that bedrock was not cored or investigated at this site, and subsequently the quality of rock cannot be commented on at this time.

4.3.1 Trench Box

While use of trench boxes is an effective and economical trench-support method, it is not usually intended to shore up or otherwise support trench walls, they are meant to protect workers in case of a cave-in**.** When using the trench boxes, excavation should be done so that the space between the trench box and the excavation is minimized. Any space between the box and the trench wall needs to be backfilled and the soil compacted. Trench boxes need to be installed expediently.

4.4 Dewatering

Based on the groundwater conditions encountered at each borehole and test pit, the elevation of the water table varies over the site from 0.33 mbeg to greater than 4.0 mbeg but is generally no shallower than 1.5 mbeg.

It is understood that the maximum depth of the finished floor elevations is to be no less than 0.5 m above the high ground water, as observed throughout this investigation. It should be noted that water level data will be updated again in late spring 2025, to evaluate spring high water levels in the new wells. This report may be updated at that time to be implemented in the detailed design stages of the project.

Assuming that construction of homes is to occur in a dry season, and only footings may be placed no more than 1.0 m below the groundwater table, significant groundwater seepage is not anticipated within the excavation depths for the footings of the homes. Any seepage within the excavation depths should be controllable with filtered sumps and pumps and a Permit to Take Water (PTTW) or registry in the Environmental Activity and Sector Registry (EASR) for the Ministry of the Environment, Conservation and Parks (MECP) will not be required.

Placement of services is anticipated at a depth of 3 m below final grade, with potential for cuts of up to 2 m, resulting in excavations as deep as 5 m in places, which will result in significant groundwater seepage and a PTTW or registry in the EASR may be required. Further discussion regarding dewatering for linear infrastructure is provided in the accompanying hydrogeological report.

It should be noted that the groundwater table is influenced by seasonal fluctuations and major precipitation events.

4.5 Backfill and Compaction

Excavated topsoil from the Site is not appropriate for use as fill below grading, roadways and parking areas. Excavated silty sand, and sand and gravel, soils and imported fill, not containing organics or any other deleterious material, may be appropriate for use as engineered fill, provided that the actual or adjusted moisture content at the time of construction is within a range that permits compaction to required densities. Some moisture content adjustments may be required depending upon seasonal conditions. Areas where native silt from the site, not mixed with any sand or gravel, is to be used as engineered fill may be problematic due to the high amount of fines that may compromise the ability to achieve optimal moisture content for compaction. Should the required level of compaction not be obtainable, consideration should be given to using the native silt material as fill in landscaped areas only. Geotechnical inspections and testing of engineered fill are required to confirm acceptable quality.

Any engineered fill below foundations should be placed in lifts appropriate to the type of compaction equipment used on site and be compacted to a minimum of 100% of standard

Proctor maximum dry density (SPMDD), as confirmed by nuclear densometer testing. If native soils from the site are not used as engineered fill, imported material for engineered fill should consist of clean, non-organic soils, free of chemical contamination or deleterious material. The moisture content of the engineered fill will need to be close enough to optimum at the time of placement to allow for adequate compaction. Consideration could be given to using a material meeting the specifications of OPSS 1010 Granular B. If conditions are wet at the time of construction, compaction of granular fill may not be possible, and 19 mm diameter crushed clear stone wrapped in a geotextile filter fabric (Terrafix 270R or equivalent) should be used in place of engineered fill. Staged or stepped excavation and placement of the geotextile and clear stone may help limit the requirement for a PTTW or registry in the Environmental Activity and Sector Registry for the MECP.

Foundation wall backfill material should consist of free-draining imported granular material. Most of the native site soils are too fine-grained to provide proper drainage, and as such this should be accomplished using well graded Granular B Type 1 material complying with OPSS 1010. The fill should be placed in maximum 300 mm thick lifts and compacted to a minimum of 95 SPMDD.

Native silty sand, and sand and gravel soils from the site may be suitable as backfill for utility trenches.

The backfill material, if any, in the upper 300 mm below the pavement subgrade elevation should be compacted to 100 percent of SPMDD in all areas.

4.6 Foundation Design – Homes

Assuming that the site is prepared as outlined above, the native sub-soils are competent to support the proposed homes on conventional strip and spread footings but may require deeper excavations and fill in some loose areas. Assuming exterior footings will be placed a minimum of 1.4 m below final grade for frost protection, these footings can be founded on compact native sand and silt soils, at depths and bearing capacities identified in Table 5.

Table 5 Footing Depth, Associated Bearing Capacity and Maximum Depth of FFE

Investigative Area	Surface Elevation (masl)	Estimated Depth of High Groundwater (mbeg/masl)	Minimum Depth to meet 75 kPa SLS (mbeg/masl)	Minimum Depth to meet 150 kPa SLS (mbeg/masl)	Maximum Depth of Lowest FFE (mbeg/masl)
BH102-22	205.33	1.5 / 203.8	1.4 / 208.5	2.9 / 202.4	1.0 / 203.9
BH103-22	206.10	-	1.4 / 204.7	2.1 / 204.0	-
BH105-22	202.46	2.5 / 200.0	-	2.1 / 200.4	1.89 / 200.6
BH112-22	209.28	0.3 / 209.0	1.4 / 207.9[1,3]	2.1 / 207.2	-0.2 / 209.5[2]
BH115-22	210.83	1.7 / 209.1	-	-	1.2 / 209.6
BH201-24	210.50	2.0 / 208.5	-	1.4 / 209.1	1.5 / 209.0
BH202-24	209.76	3.1 / 206.7	1.4 / 208.4	2.3 / 207.5	2.6 / 207.6
BH203-24	205.34	-	-	1.4 / 203.9	-
BH204-24	208.96	-	-	1.4 / 207.6	-
TP120-22	203.49	-	1.7 / 201.8	2.1 / 201.3	-
TP121-22	203.75	3.3 / 200.5	2.0 / 201.8	2.3 / 201.5	-
TP122-22	208.78	-	2.5 / 206.2	2.8 / 206.0	-
TP123-22	209.67	-	1.4 / 208.3	2.25 / 207.4	-
TP128-22	208.28	2.4 / 205.9	1.8 / 206.5	2.4 / 205.9	1.9 / 206.4
TP130-22	210.10	1.8 / 208.3	2.0 / 208.1[1]	2.1 / 208.0	1.3 / 208.8
TP132-22	209.94	2.4 / 207.5	1.8 / 208.1	2.0 / 207.9	1.9 / 208.0
TP133-22	210.92	-	-	1.8 / 209.1	-
TP137-22	210.37	-	-	1.7 / 208.7	-
TP139-22	209.92	-	1.8 / 208.1	2.0 / 207.9	-
TP140-22	209.73	1.9 / 207.7	1.4 / 208.3	1.7 / 208.0	1.4 / 208.3
TP141-22	204.86	-	-	2.1 / 202.8	-

Note: Footings set on native soil at depths greater then 0.7 mbeg, in areas of boreholes and test pits not shown in Table 4, may be designed to an allowable bearing capacity of 150 kPa (SLS) at frost penetration depth or greater.

1. *Excavations to achieve minimum depth of footing may encounter groundwater and should be conducted in dry time of year.*
2. *Fill may be required to achieve appropriate frost protection.*
3. *Footing may need to be placed on engineered fill due to poor soil quality above groundwater table.*

Footings situated on native soils at depths greater than 0.7 mbeg, in areas of borehole and test pits not listed in Table 4, may be designed to an allowable bearing capacity of 150 kPa at SLS and 225 kPa at ULS, at frost penetration depth.

Any required grade raises to the footing elevations can be accomplished with engineered fill, using native silty sand soils, OPSS 1010 SSM, or OPSS 1010 Granular ‘B’ Type I granular material, in 200 mm lifts and compacted to a minimum of 100% of Standard Proctor Maximum Dry Density (SSPMD). Should inorganic native soil be used as engineered fill under foundations, care should be taken to ensure that the material is free of cobbles, boulders and

significant amounts of coarse gravel, allowing for adequate compaction, otherwise the bearing capacity of the fill may be reduced. If conditions are wet at the time of construction, compaction of granular fill may not be possible, and 19 mm diameter crushed clear stone wrapped in a geotextile filter fabric (Terrafix 270R or equivalent) should be used in place of engineered fill.

Any footings set in engineered fill extending to undisturbed native soils may be designed to an allowable bearing capacity of 150 kPa at SLS and 225 kPa at ULS.

Footings placed in the northern portion of the Site, in proximity to BH112-22 and north of TP132-22, TP133-22, and BH110-22, should be placed on a minimum of 1.0 m of engineered fill, and may be designed to a bearing capacity of 50 kPa at SLS and 75 kPa at ULS. Fill should be placed to final grade for a minimum of 3 months prior to initiating footing excavations to allow for settlement of the soils.

Settlement potential at the noted SLS loadings is less than 25 mm and differential settlement should be less than 10 mm.

In areas where footings are placed over the transition from native soil to engineered fill the foundation should be reinforced with two 15 M rebar in the footing and at the top of foundation walls.

Bedrock was observed at shallow depths in some areas of the Site and as such, footings should either be placed entirely on bedrock, or entirely on a minimum of 300 mm of competent native soil or engineered fill.

In instances where competent soil is not encountered until depts below the estimated depth of high groundwater, as is the case with the area of test pit TP130-22, consideration should be given to performing excavations in a drier time of year. Initial water level measurements from BH201-24 provide evidence of lower groundwater conditions through much of the year, which may allow for construction of the footings at the required depths with little impact on groundwater. If conditions are wet at the time of excavation, and provided water infiltration rates are not excessive, excavations for footings may be taken to the required depth and backfilled with clear stone, completely wrapped in geotextile, to footing elevations. Excavations should be completed in short sections to limit water infiltration and should extend laterally from the edge of the footing a distance equivalent to the thickness of the fill at a minimum. It is

recommended that additional testing be conducted in this area to define the extent of the poor soil conditions prior to development.

The quality of the subgrade shall be inspected by Cambium during construction, prior to constructing the footings and placing engineered fill, to confirm bearing capacity estimates.

4.6.1 Floor Slabs

It is understood that the maximum depth of the finished floor elevations is to be no less than 0.5 m above the high ground water, as observed throughout this investigation. It should be noted that water level data will be updated again in late spring 2025, to evaluate spring high water levels in the new wells. This report may be updated at that time to be implemented in the detailed design stages of the project.

Inorganic native soils or engineered fill are considered competent to support floor slab loads. Subgrade soils should be leveled, proof-rolled and inspected by a geotechnical engineer. Any soft loose areas identified would need to be subexcavated and replaced with compacted engineered fill as discussed in Section 4.5. Given the anticipated subgrade conditions, to create a stable working surface and to distribute loadings, shallow floor slabs should be constructed on a minimum of 200 mm of OPSS Granular A and basement floor slabs should be placed on a minimum of 300 mm of OPSS Granular A, compacted as outlined in Section 4.5. If conditions are wet at the time of construction, compaction of granular fill may not be possible, and 19 mm diameter crushed clear stone wrapped in a geotextile filter fabric (Terrafix 270R or equivalent) should be used in place of engineered fill.

4.6.2 Subdrainage

The design of the minimum footing depths proposed in Table 5 have been established to be above the average groundwater table however, assuming the proposed structures are to have basements, perimeter subdrains and under-slab drains are recommended, given that groundwater conditions on the site may vary seasonally, with the potential for higher groundwater at times. Geotextile wrapped perforated pipe subdrains set in a trench of clear stone and connected to a sump or other appropriate frost-free outlets are recommended for all footings.

Should basement slabs be constructed below the high groundwater table, as noted in Table 5, perimeter subdrains should be hydraulically connected to the clear stone placed beneath the slab. Additionally, the floor slab and foundation walls should be waterproofed to above the groundwater elevation.

4.7 Lateral Earth Pressures

Lateral earth pressure coefficients (K) for foundation and retaining wall design are provided below. It is assumed that potential lateral loads will result from cohesionless, frictional materials, such as well-drained granular backfill.

Ko (at rest)	0.42
Ka (active)	0.27
Kp (passive)	3.7

The following formula may be used to calculate active lateral thrust (Pa) on yielding retaining structures;

$Pa= (H/2)(Ka)(\gamma H+2q)$

where,

H = Height of retaining structure (m)

γ= unit weight of retained soil (kN/m^3)

q = surcharge (kPa)

A unit weight of 22 kN/m^3 should be assumed for compacted granular backfill loadings.

4.8 Buried Utilities

All utilities should be placed at a minimum depth of 1.4 mbeg to prevent damage due to frost or be adequately insulated. Where required, trench excavations should consider Type 3 soil conditions which allow for excavation side slopes no steeper than 1H:1V. Where unsaturated dense native soil is present Type 2 soil conditions may be present, requiring excavation side slopes no steeper than 1H:1V, beginning at a height of 1.2 m above the floor of the excavation.

4.8.1 Pipe Bedding and Cover

Bedding and cover material for watermains and sanitary systems should consist of OPSS 1010 Granular A, placed in accordance with pertinent Ontario Provincial Standard Drawings (OPSD 802), as per the Township of Asphodel and Norwood's Water and Wastewater Systems Design Standards – Rev 2, dated 17/08/2022. The bedding and cover material shall be placed in maximum 200 mm thick lifts and should be compacted to at least 98 percent of SPMDD. The cover material shall be a minimum of 300 mm over the top of the pipe and compacted to 98 percent SPMDD, taking care not to damage the utility pipes during compaction.

Service connection trenches that have a trench bed sloping down from the main trench may require the installation of an appropriate clay plug, or similar solution, to prevent the flow of ground water from the trench towards the abutting properties.

4.9 Roadway Design Recommendations

The performance of the pavement is dependent upon proper subgrade preparation. All topsoil and organic materials should be removed down to native sand and silt material and backfilled with approved engineered fill or native material, compacted to 98% SPMDD. The subgrade should be proof rolled and inspected by a Geotechnical Engineer. Any areas where rutting or appreciable deflection is noted should be subexcavated and replaced with suitable fill. The fill should be compacted to at least 98% SPMDD.

To completely protect against damage due to frost heaving, excavations would have to be made to the maximum frost penetration depth, below ground water elevations, and backfilled with free-draining granular material. In order to reduce costs an alternative pavement structure design is proposed. It should be noted that while the designs presented will provide adequate support for the intended use, some minor frost heaving could persist, resulting in minor degradation and minimal annual maintenance.

The recommended pavement structure design for the proposed internal roads has been developed based on a subgrade with moderate to high amounts frost susceptible fines. While the Township of Asphodel Norwood doesn't have an engineering design standard for pavement, the provided design is based on Cambium's experience designing pavement

structures, and on the assumption that all roads will be low volume, local, residential roadways. The recommended minimum pavement structure is provided in Table 6.

Table 6 Recommended Minimum Pavement Structure

Pavement Layer	Residential Roads
Surface Course Asphalt	40 mm HL3 or HL4
Binder Course Asphalt	50 mm HL8
Granular Base	150 mm OPSS 1010 Granular A
Granular Subbase	400 mm OPSS 1010 Granular B

Material and thickness substitutions must be approved by the Design Engineer.

The thickness of the subbase layer could be increased at the discretion of the Engineer, to accommodate site conditions at the time of construction, including soft or weak subgrade soil replacement.

The final subgrade should be sloped towards storm water control structures at a minimum crossfall of 3%. Geotextile wrapped perforated subdrains consisting of a 150 mm diameter pipe are recommended at curb lines within the subgrade. The subdrains should be constructed in a minimum 300 mm wide and 300 mm deep trench backfilled with OPSS 1010 Granular B and should be connected to catch basins or other positive, frost-free outlets.

Compaction of the subgrade should be verified by the Engineer prior to placing the granular fill. Granular layers should be placed in 200 mm maximum loose lifts and compacted to at least 98% of SPMDD (ASTM D698) standard. The granular materials specified should conform to OPSS standards, as confirmed by appropriate materials testing.

The final asphalt surface should be sloped at a minimum of 2% to shed runoff. Any abutting pavements should be saw cut to provide clean vertical joints with new pavement areas.

4.10 Draft Plan Approval

This report addresses all of the items highlighted within the geotechnical peer review document, ***Geotechnical Peer Review – Proposed Residential Development – Upper Mill Pond Subdivision – 42 & 52 Mill Street, Norwood, Ontario – County File Numbers 15T-24001 and 15OP-24001; Stantec Consulting Ltd., dated July 29, 2024.*** Although seasonal

groundwater elevations have not been recorded for the newly installed wells in the central portion of the site, this report meets all other requirements of the peer review and is assumed to be acceptable for Draft Plan Approval. A final update of the report will be generated during the detailed design stage, once all water levels have been obtained, and site grading and servicing plans have been provided.

4.11 Design Review and Inspections

Test excavations should be advanced throughout the Site, prior to construction, to compare findings to those observed in this report. Should soil or groundwater conditions change drastically from this report, a qualified geotechnical engineer should be consulted.

Testing and inspections should be carried out during construction operations to examine and approve subgrade conditions, placement and compaction of fill materials, and dewatering requirements. Concrete used during construction should also be tested for slump, air entrainment and compressive strength.

We should be contacted to review and approve design drawings, prior to tendering or commencing construction, to ensure that all pertinent geotechnical-related factors have been addressed. It is important that onsite geotechnical supervision be provided at this site for excavation and backfill procedures, deleterious soil removal, subgrade inspections and compaction and concrete testing.

5.0 Closing

We trust the information in this report is sufficient for your current needs. If you have questions or comments regarding this document, please do not hesitate to contact Mr. Baird or Mr. Peterkin at (705) 742-7900 ext. 332 or 301.

Respectfully submitted,

Cambium Inc.

DocuSigned by:
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General Manager - Geotechnical

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933CC186AE884A5...

Brian Peterkin, M.Eng., P.Geo.
Senior Project Manager

SEB/bjp/tp

\\cambiumincstorage.file.core.windows.net\projects\14200 to 14299\14288-007 CAP Norwood Dev -MSP- Mill St\Deliverables\Report - GEO\Final\2005-04-07 RPT Upper Mill Pond Geotech (14288-007) - FINAL.docx

6.0 Standard Limitations

Limited Warranty

In performing work on behalf of a client, Cambium relies on its client to provide instructions on the scope of its retainer, and, on that basis, Cambium determines the precise nature of the work to be performed. Cambium undertakes all work in accordance with applicable accepted industry practices and standards. Unless required under local laws, other than as expressly stated herein, no other warranties or conditions, either expressed or implied, are made regarding the services, work or reports provided.

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Site Assessments

A site assessment is created using data and information collected during the investigation of a site and based on conditions encountered at the time and particular locations at which fieldwork is conducted. The information, sample results and data collected represent the conditions only at the specific times at which and at those specific locations from which the information, samples and data were obtained and the information, sample results and data may vary at other locations and times. To the extent that Cambium's work or report considers any locations or times other than those from which information, sample results and data was specifically received, the work or report is based on a reasonable extrapolation from such information, sample results and data but the actual conditions encountered may vary from those extrapolations.

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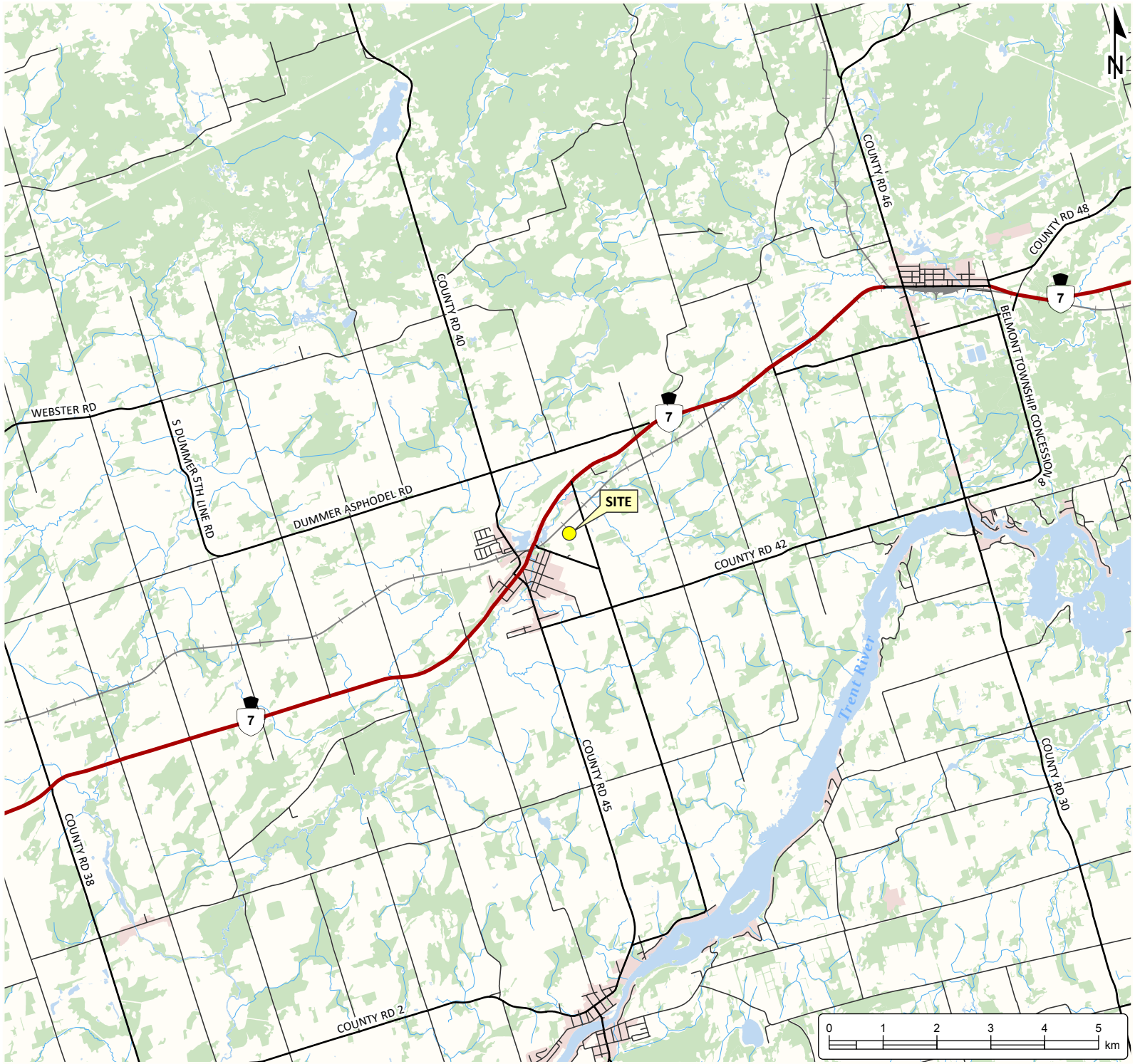
Appended Figures



GEOTECHNICAL INVESTIGATION

ANGELO PUGLISI
52 Mill Street
Norwood, Ontario

LEGEND

- Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Water Area
- Wooded Area
- Built Up Area

Notes:
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SITE LOCATION PLAN

Project No.: 14288-007		Date: November 2024	Rev.:
Scale: 1:100,000		Projection: NAD 1983 UTM Zone 18N	
Created by: LD	Checked by: BP	Figure: 1	

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GEOTECHNICAL INVESTIGATION

ANGELO PUGLISI
52 Mill Street
Norwood, Ontario

LEGEND

- Benchmark
- Borehole
- Monitoring Well
- Test Pit
- Railway
- Site (approximate)

Notes:
- Aerial imagery obtained from the Maxar (WV03) image captured on Sep 30, 2017 as shown in the 2024-03-28 version of the World Imagery map.
- Overlay was obtained from RFA Planning Consultant Inc. Job No. 852. Development Concept for Draft Plan of Subdivision, dated Nov 6, 2023
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TEST PIT LOCATION PLAN

Project No.: 14288-007		Date: November 2024	
		Rev.:	
Scale: 1:5,000		Projection: NAD 1983 UTM Zone 18N	
Created by: LD	Checked by: BP	Figure: 2	

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Appendix A

Borehole Logs & Test Pit Logs

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Log of Borehole: BH101-22

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-003
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	April 20, 2022
Location:	42 Mill Street, Norwood	**UTM:**	18T 263264.8937 E, 4919157.519 N	**Elevation:**	204.434 masl

Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	Well Installation	Remarks
205 / -1								
204 / 0		TOPSOIL: 150mm thick topsoil: Dark brown, silt, trace sand, trace organics, moist, loose	1A 1B 1C	SS SS SS	85	7		
		SANDY SILT: Brown, sandy silt, trace gravel, moist, loose						
203 / 1		SILTY SAND: Brown, silty sand, some gravel, moist, loose	2	SS	100	11		
		SAND AND SILT: Light brown, sand and silt, some gravel, trace clay, moist to wet, compact						
202 / 2		GRAVELLY SAND: Light brown, gravelly silty sand, some gravel, trace clay, moist, compact	3	SS	100	24		
		SAND AND SILT: Light brown/grey, gravelly sand and silt, trace clay, dry to moist, compact	4	SS	100	29		Borehole open and dry upon completion
201 / 3		-becomes dense	5	SS	100	46		
200 / 4								
199 / 5		-becomes moist	6	SS	100	34		Cobbles
		Borehole terminated at 5.03 mbgs in gravelly sand and silt						

% Moisture: 25 50 75

SPT (N) / DCPT: 10 20 30 40

Logged By:	J. Riseling	**Input By:**	J. Riseling

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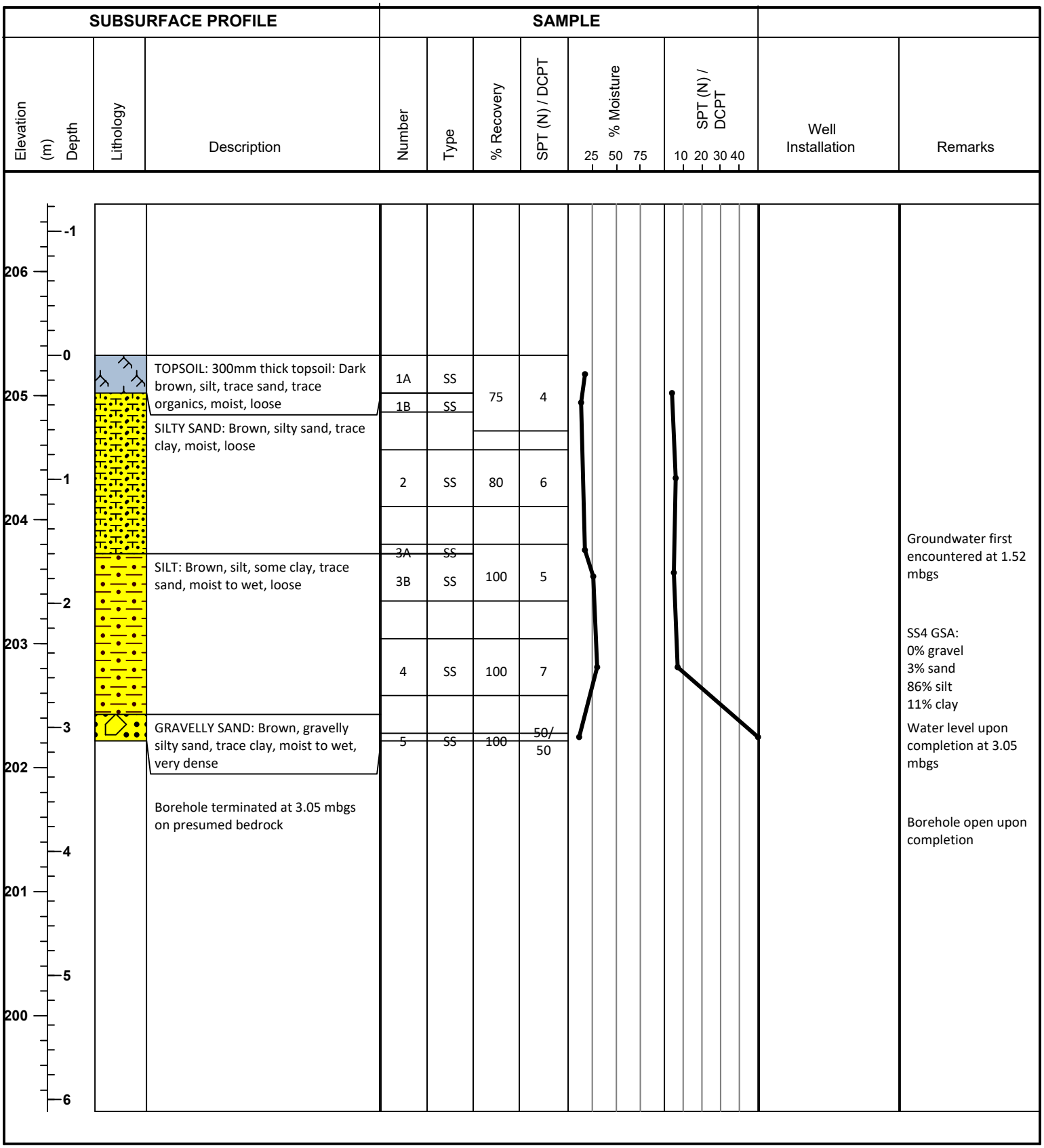
Log of Borehole: BH102-22

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-003
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	April 20, 2022
Location:	42 Mill Street, Norwood	**UTM:**	18T 263372.1357 E, 4919103.341 N	**Elevation:**	205.325 masl



Logged By: J. Riseling **Input By:** J. Riseling

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Log of Borehole: BH103-22

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-003
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	April 20, 2022
Location:	42 Mill Street, Norwood	**UTM:**	18T 263401.7241 E, 4919213.468 N	**Elevation:**	206.096 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
207 / -1										
206 / 0		TOPSOIL: 100mm thick topsoil: Dark brown, silt, trace sand, trace organics, moist, loose	1A 1B	SS SS	50	5				
		SILTY SAND: Brown, silty sand, trace clay, trace organics, moist, loose								
205 / -1		-no organics	2	SS	80	4				
		SILT: Brown, silt, some clay, trace sand, moist to wet, loose	3	SS	100	5				
204 / -2		SILT AND SAND: Light brown, silt and sand, trace clay, moist to wet, compact	4	SS	100	19				
203 / -3		SILT AND SAND: Light brown, gravelly silt and sand, trace clay, moist, dense -becomes grey	5	SS	80	34				Borehole open and dry upon completion
202 / -4		SILT AND SAND: Grey, gravelly silt and sand, trace clay, dry to moist, dense	6	SS	80	46				
201 / -5		Borehole terminated at 5.03 mbgs in gravelly silt and sand								
200 / -6										

Logged By: J. Riseling **Input By:** J. Riseling

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Log of Borehole: BH104-22

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-003
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	April 20, 2022
Location:	42 Mill Street, Norwood	**UTM:**	18T 263527.4327 E, 4919126.817 N	**Elevation:**	208.934 masl

SUBSURFACE PROFILE			SAMPLE								
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
210 / -1										
209 / 0		TOPSOIL: 600mm thick topsoil: Dark brown, silt, trace sand, trace organics, moist, loose	1	SS	50	4			Cap	
208 / 1		GRAVELLY SAND: Light brown/grey, gravelly silty sand, trace clay, moist, dense	2	SS	60	43			Pipe; Bentonite Plug	No water level detected when measured on May 4, 2022
207 / 2		SAND AND SILT: Grey, sand and silt, some clay, some gravel, moist, compact	3	SS	100	15				SS3 GSA: 10% gravel 42% sand 35% silt 13%clay
206 / 3		SAND AND SILT: Grey, gravelly sand and silt, some clay, moist, dense	4	SS	100	46			Sand Pack; PVC Screen	Borehole open and dry upon completion
			5	SS	100	50/100			Cap	
205 / 4		Borehole terminated at 3.2 mbgs on presumed bedrock								
204 / 5										
203 / 6										

Logged By: J. Riseling **Input By:** J. Riseling

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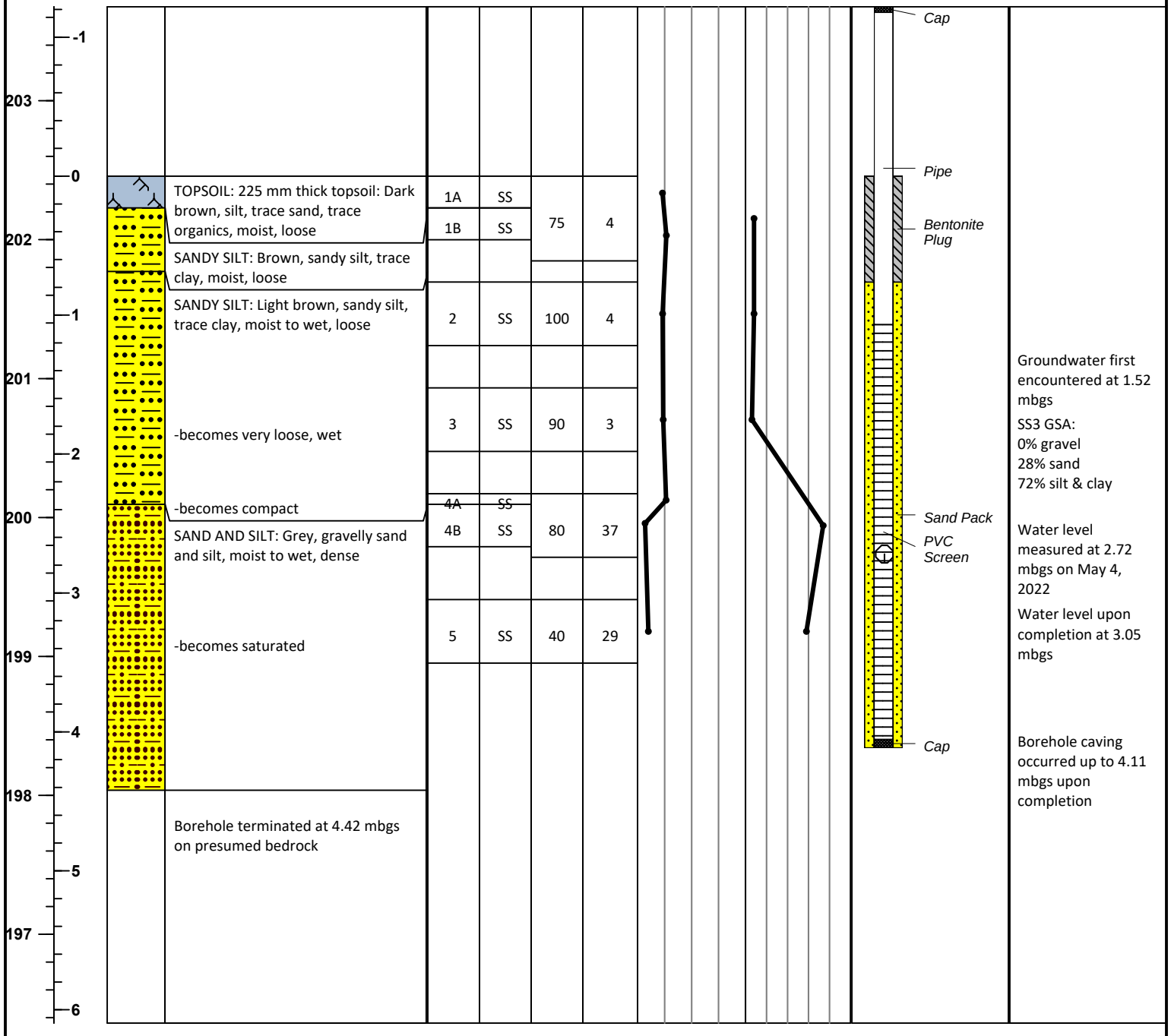
Log of Borehole: BH105-22

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-003
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	April 21, 2022
Location:	42 Mill Street, Norwood	**UTM:**	18T 263261.4148 E, 4919290.377 N	**Elevation:**	202.457 masl

Elevation (m) / Depth	Description	Number	Type	% Recovery	SPT (N) / DCPT
202 / 0	TOPSOIL: 225 mm thick topsoil: Dark brown, silt, trace sand, trace organics, moist, loose	1A	SS	75	4
		1B	SS		
	SANDY SILT: Brown, sandy silt, trace clay, moist, loose				
201 / 1	SANDY SILT: Light brown, sandy silt, trace clay, moist to wet, loose	2	SS	100	4
	-becomes very loose, wet	3	SS	90	3
200 / 2	-becomes compact	4A	SS	80	37
	SAND AND SILT: Grey, gravelly sand and silt, moist to wet, dense	4B	SS		
199 / 3	-becomes saturated	5	SS	40	29
198 / 4	Borehole terminated at 4.42 mbgs on presumed bedrock				



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Log of Borehole: BH106-22

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-003
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	April 21, 2022
Location:	42 Mill Street, Norwood	**UTM:**	18T 263380.2677 E, 4919466.901 N	**Elevation:**	208.343 masl

Elevation (m) / Depth	Description	Number	Type	% Recovery	SPT (N) / DCPT	Well Installation	Remarks
209 / -1							
208 / 0	TOPSOIL: 300mm thick topsoil: Dark brown, silt, trace sand, trace organics, moist, loose	1A	SS	75	4		
		1B	SS				
	SANDY SILT: Brown, sandy silt, trace clay, moist, loose						
207 / 1		2A	SS	80	16		
	SAND AND SILT: Light brown, gravelly sand and silt, moist, compact	2B	SS				
	-becomes dense	3	SS	80	41		
206 / 2							
	-becomes dry to moist, very dense	4	SS	60	54		
205 / 3							
		5	SS	50	50/425		Borehole open and dry upon completion
204 / 4							
		6	SS	100	50/50		
203 / 5	Borehole terminated at 4.57 mbgs on presumed bedrock						
6							

% Moisture: 25 50 75

SPT (N) / DCPT: 10 20 30 40

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Log of Borehole: BH107-22

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-003
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	April 21, 2022
Location:	42 Mill Street, Norwood	**UTM:**	18T 263454.8087 E, 4919307.502 N	**Elevation:**	204.314 masl

Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
205 / -1										
204 / 0		TOPSOIL: 300mm thick topsoil: Dark brown, silt, trace sand, trace organics, moist, very loose	1A	SS	85	3				
			1B	SS						
		SANDY SILT: Brown, sandy silt, trace clay, moist, very loose								
203 / -1		SILT: Light brown, silt, some sand, some clay, moist to wet, loose	2A	SS	100	8				
			2B	SS						
		SANDY SILT: Light brown, sandy silt, trace clay, moist to wet, compact	3	SS	100	18				SS3 GSA: 0% gravel 28% sand 72% silt & clay
202 / -2			4	SS	100	21				Borehole open upon completion
201 / -3		-sand becomes coarser	5	SS	100	17				
200 / -4		-trace gravel, wet, very dense	6	SS	100	50/75				Groundwater first encountered at 4.42 mbgs
		Borehole terminated at 4.42 mbgs on presumed bedrock								Water level upon completion at 4.42 mbgs
199 / -5										
-6										

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Log of Borehole: BH108-22

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-003
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	April 21, 2022
Location:	42 Mill Street, Norwood	**UTM:**	18T 263506.3392 E, 4919437.261 N	**Elevation:**	210.409 masl

Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
211 / -1										
210 / 0		TOPSOIL: 300mm thick topsoil: Dark brown, silt, trace sand, trace organics, moist, very loose	1A	SS	75	3				
			1B	SS						
		SANDY SILT: Brown, sandy silt, trace clay, moist, very loose								
209 / 1		SAND AND SILT: Light brown, gravelly sand and silt, trace clay, moist, compact	2	SS	80	20				
		-becomes wet	3	SS	80	13				Groundwater first encountered at 1.52 mbgs
208 / 2										
			4	SS	60	14				Water level upon completion at 2.13 mbgs
207 / 3		-becomes saturated	5	SS	50	13				
206 / 4										Borehole open upon completion
		-becomes very dense	6	SS	100	50/100				
205 / 5		Borehole terminated at 4.67 mbgs on presumed bedrock								
205 / 6										

Logged By: J. Riseling **Input By:** J. Riseling

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Log of Borehole: BH109-22

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-003
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	April 21, 2022
Location:	42 Mill Street, Norwood	**UTM:**	18T 263498.4301 E, 4919578.083 N	**Elevation:**	209.636 masl

Elevation (m)	Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	Well Installation	Remarks
210	-1								
209	0		TOPSOIL: 150mm thick topsoil: Dark brown, silt, trace sand, trace organics, moist, very loose	1A	SS	75	3		
				1B	SS				
			SILTY SAND: Brown, silty sand, trace clay, moist, very loose	2A	SS	60	1		
208	1		SILT AND SAND: Brown, silt and sand, trace clay, moist to wet, very loose	2B	SS				
			SAND AND SILT: Light brown, gravelly sand and silt, moist, compact	3	SS	100	27		SS3 GSA: 21% gravel 40% sand 39% silt & clay
207	2			4	SS	70	51		
			-becomes very dense	5	SS	100	60		
206	3								
205	4			6	SS	100	50/ 275		Borehole open and dry upon completion
204	5		Borehole terminated at 4.88 mbgs on presumed bedrock						
	6								

% Moisture: 25 50 75
SPT (N) / DCPT: 10 20 30 40

Logged By: J. Riseling **Input By:** J. Riseling

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Log of Borehole: BH110-22

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-003
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	April 21, 2022
Location:	42 Mill Street, Norwood	**UTM:**	18T 263594.2056 E, 4919677.787 N	**Elevation:**	209.735 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
210 / 0		TOPSOIL: 200mm thick topsoil: Dark brown, silt, trace sand, trace organics, moist, loose	1A	SS	65	4				
			1B	SS						
209 / 1		SANDY SILT: Brown, sandy silt, trace clay, moist, loose								
		SILTY SAND: Brown, silty sand, trace clay, moist, loose	2A	SS	100	5				
		SILT: Brown, silt, some sand, some clay, moist to wet, loose	2B	SS						
208 / 2			3A	SS	85	13				
		SILTY SAND: Light brown, silty sand, trace clay, trace gravel, moist to wet, compact	3B	SS						
		GRAVELLY SAND: Light brown, gravelly silty sand, trace clay, moist to wet, dense	4	SS	60	36				
207 / 3										
			5	SS	100	48				Borehole open and dry upon completion
206 / 4		Borehole terminated at 3.96 mbgs on presumed bedrock								
205 / 5										
204 / 6										

Logged By: J. Riseling **Input By:** J. Riseling

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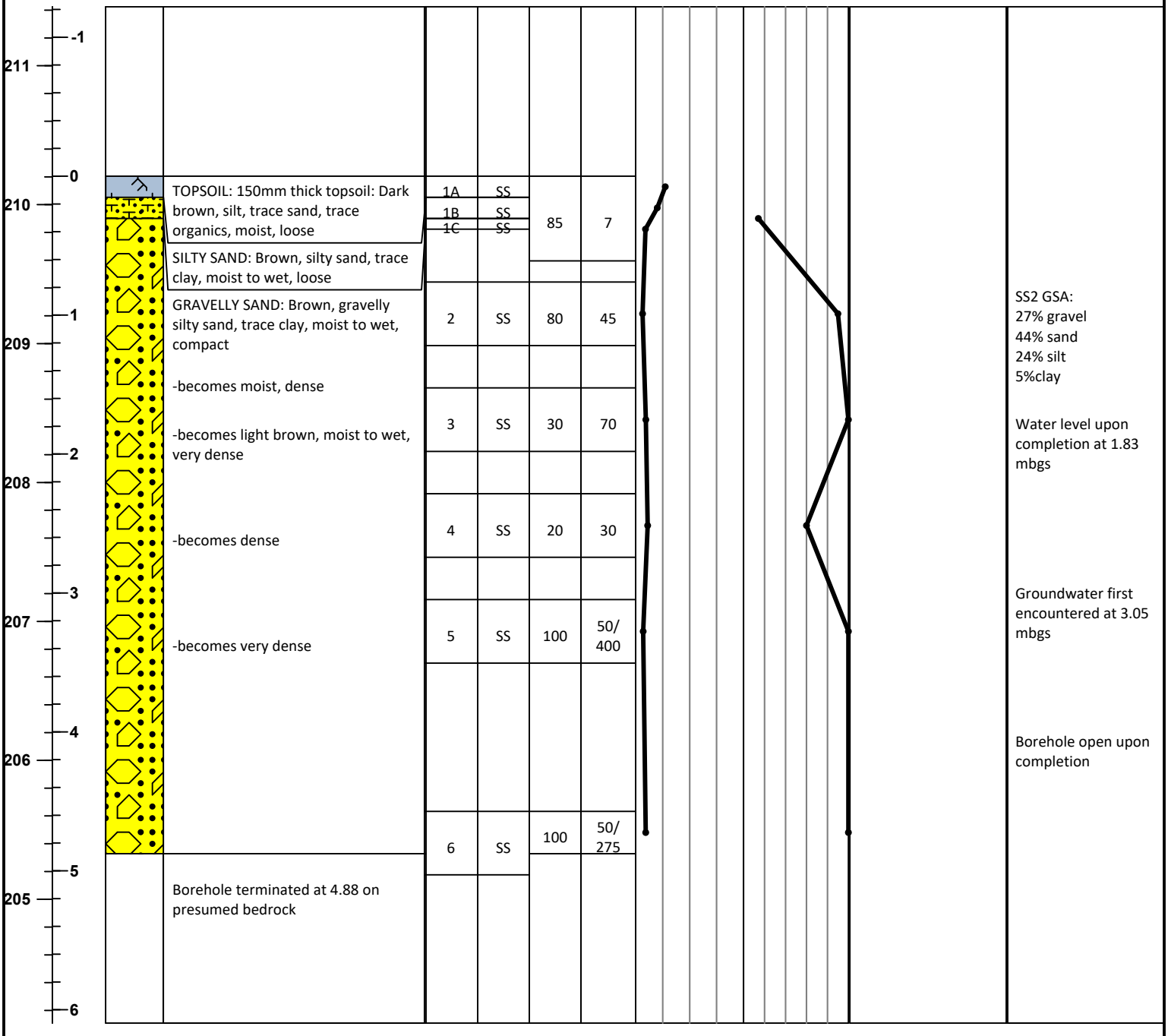
Log of Borehole: BH111-22

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-003
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	April 21, 2022
Location:	42 Mill Street, Norwood	**UTM:**	18T263661.3887 E, 4919579.516 N	**Elevation:**	210.205 masl

Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	Well Installation	Remarks
211 / -1								
210 / 0		TOPSOIL: 150mm thick topsoil: Dark brown, silt, trace sand, trace organics, moist, loose	1A 1B 1C	SS SS SS	85	7		
		SILTY SAND: Brown, silty sand, trace clay, moist to wet, loose						
209 / 1		GRAVELLY SAND: Brown, gravelly silty sand, trace clay, moist to wet, compact	2	SS	80	45		SS2 GSA: 27% gravel 44% sand 24% silt 5%clay
		-becomes moist, dense						
208 / 2		-becomes light brown, moist to wet, very dense	3	SS	30	70		Water level upon completion at 1.83 mbgs
		-becomes dense	4	SS	20	30		
207 / 3		-becomes very dense	5	SS	100	50/ 400		Groundwater first encountered at 3.05 mbgs
206 / 4			6	SS	100	50/ 275		Borehole open upon completion
205 / 5		Borehole terminated at 4.88 on presumed bedrock						
/ 6								



Logged By: J. Riseling **Input By:** J. Riseling

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Log of Borehole: BH112-22

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-003
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	April 21, 2022
Location:	42 Mill Street, Norwood	**UTM:**	18T 263763.0134 E, 4919801.271 N	**Elevation:**	209.28 masl

Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
210 / 0		TOPSOIL: 200mm thick topsoil: Dark brown, silt, trace sand, trace organics, moist, very loose	1A	SS	85	3			Cap	Groundwater first encountered at 0.76 mbgs
			1B	SS						
209 / 1		SANDY SILT: Brown, sandy silt, trace clay, moist, very loose							Pipe	
		SILTY SAND: Brown, silty sand, wet, loose	2	SS	100	4			Bentonite Plug	Water level upon completion at 0.76 mbgs
208 / 2		SILT: Brown, silt, some sand, some clay, wet, loose	3A	SS	50	5				Water level measured at 1.24 mbgs on May 4, 2022
		SILTY SAND: Brown, silty sand, trace clay, wet, loose	3B	SS					Sand Pack	
207 / 3		GRAVELLY SAND: Brown, gravelly silty sand, trace clay, saturated, very dense	4	SS	40	50/ 375			PVC Screen	
		Borehole terminated at 2.67 mbgs on presumed bedrock							Cap	Borehole caving occurred up to 2.59 mbgs upon completion
206 / 4										
205 / 5										
204 / 6										

Logged By: J. Riseling **Input By:** J. Riseling

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Log of Borehole: BH113-22

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-003
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	April 20, 2022
Location:	42 Mill Street, Norwood	**UTM:**	18T 263859.3257 E, 4919563.455 N	**Elevation:**	211.703 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
212 / 0		TOPSOIL: 300mm thick topsoil: Dark brown, silt, trace sand, trace organics, moist, very loose	1A	SS	80	3				
			1B	SS						
211 / 1		SANDY SILT: Brown, sandy silt, trace clay, moist, very loose								
		GRAVELLY SAND: Grey, gravelly silty sand, dry to moist, dense	2	SS	50	38				
210 / 2		-becomes very dense	3	SS	70	50/ 400				Borehole open and dry upon completion
		Borehole terminated at 1.98 mbgs on presumed bedrock								
209 / 3										
208 / 4										
207 / 5										
206 / 6										

Logged By: J. Riseling **Input By:** J. Riseling

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Log of Borehole: BH114-22

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-003
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	April 20, 2022
Location:	42 Mill Street, Norwood	**UTM:**	18T 263757.541 E, 4919417.733 N	**Elevation:**	213.015 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
214 / -1										
213 / 0		TOPSOIL: 100mm thick topsoil: Dark brown, silt, trace sand, trace organics, moist, loose	1A 1B	SS SS	50	16				
		GRAVELLY SAND: Brown/grey, gravelly silty sand, dry to moist, compact								
212 / -1		-becomes very dense	2	SS	60	50/ 275				
			3	SS	85	58				
211 / -2			4	SS	100	50/ 100				
210 / -3			5	SS	80	50/ 250				Borehole open and dry upon completion
		Borehole terminated at 3.5 mbgs on presumed bedrock								
209 / -4										
208 / -5										
207 / -6										

Logged By: J. Riseling **Input By:** J. Riseling

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Log of Borehole: BH115-22

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-003
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	April 20, 2022
Location:	42 Mill Street, Norwood	**UTM:**	18T 263931.2517 E, 4919417.57 N	**Elevation:**	210.833 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
212 / -1										
211 / 0		TOPSOIL: 200mm thick topsoil: Dark brown, silt, trace sand, trace organics, moist, loose	1A	SS					Cap	
			1B	SS	65	4				
		SANDY SILT: Brown, sandy silt, trace clay, trace organics, moist, loose							Pipe	
210 / 1		GRAVELLY SAND: Brown, gravelly silty sand, moist, dense	2	SS	50	42			Bentonite Plug	
209 / 2			3	SS	80	32			Sand Pack	
		-becomes very dense	4	SS	60	50/ 300			PVC Screen	
208 / 3		Borehole terminated at 2.59 mbgs on presumed bedrock							Cap	
207 / 4										
206 / 5										
205 / 6										

Groundwater first encountered at 1.52 mbgs

SS3 GSA:
34% gravel
46% sand
20% silt & clay

Water level upon completion at 1.68 mbgs

Water level measured at 2.02 mbgs on May 4, 2022

Borehole open upon completion

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Log of Borehole: BH116-22

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-003
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	April 20, 2022
Location:	42 Mill Street, Norwood	**UTM:**	18T 263788.3967 E, 4919215.355 N	**Elevation:**	210.406 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
211 / -1										
210 / 0		TOPSOIL: 150mm thick topsoil: Dark brown, silt, trace sand, trace organics, moist, loose	1A 1B	SS SS	60	7				
		SILTY SAND: Brown, silty sand, trace gravel, trace clay, moist, loose -becomes compact	2A 2B	SS SS	67	10				
209 / -1		GRAVELLY SAND: Brown, gravelly sand, some silt, trace clay, moist, dense	3	SS	100	42				
208 / -2		GRAVEL: Grey, gravel, some sand, some silt, dry, very dense	4A 4B	SS SS	50	50/ 275				Borehole open and dry upon completion
		Borehole terminated at 2.59 mbgs on presumed bedrock								
207 / -3										
206 / -4										
205 / -5										
-6										

Logged By: J. Riseling **Input By:** J. Riseling

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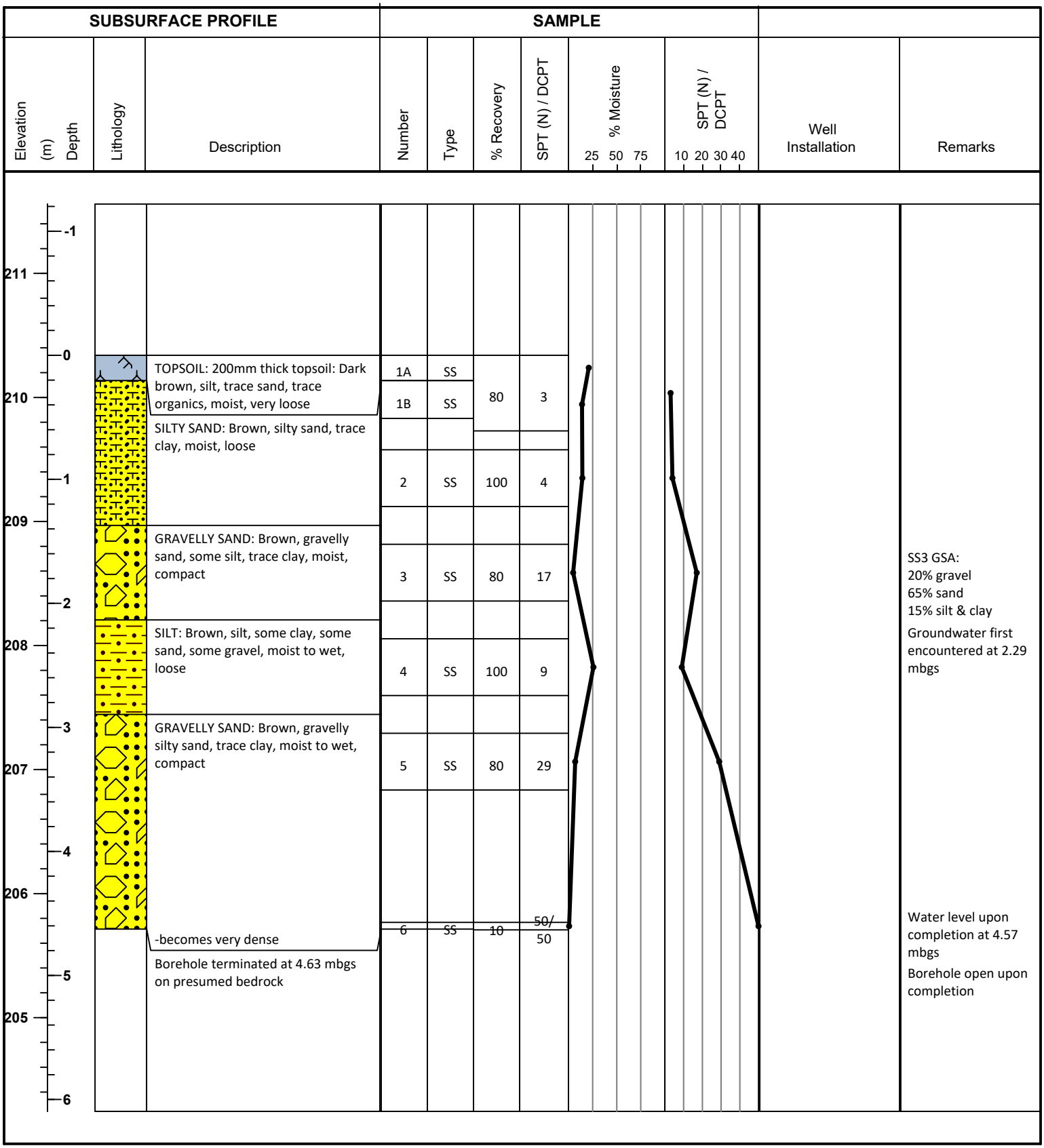
Log of Borehole: BH117-22

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-003
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	April 20, 2022
Location:	42 Mill Street, Norwood	**UTM:**	18T 263640.3596 E, 4919276.71 N	**Elevation:**	210.34 masl



Logged By: J. Riseling **Input By:** J. Riseling

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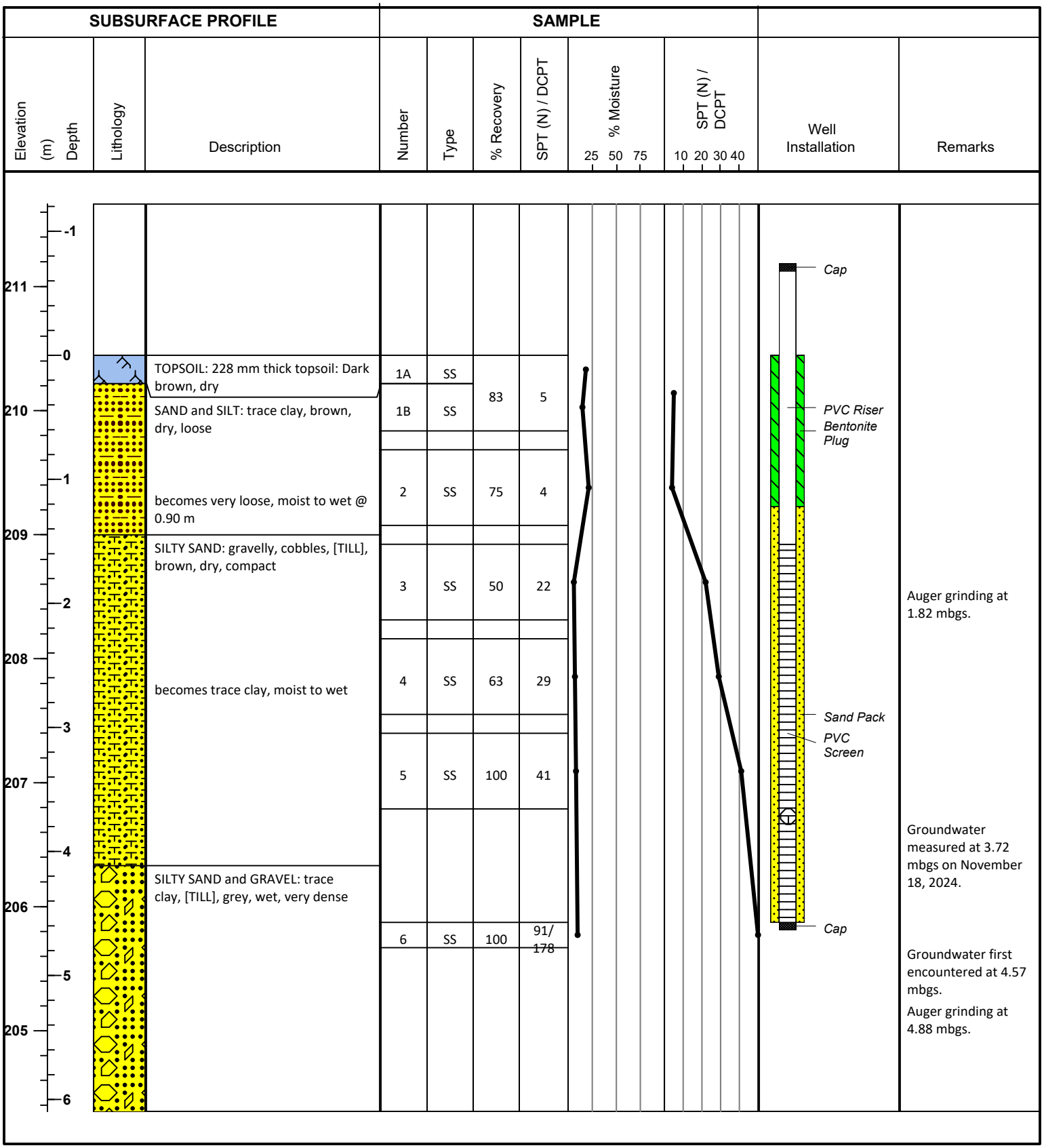
Log of Borehole: BH201-24

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-007
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	November 8, 2024
Location:	42 and 2 Mill Street, Norwood	**UTM:**	18T 263612.29 E, 4919504.45 N	**Elevation:**	210.50 mASL



Logged By: T. Paget **Input By:** T. Paget

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Log of Borehole: BH201-24

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-007
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	November 8, 2024
Location:	42 and 2 Mill Street, Norwood	**UTM:**	18T 263612.29 E, 4919504.45 N	**Elevation:**	210.50 mASL

SUBSURFACE PROFILE			SAMPLE								
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
204										Auger grinding at 6.40 mbgs.
7		Borehole terminated at 7.09 mbgs on presumed bedrock								
203										

Logged By: T. Paget **Input By:** T. Paget

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Log of Borehole: BH202-24

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-007
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	November 8, 2024
Location:	42 and 2 Mill Street, Norwood	**UTM:**	18T 263488.05 E, 4919401.91 N	**Elevation:**	209.76 mASL

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
210 / 0		TOPSOIL: 228 mm thick topsoil: Dark brown, dry	1A	SS					Cap	
		SAND: some silt, light brown, dry, loose	1B	SS	63	5			PVC Riser Bentonite Plug	
209 / 1		becomes very loose	2	SS	42	2				
208 / 2		becomes loose	3	SS	63	6				
		SILTY SAND: some gravel, cobbles, brown, moist to wet, loose	4	SS	50	9				Auger grinding at 2.44 mbgs.
207 / 3		GRAVELLY SILT and SAND: cobbles, brown, [TILL], moist, very dense	5	SS	100	76/ 280			Sand Pack PVC Screen	Groundwater measured at 2.94 mbgs on November 18, 2024.
206 / 4		SAND and SILT: some gravel, trace clay, cobbles, grey, dry, very dense	6	SS	100	98/ 228				Auger grinding at 3.96 mbgs.
205 / 5		Borehole terminated at 4.95 mbgs on presumed bedrock							Cap	
204 / 6										

Logged By: T. Paget **Input By:** T. Paget

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Log of Borehole: BH203-24

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-007
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	November 8, 2024
Location:	42 and 2 Mill Street, Norwood	**UTM:**	18T 263526.2 E, 4919282.54 N	**Elevation:**	205.34 mASL

Elevation (m)	Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
206	-1										
205	0		TOPSOIL: 150 mm thick topsoil: Dark brown, dry	1A	SS	67	4			Cap	
			SILTY SAND: brown, moist, loose	1B	SS					PVC Riser	Well was dry on November 18, 2024
204	1		SAND: trace silt, light brown, dry, loose	2A	SS	63	5			Bentonite Plug	
				2B	SS						
203	2		GRAVELLY SAND: trace silt, light brown, dry, dense	3	SS	71	35				
				4	SS	67	33				
202	3		SAND: trace gravel, trace silt, cobbles, light brown, dry, compact	5	SS	75	29			Sand Pack	
										PVC Screen	
201	4		GRAVELLY SILT and SAND: trace clay, [TILL], brown, moist, dense								Auger grinding at 3.66 mbgs.
				6	SS	63	47			Cap	
200	5		Borehole terminated at 5.56 mbgs on presumed bedrock								Auger grinding at 4.88 mbgs. Borehole open and dry on completion.

Logged By: T. Paget **Input By:** T. Paget

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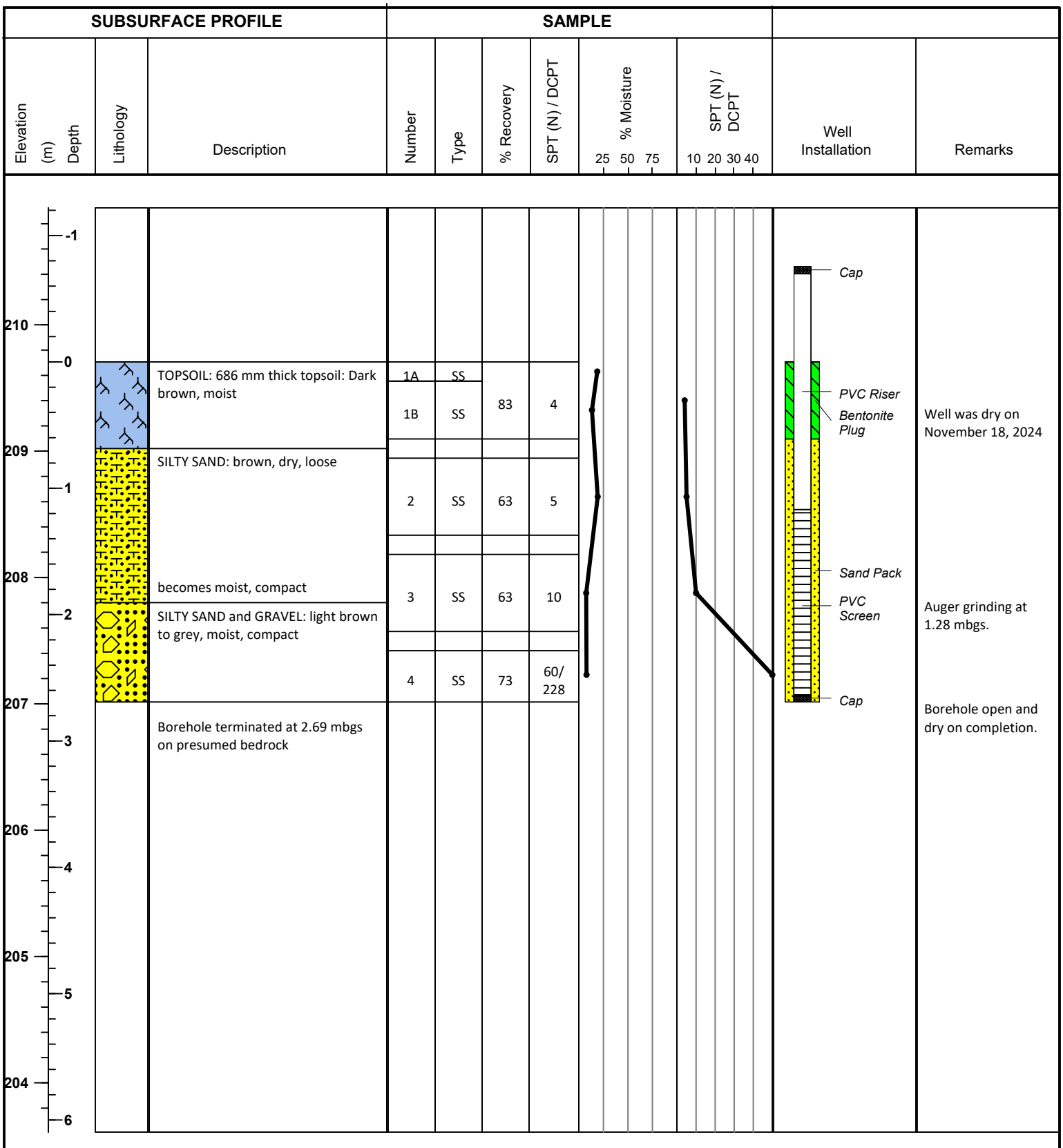
Log of Borehole: BH204-24

Client:	CAP Norwood Dev	**Project Name:**	42 & 52 Mill Street, Norwood	**Project No.:**	14288-007
Contractor:	Canadian Environmental	**Method:**	Solid Stem Auger	**Date Completed:**	November 8, 2024
Location:	42 and 2 Mill Street, Norwood	**UTM:**	18T 263696.36 E, 4917808.56 N	**Elevation:**	208.96 mASL



Logged By: T. Paget **Input By:** T. Paget

TABLE 1: TEST PIT LOGS
42 & 52 Mill Street, Norwood
Technician: Josh Riseling
Cambium Reference No. 14288-003
Completed: April 26 & 27, 2022

Test Pit ID	Depth (mbgs[1])	Soil Sample	% Moisture	Material Description	Depth (m)	DPT[2] (Blows/150 mm)
					0.15	2
	0-0.15	GS1		150 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	4
TP118-22	0.15-0.75	GS2		Brown, SILTY SAND, trace clay, moist	0.45	6
	0.75-1.5	GS3		Light brown, GRAVELLY SILTY SAND, trace clay	0.6	8
18T 263459.2299 E	1.5-2.4	GS4		Same as above	0.75	6
4919096.046 N	2.4-3.0	GS5		Same as above	0.9	10
					1.05	17
206.812 masl					1.2	22
				Test pit terminated at 3.0 mbgs in gravelly silty sand	1.35	4
				No groundwater or caving observed upon completion	1.5	12
					1.65	50
					0.15	2
	0-0.3	GS1		300 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	5
TP119-22	0.3-1.2	GS2		Light brown, SILTY SAND, trace clay, moist	0.45	7
	1.2-2.1	GS3		Light brown, GRAVELLY SILTY SAND, moist	0.6	6
18T 263307.8794 E	2.1-3.0	GS4		Same as above	0.75	6
4919249.476 N	3.3			Bedrock	0.9	8
					1.05	9
203.588 masl					1.2	13
				Test pit terminated at 3.3 mbgs on bedrock	1.35	4
				No groundwater or caving observed upon completion	1.5	16
					1.65	22
					1.8	28
					1.95	27
					2.1	35
					2.25	50
					0.15	1
	0-0.15	GS1		150 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	3
TP120-22	0.15-0.9	GS2		Brown, SILTY SAND, trace clay, moist	0.45	6
	0.9-1.5	GS3		Brown, SILTY SAND, some clay, moist to wet	0.6	7
18T 263381.7756 E	1.5-2.1	GS4		Light brown, SILTY SAND, some gravel, trace clay, moist	0.75	8
4919293.79 E	2.1-3.0	GS5		Light brown, GRAVELLY SILTY SAND, trace clay, moist	0.9	9
					1.05	10
203.488 masl					1.2	8
				Test pit terminated at 3.0 mbgs in gravelly silty sand	1.35	2
				No groundwater or caving observed upon completion	1.5	4
					1.65	11
					1.8	11
					1.95	10
					2.1	28
					2.25	39
					2.4	48

1. mbgs = metres below ground surface
2. Dynamic probe penetration test, consisting of driving a 19 mm diameter steel rod 150 mm into the soil with an 8 kg hammer falling 750 mm.

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Cambium Reference No. 14288-003
Completed: April 26 & 27, 2022

Test Pit ID	Depth (mbgs[1])	Soil Sample	% Moisture	Material Description	Depth (m)	DPT[2] (Blows/150 mm)
					0.15	1
	0-0.15	GS1		150 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	3
TP121-22	0.15-0.75	GS2		Brown, SILTY SAND, trace clay, moist	0.45	6
	0.75-1.5	GS3		Brown, SILTY SAND, some clay, moist to wet	0.6	8
18T 263323.0037 E	1.5-2.4	GS4		Light brown/grey, SILTY SAND, some clay, moist	0.75	9
4919401.899 N	2.4-3.0	GS5		Same as above, trace gravel	0.9	10
					1.05	13
203.75 masl					1.2	15
				Test pit terminated at 3.6 mbgs in silty sand	1.35	1
				Groundwater seepage observed at 3.3 mbgs	1.5	3
				Water level observed at 3.6 mbgs upon completion	1.65	4
				Sidewall caving observed at 3.3 mbgs	1.8	5
					1.95	9
					2.1	17
					2.25	30
					2.4	38
					0.15	2
	0-0.2	GS1		200 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	5
TP122-22	0.2-1.2	GS2		Light brown, SILTY SAND, trace clay, moist	0.45	5
	1.2-2.25	GS3		Same as above	0.6	7
18T 263435.1018 E	2.25-3.0	GS4		Light brown, GRAVELLY SILTY SAND, moist	0.75	8
4919413.538 N					0.9	6
					1.05	5
208.78 masl				Test pit terminated at 3.0 mbgs in gravelly silty sand	1.2	5
				No groundwater observed upon completion	1.35	1
				Sidewall caving observed at 0.9 mbgs	1.5	1
					1.65	1
					1.8	1
					1.95	1
					2.1	1
					2.25	1
					2.4	21

1. mbgs = metres below ground surface
2. Dynamic probe penetration test, consisting of driving a 19 mm diameter steel rod 150 mm into the soil with an 8 kg hammer falling 750 mm.

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42 & 52 Mill Street, Norwood
Technician: Josh Riseling
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Completed: April 26 & 27, 2022

Test Pit ID	Depth (mbgs[1])	Soil Sample	% Moisture	Material Description	Depth (m)	DPT[2] (Blows/150 mm)
					0.15	2
	0-0.2	GS1		200 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	5
TP123-22	0.2-0.6	GS2		Brown, SAND, some silt, some gravel, moist	0.45	8
	0.6-1.5	GS3		Light brown, SAND, some silt, trace gravel, moist	0.6	8
18T 263570.6278 E	1.5-2.4	GS4		Brown, GRAVELLY SAND, some silt, moist	0.75	7
4919349.463 N	2.4-3.0	GS5		Same as above	0.9	5
					1.05	12
209.674 masl					1.2	22
				Test pit terminated at 3.0 mbgs in gravelly sand	1.35	3
				No groundwater or caving observed upon completion	1.5	9
					1.65	11
					1.8	13
					1.95	13
					2.1	17
					2.25	39
					2.4	50
					0.15	3
	0-0.3	GS1		300 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	9
TP124-22	0.3-1.2	GS2		Light brown, GRAVELLY SILTY SAND, trace clay, moist	0.45	39
	1.2-2.1	GS3		Same as above	0.6	50
18T 263487.625 E	2.1-3.0	GS4		Same as above	0.75	
4919227.613 N					0.9	
					1.05	
205.446 masl				Test pit terminated at 3.0 mbgs in gravelly silty sand	1.2	
				No groundwater or caving observed upon completion	1.35	4
					1.5	20
					1.65	50
					0.15	1
	0-0.3	GS1		300 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	2
TP125-22	0.3-1.2	GS2		Light brown, GRAVELLY SILTY SAND, trace clay, moist	0.45	2
	1.2-2.1	GS3		Same as above	0.6	4
18T 263587.5195 E	2.1-3.0	GS4		Same as above	0.75	11
4919198.145 N					0.9	50
					1.05	
208.502 masl				Test pit terminated at 3.0 mbgs in gravelly silty sand	1.2	
				No groundwater or caving observed upon completion	1.35	9
					1.5	42
					1.65	50

1. mbgs = metres below ground surface
2. Dynamic probe penetration test, consisting of driving a 19 mm diameter steel rod 150 mm into the soil with an 8 kg hammer falling 750 mm.

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42 & 52 Mill Street, Norwood
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Cambium Reference No. 14288-003
Completed: April 26 & 27, 2022

Test Pit ID	Depth (mbgs[1])	Soil Sample	% Moisture	Material Description	Depth (m)	DPT[2] (Blows/150 mm)
					0.15	1
	0-0.15	GS1		150 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	2
TP126-22	0.15-0.9	GS2		Brown, SILTY SAND, trace clay, trace organics, moist	0.45	2
	0.9-1.5	GS3		Light brown, SAND, some silt, trace clay, moist	0.6	2
18T 263673.8582 E	1.5-2.4	GS4		Light brown, GRAVELLY SILTY SAND, moist	0.75	3
4919184.81 N	2.4-3.0	GS5		Same as above	0.9	4
					1.05	3
211.056 masl					1.2	4
				Test pit terminated at 3.0 mbgs in gravelly silty sand	1.35	3
				No groundwater or caving observed upon completion	1.5	11
					1.65	29
					1.8	50
					0.15	2
	0-0.15	GS1		150 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	4
TP127-22	0.15-0.75	GS2		Brown, SILTY SAND, trace clay, trace organics, moist	0.45	6
	0.75-1.65	GS3		Light brown, SAND, some silt, trace clay, moist	0.6	6
18T 263736.9108 E	1.65-2.55	GS4		Light brown, GRAVELLY SILTY SAND, moist	0.75	6
4919266.591 N					0.9	7
					1.05	5
208.81 masl				Test pit terminated at 2.55 mbgs on bedrock	1.2	5
				No groundwater or caving observed upon completion	1.35	8
					1.5	50
					0.15	2
	0-0.2	GS1		200 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	4
TP128-22	0.2-0.9	GS2		Brown, SANDY SILT, trace clay, moist	0.45	5
	0.9-1.5	GS3		Brown, SILTY SAND, trace clay, moist to wet	0.6	6
18T 263669.5935 E	1.5-2.4	GS4		Light brown, GRAVELLY SILTY SAND, moist to wet	0.75	9
4919343.14 N	2.4-3.0	GS5		Same as above	0.9	10
					1.05	12
208.276 masl					1.2	11
				Test pit terminated at 3.0 mbgs in gravelly silty sand	1.35	2
				Groundwater seepage observed at 2.4 mbgs	1.5	4
				Water level observed at 2.55 mbgs upon completion	1.65	5
				Sidewall caving observed at 0.9 mbgs	1.8	12
					1.95	17
					2.1	7
					2.25	15
					2.4	50

1. mbgs = metres below ground surface
2. Dynamic probe penetration test, consisting of driving a 19 mm diameter steel rod 150 mm into the soil with an 8 kg hammer falling 750 mm.

TABLE 1: TEST PIT LOGS
42 & 52 Mill Street, Norwood
Technician: Josh Riseling
Cambium Reference No. 14288-003
Completed: April 26 & 27, 2022

Test Pit ID	Depth (mbgs[1])	Soil Sample	% Moisture	Material Description	Depth (m)	DPT[2] (Blows/150 mm)
					0.15	2
	0-0.3	GS1		300 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	7
TP129-22	0.3-0.9	GS2		Brown, SILTY SAND, trace clay, moist	0.45	8
	0.9-1.5	GS3		Brown, SILT AND SAND, trace clay, moist	0.6	12
18T 263689.7605 E	1.5-2.4	GS4		Light brown, GRAVELLY SILTY SAND, moist to wet	0.75	18
4919465.412 N	2.4-3.0	GS5		Same as above, wet	0.9	14
					1.05	13
210.846 masl					1.2	14
				Test pit terminated at 3.0 mbgs in gravelly silty sand	1.35	5
				Groundwater seepage observed at 2.4 mbgs	1.5	15
				Water level observed at 2.85 mbgs upon completion	1.65	44
				No caving observed upon completion	1.8	50
					0.15	1
	0-0.2	GS1		200 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	4
TP130-22	0.2-0.9	GS2		Brown, SILTY SAND, trace clay, moist to wet	0.45	7
	0.9-1.8	GS3		Brown, SILTY SAND, some gravel, trace clay, moist to wet	0.6	9
18T 263592.0739 E	1.8-2.4	GS4		Light brown, GRAVELLY SILTY SAND, trace clay, moist to wet	0.75	10
4919499.753 N	2.4-3.0	GS5		Same as above	0.9	12
					1.05	16
210.096 masl					1.2	22
				Test pit terminated at 3.0 mbgs in gravelly silty sand	1.35	4
				Groundwater seepage observed at 1.8 mbgs	1.5	4
				Water level observed at 3.0 mbgs upon completion	1.65	3
				No caving observed upon completion	1.8	4
					1.95	13
					2.1	33
					2.25	50
					0.15	1
	0-0.2	GS1		200 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	3
TP131-22	0.2-1.2	GS2		Light brown, GRAVELLY SAND, some silt, trace clay, moist to wet	0.45	5
	1.2-2.1	GS3		Same as above	0.6	7
18T 263566.1644 E	2.1-3.0	GS4		Same as above	0.75	9
4919572.217 N					0.9	12
					1.05	50
209.662 masl				Test pit terminated at 3.0 mbgs in gravelly sand	1.2	
				No groundwater or caving observed upon completion	1.35	4
					1.5	50

1. mbgs = metres below ground surface
2. Dynamic probe penetration test, consisting of driving a 19 mm diameter steel rod 150 mm into the soil with an 8 kg hammer falling 750 mm.

TABLE 1: TEST PIT LOGS
42 & 52 Mill Street, Norwood
Technician: Josh Riseling
Cambium Reference No. 14288-003
Completed: April 26 & 27, 2022

Test Pit ID	Depth (mbgs[1])	Soil Sample	% Moisture	Material Description	Depth (m)	DPT[2] (Blows/150 mm)
					0.15	1
	0-0.15	GS1		150 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	3
TP132-22	0.15-0.6	GS2		Brown, SILTY SAND, trace clay, moist	0.45	5
	0.6-1.5	GS3		Brown, SILT AND SAND, trace clay, moist	0.6	6
18T 263707.1165 E	1.5-2.4	GS4		Light brown, GRAVELLY SILTY SAND, moist to wet	0.75	9
4919695.665 N	2.4-3.0	GS5		Same as above, wet	0.9	12
					1.05	12
209.94 masl					1.2	11
				Test pit terminated at 3.0 mbgs in gravelly silty sand	1.35	2
				Groundwater seepage observed at 2.4 mbgs	1.5	5
				Water level observed at 2.85 mbgs upon completion	1.65	7
				No caving observed upon completion	1.8	10
					1.95	18
					2.1	39
					2.25	50
					0.15	2
	0-0.3	GS1		300 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	5
TP133-22	0.3-0.9	GS2		Brown, SILTY SAND, trace clay, moist	0.45	5
	0.9-1.2	GS3		Light brown, GRAVELLY SILTY SAND, wet, trace clay	0.6	10
18T 263811.4872 E	1.2-2.4	GS4		Same as above, moist	0.75	8
4919691.934 N	2.4-3.0	GS5		Same as above	0.9	14
					1.05	10
210.921 masl					1.2	20
				Test pit terminated at 3.0 mbgs in gravelly silty sand	1.35	1
				Groundwater at 1.05 mbgs	1.5	3
				No water level or caving observed upon completion	1.65	8
					1.8	20
					1.95	36
					2.1	50
					0.15	2
	0-0.2	GS1		200 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	4
TP134-22	0.2-1.2	GS2		Light brown, SILTY SAND, trace clay, moist	0.45	6
	1.2-1.8	GS3		Light brown, GRAVELLY SILTY SAND, moist	0.6	8
18T 263754.5517 E	1.8-2.25	GS4		Same as above	0.75	22
4919601.034 E					0.9	50
					1.05	
213.61 masl				Test pit terminated at 2.25 mbgs on bedrock	1.2	8
				No groundwater or caving observed upon completion	1.35	50

1. mbgs = metres below ground surface
2. Dynamic probe penetration test, consisting of driving a 19 mm diameter steel rod 150 mm into the soil with an 8 kg hammer falling 750 mm.

TABLE 1: TEST PIT LOGS
42 & 52 Mill Street, Norwood
Technician: Josh Riseling
Cambium Reference No. 14288-003
Completed: April 26 & 27, 2022

Test Pit ID	Depth (mbgs[1])	Soil Sample	% Moisture	Material Description	Depth (m)	DPT[2] (Blows/150 mm)
					0.15	2
	0-0.2	GS1		200 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	10
TP135-22	0.2-0.6	GS2		Brown, SILTY SAND, trace clay, moist	0.45	8
	0.6-1.2	GS3		Light brown, GRAVELLY SILTY SAND, moist	0.6	6
18T 263781.1848 E	1.2-1.95	GS4		Same as above	0.75	5
4919504.206 N					0.9	50
					1.05	
211.982 masl				Test pit terminated at 1.95 mbgs on bedrock	1.2	7
				No groundwater or caving observed upon completion	1.35	17
					1.5	50
					1.65	
					1.8	
					1.95	
					2.1	
					2.25	
					0.15	1
	0-0.3	GS1		300 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	5
TP136-22	0.3-0.6	GS2		Brown, SILTY SAND, trace clay, moist	0.45	6
	0.6-1.5	GS3		Brown, GRAVELLY SILTY SAND, moist	0.6	19
18T 263881.0651 E					0.75	50
4919463.612 N					0.9	
				Test pit terminated at 1.5 mbgs on bedrock	1.05	
213.088 masl				No groundwater or caving observed upon completion	1.2	10
					1.35	50
				Large cobbles throughout		
					0.15	2
	0-0.3	GS1		300 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	3
TP137-22	0.3-1.2	GS2		Brown, SILTY SAND, trace clay, moist	0.45	4
	1.2-1.95	GS3		Same as above	0.6	4
18T 263827.6047 E					0.75	5
4919332.42 N					0.9	5
				Test pit terminated at 1.95 mbgs on bedrock	1.05	6
210.368 masl				No groundwater or caving observed upon completion	1.2	6
					1.35	0
					1.5	2
					1.65	50
					1.8	

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Cambium Reference No. 14288-003
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Test Pit ID	Depth (mbgs[1])	Soil Sample	% Moisture	Material Description	Depth (m)	DPT[2] (Blows/150 mm)
TP138-22 18T 263861.8087 E 4919252.342 N 209.877 masl	0-0.15 0.15-1.05 1.05-1.5	GS1 GS2 GS3		150 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist Brown, SILTY SAND, trace clay, moist Light brown, SILTY SAND, some clay, moist to wet Test pit terminated at 1.5 mbgs on bedrock No groundwater or water level observed upon completion Sidewall caving observed at 0.6 mbgs	0.15 0.3 0.45 0.6 0.75 0.9 1.05 1.2 1.35	1 3 7 8 15 50 15 50
TP139-22 18T 263604.7646 E 4919410.865 N 209.924 masl	0-0.3 0.3-1.2 1.2-2.1 2.1-3.0	GS1 GS2 GS3 GS4		300 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist Brown, SILTY SAND, trace clay, moist Light brown, GRAVELLY SILTY SAND, trace clay, moist Same as above Test pit terminated at 3.0 mbgs in gravelly silty sand No groundwater or caving observed upon completion	0.15 0.3 0.45 0.6 0.75 0.9 1.05 1.2 1.35 1.5 1.65 1.8 1.95 2.1	2 5 6 6 7 8 10 11 1 2 3 9 29 50
TP140-22 18T 263475.3943 E 4919493.625 N 209.734 masl	0-0.3 0.3-0.75 0.75-1.5 1.5-2.4 2.4-3.0	GS1 GS2 GS3 GS4 GS5		300 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist Brown, SILTY SAND, trace clay, moist Light brown, GRAVELLY SAND, trace clay, moist to wet, some silt Same as above, wet Same as above Test pit terminated at 3.0 mbgs in gravelly sand Groundwater seepage observed at 1.95 mbgs Water level observed at 2.85 mbgs upon completion Sidewall caving observed at 0.9 mbgs	0.15 0.3 0.45 0.6 0.75 0.9 1.05 1.2 1.35 1.5 1.65 1.8	2 5 9 9 8 10 16 29 5 10 27 50

1. mbgs = metres below ground surface
2. Dynamic probe penetration test, consisting of driving a 19 mm diameter steel rod 150 mm into the soil with an 8 kg hammer falling 750 mm.

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Test Pit ID	Depth (mbgs[1])	Soil Sample	% Moisture	Material Description	Depth (m)	DPT[2] (Blows/150 mm)
					0.15	2
	0-0.15	GS1		150 mm TOPSOIL: Dark brown, silt, trace sand, frequent rootlets, moist	0.3	8
TP141-22	0.15-0.75	GS2		Light brown, SILTY SAND, trace clay, moist	0.45	11
	0.75-1.8	GS3		Same as above, some gravel	0.6	12
18T 263333.4648 E	1.8-2.1	GS4		Light brown, GRAVELLY SILTY SAND, moist	0.75	22
4919169.725 N	2.1-3.0	GS5		Same as above	0.9	18
					1.05	22
204.859 masl					1.2	28
				Test pit terminated at 3.0 mbgs in gravelly silty sand	1.35	1
				No groundwater or caving observed upon completion	1.5	2
					1.65	6
					1.8	4
					1.95	9
					2.1	50

Appendix B

Physical Laboratory Data

Grain Size Distribution Chart

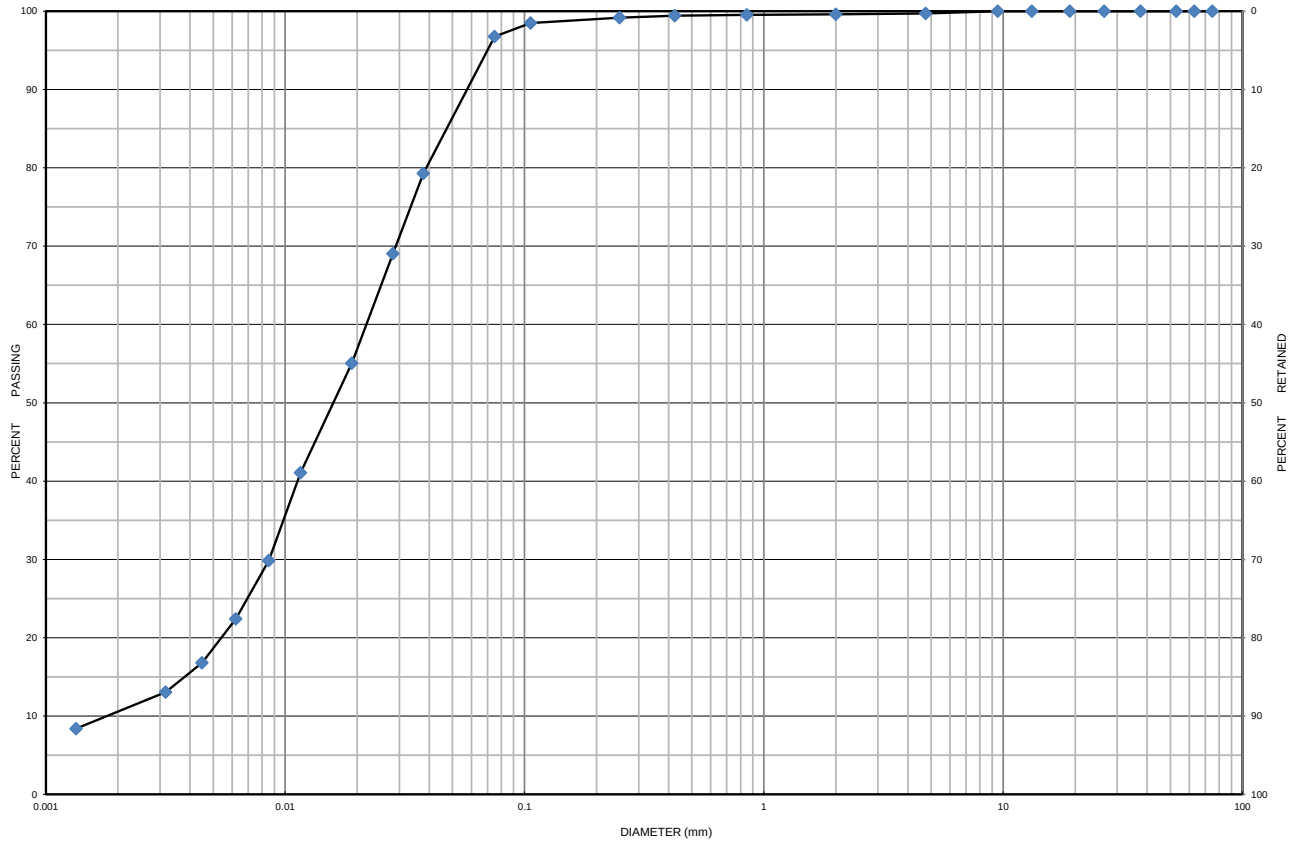
Project Number: *14288-003* **Client:** *CAP Norwood Developments Inc.*

Project Name: *Hydrogeological, Geotechnical, ESA - 42 & 52 Mill St, Norwood*

Sample Date: *April 20 & 21, 2022* **Sampled By:** *Josh Riseling - Cambium Inc.*

Location: *BH 102-22 SS 4* **Depth:** *2.3 m to 2.7 m* **Lab Sample No:** *S-22-0740*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 102-22	SS 4	2.3 m to 2.7 m	0	3	86	11	27.8

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Silt some Clay trace Sand	ML	0.0220	0.0087	0.0017	12.94	2.02

Additional information available upon request

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Grain Size Distribution Chart

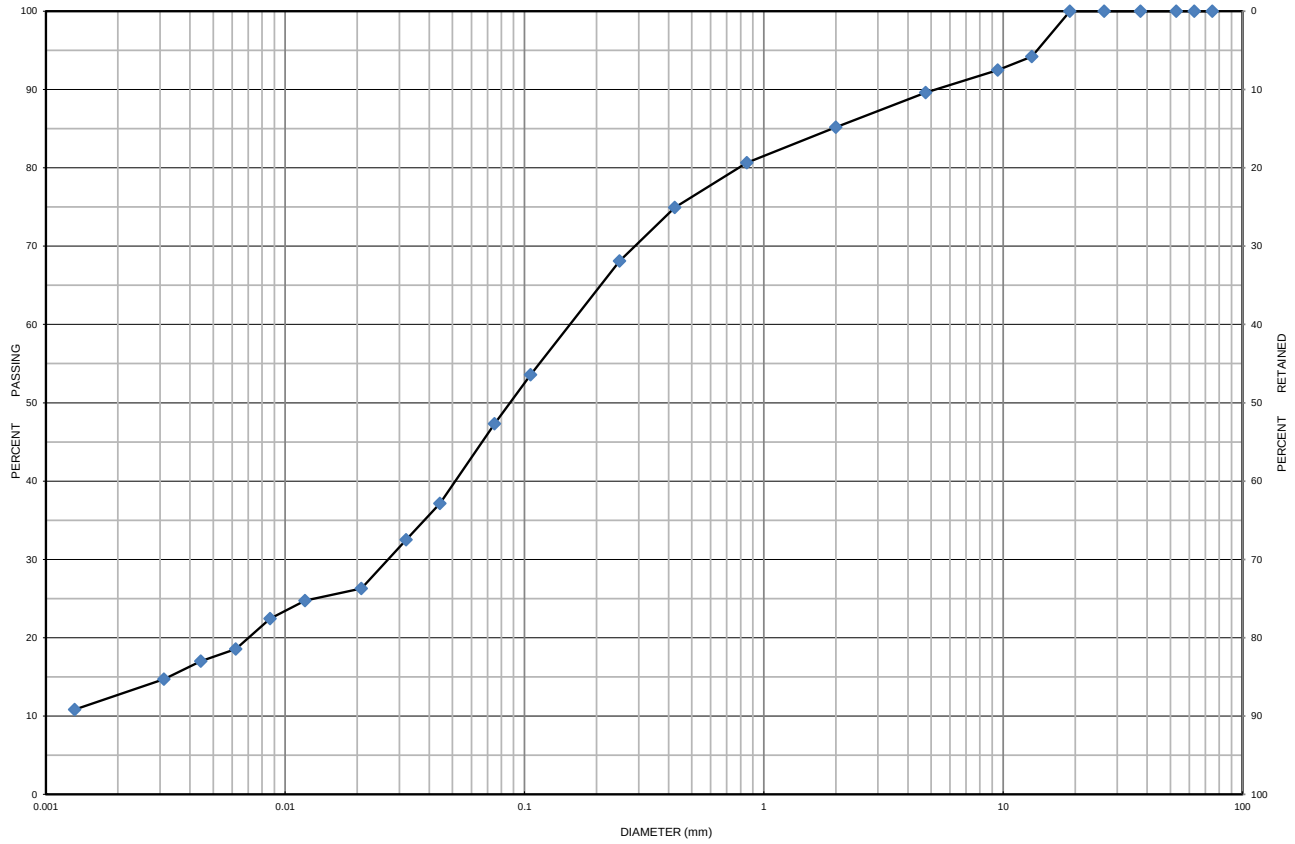
Project Number: *14288-003* **Client:** *CAP Norwood Developments Inc.*

Project Name: *Hydrogeological, Geotechnical, ESA - 42 & 52 Mill St, Norwood*

Sample Date: *April 20 & 21, 2022* **Sampled By:** *Josh Riseling - Cambium Inc.*

Location: *BH 104-22 SS 3* **Depth:** *1.5 m to 2 m* **Lab Sample No:** *S-22-0741*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 104-22	SS 3	1.5 m to 2 m	10	42	35	13	8.2

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Sand and Silt some Clay some Gravel	SM	0.160	0.026	-	-	-

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Grain Size Distribution Chart

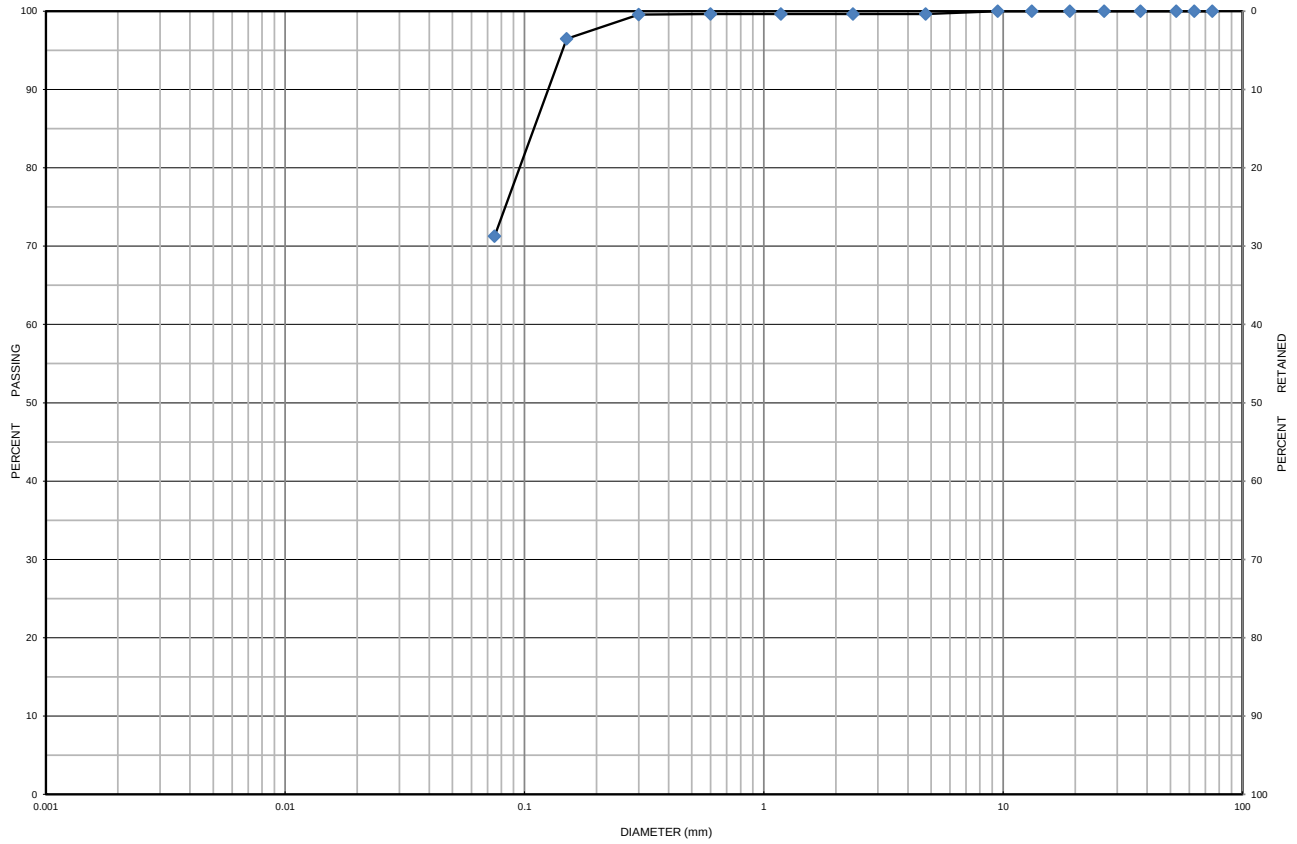
Project Number: *14288-003* **Client:** *CAP Norwood Developments Inc.*

Project Name: *Hydrogeological, Geotechnical, ESA - 42 & 52 Mill St, Norwood*

Sample Date: *April 20 & 21, 2022* **Sampled By:** *Josh Riseling - Cambium Inc.*

Location: *BH 105-22 SS 3* **Depth:** *1.5 m to 2 m* **Lab Sample No:** *S-22-0742*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 105-22	SS 3	1.5 m to 2 m	0	28	72		23.7

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Sandy Silt	ML	-	-	-	-	-

Additional information available upon request

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Grain Size Distribution Chart

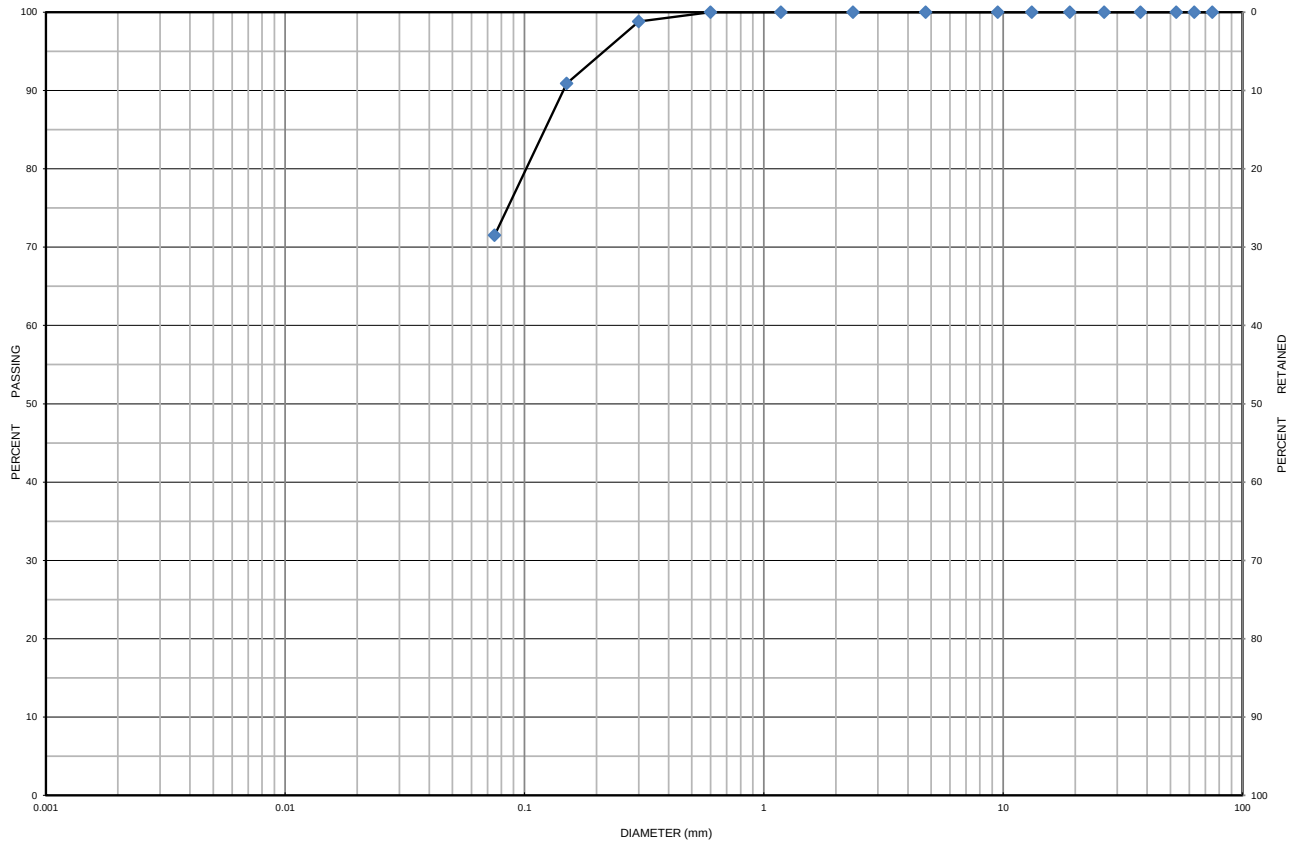
Project Number: *14288-003* **Client:** *CAP Norwood Developments Inc.*

Project Name: *Hydrogeological, Geotechnical, ESA - 42 & 52 Mill St, Norwood*

Sample Date: *April 20 & 21, 2022* **Sampled By:** *Josh Riseling - Cambium Inc.*

Location: *BH 107-22 SS 3* **Depth:** **Lab Sample No:** *S-22-0743*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 107-22	SS 3		0	28	72		16.1

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Sandy Silt	ML	-	-	-	-	-

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Grain Size Distribution Chart

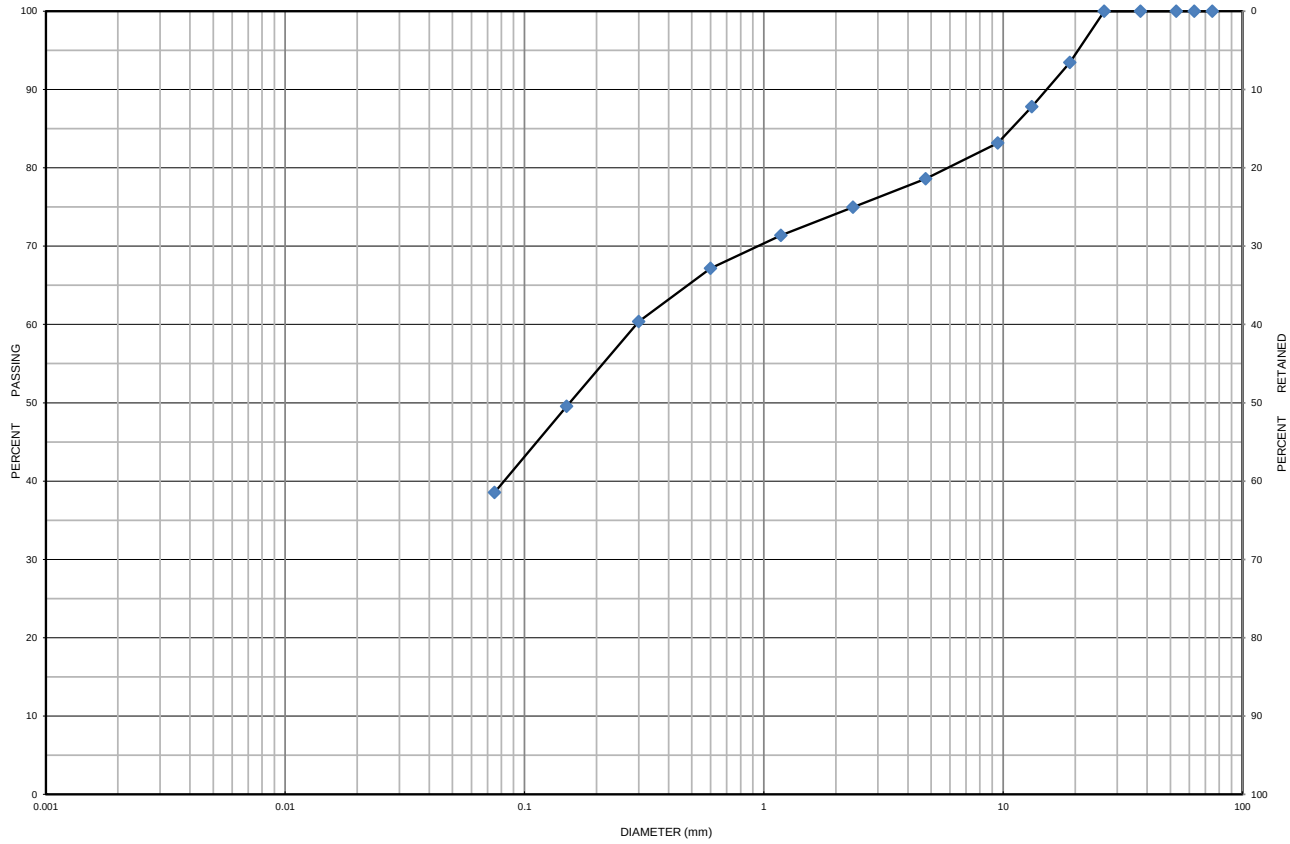
Project Number: *14288-003* **Client:** *CAP Norwood Developments Inc.*

Project Name: *Hydrogeological, Geotechnical, ESA - 42 & 52 Mill St, Norwood*

Sample Date: *April 20 & 21, 2022* **Sampled By:** *Josh Riseling - Cambium Inc.*

Location: *BH 109-22 SS 3* **Depth:** *1.5 m to 2 m* **Lab Sample No:** *S-22-0744*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 109-22	SS 3	1.5 m to 2 m	21	40	39		8.2

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Gravelly Sand and Silt	SM	0.300	-	-	-	-

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Grain Size Distribution Chart

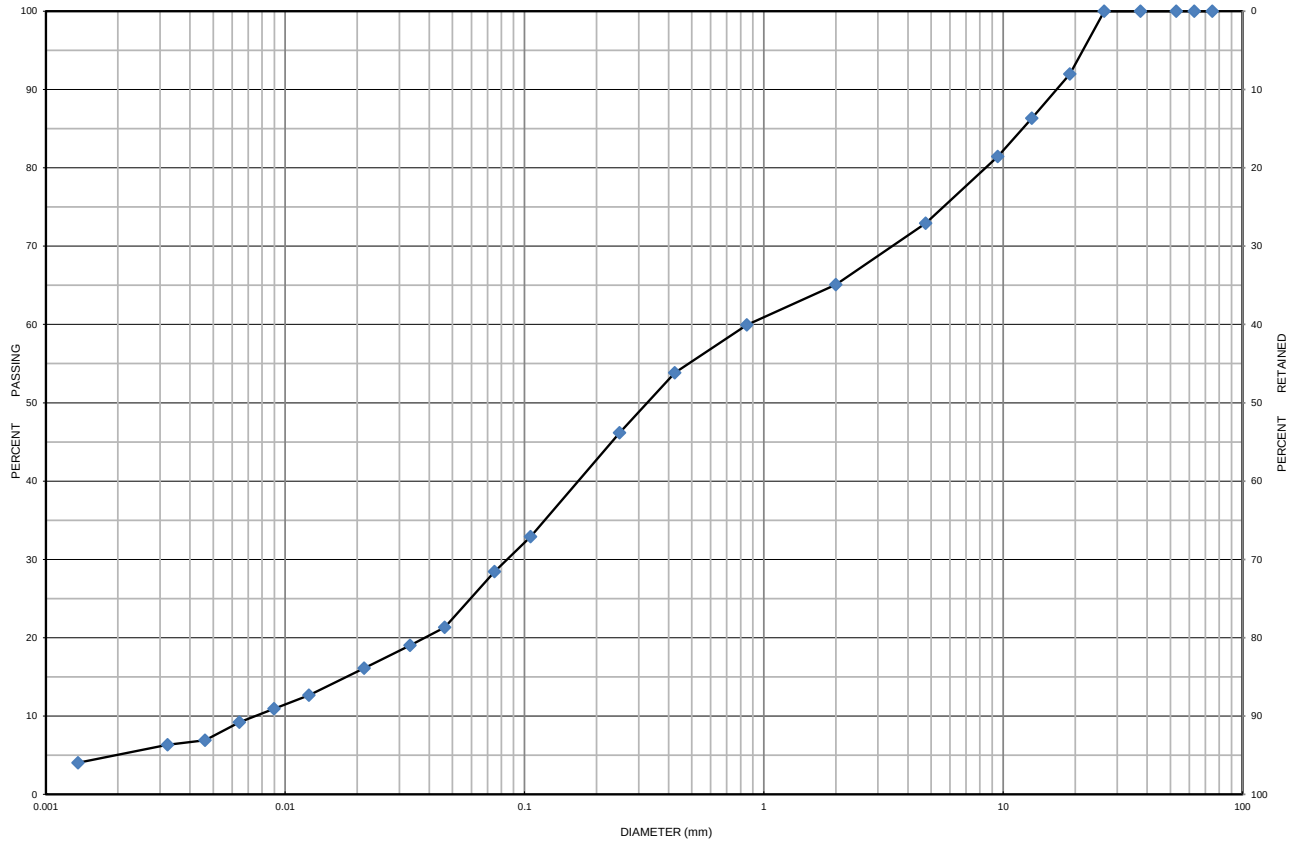
Project Number: *14288-003* **Client:** *CAP Norwood Developments Inc.*

Project Name: *Hydrogeological, Geotechnical, ESA - 42 & 52 Mill St, Norwood*

Sample Date: *April 20 & 21, 2022* **Sampled By:** *Josh Riseling - Cambium Inc.*

Location: *BH 111-22 SS 2* **Depth:** *0.8 m to 1.2 m* **Lab Sample No:** *S-22-0747*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 111-22	SS 2	0.8 m to 1.2 m	27	44	24	5	6.3

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Gravelly Silty Sand trace Clay	SM	0.8800	0.0860	0.0075	117.33	1.12

Additional information available upon request

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Grain Size Distribution Chart

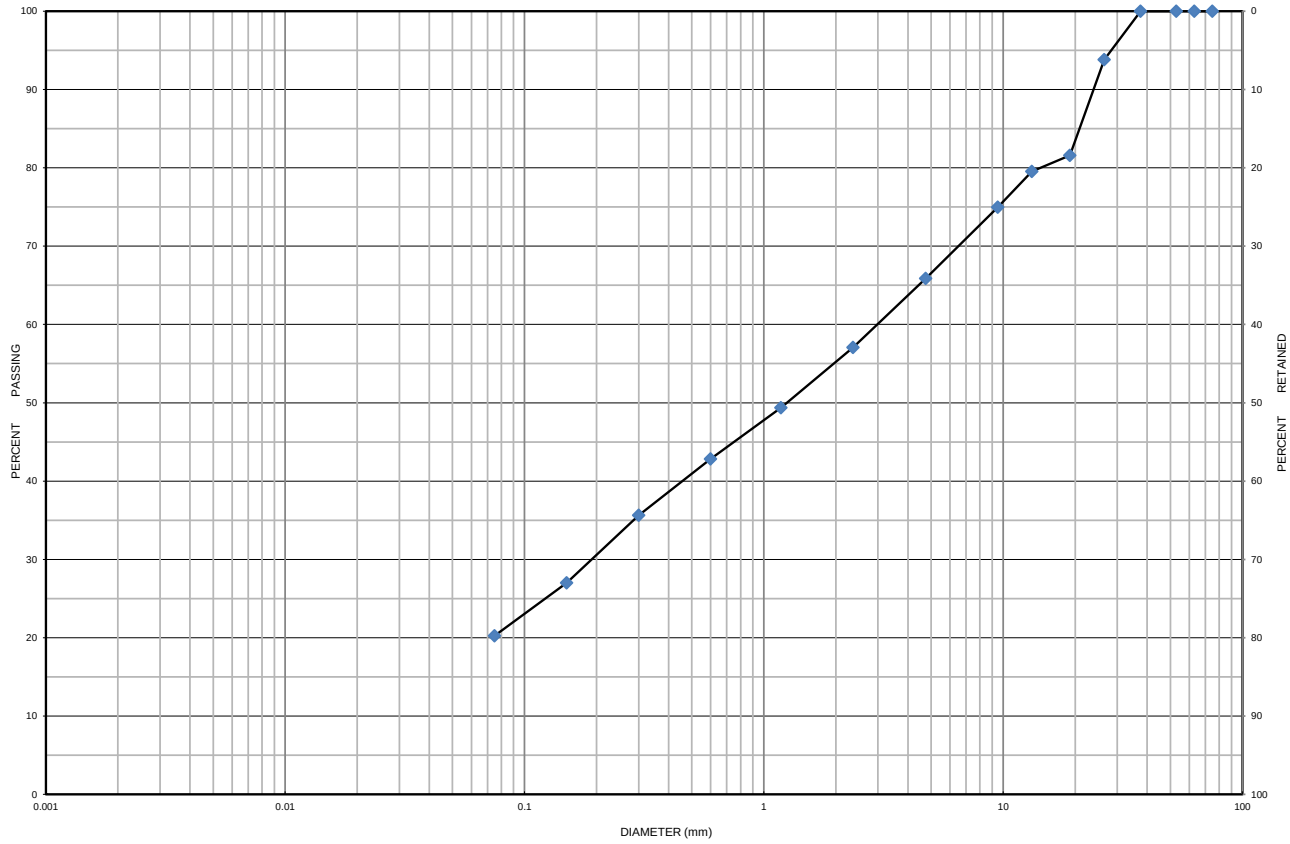
Project Number: *14288-003* **Client:** *CAP Norwood Developments Inc.*

Project Name: *Hydrogeological, Geotechnical, ESA - 42 & 52 Mill St, Norwood*

Sample Date: *April 20 & 21, 2022* **Sampled By:** *Josh Riseling - Cambium Inc.*

Location: *BH 115-22 SS 3* **Depth:** *1.5 m to 2 m* **Lab Sample No:** *S-22-0745*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 115-22	SS 3	1.5 m to 2 m	34	46	20		6.4

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Gravelly Silty Sand	SM	3.000	0.190	-	-	-

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Grain Size Distribution Chart

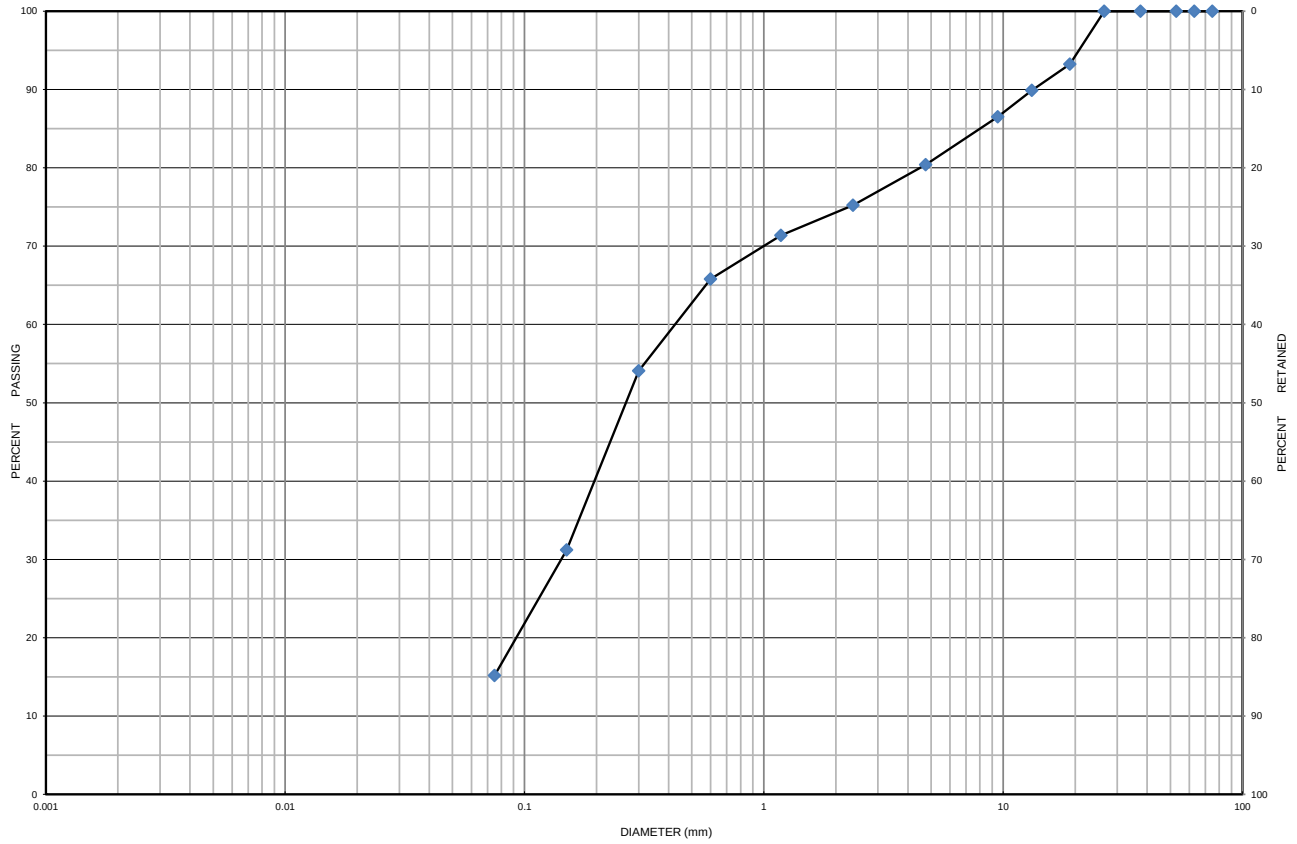
Project Number: *14288-003* **Client:** *CAP Norwood Developments Inc.*

Project Name: *Hydrogeological, Geotechnical, ESA - 42 & 52 Mill St, Norwood*

Sample Date: *April 20 & 21, 2022* **Sampled By:** *Josh Riseling - Cambium Inc.*

Location: *BH 117-22 SS 3* **Depth:** *1.5 m to 2 m* **Lab Sample No:** *S-22-0746*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 117-22	SS 3	1.5 m to 2 m	20	65	15		4.7

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Gravelly Sand some Silt	SM	0.420	0.150	-	-	-

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Moisture Content

Project Number: 14288-003
Project Name: Hydrogeological, Geotechnical, ESA - 42 & 52 Mill St, Norwood
Client: CAP Norwood Developments Inc.
Date Taken: 2022-04-20

Lab Number: S-22-0739
Date Tested: 2022-05-12
Tested By: D. Rock

Borehole Number	Sample Number	Sample Depth (m)	Water Weight (g)	Water Content (%)	Additional Observations
101	1A	0.00-0.15	28.6	45.0	1
101	1B	0.15-0.30	19.9	15.7	
101	1C	0.30-0.61	23.8	10.6	
101	2	0.76-1.22	30.5	9.1	
101	3	1.52-1.98	14.6	8.4	
101	4	2.29-2.74	18.4	8.6	
101	5	3.05-3.51	14.7	6.6	
101	6	4.57-5.03	20.6	8.8	
102	1A	0.00-0.30	20.4	17.5	1
102	1B	0.30-0.61	14.3	13.4	
102	3A	1.52-1.60	40.6	17.4	NR
102	3B	1.60-1.98	63.5	26.0	
102	4	2.29-2.74	179.7	30.1	NR
102	5	3.05-3.51	9.6	11.4	NR
103	1A	0.00-0.10	14.7	15.7	NR
103	1B	0.10-0.30	12.8	9.9	
103	2	0.76-1.22	19.0	11.7	
103	3	1.52-1.98	40.1	29.3	
103	4	2.29-2.74	36.3	20.7	
103	5	3.05-3.51	18.6	7.1	
103	6	4.57-5.03	15.3	9.9	
104	1	0.00-0.61	32.6	23.5	1
104	2	0.76-1.22	12.1	6.3	
104	3	1.52-1.98	66.5	8.2	NR
104	4	2.29-2.74	17.6	7.2	
104	5	3.05-3.51	8.4	5.3	
105	1A	0.00-0.23	18.2	23.0	1

1 – Contains organics
2 – Contains rubble
3 – Hydrocarbon Odour
4 – Unknown Chemical Odour
5 – Saturated – free water visible
6 – Very moist – near optimum moisture content
7 – Moist – below optimum moisture
8 – Dry – dry texture – powdery
9 – Very small – caution may not be representative
10 – Hold sample for gradation analysis

Moisture Content

Project Number: 14288-003
Project Name: Hydrogeological, Geotechnical, ESA - 42 & 52 Mill St, Norwood
Client: CAP Norwood Developments Inc.
Date Taken: 2022-04-20

Lab Number: S-22-0739
Date Tested: 2022-05-12
Tested By: D. Rock

Borehole Number	Sample Number	Sample Depth (m)	Water Weight (g)	Water Content (%)	Additional Observations
105	1B	0.23-0.46	31.6	26.6	
105	2	0.76-1.22	39.4	23.1	
105	3	1.52-1.98	122.1	23.7	NR
105	4A	2.29-2.36	28.4	26.4	
105	4B	2.36-2.74	10.1	6.9	
105	5	3.05-3.51	20.2	9.9	
106	1A	0.00-0.30	33.0	23.6	
106	1B	0.30-0.61	18.0	14.2	
106	2A	0.76-1.07	30.6	18.1	
106	2B	1.07-1.22	5.8	4.7	NR
106	3	1.52-1.98	5.1	2.8	
106	4	2.29-2.74	3.7	2.7	
106	5	3.05-3.51	9.5	4.8	
106	6	4.57-5.03	7.2	7.5	
107	1A	0.00-0.30	44.2	27.2	
107	1B	0.30-0.61	31.6	17.7	
107	2A	0.76-0.91	37.9	20.6	NR
107	3	1.52-1.98	107.7	16.1	NR
107	4	2.29-2.74	22.6	12.8	
107	5	3.05-3.51	15.6	8.6	
107	6	4.42-4.57	21.2	14.5	NR
108	1A	0.00-0.30	28.7	22.2	
108	1B	0.30-0.61	17.9	17.5	
108	2	0.76-1.22	13.9	8.4	
108	2B	0.91-1.22	43.5	21.4	
108	3	1.52-1.98	39.2	10.9	
108	4	2.29-2.74	19.7	10.4	

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10 – Hold sample for gradation analysis

Moisture Content

Project Number: 14288-003
Project Name: Hydrogeological, Geotechnical, ESA - 42 & 52 Mill St, Norwood
Client: CAP Norwood Developments Inc.
Date Taken: 2022-04-20

Lab Number: S-22-0739
Date Tested: 2022-05-12
Tested By: D. Rock

Borehole Number	Sample Number	Sample Depth (m)	Water Weight (g)	Water Content (%)	Additional Observations
108	5	3.05-3.51	28.5	11.8	
108	6	4.57-4.72	18.9	9.6	NR
109	1A	0.00-0.15	26.7	25.1	1
109	1B	0.15-0.61	20.7	17.2	
109	2A	0.76-1.07	27.2	19.5	NR
109	2B	0.86-1.07	158.1	80.8	NR
109	3	1.52-1.98	51.8	8.2	NR
109	4	2.29-2.74	8.2	6.6	
109	5	3.05-3.51	22.0	6.8	
109	6	4.57-5.03	11.1	6.0	
110	1A	0.00-0.20	23.6	23.6	
110	1B	0.20-0.61	13.8	21.4	
110	2B	0.76-1.07	73.2	28.3	NR
110	2B	1.07-1.22	23.5	17.5	
110	3A	1.52-1.83	107.1	27.1	NR
110	3B	1.83-1.98	26.8	15.7	NR
110	4	2.29-2.74	13.5	6.3	
110	5	3.05-3.51	19.2	9.6	
111	1A	0.00-0.15	62.4	27.4	NR
111	1B	0.15-0.30	53.2	19.9	NR
111	1C	0.30-0.61	13.0	9.0	NR
111	2	0.76-1.22	50.3	6.3	NR
111	3	1.52-1.98	19.8	9.4	
111	4	2.29-2.74	17.9	11.0	NR
111	5	3.05-3.51	25.1	6.9	
111	6	4.57-5.03	23.4	9.2	
112	1A	0.00-0.20	42.1	32.5	1

1 – Contains organics
2 – Contains rubble
3 – Hydrocarbon Odour
4 – Unknown Chemical Odour
5 – Saturated – free water visible
6 – Very moist – near optimum moisture content
7 – Moist – below optimum moisture
8 – Dry – dry texture – powdery
9 – Very small – caution may not be representative
10 – Hold sample for gradation analysis

Moisture Content

Project Number: 14288-003
Project Name: Hydrogeological, Geotechnical, ESA - 42 & 52 Mill St, Norwood
Client: CAP Norwood Developments Inc.
Date Taken: 2022-04-20

Lab Number: S-22-0739
Date Tested: 2022-05-12
Tested By: D. Rock

Borehole Number	Sample Number	Sample Depth (m)	Water Weight (g)	Water Content (%)	Additional Observations
112	1B	0.20-0.61	52.7	21.0	
112	2	0.76-1.22	41.1	20.7	
112	3A	1.52-1.68	63.2	26.1	NR
112	3B	1.68-1.83	8.0	18.0	
112	4	2.29-2.74	29.3	12.0	
113	1A	0.00-0.30	35.2	27.7	1
113	1B	0.30-0.61	58.0	19.3	
113	2	0.76-1.22	2.2	1.6	
113	3	1.52-1.98	6.1	4.7	
114	1A	0.00-0.10	21.7	12.2	NR
114	1B	0.10-0.30	3.1	1.4	
114	2	0.76-1.22	3.2	1.7	
114	3	1.52-1.98	5.4	3.4	
114	4	2.29-2.74	4.0	2.1	NR
114	5	3.05-3.51	3.2	2.1	
115	1A	0.00-0.20	20.4	20.5	
115	1B	0.20-0.61	30.4	18.3	
115	2	0.76-1.22	13.9	6.3	
115	3	1.52-1.98	36.3	6.4	NR
115	4	2.29-2.74	8.7	4.4	
116	1A	0.00-0.15	32.0	17.7	NR
116	1B	0.15-0.61	20.2	9.6	NR,1
116	2A	0.76-0.91	13.2	13.7	
116	2B	0.91-1.07	21.6	7.4	NR
116	3	1.52-1.98	5.8	4.2	
116	4A	2.29-2.36	5.4	7.3	NR
116	4B	2.36-2.51	0.6	0.3	NR

1 – Contains organics
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3 – Hydrocarbon Odour
4 – Unknown Chemical Odour
5 – Saturated – free water visible
6 – Very moist – near optimum moisture content
7 – Moist – below optimum moisture
8 – Dry – dry texture – powdery
9 – Very small – caution may not be representative
10 – Hold sample for gradation analysis

Moisture Content

Project Number: 14288-003
Project Name: Hydrogeological, Geotechnical, ESA - 42 & 52 Mill St, Norwood
Client: CAP Norwood Developments Inc.
Date Taken: 2022-04-20

Lab Number: S-22-0739
Date Tested: 2022-05-12
Tested By: D. Rock

Borehole Number	Sample Number	Sample Depth (m)	Water Weight (g)	Water Content (%)	Additional Observations
117	1A	0.00-0.20	25.3	21.0	1
117	1B	0.20-0.61	34.4	14.0	
117	2	0.76-1.22	26.2	14.3	
117	3	1.52-1.98	27.1	4.7	NR
117	4	2.29-2.74	52.3	25.8	
117	5	3.05-3.51	18.6	6.9	
117	6	4.57-5.03	0.1	0.6	NR

1 – Contains organics
2 – Contains rubble
3 – Hydrocarbon Odour
4 – Unknown Chemical Odour
5 – Saturated – free water visible
6 – Very moist – near optimum moisture content
7 – Moist – below optimum moisture
8 – Dry – dry texture – powdery
9 – Very small – caution may not be representative
10 – Hold sample for gradation analysis

Moisture Content

Project Number: 14288-007
Project Name: Upper Mill Pond Supplemental Investigation
Client: CAP Norwood Developments Inc.
Date Taken: 2024-11-08

Lab Number: S-24-2155
Date Tested: 2024-11-27
Tested By: D. Clysdale

Borehole Number	Sample Number	Sample Depth (m)	Water Weight (g)	Water Content (%)	Additional Observations
201	1A	0.000-0.229	37.2	18.4	
201	1B	0.229-0.610	30.4	14.8	
201	2	0.759-1.369	52.3	21.3	
201	3	1.521-2.131	13.5	5.9	
201	4	2.289-2.899	22.6	7.0	
201	5	3.051-3.661	22.2	8.1	
201	6	4.569-4.779	25.4	9.8	
202	1A	0.000-0.149	25.4	15.9	NR
202	1B	0.149-0.610	12.2	6.2	
202	2	0.759-1.369	10.3	6.4	
202	3	1.521-2.131	21.1	10.0	
202	4	2.289-2.899	38.1	11.4	
202	5	3.051-3.511	13.0	5.1	
202	6	4.569-5.179	15.5	5.3	
203	1A	0.000-0.149	29.4	12.8	NR
203	1B	0.149-0.610	29.2	9.9	NR
203	2A	0.759-1.140	32.7	11.5	NR
203	2B	1.140-1.369	21.1	8.9	NR
203	3	1.521-2.131	5.5	2.2	
203	4	2.289-2.899	6.4	2.4	
203	5	3.051-3.661	9.5	3.1	
203	6	4.569-5.179	14.9	5.2	
204	1	0.000-0.610	38.5	18.7	
204	2	0.759-1.369	29.4	13.3	
204	3A	1.521-1.829	41.3	19.2	
204	3B	1.829-2.131	9.3	7.4	NR
204	4	2.289-2.670	18.0	7.8	

1 – Contains organics
2 – Contains rubble
3 – Hydrocarbon Odour
4 – Unknown Chemical Odour
5 – Saturated – free water visible
6 – Very moist – near optimum moisture content
7 – Moist – below optimum moisture
8 – Dry – dry texture – powdery
9 – Very small – caution may not be representative
10 – Hold sample for gradation analysis