SEPTIC IMPACT ASSESSMENT
145 WALGREEN ROAD, CARP, ON

Project No: CCO-25-1370

Prepared for:

Miller Waste Systems
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egis

Table of Contents

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

Egis Canada Ltd ('Egis') was retained by Miller Waste ('the Client') to conduct a Septic Impact Assessment in support of a Site Plan Application located at 145 Walgreen Road, Carp Ontario ('the Site'). As part of pre-consultation with the City of Ottawa, it was identified that a Septic Impact Assessment was required to ensure that the proposed septic systems do not impact the groundwater should it be used as a source of drinking water in the surrounding area.

This work was conducted in general accordance with the City of Ottawa's guidance document; City of Ottawa - Hydrogeological and Terrain Analysis Guidelines (March 2021).

The following report describes the terrain analysis and associated Sewage System Impact Assessment that was undertaken. This Septic Impact Assessment addresses the following:

- General Site setting information;
- Geological and hydrogeological background;
- Site-specific conditions; and
- Existing and proposed water and wastewater infrastructure (on-site and off-site).

1.1 Consultation

On August 7, 2024, Egis completed a pre-consultation with the City of Ottawa Peer Reviewer to outline the subject investigation's methodology, and to discuss any known hydrogeological issues for the investigation area. Groundwater quality within the area was discussed, as it is our understanding that the groundwater may be mineralized due to elevated chlorides from either salt-related or naturally occurring impacts.

Following the receipt of the analytical results from the pumping test completed on August 28, 2024 a follow up meeting was completed with the City of Ottawa Peer Reviewer on September 15, 2024 to discuss the mineralized groundwater on-Site. At this meeting, the City of Ottawa noted that the MECP's consent to utilize a mineralized well may be required at this Site.

Further to this, a follow-up consultation took place with the City of Ottawa Peer Reviewer on December 20, 2024 to discuss the scope of the Septic Impact Assessment in the context of the proposed development having been determined to not resulting in an increase to the daily sanitary flow compared to existing conditions and therefore being proposed to continue to be serviced by the approve existing sewage system currently in place.

2.0 BACKGROUND

2.1 Site Setting

The Site is located within the City of Ottawa (Figure 1). The Site building consists of a two-storey office building and an existing slab on grade shop which services Miller Waste garbage trucks. Grassed landscape is located to the north of the Site building, fronting on Walgreen Road. A mixed paved and gravel parking area is located to the west of the Site building.

Based on a review of background documents, it appears that the existing Site Building has been present since at least 2009. It is Egis' understanding that groundwater is not used for potable purposes at the Site.

2.2 Neighbouring Properties and Land Uses

Land uses within 500 m of the proposed severances consists primarily of industrial and commercial properties. Wooded lands are observed to the southeast of the Site. The Site has frontage on Walgreen Road, located to the north.

While MECP Water Well Information System (WWIS) records for the area do not provide the detailed locations of most wells, it appears there is a mix of privately serviced properties, and properties connected to municipal services. The municipal water supply network terminates approximately 200 meters to the east of the subject site and partially services the Oz Dome facility to the north. All properties immediately adjacent to the subject site and further west/north/south of the existing fire hydrant located approximately 200m east of the subject site are privately serviced with wells. Additionally, there are no available municipal sanitary sewers in the vicinity of the site and therefore all neighbouring properties are expected to be serviced with private sewage systems.

Figure 3 (MECP Wells Record Summary) presents the MECP Well Tag numbers and approximate well locations, where available, for wells within approximately 500 m of the Site.

2.3 Hydrology

Topography was reviewed based on the site-specific geodetic topographic survey conducted for the site. Ground surface at the Site is generally flat, with the site elevations varying from 126 to 129 metres (geodetic), with the majority of the site being at an elevation of approximately 127 metres.

Ground surface at the Site is generally relatively flat. Regional relief appears to slope to the east-northeast except in areas affected by quarrying operations, which are considerably lower. Ground surface elevation at the Site varies from 126-129 m (geodetic). Surface drainage at the Site appears to be largely controlled by the roadside ditch along with a ditch in the drainage easement that runs along the eastern and southern boundary of the yard and discharges to the south of the property an eventually towards

Feedmill Creek. Regional groundwater is interpreted to flow east/northeast, toward Highway 417 and the quarry located at the northeastern corner of the intersection of Carp Road and Hwy 417.

On a regional scale, groundwater is inferred to flow northeast towards the Ottawa River. It is noted that the Site is located within the Carp River Watershed.

2.4 Background Geology and Hydrogeology

Geological maps of the area classify the overburden at the Site as organic deposits consisting of peat, muck and marl.

On-Site bedrock is generally characterized as limestone, dolostone, shale, arkose and sandstone, of the Ottawa Group, Simcoe Group and Shadow Lake Formation. Based on well records within 500 m of the Site, the depth to bedrock is approximately 3.5 m on average.

Review of a map on karst topography indicates that the Site is located within an area identified as potential karst formation. No karst topography was observed on-site at the time of site visits.

Based on surrounding topography, regional bedrock groundwater flow is interpreted to have a northeastern component, towards the Ottawa River.

2.4.1 Recharge and Discharge Areas

Based on a review of topographic data, geological maps, and Site visits, the property is generally flat. The entirety of the Site is mapped as an unnamed, unevaluated wetland, however the operational areas of the property would not be reasonably classified as a wetland. A wetland area is located immediately south of the Site, within the wooded area.

Based on a review of the subsurface soil presented in Egis' Geotechnical Investigation for the Site, the majority of the subsurface is predominantly silt. Limestone bedrock was encountered 1.4 – 3.56 m bgs. Additionally, based on the well record at the Site, the driller reported that 0 – 1.52 m bgs consisted of sand/clay, underlain by clay/till to a depth of 5.49 m where limestone or shale bedrock was encountered. Given the low permeability of overburden materials, the underlying aquifer is considered to be reasonably protected.

The closest water body to the Site is located 450 m north of the Site, at the Westbrook Snow Dump. It is noted that this is an artificial body of water (presumably with a liner), with controlled discharge to a nearby local watercourse.

2.4.2 Potential Sources of Contamination and Potential Impacts to Hydrogeological Conditions

A windshield survey of the surrounding area was conducted in combination with a site walkthrough and review of maps and zoning information. The Site is located in a predominantly commercial and industrial area. The current industrial use of the property usage does not appear to pose any significant environmental risk to the proposed addition. The nearby Westbrook Snow Dump is considered a potentially source of salt contamination, however it is a relatively new facility with a controlled meltwater discharge system, and is unlikely to pose a significant environmental risk to the proposed addition.

Although the Site is not connected to municipal services, many properties in the vicinity of the Site are municipally connected to water services. However, due to the fact that there are no municipal sanitary services near the area, it is expected that all developed properties in the vicinity of the subject site are serviced by private sewage systems.

2.4.3 Water Well Record Review

The MECP's WWIS database indicated 58 water wells that are located within 500 m of the Site. Thirty-nine (39) of these wells are listed for domestic purposes, one (1) for livestock, nine (9) test holes/monitoring wells, six (6) for commercial, one (1) as an injection well, one (1) for irrigation, and one (1) industrial. MECP WWIS records are shown on Figure 3, and data are summarized in Appendix A.

All water supply wells were completed in bedrock at final depths ranging from 6.1 (the industrial well) – 198.1 m below ground surface (bgs). The average depth to bedrock was reported to be 3.5 m bgs. Driller-reported static groundwater levels ranged from 0.9 – 16.8 m bgs.

Well yields reported on Well Records ranged from 15.14 – 204.41 L/min.

TW1, located at 145 Walgreen Road, was used as part of the water supply assessment conducted as part of the Hydrogeological Assessment report. Based on the Well Record, TW1 was constructed with 6.41 m of casing, with a total well depth of 28.08 m. The depth to bedrock was reported as 5.49 m. The well yield was reported as 54 L/min.

3.0 TERRAIN ANALYSIS

3.1 On-Site Investigation

As part of a geotechnical investigation conducted by Egis, boreholes were advanced via drilling at various locations throughout the Site to assess its geology and subsurface conditions, including properties of the on-site overburden. In total, 9 boreholes were advanced.

The boreholes were drilled using a CME-55 truck-mounted drilling rig, outfitted with hollow stem augers. Soil samples were obtained at 0.76 m intervals in boreholes using a 51 mm outside diameter split spoon sampler in accordance with the Standard Penetration Test (SPT) procedure. The drilling was terminated at planned drilling depths. The bedrock was cored and sampled to approximately 3.58 and 3.68m depth from the top of the encountered bedrock surface in boreholes 24-1 and 24-2, respectively. Additionally, a 25 mm diameter standpipe piezometer was installed in borehole BH24-2 for temporary groundwater monitoring within the proposed building addition area.

Three (3) 51 mm diameter, monitoring wells were installed in borehole BH24-4 MW, BH24-7 MW and BH24-8 MW. The wells were protected in traffic rated flush-mount caps. For further details, please refer to the Geotechnical Investigation Report (Appendix C).

3.2 Site Evaluation

3.2.1 Overburden Depth

Auger refusal was encountered in all boreholes except for BH24-4 MW on inferred bedrock at depth ranging from 1.40 to 3.56 m below existing ground surface. The bedrock was encountered and cored in the foundation area boreholes in BH24-1 and BH24-2 below the sandy silt till/silty sand till layer between 1.40 and 1.94 m bgs which corresponds to elevations El. 125.91 and El. 125.18 m.

3.2.2 Overburden Characterization

The site stratigraphy typically consists of five distinct layers. The layers were identified as Asphalt, Fill, Silt/Sandy Silt, Sandy Silt Till/Silty Sand Till and Limestone Bedrock. For classification purposes, the pavement structure, fill materials, and surficial soils encountered at this site can be divided into five (5) general layers:

1. Asphalt
2. Fill
3. Silt/Sandy Silt
4. Sandy Silt Till/Silty Sand Till
5. Bedrock/Refusal

The fills and soils encountered during the course of investigation, together with the field and laboratory test results are shown on the borehole records included in Appendix C. Geotechnical laboratory test results are also included in Appendix C. Description of the strata encountered are given below.

3.2.2.1 Asphalt

Two boreholes were advanced within the existing paved section, asphalt was measured to be at approximately 100 mm in the investigated boreholes BH24-6 and BH24-8 MW.

3.2.2.2 Fill

The fill layer was encountered at the surface or below the pavement in all boreholes and extended to a depth ranging from 0.45 m to 0.91 m bgs. The fill layer is composed mainly of granular fill, silty sand and gravelly sand to sand and gravel, trace to pockets of organics and trace of rootlets. This grey, brown, dark brown and dark grey fill layer was found to be in a moist to very moist state. In borehole BH24-9, a 50 mm topsoil/organic soil layer was encountered at the surface.

One (1) representative sample from the fill layer was subjected to grain-size analysis and the layer was observed to contain on average 18% of Gravel, 51% of Sand and 31% of Fines. The laboratory test results of the grain size analysis are shown in Appendix C.

The SPT N-Value within the fill layer ranged from approximately 10 to 40 which indicated a compact to dense relative density.

3.2.2.3 Silt/Sandy Silt

A layer of silt/sandy silt was encountered below the fill layer in all boreholes except for BH 24-5, observed to extend to depths ranging approximately from 1.26 to 3.05 m bgs. In general, this layer is comprised of silt to sandy silt with trace to some clay, trace of sand and trace of rootlets encountered in the upper zone of the layer below the fill layer in most of the boreholes. The natural moisture content for this greyish brown layer was observed to be approximately 16%.

Two (2) representative samples from the silt/sandy silt layer were subjected to grain-size "Hydrometer" analysis and the layer was observed to contain on average 2% gravel, 20% sand, and 69% silt and 9% clay. The laboratory test results of grain size analysis of the silt/sandy silt are included in Appendix C.

The SPT N-value for this layer ranged range from 10 to 50 blows/75 mm, which indicate a relative density of compact to very dense according to CFEM (2006).

3.2.2.4 Sandy Silt Till/Silty Sand Till

A till layer of sandy silt till/silty sand till was encountered below the fill and/or silt/sandy silt layer in all the boreholes. In general, the till layer is comprised of sandy silt till/silty sand till. The natural moisture content for this greyish brown and grey layer ranged from 7% to 13%.

Four (4) representative samples from the sandy silt till/silty sand till were subjected to grain-size analysis and the layer was observed to contain on average 13% gravel, 34% sand, 50% silt and 7% clay. The laboratory test results of grain size analysis of the till are included in Appendix C.

3.2.3 Soil Classification for Private Sanitary Servicing

Comparison of the soil classification for the Unified Soil Classification as provided in the Ministry of Municipal Affairs and Housing (MMAH) Supplementary Standard SB-6: Time and Soil Descriptions, reveals that the main shallow horizon native soil assessed on-site into which any private sewage system would discharge consists of the following:

- ML: Silt/Sandy Silt
    - According to Table 2 of SB-6, the ML group of soils have a coefficient of permeability (K) of 10^{-5} to 10^{-6} cm/sec and a percolation time (T) of 20 to 50 min/cm. This soil type has a medium to low permeability and is deemed acceptable as the native receiving soil for a proposed Class 4 sewage system.

Based on the above-noted soil classifications, it is proposed the development be serviced with a Class 4 sewage system with a leaching bed constructed to discharge onto the native silt/sandy silt deposits present throughout to the Site. Further, the leaching bed is recommended to be constructed as fully-raised bed using clean imported sand fill overlaying the silt/sandy silt deposit present at the Site.

3.2.4 Groundwater

Groundwater was observed in four (4) monitoring wells instrumented at the Site during the geotechnical investigation completed by Egis. At the time of investigation on August 29, 2024, the depth of the groundwater ranged between El. 125.90 m to El. 127.09 m. The depth and level of groundwater in the four monitoring wells are summarized in Table 3-1 below. Based on the measured water table elevations, it can be established that shallow groundwater flow on-site is generally to the south/south-east (see Figure 4). Note that the shallow groundwater levels may be expected to fluctuate due to seasonal changes.

Table 3-1: Groundwater Level Readings in Installed Monitoring Wells

BH/MW ID	Measuring Date	Screen Interval Depth (m bgs)	Groundwater Depth (m bgs)	Water Table El. (m)
BH24-2 SP*	2024-08-29	1.24 – 1.85	0.86	126.26
BH24-4 MW	2024-08-29	1.52 – 3.05	1.20	125.90
BH24-7 MW	2024-08-29	1.52 – 3.05	1.37	127.09
BH24-8 MW	2024-08-29	1.52 – 3.05	0.81	126.83

* A Standpipe (SP) was installed in BH24-02 to measure the water level at the proposed building addition.

4.0 SEPTIC IMPACT ASSESSMENT

4.1 Guideline

As part of the development application process, the City of Ottawa requires that a septic impact assessment be completed as per the City's Hydrogeological and Terrain Analysis Guidelines. The City's guidelines as part of Site Plan application for Impact Risk Assessments where the design flow is 10,000 L/day or less, requires that sufficient information is provided to assess the likelihood that the operation of the on-site sewage system will not adversely impact the well(s) to be construction on the subject property or existing wells on surrounding properties.

4.2 Existing and Proposed Sanitary Flows and Approvals

4.2.1 Existing Sanitary Flows and Approval

As part of the servicing review for the proposed redevelopment of subject site, it was established that the site is currently serviced by a private Class 4 sewage system with a rated capacity of 3,750 L/day, which incorporates advanced treatment capable of tertiary treatment (now referred to as Level IV treatment in the Ontario Building Code) and was approved in 2008 per Ottawa Septic System Office (OSSO) permit no. 08-681 (refer to Appendix D).

4.2.2 Proposed Sanitary Flows and Approval

The proposed internal retrofits to the existing building, along with the physical building expansion were reviewed to establish their possible impact the daily sanitary flow for the facility. Following an OBC review, it was established that the daily sanitary design flow for the proposed renovated building would be 3,675 L/day, which is less than the rated capacity of the existing approved sewage system of 3,750 L/day. To this end, Egis submitted a Part 10/11 renovation permit application in December 2024 to the OSSO for the re-use of the existing approved Class 4 sewage system to service the proposed re-development of the property, including interior retrofits within the existing building and a building expansion. The OSSO issued Part 10/11 Change of Use/Renovation permit no. B-24-086 for the existing sewage system on December 20, 2024 (see Appendix E).

4.3 Impact Assessment

Given that there are no proposed changes to the sanitary infrastructure which has been in operation on-site since 2009, including no proposed changes to the quantity or quality of the wastewater being generated for the facility which has been in operation since 2008 or 2009, it was established through pre-consultation with the City of Ottawa Peer Reviewer that reviewing empirical data would be an appropriate way to evaluate the existing sewage system's possible impact to the groundwater resource. It was discussed wit the Peer Reviewer that groundwater quality from on an on-site well, should it be

determined to be downgradient (from a groundwater flow perspective) from the existing sewage system's leaching bed would be representative of any long-term impact to the groundwater from the existing and proposed continued use of the facility.

As outlined in Section 3.2.4 above, shallow groundwater flow direction on-site is expected to be south/south-east. This southerly groundwater flow direction is supported by similar observations made in 2020 during a Hydrogeological and Septic Impact Assessment conducted at a neighbouring property (137 Walgreen Rd), which is located approximately 30m to the east of subject property. In that study, it was observed that shallow groundwater flow was to the south based on static water levels taken from shallow monitoring wells (see Appendix F). Based on this, it is established that the on-site water supply well (TW1) at 145 Walgreen Road is located downgradient of the existing sewage system leaching bed. This signifies that the on-site well (TW1) can be used to empirically verify if the existing sewage system is currently impacting the local groundwater quality since the existing sewage system and on-site well have been both in steady-state operation since 2009, and both are schedule to continue to be used in a similar way as part of the proposed redevelopment of the subject site.

A review of the groundwater quality results from samples collected from the on-site well (TW1) show that key septic impact parameters, namely E.Coli, Fecal Coliforms and Nitrate/Nitrites were either below the laboratory's method detection limit or not detected (see Table 2). It is important to note these findings are in agreement with the findings that the local groundwater supply aquifer does not appear to be impacted by the local individual private sewage systems present in the area based on a review of key indicator parameters, based on similar groundwater quality results observed for samples collected from five (5) private neighbouring wells, all located within 180m of the subject site, as part of a Hydrogeological and Septic Impact Assessment report conducted as part of a severance application for the property at 137 Walgreen Road (McIntosh Perry, 2022).

Based on the above-noted discussion, the proposed development is not expected to affect any existing or potential drinking water supply aquifer and therefore it is recommended that the review agency accept that this septic impact assessment provides sufficient information to assess the likelihood that the operation of the on-site sewage system will not adversely impact the well(s) to be construction on the subject property or existing wells on surrounding properties.

5.0 RECOMMENDATIONS

5.1 Wastewater Servicing

Private Sewage Systems

- Approval for on-site septic treatment is governed by the OBC as it is understood that the Daily Design Flow proposed commercial building will be approximately 3,675 L/day (i.e. less than 10,000 litres per day).

- The Daily Design Flow of 3,675 L/day for the proposed redeveloped commercial building is also less than the rated capacity of the existing approved sewage system of 3,750 L/day. To this end, a Part 10/11 renovation permit application was filed in December 2024 to the OSSO for the re-use of the existing approved Class 4 sewage system to service the proposed re-development of the property, including interior retrofits within the existing building and a building expansion. The OSSO issued Part 10/11 Change of Use/Renovation permit no. B-24-086 for the existing sewage system on December 20, 2024. It is therefore recommended that the proposed redevelopment be serviced by the existing Class 4 sewage system.

- Any changes to the on-site sewage system must be constructed with all appropriate setbacks, treatment units and stipulations as per applicable Ontario Regulations.

Servicing Layout

- The proposed development and associated existing Class 4 sewage system should follow the layout included in the Site Plan application.

6.0 LIMITATIONS

This report has been prepared, and the work referred to in this report has been undertaken by Egis for the Client. It is intended for the sole, and exclusive use of the Client with respect to the stated purpose of the work carried out by Egis.

The report may not be relied upon by any other person or entity without the express written consent of Egis. Any use which a third party makes of this report, or any reliance on decisions made based on it, without a Reliance Letter, are the responsibility of such third parties. Egis accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report or the information contained within it.

The investigation undertaken by Egis with respect to this report and any conclusions or recommendations made in this report reflect Egis's judgment based on the Site conditions observed at the time of the Site investigations, inspections, and/or sampling on the date(s) set out in this report, and on information available at the time of the preparation of this report. Conditions such as ground cover, weather, physical obstructions, etc. may influence conclusions or recommendations made in this report. Egis does not certify or warrant the environmental status of the property.

This report has been prepared for specific application to this Site and it may be based, in part, upon visual observation of the Site, subsurface investigation at discrete locations and depths, and/or specific analysis of specific chemical parameters and materials during a specific time interval, all as described in this report. Unless otherwise stated, the findings cannot be extended to previous or future Site conditions, portions of the Site which were unavailable for direct investigation, Site locations, subsurface

or otherwise, which were not investigated directly, or chemical parameters, materials, or analysis which were not addressed or performed. Substances other than those addressed by the investigation described in this report may exist at the Site, substances addressed by the investigation may exist in areas of the Site not investigated, and concentrations of substances addressed which are different than those reported may exist in areas other than the locations from which samples were taken.

If Site conditions or applicable standards change, or if any additional information becomes available at a future date, modifications to the findings, conclusions and recommendations in this report may be necessary.

7.0 CLOSURE

We trust that this information is satisfactory for your present requirements. Should you have any questions or require additional information, please do not hesitate to contact the undersigned.

Respectfully submitted,
Egis

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TABLES

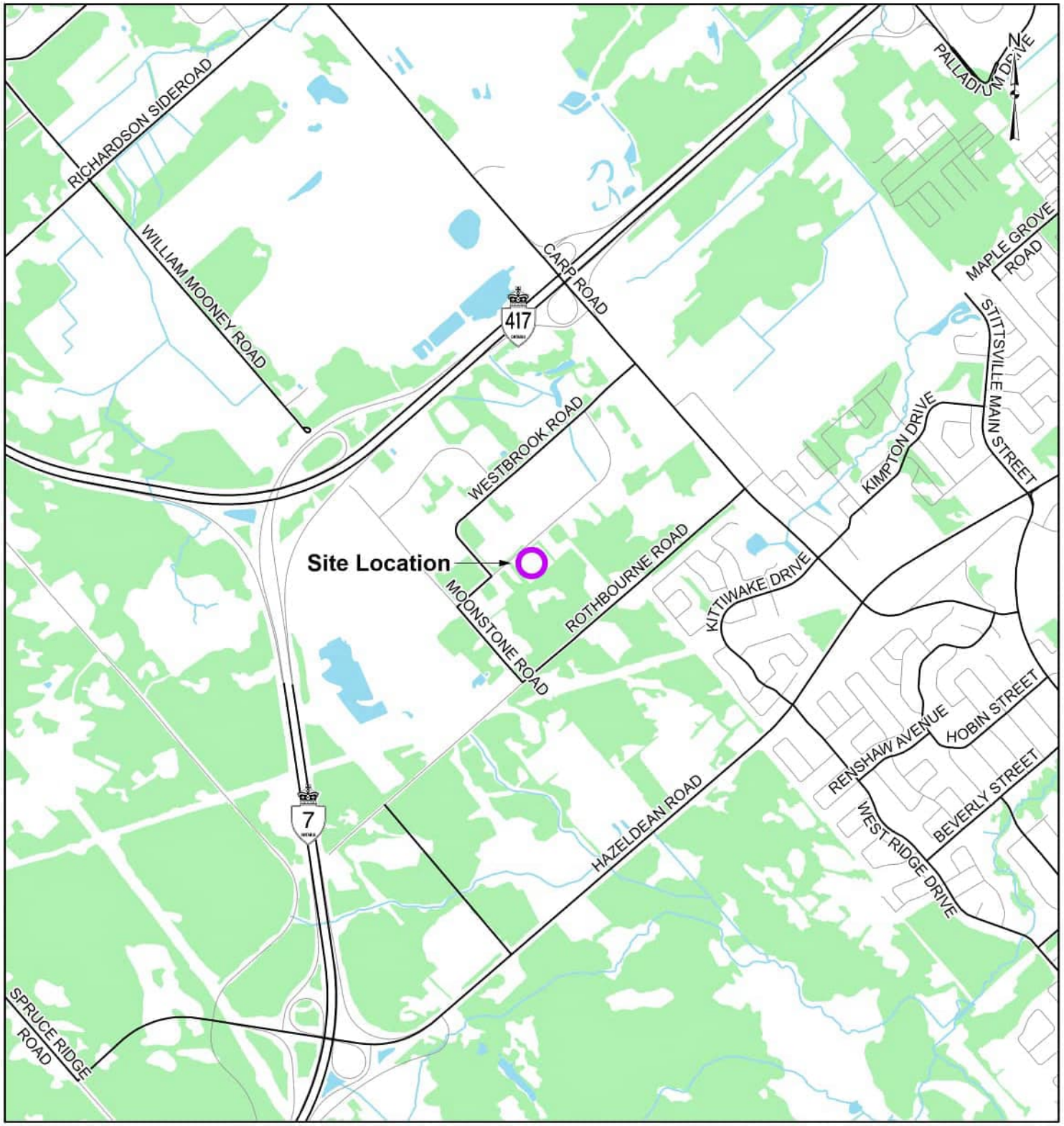
Table 2
Summary of Laboratory Water Quality Results

Sample ID	Units	MDL	ODWSOG	Canadian Drinking Water Guideline	Limit Type	TW1-1	TW1-2	TW1-3	TW1-4	TW1-5
Sample Date						24-Aug-28		11-Dec-24	27-Jan-25	03-Feb-25
Location						145 Walgreen Road				
Parameter:										
Microbiological Parameters										
E. Coli	ct/100mL	0	0	-	MAC	0	0	0	0	0
Fecal Coliforms	ct/100mL	0	-	-	-	0	0	0	0	0
Total Coliforms	ct/100mL	0	0	0	MAC	25	0	10	0	0
General Inorganics										
Alkalinity, total	mg/L	5	30-500	-	OG	330	328	337	-	-
Ammonia as N	mg/L	0.02	-	-	-	0.311	0.338	0.441	-	-
Dissolved Organic Carbon	mg/L	0.5	5	-	AO	3.6	3.3	3.4	-	-
Colour	TCU	2	5	-	AO	15	25	10	-	-
Conductivity	uS/cm	5	-	-	-	4490	4490	4840	-	-
Hardness	mg/L	1	80-100	-	OG	1240	1290	1250	-	-
pH	pH Units	1	6.5-8.5	-	-	7.64	7.59	7.51	-	-
Phenolics	mg/L	0.001	-	-	-	<0.001	<0.001	<0.001	-	-
Total Dissolved Solids	mg/L	1	500	-	AO	2920	2920	3150	-	-
Sulphide	mg/L	0.01	0.05	-	AO	-	<0.01	<0.01	-	-
		0.05				<0.05	-	-	-	-
Tannin & Lignin	mg/L	0.1	-	-	-	0.2	0.3	0.3	-	-
Total Kjeldahl Nitrogen	mg/L	0.1	-	-	-	0.516	0.373	0.622	-	-
Turbidity	NTU	0.1	5	-	AO	20.3	12.6	14.2	-	-
Anions										
Chloride	mg/L	1	250	-	AO	1200	1190	1.440	-	-
Fluoride	mg/L	0.1	1.5	-	MAC	0.56	0.57	0.58	-	-
Nitrate as N	mg/L	2.5	10	-	MAC	<2.5	<2.5	<0.10	-	-
Nitrite as N	mg/L	2.5	1	1	MAC	<2.5	<2.5	<0.10	-	-
Sulphate	mg/L	1	500	-	AO 500	187	180	212	-	-
Metals										
Mercury	mg/L	0.0001	0.001	-	MAC	<0.0001	<0.0001	<0.0001	-	-
Aluminum	mg/L	0.01	0.10	-	OG	<0.01	<0.01	<0.01	-	-
Antimony	mg/L	0.0005	0.01	-	MAC	<0.0005	<0.0005	<0.0005	-	-
Arsenic	mg/L	0.001	0.01	-	IMAC	<0.001	<0.001	<0.001	-	-
Barium	mg/L	0.01	1.00	-	MAC	0.11	0.12	0.11	-	-
Beryllium	mg/L	0.0005	-	-	-	<0.0005	<0.0005	<0.0005	-	-
Boron	mg/L	0.01	5.00	-	IMAC	0.16	0.17	0.19	-	-
Cadmium	mg/L	0.0001	0.01	-	MAC	<0.0001	<0.0001	<0.0001	-	-
Calcium	mg/L	1	-	-	-	297	312	304	-	-
Chromium	mg/L	0.001	0.05	-	MAC	<0.001	<0.001	<0.001	-	-
Cobalt	mg/L	0.0002	-	-	-	<0.0002	<0.0002	<0.0002	-	-
Copper	mg/L	0.001	1.00	-	AO	0.003	<0.001	0.011	-	-
Iron	mg/L	0.03	0.30	-	AO	2.17	1.73	1.63	-	-
Lead	mg/L	0.001	0.10	-	MAC	<0.001	<0.001	0.001	-	-
Magnesium	mg/L	1	-	-	-	122	124	119	-	-
Manganese	mg/L	0.01	0.05	0.02	AO	0.07	0.06	0.06	-	-
				0.12	MAC					
Molybdenum	mg/L	0.005	-	-	-	<0.005	<0.005	<0.005	-	-
Nickel	mg/L	0.005	-	-	-	0.005	0.005	0.001	-	-
Potassium	mg/L	1	-	-	-	13	13	13	-	-
Selenium	mg/L	0.001	0.05	-	MAC	<0.001	<0.001	<0.001	-	-
Silver	mg/L	0.0001	-	-	-	<0.0001	<0.0001	<0.0001	-	-
Sodium	mg/L	1	20	-	AO	479	482	556	-	-
Strontium	mg/L	0.002	-	-	-	16.2	17.3	20.7	-	-
			-	7	MAC					
Thallium	mg/L	0.0001	-	-	-	<0.0001	<0.0001	<0.0001	-	-
Tin	mg/L	0.01	-	-	-	<0.01	<0.01	<0.01	-	-
Titanium	mg/L	0.01	-	-	-	<0.01	<0.01	<0.01	-	-
Tungsten	mg/L	0.002	-	-	-	<0.002	<0.002	<0.002	-	-
Uranium	mg/L	0.001	0.02	-	MAC	<0.001	<0.001	<0.001	-	-
Vanadium	mg/L	0.001	-	-	-	<0.001	<0.001	<0.001	-	-
Zinc	mg/L	0.01	5	-	AO	<0.01	<0.01	<0.01	-	-
Volatile Organic Compounds										
1,1,1,2-tetrachloroethane	ug/L	0.5	-	-	-	<0.5	<0.5	-	-	-
1,1,1-trichloroethane	ug/L	0.4	-	-	-	<0.4	<0.4	-	-	-
1,1,2,2-tetrachloroethane	ug/L	0.5	-	-	-	<0.5	<0.5	-	-	-
1,1,2-trichloroethane	ug/L	0.4	-	-	-	<0.4	<0.4	-	-	-
1,1-dichloroethane	ug/L	0.4	-	-	-	<0.4	<0.4	-	-	-
1,1-dichloroethylene	ug/L	0.5	14 (0.014 mg/L)	-	MAC	<0.5	<0.5	-	-	-
1,2-dichlorobenzene	ug/L	0.4	200 (0.2 mg/L)	-	MAC	<0.4	<0.4	-	-	-
1,2-dichloroethane	ug/L	0.5	5	-	IMAC	<0.5	<0.5	-	-	-
1,2-dichloropropane	ug/L	0.5	-	-	-	<0.5	<0.5	-	-	-
1,3,5-trimethylbenzene	ug/L	0.3	-	-	-	<0.3	<0.3	-	-	-
1,3-dichlorobenzene	ug/L	0.4	-	-	-	<0.4	<0.4	-	-	-
1,3-Dichloropropylene (cis+trans)	ug/L	0.5	-	-	-	<0.5	<0.5	-	-	-
1,4-dichlorobenzene	ug/L	0.4	5 (0.005 mg/L)	-	MAC	<0.4	<0.4	-	-	-
Acetone	ug/L	5	-	-	-	<5	<5	-	-	-
Benzene	ug/L	0.5	1 (0.001 mg/L)	-	MAC	<0.5	<0.5	-	-	-
Bromodichloromethane	ug/L	0.3	-	-	-	<0.3	<0.3	-	-	-
Bromoform	ug/L	0.4	-	-	-	<0.4	<0.4	-	-	-
Bromomethane	ug/L	0.5	-	-	-	<0.5	<0.5	-	-	-
c-1,2-Dichloroethylene	ug/L	0.4	-	-	-	<0.4	<0.4	-	-	-
c-1,3-Dichloropropylene	ug/L	0.5	-	-	-	<0.5	<0.5	-	-	-
Carbon Tetrachloride	ug/L	0.2	2 (0.002 mg/L)	-	MAC	<0.2	<0.2	-	-	-
Chloroethane	ug/L	0.5	-	-	-	<0.5	<0.5	-	-	-
Chloroform	ug/L	0.5	-	-	-	<0.5	<0.5	-	-	-
Dibromochloromethane	ug/L	0.3	-	-	-	<0.3	<0.3	-	-	-
Dichlorodifluoromethane	ug/L	0.5	-	-	-	<0.5	<0.5	-	-	-
Dichloromethane	ug/L	4	50 (0.05 mg/L)	-	MAC	<4.0	<4.0	-	-	-
Ethylbenzene	ug/L	0.5	150 (0.15 mg/L)	-	MAC	<0.5	<0.5	-	-	-
Ethylene Dibromide	ug/L	0.2	-	-	-	<0.2	<0.2	-	-	-
Hexane	ug/L	5	-	-	-	<5	<5	-	-	-
m/p-xylene	ug/L	0.4	-	-	-	<0.4	<0.4	-	-	-
Methyl Ethyl Ketone (MEK)	ug/L	2	-	-	-	<2	<2	-	-	-
Methyl Isobutyl Ketone (MIBK)	ug/L	5	-	-	-	<5	<5	-	-	-
Methyl Tert Butyl Ether (MTBE)	ug/L	2	15 (0.015 mg/L)	-	AO	<2	<2	-	-	-
Monochlorobenzene	ug/L	0.5	80 (0.080 mg/L)	-	MAC	<0.5	<0.5	-	-	-
o-xylene	ug/L	0.4	-	-	-	<0.4	<0.4	-	-	-
Styrene	ug/L	0.5	-	-	-	<0.5	<0.5	-	-	-
t-1,2-Dichloroethylene	ug/L	0.4	-	-	-	<0.4	<0.4	-	-	-
t-1,3-Dichloropropylene	ug/L	0.5	-	-	-	<0.5	<0.5	-	-	-
Tetrachloroethylene	ug/L	0.3	10 (0.01 mg/L)	-	MAC	<0.3	<0.3	-	-	-
Toluene	ug/L	0.4	60 (0.06 mg/L)	-	MAC	<0.4	<0.4	-	-	-
Trichloroethylene	ug/L	0.3	5 (0.005 mg/L)	-	MAC	<0.3	<0.3	-	-	-
Trichlorofluoromethane	ug/L	0.5	-	-	-	<0.5	<0.5	-	-	-
Vinyl Chloride	ug/L	0.2	1 (0.001 mg/L)	-	MAC	<0.2	<0.2	-	-	-
Xylene; total	ug/L	0.5	90 (0.090 mg/L)	-	MAC	<0.5	<0.5	-	-	-

Notes:

	Exceeds Ontario Drinking Water Standards, Objectives, and Guidelines
	Exceeds health warning limit for sodium (20, 000 ug/L;20 mg/L)
	Exceeds a Maximum Allowable Concentration (MAC)
MDL	Method Detection Limit
ODWSOG	Ontario Drinking Water Standards, Objectives, and Guidelines (MOECC, 2003 rev. 2006; PIBs 4449e01)
AO	Aesthetic Objective
MAC	Maximum Allowable Concentration (Health-Related Parameter)
OG	Operational Guideline
IMAC	Interim Maximum Acceptable Concentration
ND	Non detectable (below MDL)
ug/L	Micrograms per litre
mg/L	Milligrams per litre
TCU	True Colour Units
uS/cm	Microsemens per centimeter
NTU	Nephelometric Turbidity Units
Ct/100 mL	count per 100 mL

FIGURES



LEGEND

- Site Location
- Local Road
- Major Road
- Watercourse
- Waterbody
- Wooded Area

800 400 0 800

Scale 1:25,000 Metres

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2024.

CLIENT: MILLER WASTE

PROJEC: SEPTIC IMPACT ASSESSMENT
145 WALGREEN ROAD

TITLE: SITE LOCATION

egis
115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742

PROJECT NO: CCO-25-1370		FIGURE:
Date	Nov., 07, 2024	1
GIS	AH	
Checked By	MB	

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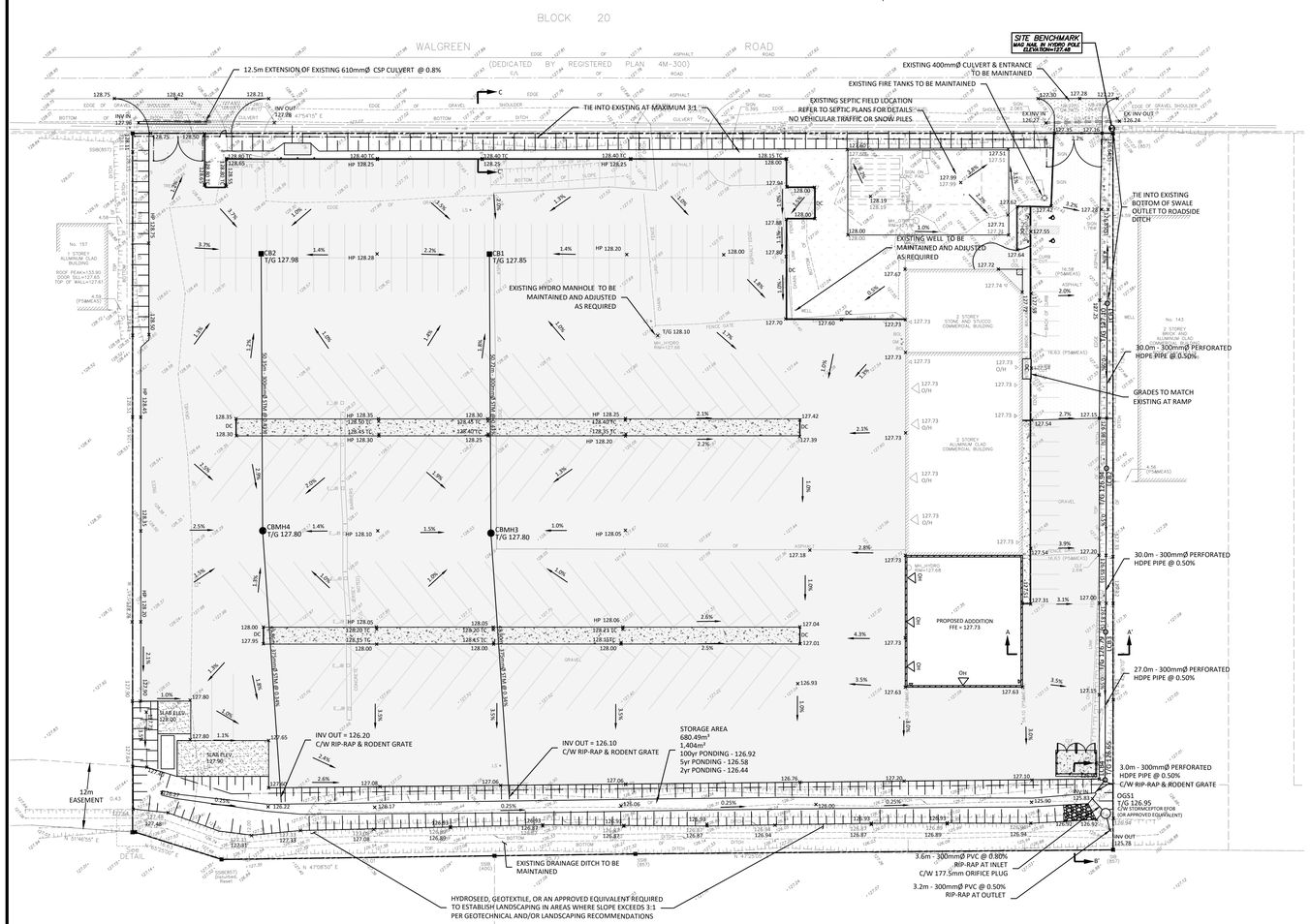


GENERAL NOTES

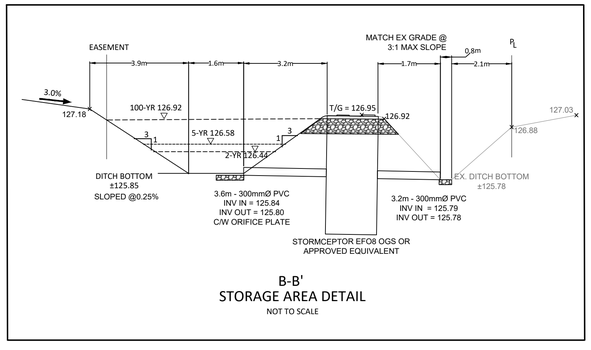
1. THE ORIGINAL TOPOGRAPHY, GROUND ELEVATION AND SURVEY DATA SHOWN ARE SUPPLIED FOR INFORMATION PURPOSES ONLY, AND IMPLY NO GUARANTEE OF ACCURACY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL INFORMATION SHOWN. PER THE PROVIDED SURVEY ELEVATIONS ARE GEODETIC AND ARE REFERRED TO CITY OF OTTAWA BENCHMARK POINT 00119680118 HAVING A PUBLISHED ELEVATION OF 126.18 METRES (CGVD28:78)
2. THIS PLAN IS NOT A CADASTRAL SURVEY SHOWING LEGAL PROPERTY BOUNDARIES AND EASEMENTS. THE PROPERTY BOUNDARIES SHOWN HEREON HAVE BEEN DERIVED INFORMATION SUPPLIED BY (OR SHOWN ON) REGISTERED PLAN 4M-300 PREPARED BY JD BARNES DATED APRIL 5, 2024 AND CANNOT BE RELIED UPON TO BE ACCURATE OR COMPLETE. THE PRECISE LOCATION OF THE CURRENT PROPERTY BOUNDARIES AND EASEMENTS CAN ONLY BE DETERMINED BY AN UP-TO-DATE LAND TITLES SEARCH AND A SUBSEQUENT CADASTRAL SURVEY PERFORMED AND CERTIFIED BY AN ONTARIO LAND SURVEYOR.
3. THE CONTRACTOR IS TO OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY BEFORE COMMENCING CONSTRUCTION.
4. THE CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT.
5. THE CONTRACTOR IS TO DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME ALL RESPONSIBILITY FOR EXISTING UTILITIES WHETHER OR NOT SHOWN ON THESE DRAWINGS. IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
6. RESTORE ALL TRENCHES AND SURFACES OF PUBLIC ROAD ALLOWANCES TO CONDITION EQUAL OR BETTER THAN ORIGINAL CONDITION AND TO THE SATISFACTION OF THE CITY AUTHORITIES.
7. EXCAVATE AND DISPOSE OF ALL EXCESS EXCAVATED MATERIAL, SUCH AS ASPHALT, CURBING AND DEBRIS, OFF SITE AS DIRECTED BY THE ENGINEER AND THE CITY.
8. TOPSOIL TO BE STRIPPED AND STOCKPILED FOR REHABILITATION. CLEAN FILL TO BE PLACED IN FILL AREAS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
9. CONTRACTOR TO MINIMIZE THE ACTUAL LIMITS OF REMOVALS AND REINSTATEMENT WHEREVER POSSIBLE, AND SHALL MAKE THEIR OWN JUDGEMENT AND ACCOUNT FOR ALL MATERIAL AND LABOUR REQUIRED FOR ADEQUATELY REINSTATING THE AREA TO PRE-CONSTRUCTION CONDITIONS OR BETTER, AND BEAR THE COST OF THE SAME. NO ADDITIONAL PAYMENT WILL BE MADE FOR REINSTATEMENT WORK NOT SHOWN ON THE CONTRACT DRAWING AS A DIRECT RESULT FROM CONSTRUCTION.
10. ALL DISTURBED AREAS TO BE RESTORED TO ORIGINAL CONDITION OR BETTER UNLESS OTHERWISE SPECIFIED.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND SAFETY MEASURES DURING THE CONSTRUCTION PERIOD, INCLUDING THE SUPPLY, INSTALLATION, AND REMOVAL OF ALL NECESSARY SIGNAGE, DELINEATORS, MARKERS AND BARRIERS.
12. DO NOT ALTER GRADING OF THE SITE WITHOUT PRIOR APPROVAL OF THE ENGINEER/CITY.
13. ALL ROADWAY, PARKING LOT, AND GRADING WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH CITY STANDARDS AND SPECIFICATIONS. THE CONTRACTOR IS TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE BUILDING.
14. CONTACT THE CITY FOR INSPECTION OF ROUGH GRADING OF PARKING LOTS, ROADWAYS AND LANDSCAPED AREAS PRIOR TO PLACEMENT OF ASPHALT AND TOPSOIL. ALL DEFICIENCIES NOTED SHALL BE RECTIFIED TO THE CITY'S SATISFACTION PRIOR TO PLACEMENT OF ANY ASPHALT, TOPSOIL, SEED & MULCH AND/OR SOD.
15. ALL DIMENSIONS AND INVERTS MUST BE VERIFIED PRIOR TO CONSTRUCTION, IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
16. ELECTRICAL, GAS, TELEPHONE AND TELEVISION SERVICE LOCATIONS ARE SUBJECT TO THE INDIVIDUAL AGENCY:
    - ELECTRICAL SERVICE - HYDRO ONE,
    - GAS SERVICE - ENBRIDGE,
    - TELEPHONE SERVICE - BELL CANADA,
    - TELEVISION SERVICE - ROGERS.
16. INSTALLATION TO BE IN ACCORDANCE WITH CURRENT CODES AND STANDARDS OF APPROVAL AGENCIES HYDRO ONE, BELL AND THE CITY.
17. CONTRACTOR TO ENSURE ALL APPLICABLE OPS SPECIFICATIONS ARE FOLLOWED DURING CONSTRUCTION
18. FOR GEOTECHNICAL INFORMATION, REFER TO THE GEOTECHNICAL REPORT FOR 145 WALGREEN ROAD, PREPARED BY PINCHIN, DATED JUNE 21, 2024.
19. ALL PROPOSED CURB TO BE CONCRETE BARRIER CURB UNLESS OTHERWISE SPECIFIED.

EROSION AND SEDIMENT CONTROL

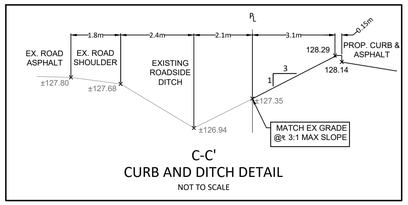
1. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THIS INCLUDES LIMITING THE AMOUNT OF EXPOSED SOIL, TEMPORARY SEDIMENT CONTROL (GEOSOCK INSERTS WITH AN OVERFLOW UNDER GRATE OR COVER) TO BE IMPLEMENTED DURING CONSTRUCTION ON ALL PROPOSED ROAD CATCHBASINS, REARYARD CATCHBASINS AND CATCHBASIN MANHOLES AND OTHER SEDIMENT TRAPS. NO RECYCLED GEOSOCK MATERIAL SHALL BE PERMITTED FOR USE ON SITE. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
2. AT THE DISCRETION OF THE PROJECT MANAGER OR MUNICIPAL STAFF, ADDITIONAL SILT CONTROL DEVICES SHALL BE INSTALLED AT DESIGNATED LOCATIONS.
3. FOR SILT FENCE BARRIER, USE OPSD 219.110. GEOTEXTILE FOR SILT FENCE AS PER OPSS 1860, TABLE 3.
4. EXCEPT AS PROVIDED IN PARAGRAPHS 4.1., and 4.2. BELOW, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS FEASIBLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED.
    4.1. WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASE IS PRECLUDED BY SNOW COVER, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS FEASIBLE.
    4.2. WHERE CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN 21 DAYS FROM WHEN ACTIVITIES CEASED, (E.G. THE TOTAL TIME PERIOD THAT CONSTRUCTION ACTIVITY IS TEMPORARILY CEASED IS LESS THAN 21 DAYS) THEN STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF SITE BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY CEASED.
5. SEDIMENT THAT IS ACCUMULATED BY THE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED IN A MANNER THAT AVOIDS ESCAPE OF THE SEDIMENT TO THE DOWNSTREAM SIDE OF THE CONTROL MEASURE AND AVOIDS DAMAGE TO THE CONTROL MEASURE. SEDIMENT SHALL BE REMOVED TO THE LEVEL OF THE GRADE EXISTING AT THE TIME THE CONTROL MEASURE WAS CONSTRUCTED AND BE ACCORDING TO THE FOLLOWING:
    5.1. FOR LIGHT-DUTY SEDIMENT BARRIERS, ACCUMULATED SEDIMENT SHALL BE REMOVED ONCE IT REACHES THE LESSER OF THE FOLLOWING:
        5.1.1. A DEPTH OF ONE-HALF THE EFFECTIVE HEIGHT OF THE CONTROL MEASURE.
        5.1.2. A DEPTH OF 300 MM IMMEDIATELY UPSTREAM OF THE CONTROL MEASURE.
    5.2. FOR ALL CONTROL MEASURES, ACCUMULATED SEDIMENT SHALL BE REMOVED AS NECESSARY TO PERFORM MAINTENANCE REPAIRS.
    5.3. ACCUMULATED SEDIMENT SHALL BE REMOVED PRIOR TO THE REMOVAL OF THE CONTROL MEASURE.
    5.4. ACCUMULATED SEDIMENT IS TO BE REMOVED AND DISPOSED OF AS PER OPSS 180.
6. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MONITORED TO ENSURE THEY ARE IN EFFECTIVE WORKING ORDER. THE CONDITION OF THE CONTROL MEASURES SHALL BE MONITORED PRIOR TO ANY FORECAST STORM EVENT AND FOLLOWING A STORM EVENT.
7. DUST CONTROL MEASURES SHOULD BE CONSIDERED PRIOR TO CLEARING AND GRADING. THE USE OF WATER, CALCIUM CHLORIDE FLAKES/SOLUTION OR MAGNESIUM CHLORIDE FLAKES/SOLUTION SHALL BE USED AS DUST SUPPRESSANTS AS PER OPSS 506. THIS IS TO LIMIT WIND EROSION OF SOILS WHICH MAY TRANSPORT SEDIMENTS OFFSITE, WHERE THEY MAY BE WASHED INTO THE RECEIVING WATER BY THE NEXT RAINSTORM.
8. ALL 'GREEN AREAS' TO BE TREATED WITH 150mm TOPSOIL AND SOD AS SOON AS FEASIBLE, AS PER OPSS 570.
9. ALL DISTURBED AREAS TO BE RESTORED TO ORIGINAL CONDITION OR BETTER UNLESS OTHERWISE SPECIFIED.
10. STOCKPILED MATERIAL IS TO BE STORED AWAY FROM POTENTIAL RECEIVERS (E.G. STORM CATCHBASINS, MANHOLES), AND BE SURROUNDED BY EROSION CONTROL MEASURES WHERE MATERIAL IS LEFT IN PLACE IN EXCESS OF 14 DAYS.
11. IF REQUIRED, DEWATERING/SETTLING BASINS SHALL BE CONSTRUCTED AS PER OPSD 219.240 AND LOCATED ON FLAT GRADE UPSTREAM OF OTHER EXISTING MITIGATION MEASURES. WATERCOURSES SHALL NOT BE DIVERTED, OR BLOCKED, AND TEMPORARY WATERCOURSES CROSSINGS SHALL NOT BE CONSTRUCTED OR UTILIZED, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. IF CLOSURE OF ANY PERMANENT WATER PASSAGE IS NECESSARY, THE CONTRACTOR SHALL RELEASE ANY STRANDED FISH TO THE OPEN PORTION OF THE WATERCOURSE WITHOUT HARM.
12. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL CONFORM TO OPSS 577
13. WHERE DEWATERING IS REQUIRED, THE DISCHARGED WATER SHALL BE CONTROLLED IN ACCORDANCE WITH OPSS 518.
14. ALL SETTLING/FILTRATION BASINS SHALL BE EQUIPPED WITH TERRAFIX 270R GEOTEXTILE (OR APPROVED EQUIVALENT) AND SHALL BE CLEANED AND REPLACED AS REQUIRED.

SEWER NOTES:

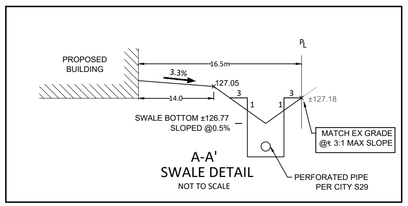
1. CONSTRUCT ALL SEWERS, CATCH BASINS, MANHOLES AND APPURTENANCES IN ACCORDANCE WITH OPSD STANDARDS AND SPECIFICATIONS, AS WELL AS CITY.
2. SEWER TRENCHING AND BEDDING SHALL CONFORM TO OPSD 802.010 AND 802.013 UNLESS NOTED OTHERWISE.
    2.1. BEDDING SHALL BE A MINIMUM 150mm OF GRANULAR "A", COMPACTED TO MINIMUM 95% STANDARD PROCTOR DRY DENSITY. CLEAR STONE BEDDING SHALL NOT BE PERMITTED.
    2.2. SUB-BEDDING, IF REQUIRED SHALL CONSIST OF 450mm OF COMPACTED GRANULAR "B" TYPE 1.
    2.3. BACKFILL TO AT LEAST 300mm ABOVE TOP OF PIPE WITH GRANULAR "A" OR GRANULAR "B" TYPE 1.
    2.4. TO MINIMIZE DIFFERENTIAL FROST HEAVING, TRENCH BACKFILL (FROM PAVEMENT SUBGRADE TO 2.0 METRES BELOW FINISHED GRADE) SHALL MATCH EXISTING SOIL CONDITIONS.
3. SANITARY SEWERS AND CONNECTIONS 150mmØ AND SMALLER TO BE PVC SDR-28.
4. SEWERS AND CONNECTIONS 200mmØ AND LARGER TO BE PVC SDR-35. BEDDING TO BE TYPE "B" EXCEPT AT RISERS, UNLESS NOTED OTHERWISE.
5. SEWERS AND WATERMAINS LOCATED PARALLEL TO EACH OTHER SHOULD BE CONSTRUCTED IN SEPARATE TRENCHES. WHEN IT IS IMPOSSIBLE OR NOT PRACTICAL TO MAINTAIN VERTICAL AND/OR HORIZONTAL SEPARATION PER MECP STANDARDS, ALL SEWERS SHOULD BE CONSTRUCTED OF WATERMAIN QUALITY PIPE, PRESSURE TESTED IN PLACE AT A PRESSURE OF 350 kPa (50 psi) WITHOUT LEAKAGE USING THE TESTING METHODOLOGY IN ONTARIO PROVINCIAL STANDARD SPECIFICATION 701 (OPSS 701) OF THE OPS.
6. INSULATE ALL STORM AND SANITARY SEWERS/SERVICES THAT HAVE LESS THAN 2.0m OF COVER WITH THERMAL INSULATION AS PER CITY DETAIL S35, OPTION A.
7. SEWER CONNECTIONS ARE TO BE MADE ABOVE THE SPRINGLINE OF THE SEWERMAIN AS PER CITY OF OTTAWA STANDARD DRAWING S11, S11.1 & S11.2.
8. SUPPLY AND INSTALL ALL PIPING AND APPURTENANCES AS SHOWN AND DETAILED TO WITHIN 1.0m OF BUILDING. ALL ENDS OF SERVICES TO BE PROPERLY CAPPED AND LOCATED WITH 2"x4"X8' LONG MARKER.
9. CONTRACTOR TO TELEVISE (CCTV) ALL PROPOSED SEWERS ON SITE, OUTLET CONNECTION TO THE MAIN AND PIPES 150mmØ OR GREATER PRIOR TO BASE COURSE ASPHALT. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES.
10. DYE TESTING IS TO BE COMPLETED ON SANITARY SERVICE TO CONFIRM PROPER CONNECTION TO SANITARY SEWER MAIN.



B-B'
STORAGE AREA DETAIL
NOT TO SCALE



C-C'
CURB AND DITCH DETAIL
NOT TO SCALE



A-A'
SWALE DETAIL
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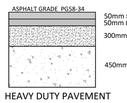


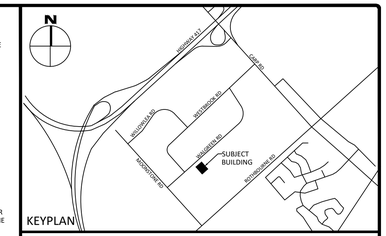
HEAVY DUTY PAVEMENT CROSS-SECTION
NOT TO SCALE

ASPHALT CROSS-SECTIONS TO CONFORM TO GEOTECHNICAL REPORT COMPLETED BY PINCHIN, DATED JUNE 21, 2024

STM STRUCTURE TABLE

NAME	RIM ELEV.	INVERT IN	INVERT OUT	DESCRIPTION
CB1	127.85		SE126.490	COVER: CITY S19 FRAME: CITY S19 STR.: OPSD 705.010
CB2	127.98		SE126.585	COVER: CITY S19 FRAME: CITY S19 STR.: OPSD 705.010
CBMH3	127.80	NW126.270	SE126.265	COVER: CITY S28.1 FRAME: CITY S25 STR. OPSD 701.010
CBMH4	127.80	NW126.370	SE126.365	COVER: CITY S28.1 FRAME: CITY S25 STR. OPSD 701.010
LCB1	127.10		SE126.315	PER CITY STANDARD S31
LCB2	126.94	NW126.164	SE126.159	PER CITY STANDARD S30
LCB3	126.79	NW126.010	SE126.005	PER CITY STANDARD S30
LCB4	126.65	NW125.870	S125.865	PER CITY STANDARD S30
OGS1	126.95	W125.801	SE125.792	STORMCEPTOR EFO8 (OR APPROVED EQUIVALENT) FRAME & COVER: OPSD 401.040/B

FOR REVIEW ONLY
NOT FOR CONSTRUCTION



KEYPLAN

LEGEND

LEGAL BOUNDARY
EXISTING FENCE
EXISTING STORM STRUCTURE
EXISTING CATCHBASIN
EXISTING SANITARY STRUCTURE
EXISTING FIRE HYDRANT
EXISTING VALVE & VALVE BOX
EXISTING HYDRO POLE H.P.
EXISTING HYDRO H H
EXISTING UTILITIES HBCS HBCS
EXISTING ELEVATION ×99.00
PROPOSED STORM MANHOLE
PROPOSED STORM CATCHBASIN MH
PROPOSED SANITARY STRUCTURE
PROPOSED WATER VALVE/HYDRANT
PROPOSED FINISHED GROUND ELEVATION ×99.00
PROPOSED TOP OF CURB ELEVATION ×99.00TC
PROPOSED TOP OF WALL ELEVATION ×99.00TW
PROPOSED BOTTOM OF WALL ELEVATION ×99.00BW
PROPOSED DITCH ELEVATION ×99.00(D)
PROPOSED SWALE ELEVATION ×99.00(S)
PROPOSED SLOPE 1.0%
PROPOSED TERRACING (3:1 MAX)
PROPOSED BARRIER CURB
PROPOSED RETAINING WALL
PROPOSED DRAINAGE SWALE
PROPOSED CONCRETE SIDEWALK
ENTRY/EXIT LOCATION, ELEVATION & LEVEL BF,1R, OH MAIN,L1
BF = BARRIER FREE FFE=74.40
1R = ONE RISER, OH = OVERHEAD DOOR

No.	Revisions	Date
3	ISSUED FOR RESUBMISSION	3.6.2025
2	ISSUED FOR SITE PLAN CONTROL	12.20.2024
1	FOR REVIEW	12.18.2024

Check and verify all dimensions before proceeding with the work — Do not scale drawings

SCALE 1 : 500
0 10 20 30 40 50 Metres

egis

Stamp:

Client:
MILLER WASTE SYSTEMS
112 BALES DRIVE EAST
EAST GWILLIMBURY, ON

Project:
PROPOSED ADDITION
145 WALGREEN ROAD
CARP, ON

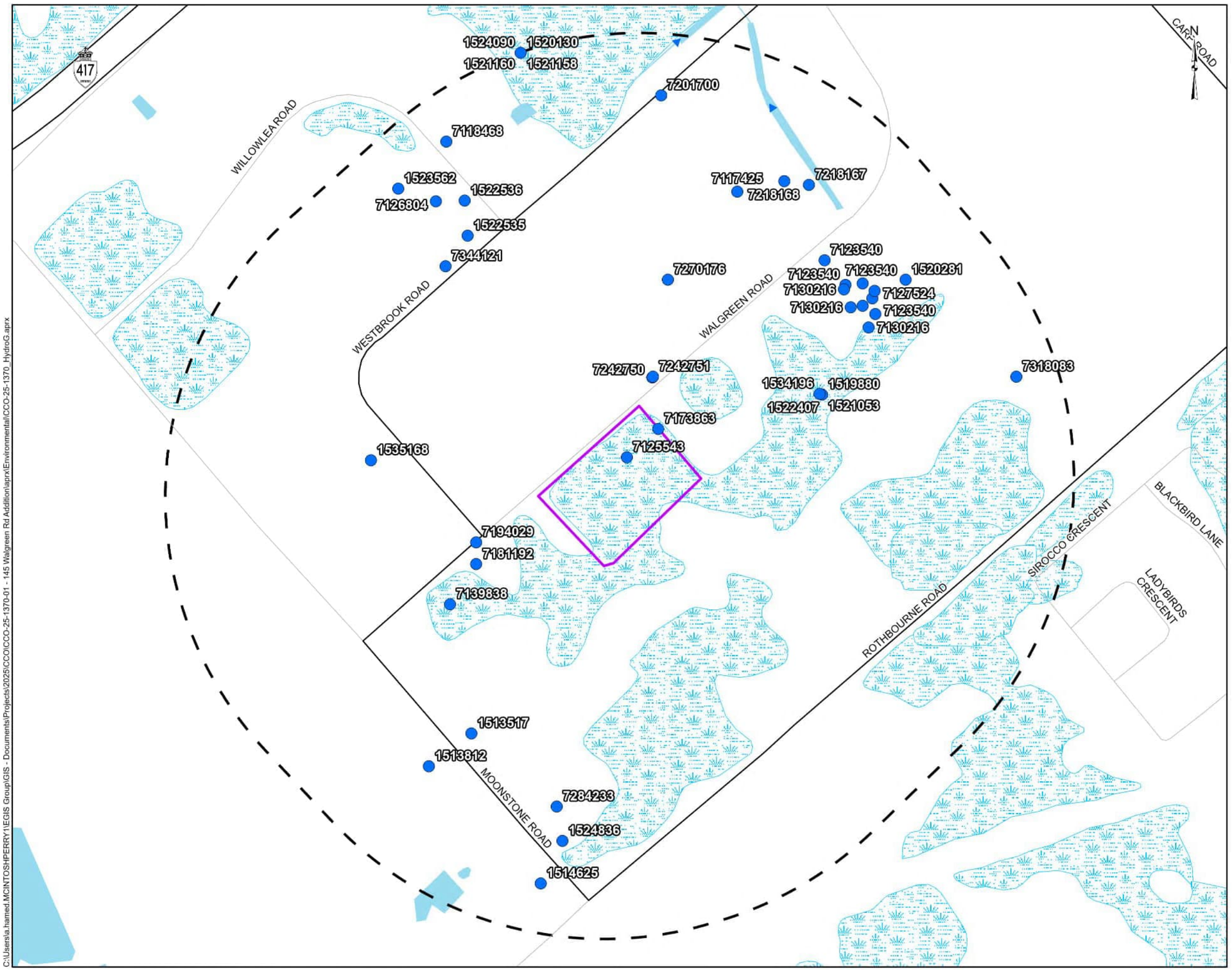
Drawing Title:
SITE GRADING, DRAINAGE, EROSION & SEDIMENT CONTROL & SERVICING PLAN

Scale: 1:500	Project Number: CO-25-1370
Drawn By: RP	
Checked By: AG	Drawing Number: C101
Designed By:	

D07-00-000

#XXXXX

FILENAME: U:\Ottawa\01 Project - Proposals\2025 Jobs\PCO\PCO-25-1370 White Owl Group_Building Expansion_145 Walgreen Road\12 - Drawings\CO-25-1370 - Design 1.dwg
LAST SAVED: Thursday, March 06, 2025 LAST SAVED BY: rpickard
LAST PLOTTED: Friday, March 07, 2025 7:58 PLOTTED BY:



LEGEND

- MECP Well Location
- Property Boundary
- 500m Buffer
- Local Road
- Major Road
- Waterbody
- Watercourse
- Unevaluated Wetland

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2024.

100 50 0 100

Scale 1:5,000 Metres

CLIENT: MILLER WASTE

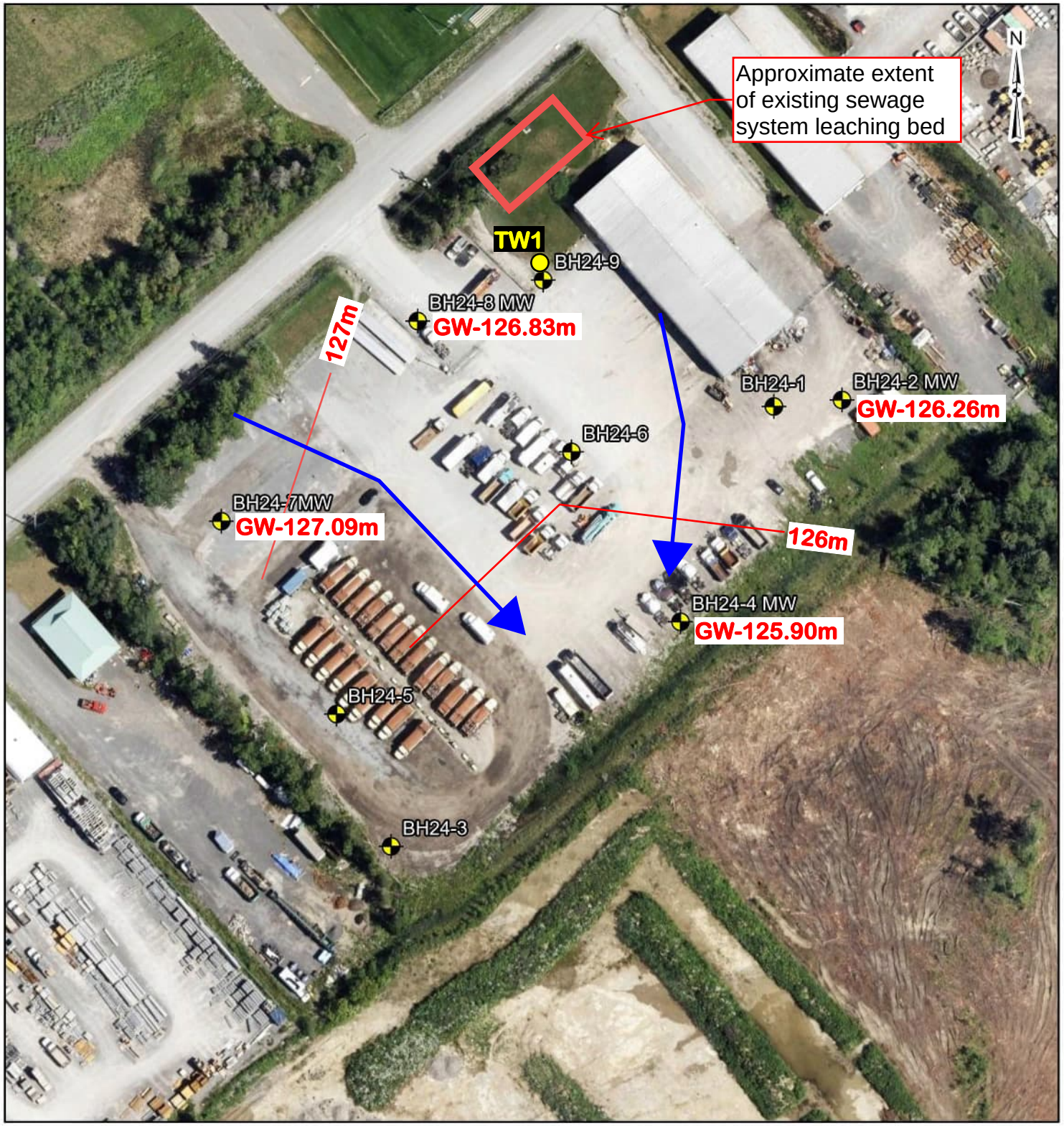
PROJECT: SEPTIC IMPACT ASSESSMENT
145 WALGREEN ROAD

TITLE: MECP WATER WELL
INFORMATION SYSTEM SUMMARY

egis
115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742

PROJECT NO: CCO-25-1370		FIGURE:
Date	Nov., 07, 2024	3
GIS	AH	
Checked By	MB	

C:\Users\a.hamed.MCINTOSHPERRY1\EGIS Group\GIS - Documents\Projects\2025\CCO\CCO-25-1370-01 - 145 Walgreen Rd Addition\aprx\Environmental\CCO-25-1370_HydroG.aprx



40 20 0 40

Scale 1:1,250 Metres

LEGEND

- Borehole/ Monitoring Well Locations
- Test Well
- 126m Shallow Groundwater Elevation Contours
- Inferred Shallow Groundwater Flow Direction

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2024.

CLIENT: W.O M.W REALTY LIMITED

PROJECT: SEPTIC IMPACT ASSESSMENT
PROPOSED BUILDING ADDITION AND SITE DEVELOPMENT
145 WALGREEN ROAD

TITLE: SHALLOW GROUNDWATER FLOW DIRECTION

egis
115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742

PROJECT NO:	CCO-25-1370-01
Date	Mar.11.2025
GIS	AH
Checked By	PL

FIGURE: 4

C:\Users\a.hamed.MCINTOSHPERRY1\EGIS Group\GIS - Documents\Projects\2025\CCO\CCO-25-1370-01 - 145 Walgreen Rd Addition\aprx\Geotech\CCO-25-1370_Geotech.aprx

APPENDICES

APPENDIX A - MECP WELL RECORDS

WELL_ID	COMPLETED	WELL DEPTH (m)	STATIC WATER LEVEL (m)	DEPTH TO BEDROCK (m)	FINAL STATUS	USE1	GEOLOGY	COLOR	FORMATION_TOP_DEPTH	FORMATION_END_DEPTH	UNITS OF MEASUREMENT
1513812	25-Aug-73	29	1.8	0.6	Water Supply	Domestic	LIMESTONE,,	GREY	13	89	ft
1513812	25-Aug-73	29	1.8	0.6	Water Supply	Domestic	ROCK,SAND,	BROWN	2	13	ft
1513812	25-Aug-73	29	1.8	0.6	Water Supply	Domestic	SAND,STONES,	BROWN	0	2	ft
1513812	25-Aug-73	29	1.8	0.6	Water Supply	Domestic	LIMESTONE,SAND,	GREY	89	95	ft
1513517	10-Sep-73	29	5.2	0.9	Water Supply	Domestic	SAND,,	GREY	79	95	ft
1513517	10-Sep-73	29	5.2	0.9	Water Supply	Domestic	LIMESTONE,,	GREY	3	8	ft
1513517	10-Sep-73	29	5.2	0.9	Water Supply	Domestic	LIMESTONE,,	GREY	8	79	ft
1513517	10-Sep-73	29	5.2	0.9	Water Supply	Domestic	SAND,STONES,	BROWN	0	3	ft
1514625	25-Apr-75	35.7	0.9	3	Water Supply	Domestic	SANDSTONE,,	GREY	30	40	ft
1514625	25-Apr-75	35.7	0.9	3	Water Supply	Domestic	LIMESTONE,,	GREY	40	115	ft
1514625	25-Apr-75	35.7	0.9	3	Water Supply	Domestic	LIMESTONE,,	GREY	10	30	ft
1514625	25-Apr-75	35.7	0.9	3	Water Supply	Domestic	SAND,BOULDERS,PACKED	GREY	0	10	ft
1514625	25-Apr-75	35.7	0.9	3	Water Supply	Domestic	LIMESTONE,,	GREY	115	117	ft
1519880	18-Jul-85	53.3	6.1	6.7	Water Supply	Domestic	SAND,LIGHT-COLOURED,	BROWN	0	12	ft
1519880	18-Jul-85	53.3	6.1	6.7	Water Supply	Domestic	SAND,STONES,	GREY	12	22	ft
1519880	18-Jul-85	53.3	6.1	6.7	Water Supply	Domestic	LIMESTONE,,	GREY	22	175	ft
1520130	10-Aug-85	12.2	1.2	6.4	Water Supply	Domestic	CLAY,PACKED,	GREY	0	5	ft
1520130	10-Aug-85	12.2	1.2	6.4	Water Supply	Domestic	STONES,SILT,PACKED	GREY	5	11	ft
1520130	10-Aug-85	12.2	1.2	6.4	Water Supply	Domestic	GRAVEL,SILT,PACKED	GREY	11	13	ft
1520130	10-Aug-85	12.2	1.2	6.4	Water Supply	Domestic	STONES,SILT,PACKED	GREY	13	15	ft
1520130	10-Aug-85	12.2	1.2	6.4	Water Supply	Domestic	GRAVEL,SILT,DENSE	GREY	15	21	ft
1520130	10-Aug-85	12.2	1.2	6.4	Water Supply	Domestic	LIMESTONE,HARD,	GREY	21	40	ft
1520189	18-Oct-85	9.1	1.5	5.5	Water Supply	Domestic	GRAVEL,LOOSE,	GREY	15	18	ft
1520189	18-Oct-85	9.1	1.5	5.5	Water Supply	Domestic	LIMESTONE,SOFT,	GREY	18	30	ft
1520189	18-Oct-85	9.1	1.5	5.5	Water Supply	Domestic	SAND,LOOSE,	BROWN	0	3	ft
1520189	18-Oct-85	9.1	1.5	5.5	Water Supply	Domestic	CLAY,STONES,PACKED	GREY	3	15	ft
1520281	04-Sep-85	21.9	3	9.1	Water Supply	Domestic	SAND,GRAVEL,BOULDERS	BROWN	0	8	ft
1520281	04-Sep-85	21.9	3	9.1	Water Supply	Domestic	HARDPAN,,	GREY	8	30	ft
1520281	04-Sep-85	21.9	3	9.1	Water Supply	Domestic	LIMESTONE,MEDIUM-GRAINED,SOFT	GREY	30	50	ft
1520281	04-Sep-85	21.9	3	9.1	Water Supply	Domestic	LIMESTONE,FRACTURED,	GREY	50	72	ft
1520287	06-Sep-85	22.9	3.7	8.8	Water Supply	Commerical	SAND,GRAVEL,PACKED	GREY	7	29	ft
1520287	06-Sep-85	22.9	3.7	8.8	Water Supply	Commerical	LIMESTONE,MEDIUM-GRAINED,	GREY	29	75	ft
1520287	06-Sep-85	22.9	3.7	8.8	Water Supply	Commerical	SAND,PACKED,	BROWN	0	7	ft
1520296	17-Dec-85	45.7	9.1	4.6	Water Supply	Domestic	SAND,WATER-BEARING,	BROWN	3	10	ft
1520296	17-Dec-85	45.7	9.1	4.6	Water Supply	Domestic	SAND,,	GREY	10	15	ft
1520296	17-Dec-85	45.7	9.1	4.6	Water Supply	Domestic	LIMESTONE,MEDIUM-GRAINED,	GREY	15	150	ft
1520296	17-Dec-85	45.7	9.1	4.6	Water Supply	Domestic	TOPSOIL,STONES,FILL	BROWN	0	3	ft
1520299	20-Dec-85	53.3	9.1	4.9	Water Supply	Domestic	CLAY,SANDY,BOULDERS	BROWN	1	13	ft
1520299	20-Dec-85	53.3	9.1	4.9	Water Supply	Domestic	GRAVEL,PACKED,	GREY	13	16	ft
1520299	20-Dec-85	53.3	9.1	4.9	Water Supply	Domestic	STONES,,		0	1	ft
1520299	20-Dec-85	53.3	9.1	4.9	Water Supply	Domestic	LIMESTONE,,	GREY	16	175	ft
1520803	17-Mar-85	30.5	3.7	6.1	Water Supply	Domestic	SAND,PACKED,	BROWN	0	9	ft
1520803	17-Mar-85	30.5	3.7	6.1	Water Supply	Domestic	SAND,GRAVEL,PACKED	BROWN	9	20	ft
1520803	17-Mar-85	30.5	3.7	6.1	Water Supply	Domestic	LIMESTONE,MEDIUM-GRAINED,	GREY	20	100	ft
1521053	08-Oct-86	11.6	3.4	0	Water Supply	Domestic	TOPSOIL,SAND,PACKED	BROWN	0	1	ft
1521053	08-Oct-86	11.6	3.4	0	Water Supply	Domestic	CLAY,PACKED,	GREY	1	16	ft
1521053	08-Oct-86	11.6	3.4	0	Water Supply	Domestic	SAND,GRAVEL,LOOSE	BROWN	16	38	ft
1521158	25-Nov-86	30.5	3	4.9	Water Supply	Domestic	SAND,GRAVEL,WATER-BEARING	BROWN	0	8	ft
1521158	25-Nov-86	30.5	3	4.9	Water Supply	Domestic	HARDPAN,BOULDERS,	BROWN	8	16	ft
1521158	25-Nov-86	30.5	3	4.9	Water Supply	Domestic	LIMESTONE,MEDIUM-GRAINED,	GREY	16	100	ft
1521160	30-Sep-86	45.7	4.6	4.6	Water Supply	Commerical	TOPSOIL,STONES,WATER-BEARING	BROWN	0	6	ft
1521160	30-Sep-86	45.7	4.6	4.6	Water Supply	Commerical	LIMESTONE,MEDIUM-GRAINED,	GREY	15	150	ft
1521160	30-Sep-86	45.7	4.6	4.6	Water Supply	Commerical	CLAY,SANDY,	GREY	6	15	ft
1522407	19-Dec-87	56.4		3.7	Water Supply	Commerical	SAND,GRAVEL,PACKED	BROWN	0	9	ft
1522407	19-Dec-87	56.4		3.7	Water Supply	Commerical	HARDPAN,,	GREY	9	12	ft
1522407	19-Dec-87	56.4		3.7	Water Supply	Commerical	LIMESTONE,MUCK,SOFT	GREY	12	100	ft
1522407	19-Dec-87	56.4		3.7	Water Supply	Commerical	LIMESTONE,QUARTZ,MUCK	GREY	100	185	ft
1522535	19-Jul-88	45.1	6.7	0	Recharge Well	Cooling And A/C	LIMESTONE,SHALE,	GREY	0	148	ft
1522536	18-Jul-88	45.1	6.7	0	Water Supply	Commerical	LIMESTONE,SHALE,SILT	GREY	0	148	ft
1522745	07-Sep-88	45.7	9.1	0	Water Supply	Domestic	LIMESTONE,SOFT,MEDIUM-GRAINED	GREY	0	150	ft
1523329	23-Dec-88	45.7	9.1	0	Water Supply	Domestic	STONES,FRACTURED,ROCK		0	3	ft
1523329	23-Dec-88	45.7	9.1	0	Water Supply	Domestic	LIMESTONE,MEDIUM GRAVEL,SOFT	GREY	3	150	ft
1523365	31-Mar-89	68.6	6.1	0.6	Water Supply	Domestic	LIMESTONE,,	GREY	2	225	ft
1523365	31-Mar-89	68.6	6.1	0.6	Water Supply	Domestic	TOPSOIL,,	BROWN	0	2	ft
1523388	28-Apr-89	68.6	4.9	2.7	Water Supply	Domestic	SAND,GRAVEL,	BROWN	0	9	ft
1523388	28-Apr-89	68.6	4.9	2.7	Water Supply	Domestic	LIMESTONE,SOFT,MEDIUM-GRAINED	GREY	9	225	ft
1523562	05-Jun-89	42.7	5.5	1.8	Water Supply	Domestic	LIMESTONE,POROUS,	GREY	90	140	ft
1523562	05-Jun-89	42.7	5.5	1.8	Water Supply	Domestic	SAND,STONES,LOOSE	GREY	0	6	ft
1523562	05-Jun-89	42.7	5.5	1.8	Water Supply	Domestic	LIMESTONE,HARD,	GREY	6	90	ft
1523782	18-Aug-89	45.7	4.9	0.9	Water Supply	Domestic	GRAVEL,SANDY,FILL	BROWN	0	3	ft
1523782	18-Aug-89	45.7	4.9	0.9	Water Supply	Domestic	LIMESTONE,MEDIUM-GRAINED,	GREY	3	150	ft
1524090	09-Nov-89	198.1	3	4.3	Water Supply	Domestic	SAND,GRAVEL,BOULDERS	BROWN	0	14	ft
1524090	09-Nov-89	198.1	3	4.3	Water Supply	Domestic	LIMESTONE,MEDIUM-GRAINED,	GREY	14	580	ft
1524090	09-Nov-89	198.1	3	4.3	Water Supply	Domestic	SANDSTONE,HARD,MEDIUM-GRAINED	GREY	580	630	ft
1524090	09-Nov-89	198.1	3	4.3	Water Supply	Domestic	GRANITE,HARD,MEDIUM-GRAINED	WHITE	630	650	ft
1524091	08-Nov-89	74.7	6.1	0.3	Water Supply	Domestic	SAND,STONES,	BROWN	0	1	ft
1524091	08-Nov-89	74.7	6.1	0.3	Water Supply	Domestic	LIMESTONE,,	GREY	1	245	ft
1524836	22-Aug-90	43.6	6.1	2.1	Water Supply	Domestic	CLAY,GRAVEL,	GREY	0	7	ft
1524836	22-Aug-90	43.6	6.1	2.1	Water Supply	Domestic	LIMESTONE,,	GREY	7	143	ft
1525623	30-Jul-91	61	9.8	0	Water Supply	Domestic	LIMESTONE,FRACTURED,	GREY	0	9	ft
1525623	30-Jul-91	61	9.8	0	Water Supply	Domestic	LIMESTONE,MEDIUM-GRAINED,	GREY	9	200	ft
1525624	02-Jul-91	47.2	16.8	2.1	Water Supply	Domestic	SAND,STONES,	BROWN	0	7	ft
1525624	02-Jul-91	47.2	16.8	2.1	Water Supply	Domestic	LIMESTONE,MEDIUM-GRAINED,	GREY	7	155	ft
1528205	07-Sep-94	22.9	4	2.4	Water Supply	Domestic	TOPSOIL,STONES,	BROWN	0	8	ft
1528205	07-Sep-94	22.9	4	2.4	Water Supply	Domestic	LIMESTONE,MEDIUM-GRAINED,	GREY	8	75	ft
1528504	10-May-85	22.9	1.5	5.2	Water Supply	Domestic	TOPSOIL,STONES,	BROWN	0	5	ft
1528504	10-May-85	22.9	1.5	5.2	Water Supply	Domestic	CLAY,SANDY,STONES	BROWN	5	17	ft
1528504	10-May-85	22.9	1.5	5.2	Water Supply	Domestic	LIMESTONE,,	GREY	17	75	ft
1529618	11-Sep-97	76.2	1.5	2.7	Water Supply	Commerical	TOPSOIL,SANDY,STONES	BROWN	0	9	ft
1529618	11-Sep-97	76.2	1.5	2.7	Water Supply	Commerical	LIMESTONE,LAYERED,HARD	GREY	9	250	ft
1530339	27-Oct-98	42.7	7.6	2.1	Observation Wells	Livestock	TOPSOIL,STONES,PACKED	BROWN	0	7	ft
1530339	27-Oct-98	42.7	7.6	2.1	Observation Wells	Livestock	LIMESTONE,,	GREY	7	140	ft
1530489	24-Feb-99	43.3	11.6	0	Water Supply	Domestic	LIMESTONE,LAYERED,	GREY	0	132	ft
1530489	24-Feb-99	43.3	11.6	0	Water Supply	Domestic	LIMESTONE,HARD,	WHITE	132	138	ft
1530489	24-Feb-99	43.3	11.6	0	Water Supply	Domestic	LIMESTONE,LAYERED,	GREY	138	142	ft
1531069	17-Mar-00	45.7	8.2	1.2	Water Supply	Domestic	TOPSOIL,STONES,	BROWN	0	4	ft
1531069	17-Mar-00	45.7	8.2	1.2	Water Supply	Domestic	LIMESTONE,HARD,	GREY	4	150	ft
1531133	25-Apr-00	6.1		1.2	Observation Wells	Industrial	TOPSOIL,STONES,	BROWN	0	4	ft
1531133	25-Apr-00	6.1		1.2	Observation Wells	Industrial	LIMESTONE,HARD,	GREY	4	20	ft
1531138	05-May-00	30.5	2.4	6.7	Water Supply	Domestic	SAND,,	BROWN	0	4	ft
1531138	05-May-00	30.5	2.4	6.7	Water Supply	Domestic	CLAY,SANDY,	GREY	4	13	ft
1531138	05-May-00	30.5	2.4	6.7	Water Supply	Domestic	SAND,GRAVEL,BOULDERS	GREY	13	22	ft
1531138	05-May-00	30.5	2.4	6.7	Water Supply	Domestic	LIMESTONE,,	GREY	22	100	ft
1534196	09-Sep-03	83.2	3.7	6.7	Water Supply	Domestic	TOPSOIL,SANDY,STONES	BROWN	0	12	ft
1534196	09-Sep-03	83.2	3.7	6.7	Water Supply	Domestic	HARDPAN,,	GREY	12	22	ft
1534196	09-Sep-03	83.2	3.7	6.7	Water Supply	Domestic	LIMESTONE,,	GREY	22	273	ft
1535168	21-Oct-04	91.4	15	0.6	Water Supply	Domestic	FILL,,		0	0.609	m
1535168	21-Oct-04	91.4	15	0.6	Water Supply	Domestic	LIMESTONE,,	GREY	0.609	91.43	m
7118468	05-Nov-08	67.1	4.6	1.83	Water Supply	Domestic	SAND,,		0	6	ft
7118468	05-Nov-08	67.1	4.6	1.83	Water Supply	Domestic	LIMESTONE,,	GREY	6	220	ft
7139838	19-Nov-09	45.1	4.7	1.52	Water Supply	Domestic	TOPSOIL,STONES,	BROWN	0	1.52	m
7139838	19-Nov-09	45.1	4.7	1.52	Water Supply	Domestic	LIMESTONE,,MEDIUM-GRAINED	GREY	1.52	45.1	m
7173863	28-Oct-11	18.6	3.7	6.1	Water Supply	Domestic	CLAY,GRAVEL,SANDY		0	20	ft
7173863	28-Oct-11	18.6	3.7	6.1	Water Supply	Domestic	LIMESTONE,,	GREY	20	37	ft
7173863	28-Oct-11	18.6	3.7	6.1	Water Supply	Domestic	LIMESTONE,,	GREY	37	48	ft
7173863	28-Oct-11	18.6	3.7	6.1	Water Supply	Domestic	LIMESTONE,,	GREY	48	61	ft
7181192	28-Mar-12	61	7.1	3.05	Water Supply	Domestic	SAND,CLAY,		0	10	ft
7181192	28-Mar-12	61	7.1	3.05	Water Supply	Domestic	LIMESTONE,,	GREY	10	121	ft
7181192	28-Mar-12	61	7.1	3.05	Water Supply	Domestic	LIMESTONE,,	GREY	121	144	ft
7181192	28-Mar-12	61	7.1	3.05	Water Supply	Domestic	LIMESTONE,,	BLACK	144	167	ft
7181192	28-Mar-12	61	7.1	3.05	Water Supply	Domestic	LIMESTONE,,	GREY	167	200	ft
7194029	21-Nov-12	24.4	14.9	2.44	Water Supply	Domestic	SAND,GRAVEL,		0	8	ft
7194029	21-Nov-12	24.4	14.9	2.44	Water Supply	Domestic	LIMESTONE,,	GREY	8	65	ft
7194029	21-Nov-12	24.4	14.9	2.44	Water Supply	Domestic	LIMESTONE,,	GREY	65	69	ft
7194029	21-Nov-12	24.4	14.9	2.44	Water Supply	Domestic	LIMESTONE,,	GREY	69	80	ft
7270176	01-Jun-16	83.8	6.3	1.82	Water Supply	Irrigation	TOPSOIL,ROCK,FRACTURED	BROWN	0	1.82	m
7270176	01-Jun-16	83.8	6.3	1.82	Water Supply	Irrigation	LIMESTONE,,	GREY	1.82	48.76	m
7270176	01-Jun-16	83.8	6.3	1.82	Water Supply	Irrigation	SHALE,,	GREY	48.76	83.81	m
7284233	21-Mar-17	33.5	4.5	2.44	Water Supply	Domestic	SAND,CLAY,STONES	GREY	0	8	ft

7284233	21-Mar-17	33.5	4.5	2.44	Water Supply	Domestic	LIMESTONE,,	GREY	8	110 ft
7318083	29-Jun-18	61.9	3.3	9.14	Water Supply	Domestic	SAND,CLAY,GRAVEL		0	30 ft
7318083	29-Jun-18	61.9	3.3	9.14	Water Supply	Domestic	LIMESTONE,,	GREY	30	203 ft
7344121	10-Sep-19	54.9	11.2	2.13	Water Supply	Domestic	SAND,BOULDERS,		0	7 ft
7344121	10-Sep-19	54.9	11.2	2.13	Water Supply	Domestic	LIMESTONE,,	GREY	7	120 ft
7344121	10-Sep-19	54.9	11.2	2.13	Water Supply	Domestic	LIMESTONE,,	GREY	120	174 ft
7344121	10-Sep-19	54.9	11.2	2.13	Water Supply	Domestic	LIMESTONE,,	GREY	174	180 ft

MAX.	198.1	16.8	9.144
MIN.	6.1	0.9	0
AVG.	46.1	5.5	3.5

APPENDIX B - WELL RECORD (TW1)

Ontario — Ministry of the Environment

Measurements recorded in: [X] Metric [ ] Imperial

Well Tag No. A 080995

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	Well Constructed by Well Owner
	LISCHER CONSTRUCTION INC. (MEYKNECHT-LISCHER CONTRACTORS LTD)		[ ]

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
119 WALGREEN ROAD	CARP	ON	K0A 1L0	(613) 831-3232

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
145 WALGREEN ROAD	HUNTLEY	2	3

County/District/Municipality	City/Town/Village	Province	Postal Code
OTTAWA-CARLETON	CARP	Ontario	K0A 1L0

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	424806	5013358		

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
BROWN	SAND & CLAY.			0.00	1.52
GREY	CLAY / TILL	BOULDERS, GRAVEL		1.52	5.49
GREY	LIMESTONE	SHALE	* HIGHLY FRACTURED / BROKEN * (20.7m - 23.4m).	5.49	76.06

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0.00	6.41	Bentonite Holeplug gel / Slurry	0.18

Method of Construction

[ ] Cable Tool [ ] Diamond
[ ] Rotary (Conventional) [ ] Jetting
[ ] Rotary (Reverse) [ ] Driving
[ ] Boring [ ] Digging
[X] Air percussion
[ ] Other, specify

Well Use

[ ] Public [X] Commercial [ ] Not used
[ ] Domestic [ ] Municipal [ ] Dewatering
[ ] Livestock [ ] Test Hole [ ] Monitoring
[ ] Irrigation [ ] Cooling & Air Conditioning
[ ] Industrial
[ ] Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.88	Steel ASTM	0.48	+0.5	6.41

Construction Record - Screen N/A.

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Status of Well

[X] Water Supply
[ ] Replacement Well
[ ] Test Hole
[ ] Recharge Well
[ ] Dewatering Well
[ ] Observation and/or Monitoring Hole
[ ] Alteration (Construction)
[ ] Abandoned, Insufficient Supply
[ ] Abandoned, Poor Water Quality
[ ] Abandoned, other, specify
[ ] Other, specify

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water	Other, specify
	[ ]	[ ] Fresh [X] Untested	
	[ ]	[ ] Fresh [ ] Untested	
	[ ]	[ ] Fresh [ ] Untested	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
6.41	76.06	15.24

Results of Well Yield Testing

After test of well yield, water was:
[X] Clear and sand free
[ ] Other, specify

If pumping discontinued, give reason: N/A

Pump intake set at (m/ft): 12.2m (40')

Pumping rate (l/min / GPM): 54lpm (12gpm)

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 3.14m

If flowing give rate (l/min / GPM): N/A.

Recommended pump depth (m/ft): (40')

Recommended pump rate (l/min / GPM): 54lpm (12gpm)

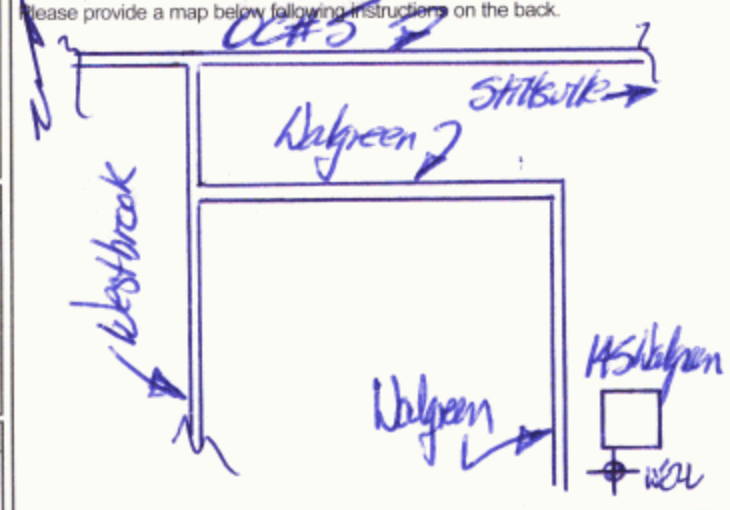
Well production (l/min / GPM): 54lpm

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	2.57.		
1	2.70	1	3.01
2	2.74	2	2.97
3	2.78	3	2.93
4	2.79	4	2.91
5	2.82	5	2.88
10	2.90	10	2.80
15	2.96	15	2.74
20	2.99	20	2.72
25	3.02	25	2.70
30	3.06	30	2.66
40	3.10	40	2.64
50	3.12	50	2.63
60	3.14	60	2.62

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
STANTON DRILLING INC	4875

Business Address (Street Number/Name)	Municipality
BOX 219, 157 FILE RACHES DRIVE	PAKENHAM

Province	Postal Code	Business E-mail Address
ON	K0A 2X0	Stantondrilling@bellnet.ca

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
(613) 624-5622	STANTON, PETER

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0086		2009 05 30

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[X] Yes [ ] No	2009 05 30	2009 05 30

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Audit No. Z 91937

Received JUL 14 2009

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APPENDIX C - GEOTECHNICAL INVESTIGATION REPORT

GEOTECHNICAL INVESTIGATION OF THE PROPOSED BUILDING ADDITION AND SITE DEVELOPEMENT
145 WALGREEN ROAD
OTTAWA, ON

Project No.: CCO-25-1370-01

Prepared for:

W.O. - M.W. Realty Limited

Prepared by:

Egis Canada Ltd.
104-215 Menten Place
Ottawa, ON K2H 9C1

December 2024

egis

Table of Content

APPENDICES

1.0 INTRODUCTION

Egis Group Ltd. (Egis) was retained by W.O. M.W. Realty Limited (the Client) to perform a geotechnical investigation and provide design recommendations for the proposed building addition of 145 Walgreen Road (the project) located in the Ottawa, ON.

The foundation design recommendations and construction considerations will be developed based on factual findings from a geotechnical investigation performed at the above-mentioned site by Egis Canada Ltd.

The purpose of the investigation was to explore the subsurface conditions at nine (9) boreholes, BH24-1 to BH24-9, and to provide borehole location plans, record of borehole logs, and laboratory test results. This report provides anticipated geotechnical conditions influencing the design and construction of the proposed one-storey commercial building addition with a mezzanine, as well as recommendations for construction of proposed CNG compressor concrete pad.

This report is prepared for the sole use of client. The use of this report, or any reliance on it by any third party, is the responsibility of such a third party. This report is subject to the limitations as shown in Appendix A. It is understood that the project will be performed in accordance with all applicable codes and standards present within its jurisdiction.

2.0 PROJECT UNDERSTANDING

It is understood that The Client intends to construct a commercial building addition, approximately 517 square meters, and concrete pad for a CNG compressor at the southwest corner of the property located at 145 Walgreen Road, Ottawa, ON. The proposed structure addition is a one-story building with a mezzanine, slab-on-grade and with no basement or underground parking. Included are the access roads, parking spaces nearby and a planned area for a CNG compressor.

3.0 SITE DESCRIPTION

3.1 Existing Site Conditions

The property under consideration for the proposed development is located in an urban area with commercial properties around it. The current site is situated on the south side of the Walgreen Road, with a two-storey office building at the front followed by an existing slab on grade shop at the rear (south) end of the property. Existing commercial buildings are located to the east and west, a sports field and associated facilities are located to the north, and an empty woodland lot is located to the south.

3.2 Site Geology

Based on published physiography maps of the area (Ontario Geological Survey, OGS), the site is located in an area that is a boundary with the Ottawa Valley Clay Plains to the north, and the Smiths Falls Limestone Plain to the south.

Surficial geology maps of Southern Ontario indicate the site is situated in an area with Organic Deposits comprising of peat, muck and marl, and the northwest edge of the site is shown as shallow Paleozoic bedrock. The bedrock within the area is identified to be comprised of limestone, dolostone and sandstone of the Ottawa Group and the Shadow Lake formation.

4.0 FIELD PROCEEDURES

Egis conducted a site visit prior to the planned drilling date and marked the proposed borehole locations. In addition, Egis cleared the site of Public and Private buried utilities before the commencement of geotechnical drilling. Utility clearance requisitions were submitted to Ontario One Call (ON1Call) to obtain Public utility locates. The fieldwork was coordinated with the client. A third-party private utility locator was retained to locate any utilities not covered within the Ontario One Call Public locate system.

The fieldwork was conducted on August 14 and 15, 2024 and consisted of drilling nine (9) boreholes that were advanced to drilling depths ranging from 1.40 to 5.62 m bgs. The boreholes were drilled using a CME-55 truck-mounted drilling rig, outfitted with hollow stem augers. The equipment used for drilling was owned and operated by George Downing Estate Drilling Ltd. Of Grenville, Quebec. Soil samples were obtained at 0.76 m intervals in boreholes using a 51 mm outside diameter split spoon sampler in accordance with the Standard Penetration Test (SPT) procedure. The drilling was terminated at planned drilling depths. The bedrock was cored and sampled to approximately 3.58 and 3.68m depth from the top of the encountered bedrock surface in boreholes 24-1 and 24-2, respectively. Additionally, a 25 mm diameter standpipe piezometer was installed in borehole BH24-2 for temporary groundwater monitoring within the proposed building addition area.

Three (3) 51 mm diameter, monitoring wells were installed in borehole BH24-4 MW, BH24-7 MW and BH24-8 MW. The wells were protected in traffic rated flush-mount caps. Details and location information of the wells are provided in Section 6.2 and summarized in Table 7.

Boreholes and monitoring wells were backfilled with auger cuttings and bentonite hole-plug and restored to the existing ground level as per Regulation 903 requirements. A summary of borehole locations and drilling depths is shown in Table 1. The borehole locations are shown on Figure 2, Included in Appendix B.

Table 1: Borehole Information

Borehole ID	Drilled Date	Coordinates (Geodetic)			Borehole Depth	
		UTM Zone 18 T Easting	UTM Zone 18 T Northing	Surface El. (m asl)	Depth (m bgs)	Bottom El. (m asl)
BH24-1	August 14, 2024	424860.028	5013333.663	127.31	4.98	122.33
BH24-2	August 14, 2024	424875.725	5013335.166	127.12	5.62	121.50
BH24-3	August 14, 2024	424771.810	5013232.316	127.73	1.70	126.03
BH24-4 MW	August 15, 2024	424838.524	5013284.046	127.10	3.63	123.47
BH24-5	August 14, 2024	424759.248	5013262.774	128.24	2.79	125.45
BH24-6	August 14, 2024	424813.379	5013323.206	127.76	3.56	124.20
BH24-7 MW	August 15, 2024	424732.700	5013307.240	128.46	3.45	125.01
BH24-8 MW	August 15, 2024	424777.960	5013353.352	127.64	3.05	124.59
BH24-9	August 14, 2024	424813.379	5013323.206	127.22	3.33	123.89

The fieldwork was supervised by an Egis representative and the subsurface stratigraphy encountered at the borehole locations was recorded based on the recovered samples, and samples were submitted to the Egis Geotechnical Laboratory for further visual examination and testing. The boreholes were surveyed with a Trimble R2 GPS unit to record their locations and geodetic elevations.

5.0 LABORATORY TEST PROCEDURES

Geotechnical Laboratory testing on representative soil samples was performed at the Egis Geotechnical Laboratory and included determination of natural moisture content, sieve and hydrometer grain-size analysis,

and Atterberg Limits testing. The Laboratory tests were performed in accordance with American Society for Testing Materials (ASTM) test procedures.

The rock core samples returned to the laboratory were subjected to detailed visual examination and additional classification by a geotechnical engineer. Unconfined compressive strength tests were completed on selected bedrock samples. The results are discussed in this report and provided in Appendix D.

Parcel Laboratories Ltd., Ontario carried out chemical testing on a representative soil sample to determine the potential susceptibility to corrosion of ductile iron pipes and concrete attack parameters. The tested chemical parameters consisted of pH, chloride, sulphate and resistivity. Laboratory test results are included in Appendix D.

The rest of the soil samples recovered will be stored in Egis storage facility for a period of three (3) months after submission of the final report. Samples will be disposed after this period of time unless otherwise requested in writing by the client.

6.0 SUBSURFACE CONDITIONS

6.1 General

The site stratigraphy typically consists of five distinct layers. The layers were identified as Asphalt, Fill, Silt/Sandy Silt, Sandy Silt Till/Silty Sand Till and Limestone Bedrock. For classification purposes, the pavement structure, fill materials, and surficial soils encountered at this site can be divided into five (5) general layers:

1. Asphalt
2. Fill
3. Silt/Sandy Silt
4. Sandy Silt Till/Silty Sand Till
5. Bedrock/Refusal

The fills and soils encountered during the course of investigation, together with the field and laboratory test results are shown on the borehole records included in Appendix C. Laboratory test results are included in Appendix D. Description of the strata encountered are given below.

6.1.1 Asphalt

Two boreholes were advanced within the existing paved section, asphalt was measured to be at approximately 100 mm in the investigated boreholes BH24-6 and BH24-8 MW.

6.1.2 Fill

The fill layer was encountered at the surface or below the pavement in all boreholes and extended to a depth ranging from 0.45 m to 0.91 m bgs. The fill layer is composed mainly of granular fill, silty sand and gravelly sand to sand and gravel, trace to pockets of organics and trace of rootlets. This grey, brown, dark brown and dark grey fill layer was found to be in a moist to very moist state. In borehole BH24-9, a 50 mm topsoil/organic soil layer was encountered at the surface.

One (1) representative sample from the fill layer was subjected to grain-size analysis and the layer was observed to contain on average 18% of Gravel, 51% of Sand and 31% of Fines. The fill grain-size analysis summary is shown in Table 2, and the laboratory test results of the grain size analysis are shown in Appendix D.

Table 2: Grain-size Analysis Summary of the Fill Layer

Borehole ID	Sample	Constituent Material in percent weight		
		Gravel (%)	Sand (%)	Fines
BH 24-7 MW	SS-1	18.1	51.2	30.7

The SPT N-Value within the fill layer ranged from approximately 10 to 40 which indicated a compact to dense relative density.

6.1.3 Silt/Sandy Silt

A layer of silt/sandy silt was encountered below the fill layer in all boreholes except for BH 24-5, observed to extend to depths ranging approximately from 1.26 to 3.05 m bgs. In general, this layer is comprised of silt to sandy silt with trace to some clay, trace of sand and trace of rootlets encountered in the upper zone of the layer below the fill layer in most of the boreholes. The natural moisture content for this greyish brown layer was observed to be approximately 16%.

Two (2) representative samples from the silt/sandy silt layer were subjected to grain-size "Hydrometer" analysis and the layer was observed to contain on average 2% gravel, 20% sand, and 69% silt and 9% clay. The silt/sandy silt grain-size analysis summary is shown in Table 3, and the laboratory test results of grain size analysis are included in Appendix D.

Table 3: Grain-Size Analysis Summary of Silt/Sandy Silt Layer

Borehole ID	Sample	Constituent Material in percent weight			
		Gravel (%)	Sand (%)	Silt (%)	Clay (%)
BH 24-3	SS-2	0.7	8.2	79.4	11.7
BH24-8 MW	SS-2	3.7	31.8	58.2	6.3

The SPT N-value for this layer ranged range from 10 to 50 blows/75 mm, which indicate a relative density of compact to very dense according to CFEM (2006).

6.1.4 Sandy Silt Till/Silty Sand Till

A till layer of sandy silt till/silty sand till was encountered below the fill and/or silt/sandy silt layer in all the boreholes. In general, the till layer is comprised of sandy silt till/silty sand till. The natural moisture content for this greyish brown and grey layer ranged from 7% to 13%.

Four (4) representative samples from the sandy silt till/silty sand till were subjected to grain-size analysis and the layer was observed to contain on average 13% gravel, 34% sand, 50% silt and 7% clay. The till grain-size analysis summary is shown in Table 4, and the laboratory test results of grain size analysis are included in Appendix D.

Table 4: Grain-Size Analysis Summary of Sandy Silt Till/Silty Sand Till Layer

Borehole ID	Sample	Constituent Material in percent weight			
		Gravel (%)	Sand (%)	Fines (%)	
				Silt (%)	Clay (%)
BH24-2	SS-3	20.1	37.2	42.7	
BH24-4 MW	SS-4	12.3	29.2	58.5	
				52.5	6.0
BH24-7 MW	SS-3	14.4	48.2	37.4	

				29.8	7.6
BH24-9	SS-3	5.3	21.4	73.3	
				66.9	6.4

The SPT N-value for this layer ranged range from 26 to 50 blows/25 mm, which indicate a relative density of compact to very dense according to CFEM (2006).

6.1.5 Bedrock/Refusal

Auger refusal was encountered in all boreholes except for BH24-4 MW on inferred bedrock at depth ranging from 1.40 to 3.56 m below existing ground surface. The bedrock was encountered and cored in the foundation area boreholes in BH24-1 and BH24-2 below the sandy silt till/silty sand till layer between 1.40 and 1.94 m bgs which corresponds to elevations El. 125.91 and El. 125.18 m. The bedrock was cored and sampled to depths 4.98 m and 5.62 m bgs in boreholes BH24-1 and BH24-2, respectively.

Based on the retrieved rock cores from boreholes within the proposed building addition footprint, the bedrock was identified as limestone and was observed to be strong to very strong, grey to dark grey, slightly weathered, thinly bedded and has fair to excellent quality based on RQD values (65 % to 96%).

The rock core (RC) samples recovered from bedrock were accurately recorded based on the length of each run and the samples encountered were evaluated for Total Core Recovery (TCR), and Rock Quality Designation (RQD). Four (4) samples of bedrock core were tested for unconfined compressive strength at the Egis Geotech laboratory. The laboratory results and bedrock core photographs are summarized in Table 5 and included in Appendix D.

Table 5: Rock-Core Summary

Borehole ID	Rock Core	Core Depth (m bgs)	Core El. (m asl)	TCR (%)	RQD (%)	UCS (MPa)
BH24-1	RC-3	1.40 – 2.58	125.91 – 124.73	100	67	93.2
BH24-1	RC-5	4.09 – 4.98	123.22 – 122.33	100	74	119.6
BH24-2	RC-5	2.58 – 4.10	124.54 – 123.02	100	92	103.4

BH24-2	RC-6	4.10 – 5.62	123.02– 121.50	100	68	70.6

6.2 Groundwater

At the time of investigation, groundwater level observations were made during and immediately upon completion of drilling. The results are summarized in Table 6.

Table 6: Groundwater Observations Upon Completion of Drilling

Borehole ID	Borehole Depth		Cave-in		Groundwater	
	Depth (m bgs)	Elevation (m asl)	Depth (m bgs)	Elevation (m asl)	Depth (m bgs)	Elevation (m asl)
BH24-1	4.98	122.33	1.00	126.31	1.00	Wet at the bottom
BH24-2	5.62	121.50	-	-	Dry	Dry
BH24-3	1.70	126.03	0.76	126.97	0.76	Wet at the bottom
BH24-4 MW	3.63	123.47	-	-	1.75	125.35
BH24-5	2.79	125.45	1.98	126.26	Dry	Dry
BH24-6	3.56	124.20	2.74	125.02	Dry	Dry
BH24-7 MW	3.45	125.01	-	-	Dry	Dry
BH24-8 MW	3.05	124.59	-	-	Dry	Dry
BH24-9	3.33	123.89	2.61	124.61	Dry	Dry

Monitoring wells were installed in BH24-04 MW, BH24-07 MW and BH24-08 MW, for the purpose of hydrogeological investigation and groundwater monitoring. A standpipe piezometer was installed in BH24-02 to

obtain a water level measurement in the proposed building area. A subsequent groundwater level measurement was completed on August 29, 2024, and groundwater observations are presented in the following Table 7.

Table 7: Monitoring Wells Summary

BH/MW ID	Screen Interval Depth (m bgs)	Water Level Observations			Remarks
		Date	Depth (m bgs)	Elev. (m asl)	
BH24-2 SP*	1.24 – 1.85	August 29, 2024	0.86	126.26	
BH24-4 MW	1.52 – 3.05	August 29, 2024	1.20	125.90	
BH24-7 MW	1.52 – 3.05	August 29, 2024	1.37	127.09	
BH24-8 MW	1.52 – 3.05	August 29, 2024	0.81	126.83	

* A Standpipe (SP) was installed in BH24-02 to measure the water level at the proposed building addition.

Groundwater levels may be expected to fluctuate due to extreme weather events and seasonal changes.

6.3 Chemical Analysis

Chemical analysis was conduced by Paracel Laboratories in Ottawa, ON, to determine the resistivity, pH, sulphate and chloride content of a representative soil sample collected from BH24-4 MW and BH24-8 MW. The sample was chosen from within the estimated infrastructure and foundation depths. A summary of chemical analysis results is shown in Table 8 and the laboratory results are shown in Appendix D.

Table 8: Chemical Analysis Summary

Borehole ID	Sample	Depth (m bgs)	Chemical Analysis			
			pH (pH units)	Resistivity (ohm.cm)	Chloride (ppm)	Sulphate (ppm)
BH24-4 MW	SS-3	1.52 - 2.13	7.33	8440	11	26
BH24-8 MW	SS-4	2.29 - 2.70	7.37	1260	422	70

7.0 DISCUSSION AND RECOMMENDATIONS

7.1 General

This section of the report provides engineering recommendations on the geotechnical design aspects of the project based on the project requirements and our interpretation of the subsurface soils information. The discussions and recommendations presented are intended to provide sufficient information to the designer of the proposed building to select the suitable type of foundation to support the structure.

The foundation design recommendations presented in this section have been developed following Part 4 of the 2015 National Building Code of Canada (NBCC) and 2012 Ontario Building Code (OBC) extending the Limit State Design approach. The recommendations presented herein are subject to the limitations noted in Appendix A "Limitations of Report" which forms an integral part of this document.

7.2 Overview

It is understood that the proposed building addition is a one-storey structure with a mezzanine, without basement or underground parking. It is also understood that the finished floor elevation for the proposed building addition will be at the same finish floor elevation of the existing slab-on-grade at approximately El. 127.70 m. The finished floor elevation was interpolated from the Surveyor's Real Property Report, Part 1, included in Appendix E.

For the current project, the following list summarizes some key geotechnical details that were considered in the suggested geotechnical recommendations:

- The existing fill and any loose or disturbed soil is required to be cleared from the footprint of the footings of the proposed building.
- Considering the structural loads expected at the foundation level, the provision of conventional spread and strip footings is adequate. The footings shall be bearing on the silt/sandy silt, sandy silt till/silty sand till or the bedrock surface. Footings are expected to be buried to resist overturning, sliding, and to provide protection against frost action.
- The proposed structure can be designed using a seismic Site Class C.
- Excavation for foundations will be advanced below the existing ground level through the fill, silt/sandy silt and sandy silt till/silty sand till. The silt/sandy silt and sandy silt till/silty sand till can be classified as Type 3 soil above the water table and below the water table as Type 4 soil per the Occupational Health and Safety Act (OHSA). Therefore, excavation sides shall be sloped from its bottom at a minimum gradient of 3H:1V. For trench excavation that is deeper than 1.2 m or a worker is required to enter, excavation shall be carried out within trench boxes, which is fully braced to resist lateral earth pressure.

- A subgrade reaction modulus of 20,000 kN/m2/m can be used for the design of the slab-on-grade constructed on compacted Granular A bedding. This value shall not be used for the native subgrade.

7.3 Foundations

In general, the subsurface conditions at the site of the proposed building addition consist of asphalt, fill material, silt/sandy silt and sandy silt till/silty sand till to the bedrock surface. The silt/sandy silt and sandy silt till/silty sand till were observed to be in compact to very dense state of relative density. Limestone bedrock was encountered within the proposed addition footprint and was observed to be strong to very strong, grey to dark grey, thinly bedded, and has fair to excellent quality based on RQD values (65% to 96%).

Two main design possibilities were considered in this report. It is up to the structural designer to choose the most suitable option, or a combination of the two options.

- Ultimate geotechnical resistance for bearing of shallow footings on native soil.
- Ultimate geotechnical resistance for bearing of shallow footings on bedrock.

7.3.1 Shallow Foundation on Native Soil

The proposed building addition structure can be supported on a shallow conventional strip/spread footing system bearing on the silt/sandy silt or sandy silt till/silty sand till founding subgrade soil at or below the elevation of 126.06 m if recommended capacities are adequate. The size of the selected footing shall be determined using geotechnical resistance at Serviceability Limit State (SLS) of 200 kPa for 25 mm of settlement and a factored bearing resistance of 300 kPa under Ultimate Limit States (ULS).

Excavation for the construction of the footings will proceed through the asphalt, fill, native silt/sandy silt and sandy silt till/silty sand till deposits. Excavation of overburden soil shall be performed using conventional hydraulic excavating equipment.

Excavations shall be kept reasonably free of water. If groundwater is encountered at a shallow depth, the groundwater table shall be lowered to a minimum 0.5 m below the excavation depth using an appropriate dewatering system. Recommendations for appropriate dewatering measures beyond conventional sump pump techniques such as a positive dewatering system (e.g., well points or other specialized methods) to effectively lower the static groundwater level shall be provided by a specialized dewatering contractor.

The Occupational Health and Safety Act (OHSA) of Ontario indicates that side slopes in the silt/silty sand above the water table could be classified as Type 3 soil and below the water table as Type 4 soil and sloped no steeper than 3H:1V or be shored. If space restrictions exist, the excavations of depth greater than 1.2 m can be carried out within trench boxes, which are fully braced to resist lateral earth pressure.

Footings should be placed on undisturbed native inorganic soil. The subgrade should be reviewed and approved by a geotechnical engineer. If encountered, compressible soils, organic matter, or soft or loose areas within the

native subgrade should be sub-excavated and replaced with granular A conforming to OPSS 1010 compacted in 300mm maximum loose lifts to a minimum of 100% SPMDD which shall be used for grade raise or to level any over excavation below the foundation level.

If the native subgrade is disturbed during excavation, the subgrade shall be proof rolled before constructing the spread footings. Granular A conforming to OPSS 1010 compacted in 300mm loose lifts to minimum of 100% SPMDD shall be used for grade raise or to level any over excavation below the foundation level.

7.3.2 Shallow Foundation on Bedrock

The ULS factored bearing resistance was estimated using the Rock Mass Rating (RMR) method by Bieniawski (1989). RMR method was utilized to determine the required parameters for bearing capacity resistance at ULS conditions for the bedrock.

The proposed building addition structure can be supported on a shallow conventional strip/spread footing system bearing on the surface of the bedrock. The size of the selected footing shall be determined using a factored bearing resistance of 500 kPa under Ultimate Limit States (ULS).

The provided factored bearing resistance at ULS is based on the uniaxial compressive strength of rock. The size of the selected footing shall be determined by a structural engineer. The selected size of the footing shall have adequate compressive strength to provide resistance to the structural loads from the building and to avoid failure in concrete material under the applied pressure. Shallow footings shall comply with the minimum widths recommended by the Ontario Building Code (OBC) (2012).

The ultimate bearing capacity will govern the design. Serviceability limit state as defined by allowable settlements is not applicable for this project on rock subgrade.

Provided the bedrock surface is properly cleaned of soil and weathered material at the time of construction, the settlement of footings using the above factored bearing resistance should be negligible. The bearing capacities are calculated for a flat subgrade.

Highly weathered or fractured bedrock, which includes bedrock that can be excavated using hydraulic excavating equipment with only moderate effort, is required to be removed. Therefore, depending on the subgrade condition, subgrade grouting or poured mud slabs may be required. The mud slabs shall provide a minimum of 15 MPa compressive strength at 28 days testing.

The rock bearing surface should be inspected by qualified geotechnical personnel to confirm that the surface has been acceptably cleaned of soil, and that weathered, or excessively fractured bedrock has been removed.

7.3.3 Frost Protection

Based on the freezing index for Ottawa, Ontario Region provided for this site, the frost penetration depth is expected at 1.8 m below the ground surface. Frost penetration depth is estimated based on the OPSD 3090.101, Foundation Frost Penetration Depths for Southern Ontario.

All perimeter and exterior foundation elements, or interior foundation elements in unheated areas should be provided with a minimum of 1.8 m of earth cover above the underside of the footing or equivalent thermal rigid insulation for frost protection purposes.

7.4 Seismic Site Classification

Seismic site classification is completed based on NBCC (2015) and OBC (2012) Section 4.1.8.4 and Table 4.1.8.4.A. This classification system is based on the average soil properties in the upper 30 m and accounts for site-specific shear wave velocity of soil and rock, standard penetration resistance, and plasticity parameters of cohesive soils.

Based on the investigation results the site can be classified as Seismic Site Class (C). According to OBC (2012) Section 4.1.8.4 and Table 4.1.8.4.A , the average shear wave velocity (Vs) for Site Class C ranged between 360 to 760 m/s.

7.5 Engineered Fill

Footings shall be installed on native silt/sandy silt, sandy silt till/silty sand till or the bedrock surface. Any over excavation shall be leveled by granular A conforming to OPSS 1010 for native soil and lean concrete of minimum 15 MPa at 28 days strength for the bedrock.

The proposed engineered fill, beyond the footings influence zone, can be any material conforming to granular criteria as outlined in OPSS 1010. Material conforming to 'Granular' criteria are considered free draining and compactable and can be utilized as the engineered fill. This can apply to the backfill beyond foundation walls. The engineered fill shall be compacted to a minimum of 98% SPMDD.

All fills should be placed in horizontal lifts of uniform thickness of no more than 300 mm before compaction at appropriate moisture content determined by the Proctor test. The requirement for fill material and compaction may be addressed with a note on the structural drawing for foundation or grading drawing, and with a Non-Standard Special Provision (NSSP). Any topsoil, organics, or loose sand should be removed before placing engineered fill material.

7.6 Slabs-on-Grade

Excavation for the construction of the slab-on-grades will proceed through the asphalt and/or fill to to expose a competent native undisturbed subgrade. The exposed subgrade must be kept dry at all times to minimize the

disturbance of the subgrade. The native subgrade shall be proof rolled before the placement of granular bedding. The exposed native subgrade should be examined and approved by the Geotechnical Engineer.

Slab-on-grades are considered free-floating (not attached to the foundation walls). The interior slab-on-grade should be supported on a minimum of 200 mm of Granular A bedding compacted to 100% SPMDD. The rest of the fill, above the native soil and below the slab shall be Granular B Type II and compacted to a minimum of 100% SPMDD. It is recommended that compaction efforts are approved under the supervision of a geotechnical representative.

No perimeter drainage will be required, where the finished floor elevation is at least 150 mm above the exterior grades, which are sloped away from the structure a minimum of 2 percent gradient.

If for the design of any portions of the slab-on-grade, the modulus of subgrade reaction (k) is required, the following recommendation can be used for structural modeling. Modulus of subgrade reaction is a multi-function complex correlation that varies with the subgrade material, grade-raise fill material, and the flexural stiffness of the structural slab. However, simplified assumptions were made to estimate the spring modulus for slab-on-grade on compacted Granular A. To estimate the modulus of subgrade reaction, through a simplistic approach, a 2 m square section of the concrete slab-on-grade under the applied loads. Since the modulus of subgrade reaction is needed for the ultimate failure design of the slab, it is assumed the failure can occur at a 25 mm deformation. Considering these assumptions, a subgrade reaction modulus of 20,000 kN/m2/m can be used for the design of the slab-on-grade. This k-value is only valid for the construction of slab-on-grade on compacted Granular A bedding. This value shall not be used for the native subgrade.

For exterior slab-on-grade, a subgrade reaction modulus of 20,000 kN/m^2/m is recommended for design. The slab should be supported on a minimum of 150 mm of Granular A bedding and 450 mm Granular B Type II and compacted to a minimum of 100% SPMDD. Any additional fill required above the native soil should Granular B Type II and compacted to a minimum of 100% SPMDD. The designer should provision an adequate slope and incorporating subdrains to provide appropriate runoff discharge and rapid drainage to mitigate the effects of frost heaving. Expansion, construction, and dummy joints should be spaced as required by the applicable standards.

7.7 Lateral Earth Pressure

Free draining material should be used as backfill material for foundation walls. If proper drainage is provided, "at rest" condition may be assumed for calculation of earth pressure on foundation walls. The following parameters shown in Table 9 are recommended for the granular backfill.

Table 9: Lateral Earth Pressure Parameters for Granular A and B and Horizontal Backfill

Pressure Parameter	Expected Value		
	Granular A	Granular B	Other OPSS. MUNI 1010 'Granular"
Unit Weight (γ) KN/M3	22.5	21.7	20.0
Cohesion (c)	--	--	--
Angle of Internal Friction (ϕ)	35°	32°	31°
Coefficient of Active Earth Pressure (k_a)	0.27	0.31	0.32
Coefficient of Passive Earth Pressure (k_p)	3.69	3.25	3.12
Coefficient of Earth Pressure at Rest (k_o)	0.43	0.47	0.48

7.8 Cement Type and Corrosion Potential

Two soil samples were submitted to Paracel laboratories for testing of chemical properties relevant to exposure of concrete elements to sulphate attacks as well as potential soil corrosivity effects on buried metallic structural elements. Test results are presented in Table 8.

The concentration of sulphate in the tested samples are considered negligible, and the potential for sulphate attack on concrete structures is low. Therefore, Type GU Portland cement may be adequate to protect buried concrete elements.

Based on electrical resistivity results and chloride content, the corrosion potential for buried steel elements ranges from medium to elevated potential for corrosion of the buried ferrous metals, which should be taken into consideration in the design of buried steel elements.

7.9 Flexible Pavement

For most of the site, the pavement structure is most likely to be placed on engineered fill material overlaying the native soil. All fill and organic material shall be removed from the proposed pavement site and replaced with

engineered fill. The existing silt/sandy silt soil or sandy silt till/silty sand till below the fill material can act as the pavement subgrade if verified by visual confirmation and proof rolling.

Where engineered fill is required, it should consist of Granular B Type I or SSM in accordance with OPSS 1010, should be used and compacted to 95% of the Standard Proctor Maximum Dry Density (SPMDD), with the upper 600 mm of the fill should be compacted to 98% SPMDD to serve as subbase.

The pavement structure proposed in this design, considers the accommodation of heavy-weight commercial vehicles. Based on the heavy vehicle usage a heavy-duty pavement structure design is recommended for driveways and parking areas of the site. The heavy-duty pavement structure design specifications are given in Table .

Table 10: Heavy Duty Pavement Structures

Materials		Thickness (mm)	
		Parking Areas	Driveways
Surface	Superpave 12.5 mm, Design Category B, PG 58-34, or 50 mm HL-3 (OPSS 1150)	50	50
Binder	Superpave 19.0 mm, Design Category B, PG 58-34, or 50 mm HL-8 (OPSS 1150)	50	80
Base	OPSS Granular A	300	300
Subbase	OPSS Granular B Type II	450	450

8.0 CONSTRUCTION CONSIDERATIONS

Any organic material, existing fill or loose soil of any kind should be removed from the footprint of the footings and all structurally load-bearing elements. The Structural Fill, if directly supporting the load of the structure, should be free from any recycled or deleterious material, it should not be placed in lifts thicker than 300 mm and should be compacted to 100% SPMDD. Site preparation and requirements of engineered fill placement are noted in through previous sections. Refer to relevant sections for material and compaction requirements.

For excavation for foundations purposes, the silt/sandy silt and sandy silt till/silty sand till layers can be classified as Type 3 soil above the water table and below the water table as Type 4 soil per the Occupational Health and

Safety Act (OHSA). Excavation sides shall be sloped from its bottom at a minimum gradient of 3H:1V. For trench excavation that is deeper than 1.2 m or a worker is required to enter, excavation shall be carried out within trench boxes, which is fully braced to resist lateral earth pressure.

All backfilling shall comply with the OPSS.MUNI 501 and the City of Ottawa Special Provision General No. D-029 for compaction requirements, unless the design recommendations included in this report exceed provisions of OPSS.MUNI 501 and D-029.

Foundation walls should be backfilled with free-draining material with granular material conforming to OPSS 1010 Granular criteria. The native soils are not a suitable material for backfilling. Sub-drains with positive drainage to the City sewer should be provided at foundation level if the floor slab is not at least 150 mm above the exterior grades, which sloped away from the structure a minimum of 2 percent gradient.

A geotechnical engineer or technician should attend the site to confirm the native subgrade, type of fill material, and level of compaction. All bearing surfaces should be inspected by experienced geotechnical personnel prior to placing the footings to ensure the excavated subgrade is at the reported and recommended condition.

9.0 GROUNDWATER

No groundwater was encountered upon completion of boreholes except in boreholes BH24-1, BH24-3 and BH24-4 MW, the water elevations ranged from El. 125.35 to 126.97 m. The measured groundwater in the installed monitoring wells at the time of site investigation were at elevations approximately EI.125.90 to 127.09 m asl. Therefore, we expect the observed water was mainly seepage water resulting from the (localized) perched water within the fill layer and the cohesionless silt/sandy silt and sandy silt till/silty sand till layers.

However, surface runoff seepage will need to be adequately controlled and water quantities will depend on seasonal conditions, depths of excavations, and the duration that excavations are left open. Recommendations for appropriate dewatering measures beyond conventional sump pump techniques such as a positive dewatering system (e.g., well points or other specialized methods) to effectively lower the static groundwater level shall be provided by a specialized dewatering contractor. Dewatering shall extend to a minimum 0.5 m below the proposed depth of excavation.

The excavations are expected to proceed through multiple fill and soil layers including the road and grading fill, silt/sandy silt and silty sand/sandy silt till. The hydraulic conductivity (k) value of the fills is expected to be high (i.e., $k > 1x10^{-3}$ cm/sec) and for the silt/sandy silt and sandy silt till/silty sand till layers is expected to be in the range of $1x10^{-3}$ to less than $1x10^{-6}$ cm/sec. These are typical hydraulic conductivity values estimated based on soil gradations. These hydraulic conductivity values are provided as a reference only.

A Permit to Take Water (PTTW) from the Ontario Ministry of the Environment, Conservation and Parks (MECP) will be required if the quantity of water to be pumped from the Site exceeds 400,000 L/day. For expected groundwater extraction between 50,000 and 400,000 L/day, an Environmental Activity and Sector Registry (EASR) permit is adequate. Based on observations made during the site investigation and observed water levels in the

monitoring wells on August 29, 2024, and other available information to date, it is expected that PTTW is not required. An EASR permit may be adequate for this Project. However, if excavation is advanced below the groundwater, the volume of pumped water per day will be a function of the length of the excavated trench and the dewatered zone. The contractor shall decide on the proper application process based on groundwater elevations at the time of construction.

10.0 SITE SERVICES

10.1 Excavation and Trenching

It is understood that open trench excavation is the preferred construction and installation method. Overburden excavation is expected to be conducted without unusual problems using conventional hydraulic powered equipment. Based on our understanding of the Project, we anticipate that the excavations will extend to a depth approximately 2.4 m bgs. The excavations will extend through the pavement structure, fill, silt/sandy silt and sandy silt till/silty sand till.

All excavations must be undertaken in accordance with the requirements of the Occupational Health and Safety Act of Ontario (OHSA), Regulations for Construction O.Reg. 213/91, with specific reference to acceptable size slopes and stabilization requirements. The general stratigraphy outlined herein can be considered an OHSA Type 3 Soil above groundwater and Type 4 Soil below groundwater. Above the groundwater level, the soils are considered Type 3 Soil and the excavation for utilities should be conducted through a minimum 1H:1V or a flatter slope from the excavations bottom. Below the groundwater level, the soils are considered to be Type 4 Soil and the excavation side slopes must be sloped from its bottom cut back at 3H:1V. For excavations through multiple soil types, the side slope geometry is governed by the soil with the highest number designation. No surface surcharges should be placed closer to the edge of the excavation than a distance equal to twice the depth of the excavation unless an excavation support system has been designed to accommodate such a surcharge.

Alternatively, if the minimum slope requirement cannot be achieved due to space restrictions, the excavations of depth greater than 1.2 m can be carried out within a fully braced, steel trench box for worker and public safety. Unprotected excavation is not recommended. The protection system for excavations should be designed following OPSS.MUNI 539, Construction Specification for Temporary Protection Systems, and OPSS.MUNI 902, Construction Specifications for Excavating and Backfilling – Structures. The contractor should retain a professional engineer to provide detailed drawings for excavation and temporary support of the excavation walls during construction. Trench box shop drawings shall be stamped by a professional engineer.

Surface runoff seepage is expected in the excavations and will need to be adequately controlled. Water quantities will depend on seasonal conditions, depths of excavations, and the duration that excavations are left open. Groundwater will travel easily through the fill material, silt/sandy silt and sandy silt till/silty sand till. Existing utility trenches which join or intersect the excavations may act as a drain and supply off-Site water into the excavations. Recommendations for appropriate dewatering measures beyond conventional sump pump techniques such as a

positive dewatering system (e.g., well points or other specialized methods) to effectively lower the static groundwater level shall be provided by a specialized dewatering contractor.

Dewatering, if required, shall extend to a minimum 0.5 m below the proposed depth of excavation at each segment, otherwise, the specified compaction may not be achieved for the pipe bedding.

10.2 Pipe Bedding and Cover

Bedding material should be placed on undisturbed native inorganic soil. The subgrade should be reviewed and approved by a geotechnical engineer. If encountered, compressible soils, organic matter, or soft or loose areas within the native subgrade should be sub-excavated and replaced to the bottom of the bedding layer using Engineered Fill.

Utilities bedding and cover material should be in accordance with Ontario Provincial Standard Drawing OPSD 802.010 and OPSD 802.013 for flexible pipes and OPSD 802.031 and OPSD 802.033 for rigid pipes. Utilities should be supported on a minimum of 150 mm bedding of Granular A (OPSS 1010). The bedding should be compacted and shaped to receive the bottom of the pipe. The Engineered Fill should extend a minimum of 0.3 m beyond the edge of the pipe and then downward at a 1H:1V to the undisturbed native subgrade.

To extend the life of buried utilities, it is recommended utility bedding and backfill to be separated from the native soil by filter geotextile.

If the native subgrade below the bedding was disturbed or unstable due to construction activities, it may be necessary to place a sub-bedding layer consisting of 300 mm of Granular B Type II beneath the Granular A or the Granular A layer could be thickened. The use of clear stone as a bedding layer is not recommended on this project since fine particles from native soil could potentially migrate into the voids in the clear crushed stone, but if necessary due to groundwater inflow or the failure to maintain the groundwater level below the excavation, 19 mm clear stone bedding can be used in accordance with Ontario Provincial Standard Drawing OPSS 1004. Clear stone bedding materials shall be fully wrapped in non-woven geotextile filter fabric to avoid any native soil migration.

Utility cover material should be from bedding level to at least 300 mm above the top of pipe. The cover material can be Granular A or Granular B type II compacted to 98% SPMDD. All covers are to be compacted to 100% SPMDD if they are intersecting structural elements. The engineer designing utilities shall ensure the proposed utility pipes can tolerate compaction loads. The cover material should be placed on each side of the pipe and should be completed simultaneously.

10.3 Trench Backfill

All backfill materials should conform to OPSS 401. The backfill material shall be Granular A or B, Type I, II, or III, unshrinkable fill, or native material. Trench backfill materials above the pipe cover material may consist of approved excavated materials such as the existing fill and native materials other than clay soils. The backfill

materials should be free from frozen lumps, organic matter, rocks and boulders over 150mm in diameter or deleterious materials. Imported fill, if required to make up the balance of trench backfill, it should consist of compactable and inorganic earth borrow as per OPSS 206 and 212, or selected subgrade material (SSM) as per OPSS 1010.

At the subject site, the burial depth of water-bearing utility lines is typically 2.4 m below the ground surface. If this depth is not achievable, equivalent thermal insulation should be provided. The contractor should retain a professional engineer to provide detailed drawings for excavation and temporary support of the excavation walls during construction.

Regardless of the type of material used as backfill, it should be placed in lifts not exceeding 300 mm in thickness in loose measurement and should be compacted to a minimum of 98% of SPMDD using suitable vibratory compaction equipment.

11.0 CLOSURE

We trust this geotechnical investigation and design recommendation report meets the requirements of your project. The "Limitations of Report" presented in Appendix A are an integral part of this report. Please contact the undersigned should you have any questions or concerns.

Egis Group Ltd.

LICENSED PROFESSIONAL ENGINEER N. S. K. GIRGIS 100505873 Dec. 04, 2024 PROVINCE OF ONTARIO	LICENSED PROFESSIONAL ENGINEER M. WANG 100503190 Dec 4, 2024 PROVINCE OF ONTARIO
Nader Girgis, M.Sc, P.Eng. Geotechnical Engineer Nader.GIRGIS@egis-group.com	Michelle Wang, M.Sc, P.Eng. Geotechnical Engineer Michelle.WANG@egis-group.com

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GEOTECHNICAL INVESTIGATION OF THE PROPOSED BUILDING ADDITION AND SITE DEVELOPMENT

145 WALGREEN RD, OTTAWA, ON

APPENDIX A: LIMITATIONS OF REPORT

egis

LIMITATIONS OF REPORT

Egis Canada Ltd. (Egis) carried out the field work and prepared the report. This document is an integral part of the Foundation Investigation and Design report presented.

The conclusions and recommendations provided in this report are based on the information obtained at the borehole locations where the tests were conducted. Subsurface and groundwater conditions between and beyond the boreholes may differ from those encountered at the specific locations where tests were conducted and conditions may become apparent during construction, which were not detected and could not be anticipated at the time of the site investigation. The benchmark level used and borehole elevations presented in this report are primarily to establish relative differenced in elevations between the borehole locations and should not be used for other purposes such as to establish elevations for grading, depth of excavations or for planning construction.

The recommendations presented in this report for design are applicable only to the intended structure and the project described in the scope of the work, and if constructed in accordance with the details outlined in the report. Unless otherwise noted, the information contained in this report does not reflect on any environmental aspects of either the site or the subsurface conditions.

The comments or recommendation provided in this report on potential construction problems and possible construction methods are intended only to guide the designer. The number of boreholes advanced at this site may not be sufficient or adequate to reveal all the subsurface information or factors that may affect the method and cost of construction. The contractors who are undertaking the construction shall make their own interpretation of the factual data presented in this report and make their conclusions, as to how the subsurface conditions of the site may affect their construction work.

The boundaries between soil strata presented in the report are based on information obtained at the borehole locations. The boundaries of the soil strata between borehole locations are assumed from geological evidences. If differing site conditions are encountered, or if the Client becomes aware of any additional information that differs from or is relevant to the Egis findings, the Client agrees to immediately advise Egis so that the conclusions presented in this report may be re-evaluated.

Under no circumstances shall the liability of Egis for any claim in contract or in tort, related to the services provided and/or the content and recommendations in this report, exceed the extent that such liability is covered by such professional liability insurance from time to time in effect including the deductible therein, and which is available to indemnify Egis. Such errors and omissions policies are available for inspection by the Client at all times upon request, and if the Client desires to obtain further insurance to protect it against any risks beyond the coverage provided by such policies, Egis will co-operate with the Client to obtain such insurance.

Egis prepared this report for the exclusive use of the Client. Any use which a third party makes of this report, or any reliance on or decision to be made based on it, are the responsibility of such third parties. Egis accepts no responsibility and will not be liable for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this report.

GEOTECHNICAL INVESTIGATION OF THE PROPOSED BUILDING ADDITION AND SITE DEVELOPMENT

145 WALGREEN RD, OTTAWA, ON

APPENDIX B: SITE AND BOREHOLE LOCATION PLANS

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LEGEND

- Site Location
- Local Road
- Major Road
- Watercourse
- Waterbody
- Wooded Area

500 250 0 500

Scale 1:15,000 Metres

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2024.

CLIENT: W.O M.W REALTY LIMITED

PROJECT: GEOTECHNICAL INVESTIGATION OF THE PROPOSED BUILDING ADDITION AND SITE DEVELOPMENT 145 WALGREEN ROAD

TITLE: SITE LOCATION

egis
115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742

PROJECT NO: CCO-25-1370-01		FIGURE:
Date	Sep., 19, 2024	1
GIS	AH	
Checked By	JP	

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40 20 0 40

Scale 1:1,250 Metres

LEGEND

Borehole/ Monitoring Well Locations

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2024.

CLIENT: W.O M.W REALTY LIMITED

PROJECT: GEOTECHNICAL INVESTIGATION OF THE PROPOSED BUILDING ADDITION AND SITE DEVELOPMENT 145 WALGREEN ROAD

TITLE: BOREHOLE LOCATIONS

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PROJECT NO:	CCO-25-1370-01
Date	Sep., 19, 2024
GIS	AH
Checked By	JP

FIGURE: 2

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GEOTECHNICAL INVESTIGATION OF THE PROPOSED BUILDING ADDITION AND SITE DEVELOPMENT

145 WALGREEN RD, OTTAWA, ON

APPENDIX C: BOREHOLE LOGS

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EXPLANATION OF TERMS USED IN REPORT

N-VALUE: THE STANDARD PENETRATION TEST (SPT) N-VALUE IS THE NUMBER OF BLOWS REQUIRED TO CAUSE A STANDARD 51mm O.D SPLIT BARREL SAMPLER TO PENETRATE 0.3m INTO UNDISTURBED GROUND IN A BOREHOLE WHEN DRIVEN BY A HAMMER WITH A MASS OF 63.5 kg, FALLING FREELY A DISTANCE OF 0.76m. FOR PENETRATIONS OF LESS THAN 0.3m N-VALUES ARE INDICATED AS THE NUMBER OF BLOWS FOR THE PENETRATION ACHIEVED. AVERAGE N-VALUE IS DENOTED THUS $\bar{N}$.

DYNAMIC CONE PENETRATION TEST: CONTINUOUS PENETRATION OF A CONICAL STEEL POINT (51mm O.D. 60° CONE ANGLE) DRIVEN BY 475J IMPACT ENERGY ON 'A' SIZE DRILL RODS. THE RESISTANCE TO CONE PENETRATION IS MEASURED AS THE NUMBER OF BLOWS FOR EACH 0.3m ADVANCE OF THE CONICAL POINT INTO THE UNDISTURBED GROUND.

SOILS ARE DESCRIBED BY THEIR COMPOSITION AND CONSISTENCY OR DENSENESS.

CONSISTENCY: COHESIVE SOILS ARE DESCRIBED ON THE BASIS OF THEIR UNDRAINED SHEAR STRENGTH (c_u) AS FOLLOWS:

C_u (kPa)	0 – 12	12 – 25	25 – 50	50 – 100	100 – 200	>200
	VERY SOFT	*SOFT*	*FIRM*	*STIFF*	*VERY STIFF*	*HARD*

DENSENESS: COHESIONLESS SOILS ARE DESCRIBED ON THE BASIS OF DENSENESS AS INDICATED BY SPT N VALUES AS FOLLOWS:

N (BLOWS/0.3m)	0 – 5	5 – 10	10 – 30	30 – 50	>50
	VERY LOOSE	*LOOSE*	*COMPACT*	*DENSE*	*VERY DENSE*

ROCKS ARE DESCRIBED BY THEIR COMPOSION AND STRUCUTRAL FEATURES AND/OR STRENGTH.

RECOVERY: SUM OF ALL RECOVERED ROCK CORE PIECES FROM A CORING RUN EXPRESSED AS A PERCENT OF THE TOTAL LENGTH OF THE CORING RUN.

MODIFIED RECOVERY: SUM OF THOSE INTACT CORE PIECES, 100mm+ IN LENGTH EXPRESSED AS A PERCENT OF THE LENGTH OF THE CORING RUN. THE ROCK QUALITY DESIGNATION (RQD), FOR MODIFIED RECOVERY IS:

RQD (%)	0 – 25	25 – 50	50 – 75	75 – 90	90 – 100
	VERY POOR	*POOR*	*FAIR*	*GOOD*	*EXCELLENT*

JOINT AND BEDDING:

SPACING	50mm	50 – 300mm	0.3m – 1m	1m – 3m	>3m
JOINTING	*VERY CLOSE*	*CLOSE*	*MOD. CLOSE*	*WIDE*	*VERY WIDE*
BEDDING	*VERY THIN*	*THIN*	*MEDIUM*	*THICK*	*VERY THICK*

ABBREVIATIONS AND SYMBOLS

FIELD SAMPLING

SS	SPLIT SPOON	TP	THINWALL PISTON
WS	WASH SAMPLE	OS	OSTERBERG SAMPLE
ST	SLOTTED TUBE SAMPLE	RC	ROCK CORE
BS	BLOCK SAMPLE	PH	TW ADVANCED HYDRAULICALLY
CS	CHUNK SAMPLE	PM	TW ADVANCED MANUALLY
TW	THINWALL OPEN	FS	FOIL SAMPLE
GS	GRAB SAMPLE		

STRESS AND STRAIN

u_w	kPa	PORE WATER PRESSURE
r_u	1	PORE PRESSURE RATIO
σ	kPa	TOTAL NORMAL STRESS
σ'	kPa	EFFECTIVE NORMAL STRESS
τ	kPa	SHEAR STRESS
$\sigma_1, \sigma_2, \sigma_3$	kPa	PRINCIPAL STRESSES
ε	%	LINEAR STRAIN
$\varepsilon_1, \varepsilon_2, \varepsilon_3$	%	PRINCIPAL STRAINS
E	kPa	MODULUS OF LINEAR DEFORMATION
G	kPa	MODULUS OF SHEAR DEFORMATION
μ	1	COEFFICIENT OF FRICTION

MECHANICALL PROPERTIES OF SOIL

m_v	kPa^{-1}	COEFFICIENT OF VOLUME CHANGE
c_c	1	COMPRESSION INDEX
c_s	1	SWELLING INDEX
c_a	1	RATE OF SECONDARY CONSOLIDATION
c_v	m^2/s	COEFFICIENT OF CONSOLIDATION
H	m	DRAINAGE PATH
T_v	1	TIME FACTOR
U	%	DEGREE OF CONSOLIDATION
σ'_{vo}	kPa	EFFECTIVE OVERBURDEN PRESSURE
σ'_p	kPa	PRECONSOLIDATION PRESSURE
τ_f	kPa	SHEAR STRENGTH
c'	kPa	EFFECTIVE COHESION INTERCEPT
Φ'	-°	EFFECTIVE ANGLE OF INTERNAL FRICTION
c_u	kPa	APPARENT COHESION INTERCEPT
Φ_u	-°	APPARENT ANGLE OF INTERNAL FRICTION
τ_R	kPa	RESIDUAL SHEAR STRENGTH
τ_r	kPa	REMOULDED SHEAR STRENGTH
S_t	1	SENSITIVITY = c_u / τ_r

PHYSICAL PROPERTIES OF SOIL

ρ_s	kg/m^3	DENSITY OF SOLID PARTICLES	e	1,%	VOID RATIO	e_{min}	1,%	VOID RATIO IN DENSEST STATE
γ_s	kN/m^3	UNIT WEIGHT OF SOLID PARTICLES	n	1,%	POROSITY	I_D	1	DENSITY INDEX = $\frac{e_{max} - e}{e_{max} - e_{min}}$
ρ_w	kg/m^3	DENSITY OF WATER	w	1,%	WATER CONTENT	D	mm	GRAIN DIAMETER
γ_w	kN/m^3	UNIT WEIGHT OF WATER	s_r	%	DEGREE OF SATURATION	D_n	mm	N PERCENT – DIAMETER
ρ	kg/m^3	DENSITY OF SOIL	w_L	%	LIQUID LIMIT	C_u	1	UNIFORMITY COEFFICIENT
γ	kN/m^3	UNIT WEIGHT OF SOIL	w_P	%	PLASTIC LIMIT	h	m	HYDRAULIC HEAD OR POTENTIAL
ρ_d	kg/m^3	DENSITY OF DRY SOIL	w_s	%	SHRINKAGE LIMIT	q	m^3/s	RATE OF DISCHARGE
γ_d	kN/m^3	UNIT WEIGHT OF DRY SOIL	I_P	%	PLASTICITY INDEX = $(W_L - W_L)$	v	m/s	DISCHARGE VELOCITY
ρ_{sat}	kg/m^3	DENSITY OF SATURATED SOIL	I_L	1	LIQUIDITY INDEX = $(W - W_P)/ I_P$	i	1	HYDAULIC GRADIENT
γ_{sat}	kN/m^3	UNIT WEIGHT OF SATURATED SOIL	I_C	1	CONSISTENCY INDEX = $(W_L - W) / 1_P$	k	m/s	HYDRAULIC CONDUCTIVITY
ρ'	kg/m^3	DENSITY OF SUBMERED SOIL	$e_{,max}$	1,%	VOID RATIO IN LOOSEST STATE	j	kN/m^3	SEEPAGE FORCE
γ'	kN/m^3	UNIT WEIGHT OF SUBMERGED SOIL						

PROJECT NO.: **CCO-25-1370**

PROJECT: Geotechnical Investigation - Proposed Addition and Site Works

CLIENT: W.O M.W Realty Limited

PROJECT LOCATION: 145 Walgreen Road, Ottawa, ON

Drilling Date: Aug/14/2024 - Aug/14/2024

BH Location: N 5013333.663; E 424860.028

Drilling Equipment: CME 55

Drilling Method: Hollow Stem Augers, NQ Core

Remarks: GPS Coordinate System UTM NAD 83

BH No: 24-1

Datum: Geodetic

Elevation: 127.31 m

Compiled by: JF

Checked by: NG

ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3 m / RQD (%)	RECOVERY (%) / TCR (%)	GROUNDWATER CONDITIONS	DEPTH (m) / ELEVATION (m)	Remarks and Grain Size Distribution (%)
127.31								0.0	
0.00 126.96	**FILL:** granular fill, grey, dense, moist.		1	SS	40	63%		127	
0.35 126.55	silty sand, trace to pockets of organics and trace rootlets in the upper zone, brown.								
0.76 126.05	**SILT/SANDY SILT:** trace to some clay, trace gravel, greyish brown, very dense, moist.		2	SS	50/ 75mm	62%		1.0	
1.26 125.91	**SANDY SILT TILL/SILTY SAND TILL:** greyish brown, very dense, moist.							126	
1.40	**LIMESTONE BEDROCK:** slightly weathered, grey to dark grey, thinly bedded, strong to very strong, fair to excellent quality based on RQD.		3	RC	67	100%		2.0 125	UCS = 93.2 Mpa
			4	RC	65	100%		3.0 124	
			5	RC	74	100%		4.0 123	UCS = 119.6 Mpa
122.33 4.98	**END OF BOREHOLE** -Upon completion of drilling and before coring, the borehole was open to 1.00 m bgs (El. 126.31 m asl) and wet at the bottom.								

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80)

SHEAR STRENGTH (kPa)
Field. Shear Vane (x) & Sensitivity (s)
Pocket Penetrometer ✖
● Quick Triaxial ○ Unconfined
20 40 60 80

PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L

WATER CONTENT (%)
10 20 30 40 50 60 70 80 90

Unit Weight (kN/m³)
Pocket Penetro. (kPa)
GR SA SI CL

GRAPH NOTES

30 / 3 Upper value = Field Vane Shear Strength / Lower value = Vane Sensitivity

○ ε=3% Strain at Failure

1MP SOIL LOG 145 WALGREEN GINT LOGS FINAL.GPJ MP_OTTAWA_FOUNDATIONS.GDT 24/12/5

PROJECT NO.: **CCO-25-1370**
PROJECT: Geotechnical Investigation - Proposed Addition and Site Works
CLIENT: W.O M.W Realty Limited
PROJECT LOCATION: 145 Walgreen Road, Ottawa, ON

Drilling Date: Aug/14/2024 - Aug/14/2024
BH Location: N 5013335.166; E 424875.725
Drilling Equipment: CME 55
Drilling Method: Hollow Stem Augers, NQ Core
Remarks: GPS Coordinate System UTM NAD 83

BH No: 24-2

Datum: Geodetic
Elevation: 127.12 m
Compiled by: JF
Checked by: NG

ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3 m / RQD (%)	RECOVERY (%) / TCR (%)	GROUNDWATER CONDITIONS	DEPTH (m)	ELEVATION (m)	Remarks and Grain Size Distribution (%)
127.12								0.0	127	
0.00 126.74	**FILL:** granular fill, grey, compact, moist.		1	SS	21	79%	Bentonite			
0.38 126.36	silty sand, trace to pockets of organics and trace rootlets in the upper zone, brown.									
0.76 125.60	**SILT/SANDY SILT:** trace to some clay, trace gravel, greyish brown, dense, moist.		2	SS	31	75%	W. L. 126.26 Aug 29, 24 Riser Sand	1.0	126	
1.52 125.18	**SANDY SILT TILL/SILTY SAND TILL:** greyish brown, very dense, moist.		3	SS	50/ 100mm	81%	Screen			20.1 37.2 (42.7)
1.94	**LIMESTONE BEDROCK:** slightly weathered, grey to dark grey, thinly bedded, strong to very strong, fair to excellent quality based on RQD.		4	RC	96	100%		2.0	125	
			5	RC	92	100%	Bentonite	3.0 4.0	124 123	UCS = 103.4 Mpa
			6	RC	68	100%		5.0	122	
121.50										UCS = 70.6 Mpa
5.62	**END OF BOREHOLE** - Upon completion of drilling, no water was observed in the installed standpipe. - On August 29, 2024, the water level in the installed standpipe was measured at 0.86 m bgs (El. 126.26 m asl). -Standpipe was installed at 1.85 m bgs (El. 125.27 m asl).									

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80

SHEAR STRENGTH (kPa)
Field. Shear Vane (x) & Sensitivity (s)
Pocket Penetrometer ✖
● Quick Triaxial ○ Unconfined
20 40 60 80

PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30 40 50 60 70 80 90
7.1

Unit Weight (kN/m³)
Pocket Penetro. (kPa)
GR SA SI CL

GRAPH NOTES
30 / 3 Upper value = Field Vane Shear Strength; Lower value = Vane Sensitivity
○ ε=3% Strain at Failure

1MP SOIL LOG 145 WALGREEN GINT LOGS FINAL.GPJ MP_OTTAWA_FOUNDATIONS.GDT 24/12/5

PROJECT NO.: **CCO-25-1370**
PROJECT: Geotechnical Investigation - Proposed Addition and Site Works
CLIENT: W.O M.W Realty Limited
PROJECT LOCATION: 145 Walgreen Road, Ottawa, ON

Drilling Date: Aug/14/2024 - Aug/14/2024
BH Location: N 5013232.316; E 424771.81
Drilling Equipment: CME 55
Drilling Method: Hollow Stem Augers
Remarks: GPS Coordinate System UTM NAD 83

BH No: 24-3

Datum: Geodetic
Elevation: 127.73 m
Compiled by: JF
Checked by: NG

ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3 m / RQD (%)	RECOVERY (%) / TCR (%)	GROUNDWATER CONDITIONS	DEPTH (m) / ELEVATION (m)	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa)	PLASTIC LIMIT / NATURAL MOISTURE CONTENT / LIQUID LIMIT / WATER CONTENT (%)	Remarks and Grain Size Distribution (%) / Unit Weight (kN/m³) / Pocket Penetro. (kPa)
127.73								0.0			GR SA SI CL
0.00 127.27	**FILL:** silty sand, trace to some gravel, trace organics and rootlets, dark brown, compact, moist.		1	SS	12	67%					
0.46 126.97	brown, very moist.							127			
0.76 126.21	**SILT/SANDY SILT:** trace to some clay, trace gravel, greyish brown, compact, moist to very moist.		2	SS	18	79%		1.0		16	0.7 8.2 79.4 11.7
1.52 126.03	**SANDY SILT TILL/SILTY SAND TILL:** greyish brown, very dense, moist to very moist.		3	SS	50/ 25mm	71%					
1.70	**END OF BOREHOLE** - The borehole was terminated after encountering auger refusal at 1.70 m bgs (El. 126.03 m asl). - Upon completion of drilling, the borehole was open to 0.76 m bgs (El. 126.97 m asl) and was wet at the bottom.										

1MP SOIL LOG 145 WALGREEN GINT LOGS FINAL.GPJ MP_OTTAWA_FOUNDATIONS.GDT 24/12/5

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GRAPH NOTES
30 / 3 Upper value = Field Vane Shear Strength; Lower value = Vane Sensitivity
ε=3% Strain at Failure

PROJECT NO.: **CCO-25-1370**
PROJECT: Geotechnical Investigation - Proposed Addition and Site Works
CLIENT: W.O M.W Realty Limited
PROJECT LOCATION: 145 Walgreen Road, Ottawa, ON

Drilling Date: Aug/15/2024 - Aug/15/2024
BH Location: N 5013284.046; E 424838.524
Drilling Equipment: CME 55
Drilling Method: Hollow Stem Augers
Remarks: GPS Coordinate System UTM NAD 83

BH No: 24-4 MW

Datum: Geodetic
Elevation: 127.10 m
Compiled by: JF
Checked by: NG

ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3 m	RQD (%)	RECOVERY (%) TCR (%)	GROUNDWATER CONDITIONS	DEPTH (m)	ELEVATION (m)	Remarks and Grain Size Distribution (%) GR SA SI CL
127.10											
0.00	**FILL:** gravel and sand, some silt, dark brown, dense, moist.		1	SS	33		75%		0.0	127	
126.65											
0.45	**SILT/SANDY SILT:** trace to some clay, trace gravel, greyish brown, dense to compact, moist.		2	SS	21		71%	Bentonite	1.0	126	
125.83											
1.27	layer of very moist sand and gravel.							Riser			
125.58											
1.52	**SANDY SILT TILL/SILTY SAND TILL:** grey, compact, moist to very moist.		3	SS	26		29%	Sand	2.0	125	
124.81											
2.29	very dense.		4	SS	56		88%	Screen	3.0	124	12.3 29.2 52.5 6.0
123.60			5	SS	73		88%	Bentonite			
3.50	Trace stone fragements.										
123.47											
3.63	**END OF BOREHOLE** - Upon completion of drilling, the water level in the installed well was measured at 1.75 m bgs (El. 125.35 m asl). - On August 29, 2024, the water level in the installed well was measured at 1.20 m bgs (El. 125.90 m asl).										

W. L. 125.90 Aug 29, 24
W. L. 125.35 Aug 15, 24

DYNAMIC CONE PENETRATION RESISTANCE PLOT
SHEAR STRENGTH (kPa)
Field. Shear Vane (x) & Sensitivity (s)
Pocket Penetrometer
Quick Triaxial / Unconfined
20 40 60 80

PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30 40 50 60 70 80 90

12.5

Unit Weight (kN/m³)
Pocket Penetro. (kPa)

GRAPH NOTES
30 Upper value = Field Vane Shear Strength
3 Lower value = Vane Sensitivity
○ ε=3% Strain at Failure

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PROJECT NO.: **CCO-25-1370**

PROJECT: Geotechnical Investigation - Proposed Addition and Site Works

CLIENT: W.O M.W Realty Limited

PROJECT LOCATION: 145 Walgreen Road, Ottawa, ON

Drilling Date: Aug/14/2024 - Aug/14/2024

BH Location: N 5013262.774; E 424759.248

Drilling Equipment: CME 55

Drilling Method: Hollow Stem Augers

Remarks: GPS Coordinate System UTM NAD 83

BH No: 24-5

Datum: Geodetic

Elevation: 128.24 m

Compiled by: JF

Checked by: NG

ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES: NUMBER	TYPE	"N" BLOWS/0.3 m / RQD (%)	RECOVERY (%) / TCR (%)	GROUNDWATER CONDITIONS	DEPTH (m) / ELEVATION (m)	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa)	WATER CONTENT (%)	Remarks and Grain Size Distribution (%)
128.24								0.0 / 128			
0.00	**FILL:** gravelly sand, some silt, brown, moist.		1	GS							
127.48								1.0 / 127			
0.76	**SANDY SILT TILL/SILTY SAND TILL:** trace rootlets and organics in the upper ±80 mm, greyish brown, compact, moist.		2	SS	27	33%					
126.72								2.0 / 126			
1.52	grading more sandy, very dense.		3	SS	58	75%					
125.64			4	SS	50/100mm	75%					
2.60	trace stone fragments.										
125.45											
2.79	**END OF BOREHOLE** - The borehole was terminated after encountering auger refusal at 2.79 m bgs (El. 125.45 m asl). - Upon completion of drilling, the borehole was open to 1.98 m bgs (El. 126.26 m asl) and dry.										

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80

SHEAR STRENGTH (kPa): Field. Shear Vane (x) & Sensitivity (s); Pocket Penetrometer ✖; Quick Triaxial ●; Unconfined ○; 20 40 60 80

PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L

WATER CONTENT (%): 10 20 30 40 50 60 70 80 90

Remarks and Grain Size Distribution (%)

Unit Weight (kN/m³) Pocket Penetro. (kPa)

GR SA SI CL

GRAPH NOTES

30 / 3 Upper value = Field Vane Shear Strength / Lower value = Vane Sensitivity

○ ε=3% Strain at Failure

1MP SOIL LOG 145 WALGREEN GINT LOGS FINAL.GPJ MP_OTTAWA_FOUNDATIONS.GDT 24/12/5

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PROJECT NO.: **CCO-25-1370**
PROJECT: Geotechnical Investigation - Proposed Addition and Site Works
CLIENT: W.O M.W Realty Limited
PROJECT LOCATION: 145 Walgreen Road, Ottawa, ON

Drilling Date: Aug/14/2024 - Aug/14/2024
BH Location: N 5013323.206; E 424813.379
Drilling Equipment: CME 55
Drilling Method: Hollow Stem Augers
Remarks: GPS Coordinate System UTM NAD 83

BH No: 24-6

Datum: Geodetic
Elevation: 127.76 m
Compiled by: JF
Checked by: NG

ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3 m / RQD (%)	RECOVERY (%) / TCR (%)	GROUNDWATER CONDITIONS	DEPTH (m)	ELEVATION (m)	Remarks and Grain Size Distribution (%) GR SA SI CL
127.76								0.0		
127.66	**ASPHALT** ±100 mm.									
0.10	**FILL:** granular fill, grey, compact, moist.		1	GS					127	
126.85								1.0		
0.91	**SILT/SANDY SILT:** trace to some clay, trace gravel, greyish brown, compact, moist to very moist.		2	SS	21	63%				
126.24									126	
1.52	dense, moist.		3	SS	47	83%		2.0		
125.47									125	
2.29	very dense.		4	SS	96	100%				
124.71								3.0		
3.05	**SANDY SILT TILL/SILTY SAND TILL:** greyish brown, very dense, moist to very moist.		5	SS	50/ 50mm	65%				
124.31										
3.45	trace limestone fragments.									
124.20										
3.56	**END OF BOREHOLE** - The borehole was terminated after encountering auger refusal at 3.56 m bgs (El. 124.20 m asl). - Upon completion of drilling, the borehole was open to 2.74 m bgs (El. 125.02 m asl) and dry.									

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80)
SHEAR STRENGTH (kPa)
Field. Shear Vane (x) & Sensitivity (s)
Pocket Penetrometer ✖
● Quick Triaxial ○ Unconfined
20 40 60 80

PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30 40 50 60 70 80 90

Unit Weight (kN/m³)
Pocket Penetro. (kPa)

GRAPH NOTES
30 / 3 Upper value = Field Vane Shear Strength / Lower value = Vane Sensitivity
○ ε=3% Strain at Failure

1MP SOIL LOG 145 WALGREEN GINT LOGS FINAL.GPJ MP_OTTAWA_FOUNDATIONS.GDT 24/12/5

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PROJECT NO.: **CCO-25-1370**

PROJECT: Geotechnical Investigation - Proposed Addition and Site Works

CLIENT: W.O M.W Realty Limited

PROJECT LOCATION: 145 Walgreen Road, Ottawa, ON

Drilling Date: Aug/15/2024 - Aug/15/2024

BH Location: N 5013307.24; E 424732.7

Drilling Equipment: CME 55

Drilling Method: Hollow Stem Augers

Remarks: GPS Coordinate System UTM NAD 83

BH No: 24-7 MW

Datum: Geodetic

Elevation: 128.46 m

Compiled by: JF

Checked by: NG

ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3 m / RQD (%)	RECOVERY (%) / TCR (%)	GROUNDWATER CONDITIONS	DEPTH (m)	ELEVATION (m)	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) Field. Shear Vane (x) & Sensitivity (s) Pocket Penetrometer ✖ Quick Triaxial ● Unconfined ○	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%)	Remarks and Grain Size Distribution (%) Unit Weight (kN/m³) Pocket Penetro. (kPa) GR SA SI CL
128.46								0.0		20 40 60 80	10 20 30 40 50 60 70 80 90	
0.00	**FILL:** silty sand, some gravel, trace clay and rootlets, brown, dense, moist.		1	SS	38	75%					7.8	18.1 51.2 (30.7)
128.08									128			
0.38	sandy silt, trace organics and rootlets, dark grey, dense to compact.						Bentonite					
127.62								1.0				
0.84	**SILT/SANDY SILT:** trace organics and rootlets in the upper ±300 mm, greyish brown, compact, moist.		2	SS	10	75%	Riser					
126.94							W. L. 127.09 Aug 29, 24					
1.52	**SANDY SILT TILL/SILTY SAND TILL:** greyish brown, dense, moist to very moist.		3	SS	38	100%	Sand	2.0				14.4 48.2 29.8 7.6
126.17									126			
2.29	layer of weathered limestone, very dense.		4	SS	50/ 100 mm	50%	Screen					
125.77								3.0				
2.69	moist.		5	SS	50/ 100 mm		Bentonite					
125.01												
3.45	**END OF BOREHOLE** - The borehole terminated after encountering auger refusal at 3.45 m bgs (El. 125.01 m asl). - Upon completion of drilling, no water was observed in the installed well. - On August 29, 2024, the water level in the installed well was measured at 1.37 m bgs (El. 127.09 m asl).											

GRAPH NOTES

30 × 3 Upper value = Field Vane Shear Strength ○ ε=3% Strain at Failure
Lower value = Vane Sensitivity

1MP SOIL LOG 145 WALGREEN GINT LOGS FINAL.GPJ MP_OTTAWA_FOUNDATIONS.GDT 24/12/5

PROJECT NO.: **CCO-25-1370**
PROJECT: Geotechnical Investigation - Proposed Addition and Site Works
CLIENT: W.O M.W Realty Limited
PROJECT LOCATION: 145 Walgreen Road, Ottawa, ON

Drilling Date: Aug/15/2024 - Aug/15/2024
BH Location: N 5013353.352; E 424777.96
Drilling Equipment: CME 55
Drilling Method: Hollow Stem Augers
Remarks: GPS Coordinate System UTM NAD 83

BH No: 24-8 MW

Datum: Geodetic
Elevation: 127.64 m
Compiled by: JF
Checked by: NG

ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES: NUMBER	TYPE	"N" BLOWS/0.3 m	RQD (%)	RECOVERY (%) TCR (%)	GROUNDWATER CONDITIONS	DEPTH (m)	ELEVATION (m)	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa)	PLASTIC LIMIT / NATURAL MOISTURE CONTENT / LIQUID LIMIT / WATER CONTENT (%)	Remarks and Grain Size Distribution (%) GR SA SI CL
127.64									0.0				
127.64	**ASPHALT** ±100 mm.												
127.49	**FILL:** sand and gravel, some silt, brown, moist.		1	GS				Bentonite		127			
0.15	sandy silt, trace organics and gravel.												
126.88													
0.76	**SILT/SANDY SILT:** trace gravel and clay, trace rootlets in the upper ±80 mm, greyish browm, compact, moist.		2	SS	15		63%	W. L. 126.83 Aug 29, 24	1.0			16.2	3.7 31.8 58.2 6.3
126.12								Riser					
1.52	**SANDY SILT TILL/SILTY SAND TILL:** greyish browm, dense, moist.		3	SS	40		92%	sand		126			
125.35									2.0				
2.29	grading more sandy, very dense.		4	SS	50/ 100 mm		67%	Screen		125			
124.59									3.0				
3.05	**END OF BOREHOLE** - The borehole was terminated after encountering auger refusal at 3.05 m bgs (El. 124.59 m asl). - Upon completion of drilling, no water was observed in the installed well. - On August 29, 2024, the water level in the installed well was measured at 0.81 m bgs (El. 126.83 m asl).												

1MP SOIL LOG 145 WALGREEN GINT LOGS FINAL.GPJ MP_OTTAWA_FOUNDATIONS.GDT 24/12/5

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GRAPH NOTES
30 / 3 Upper value = Field Vane Shear Strength / Lower value = Vane Sensitivity
○ ε=3% Strain at Failure

PROJECT NO.: **CCO-25-1370**

PROJECT: Geotechnical Investigation - Proposed Addition and Site Works

CLIENT: W.O M.W Realty Limited

PROJECT LOCATION: 145 Walgreen Road, Ottawa, ON

Drilling Date: Aug/14/2024 - Aug/14/2024

BH Location: N 5013323.206; E 424813.379

Drilling Equipment: CME 55

Drilling Method: Hollow Stem Augers

Remarks: GPS Coordinate System UTM NAD 83

BH No: 24-9

Datum: Geodetic

Elevation: 127.22 m

Compiled by: JF

Checked by: NG

ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3 m / RQD (%)	RECOVERY (%) / TCR (%)	GROUNDWATER CONDITIONS	DEPTH (m)	ELEVATION (m)	Remarks and Grain Size Distribution (%) GR SA SI CL
127.22								0.0	127	
0.00	**FILL:** ±50 mm of topsoil/organic soil followed br sand and gravel, trace to some silt, trace organics and rootlets, grey, compact, moist.		1	SS	10	29%				
126.46								1.0	126	
0.76	**SILT/SANDY SILT:**trace to some clay, trace gravel, greyish brown, dense, moist.		2	SS	30	67%				
			3	SS	47	75%				5.3 21.4 66.9 6.4
124.77								2.0	125	
2.45	**SANDY SILT TILL/SILTY SAND TILL:** grey, very dense, moist.		4	SS	64	92%				
124.04								3.0	124	
3.18	trace limestone fragments.		5	SS	55/ 125mm	82%				
123.89										
3.33	**END OF BOREHOLE** - The borehole was terminated after encountering auger refusal at 3.33 m bgs (El. 123.89 m asl). - Upon completion of drilling, the borehole was open to 2.61 m bgs (El. 124.61 m asl) and dry.									

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80

SHEAR STRENGTH (kPa): Field. Shear Vane (x) & Sensitivity (s); Pocket Penetrometer ✖; Quick Triaxial ●; Unconfined ○; 20 40 60 80

PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L

WATER CONTENT (%): 10 20 30 40 50 60 70 80 90

Unit Weight (kN/m³) Pocket Penetro. (kPa)

GRAPH NOTES

30 / 3 Upper value = Field Vane Shear Strength; Lower value = Vane Sensitivity

○ ε=3% Strain at Failure

1MP SOIL LOG 145 WALGREEN GINT LOGS FINAL.GPJ MP_OTTAWA_FOUNDATIONS.GDT 24/12/5

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GEOTECHNICAL INVESTIGATION OF THE PROPOSED BUILDING ADDITION AND SITE DEVELOPMENT

145 WALGREEN RD, OTTAWA, ON

APPENDIX D: LABORATORY TEST RESULTS

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Unconfined Compressive Strength of Intact Rock Cores

ASTM D7012 Method C

Project No.:	CCO-25-1370-01	**Date Issued:**	September 9,2024
Lab No.:	OL-24031	**Report No.:**	1 of 2
Project Name:	145 Walgreen Road		

Core No.:	1	**Moisture Condition:**	Dry as received		
Borehole Location:	BH24-1	**Run/RC:**	3	**Depth (ft):**	7'2"-7'7"
Date Sampled:	Aug 14,2024	**Received:**	Aug 29,2024	**Tested:**	Sept 9,2024
Core No.:	2	**Moisture Condition:**	Dry as received		
Borehole Location:	BH24-1	**Run/RC:**	5	**Depth (ft):**	15'6"-16'0"
Date Sampled:	Aug 14,2024	**Received:**	Aug 29,2024	**Tested:**	Sept 9,2024
Core No.:	3	**Moisture Condition:**	Dry as received		
Borehole Location:	BH24-2	**Run/RC:**	5	**Depth (ft):**	10'5"-11'2"
Date Sampled:	Aug 14,2024	**Received:**	Aug 29,2024	**Tested:**	Sept 9,2024

Core No. :	1	2	3
Diameter (mm)	47.4	47.4	47.4
Thickness/Height (mm)	96.6	99.5	97.4
Density (Kg/m^3)	2683	2698	2697
Compressive Strength (Mpa)	93.2	119.6	103.4
Mass of Core (g)	457.4	473.7	463.5
Description of Failure	Type 1	Type 4/2	Type 1

Remarks: Core#2 Diagonal fracture with some columnar vertical cracking through top end. No well formed Cones on ether end.

Core# 1&3 Relatively well-formed cone on one end, vertical cracks running through end, no well formed cone on other end.

Reviewed By: _____ **Date:** _____

Jason Hopwood-Jones
Laboratory Manager

Unconfined Compressive Strength of Intact Rock Cores

ASTM D7012 Method C

Project No.:	CCO-25-1370-01	**Date Issued:**	September ,2024
Lab No.:	OL-24031	**Report No.:**	2 of 2
Project Name:	145 Walgreen Road		

Core No.:	4	**Moisture Condition:**	Dry as received		
Borehole Location:	BH24-1	**Run/RC:**	6	**Depth (ft):**	17'6"-18';0"
Date Sampled:	Aug 14,2024	**Received:**	Aug 29,2024	**Tested:**	Sept 9,2024
Core No.:		**Moisture Condition:**	Dry as received		
Borehole Location:		**Run:**		**Depth (ft):**	
Date Sampled:		**Received:**		**Tested:**	
Core No.:		**Moisture Condition:**			
Borehole Location:		**Run:**		**Depth (ft):**	
Date Sampled:		**Received:**		**Tested:**	

Core No. :	4	5	
Diameter (mm)	47.4		
Thickness/Height (mm)	102.8		
Density (Kg/m^3)	2692		
Compressive Strength (Mpa)	70.6		
Mass of Core (g)	488.4		
Description of Failure	4		

Remarks: Core#4 Diagonal fracture with some columnar vertical cracking through top end. No well formed Cones on ether end.

Reviewed By: _____ **Date:** _____

Jason Hopwood-Jones
Laboratory Manager

Retrieved Rock Cores

Borehole: BH24-1

RC 3 – 125.91 to 124.73 m
(RQD = 67%)

RC 4 – 124.73 to 123.22 m
(RQD = 65%)

RC 5 – 123.22 to 122.33 m
(RQD = 74%)

egis	**Proposed Addition** **145 Walgreen Road, Ottawa, ON**	**Project No: CCO-25-1370-01** **Client: W.O M.W Realty Limited**

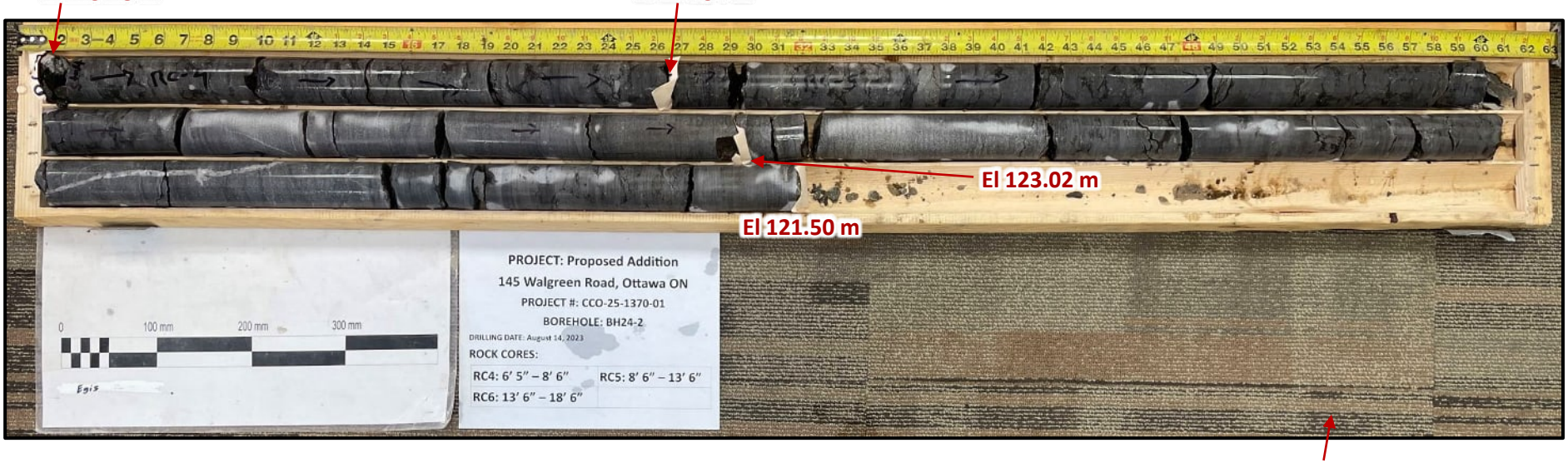
Retrieved Rock Cores

Borehole: BH24-2

RC 4 – 125.18 to 124.54 m
(RQD = 96%)

RC 5 – 124.54 to 123.02 m
(RQD = 92%)

RC 6 – 123.02 to 121.50 m
(RQD = 68%)



egis	**Proposed Addition** **145 Walgreen Road, Ottawa, ON**	**Project No: CCO-25-1370-01** **Client: W.O M.W Realty Limited**

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Certificate of Analysis

Egis Canada Ltd. (Nepean)
215 Menten Place, Unit 104
Nepean, ON K2H 9C1
Attn: Jeff Forrester

Client PO: CCO-25-1370-01
Project: CCO-25-1370-01 (145 Walgreen Rd)
Custody: 70629

Report Date: 4-Sep-2024
Order Date: 27-Aug-2024

Order #: 2435197

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
2435197-01	BH 24-4 SS-3
2435197-02	BH 24-8 SS-4

Approved By:

Mark Foto, M.Sc.
Lab Supervisor

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Anions	EPA 300.1 - IC, water extraction	4-Sep-24	4-Sep-24
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	30-Aug-24	30-Aug-24
Resistivity	EPA 120.1 - probe, water extraction	29-Aug-24	29-Aug-24
Solids, %	CWS Tier 1 - Gravimetric	28-Aug-24	29-Aug-24

Certificate of Analysis

Report Date: 04-Sep-2024

Client: **Egis Canada Ltd. (Nepean)**

Order Date: 27-Aug-2024

Client PO: **CCO-25-1370-01**

Project Description: CCO-25-1370-01 (145 Walgreen Rd)

	Client ID:	BH 24-4 SS-3	BH 24-8 SS-4	-	-		
	Sample Date:	15-Aug-24 09:00	15-Aug-24 10:30	-	-	-	-
	Sample ID:	2435197-01	2435197-02	-	-		
	Matrix:	Soil	Soil	-	-		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	89.2	93.9	-	-	-	-
General Inorganics							
pH	0.05 pH Units	7.33	7.37	-	-	-	-
Resistivity	0.1 Ohm.m	84.4	12.6	-	-	-	-
Anions							
Chloride	10 ug/g	11	422	-	-	-	-
Sulphate	10 ug/g	26	70	-	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions								
Chloride	ND	10	ug/g					
Sulphate	ND	10	ug/g					
General Inorganics								
Resistivity	ND	0.1	Ohm.m					

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	12.0	10	ug/g	11.4			4.9	35	
Sulphate	27.4	10	ug/g	26.5			3.6	35	
General Inorganics									
pH	7.16	0.05	pH Units	7.15			0.1	2.3	
Resistivity	12.5	0.1	Ohm.m	12.7			1.7	20	
Physical Characteristics									
% Solids	82.7	0.1	% by Wt.	83.8			1.3	25	

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	108	10	ug/g	11.4	97.1	82-118			
Sulphate	123	10	ug/g	26.5	96.4	80-120			

Certificate of Analysis

Report Date: 04-Sep-2024

Client: **Egis Canada Ltd. (Nepean)**

Order Date: 27-Aug-2024

Client PO: **CCO-25-1370-01**

Project Description: CCO-25-1370-01 (145 Walgreen Rd)

Qualifier Notes:

Sample Data Revisions:

None

Work Order Revisions / Comments:

Received at temperature > 25C

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

Soil results are reported on a dry weight basis unlesss otherwise noted.

Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

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Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only) № 70629

Client Name: Egis Canada Ltd.	Project Ref: CCO-25-1370-01 (445 Walgreen Rd)
Contact Name: Jeffrey Forrester	Quote #:
Address: 215 Menten Place, Unit 104, Ottawa, ON K2H 9C1	PO #: CCO-25-1370-01
Telephone:	E-mail: Jeffrey.Forrester@egis-group.com cc: Jay.Patel@egis-group.com

Page 1 of 1

Turnaround Time
☐ 1 day ☐ 3 day
☐ 2 day ☐ Regular
Date Required:

☐ REG 153/04 ☐ REG 406/19

☐ Table 1 ☐ Res/Park ☐ Med/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☐ Table 3 ☐ Agri/Other
☐ Table ___
For RSC: ☐ Yes ☐ No

Other Regulation
☐ REG 558 ☐ PWQO
☐ CCME ☐ MISA
☐ SU - Sani ☐ SU - Storm
Mun:
☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Required Analysis

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Corrosivity Package	(Sulphate, pH, Chloride, Resistivity)
1	BH 24-4 SS-3	S	0	1	08/15/24	9:00 AM		
2	BH 24-8 SS-4	S	0	1	08/15/24	10:30 AM		
3								
4								
5								
6								
7								
8								
9								
10								

Comments: Test for Corrosivity Package (Sulphate, pH, chloride, Resistivity)

Method of Delivery: Walkin

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab: SO	Verified By: SS
Relinquished By (Print): Jay Patel	Date/Time: Aug 27/24 3:16	Date/Time: Aug 27, 2024 4:55p	Date/Time: 28 Aug 24 00:39
Date/Time: August 27, 2024	Temperature: 27 °C	Temperature: 11.9 °C	pH Verified: ☐ By:

egis

WATER CONTENT DETERMINATION

Test Method Utilized	☑ MTO LS-701	☐ ASTM D 2216	☐ AASHTO T-265				
Project No.: CCO-25-1370-01-05-03					Date Received: August 20,2024		
Project Name/Location: Geotech Invest. - 145 Walgreen Road.					Date Tested: August 21,2024		
Material Type: Soils					Lab Sample No.: OL-24031		
Borehole No.	Depth Sample Taken (ft ')	Sample Container I.D.	Wet Sample + Tare (A)	Dry Sample + Tare (B)	Tare (C)	Mass of Sample (D) (B-C)	% Moisture (A-B)/Dx100
BH24-2 SS-3	5'0"-6'4"	P.86	760.19	718.26	130.26	588.00	**7.1**
BH24-3 SS-2	2'6"-4'6"	P.98	601.15	536.05	129.43	406.62	**16.0**
BH24-4 SS-4	7'6"-9'5"	P.96	690.69	630.36	148.02	482.34	**12.5**
BH24-7 SS-1	0'0"-2'0"	P.35	1054.04	990.83	184.74	806.09	**7.8**
BH24-8 SS-2	2'6"-4'6"	P.100	581.30	522.00	156.68	365.32	**16.2**

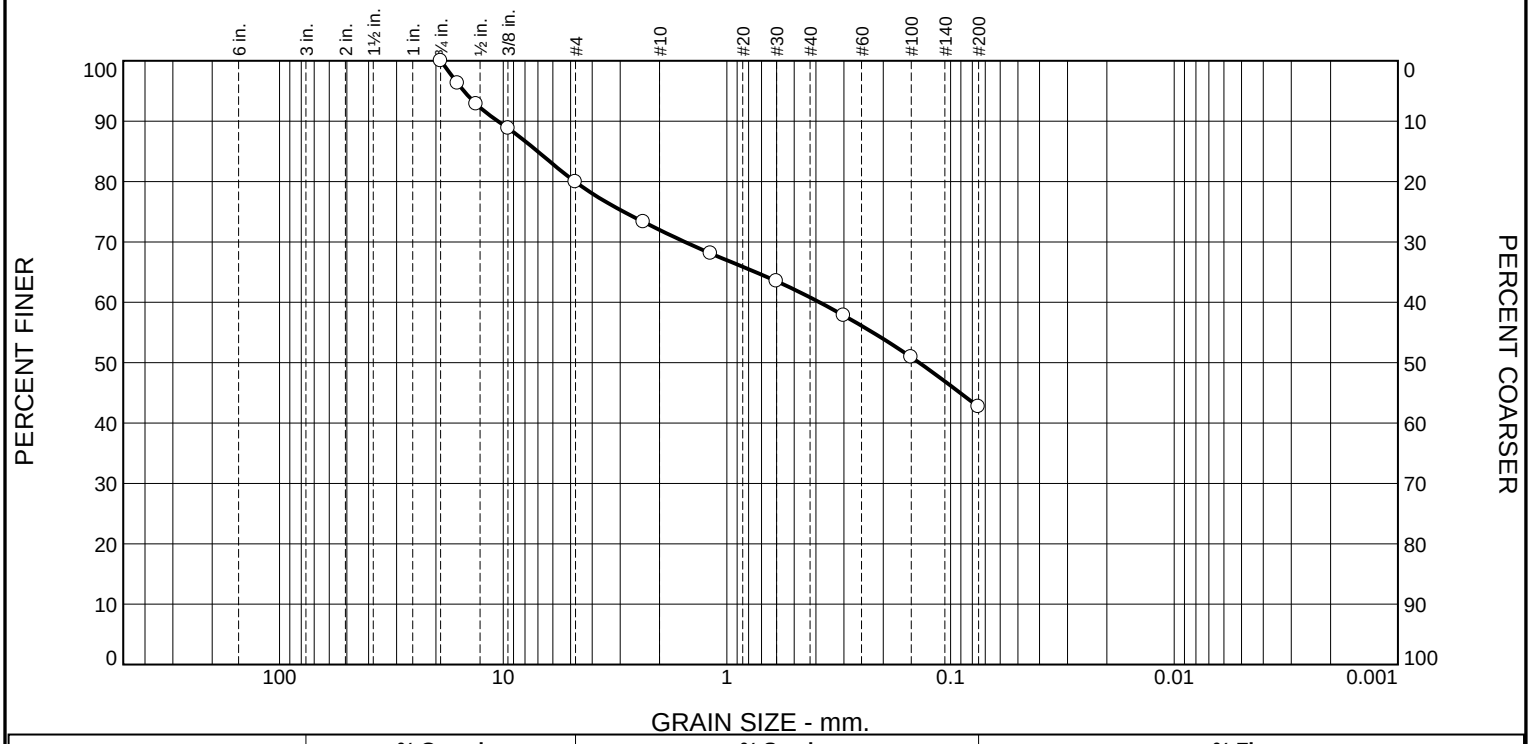
Non-Comformance's from Test Procedure: N/A

Comments:

Checked by: J.H-J

Signature:

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	20.1	7.9	11.2	18.1	42.7	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
19.0mm	100.0		
16.0mm	96.3		
13.2mm	92.8		
9.5mm	88.8		
4.75mm	79.9		
2.36mm	73.3		
1.18mm	68.1		
0.600mm	63.5		
0.300mm	57.8		
0.150mm	50.9		
0.075mm	42.7		

* (no specification provided)

Material Description

Fine Gravelly Silt/Clay and Sand

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 10.5513 D_{85}= 7.0195 D_{60}= 0.3854
D_{50}= 0.1382 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

F.M.=2.18

Date Received: Aug 20,2024 **Date Tested:** Aug 25,2024

Tested By: J.H-J

Checked By: J.Hopwood-Jones

Title: Lab Manager

Location: BH24-2 SS-3
Sample Number: SS-3 **Depth:** 5'0"-6'4"

Date Sampled: Aug 14,2024

egis

Client: WO MW Realty Limited
Project: 145 Walgreen Road

Project No: CCO-251370-01 **Figure**

GRAIN SIZE DISTRIBUTION TEST DATA

2024-08-29

Client: WO MW Realty Limited
Project: 145 Walgreen Road
Project Number: CCO-251370-01
Location: BH24-2 SS-3
Depth: 5'0"-6'4" **Sample Number:** SS-3
Material Description: Fine Gravelly Silt/Clay and Sand
Sample Date: Aug 14,2024
Date Received: Aug 20,2024
Tested By: J.H-J **Test Date:** Aug 25,2024
Checked By: J.Hopwood-Jones **Title:** Lab Manager

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Percent Retained
588.00	0.00	0.00	19.0mm	0.00	100.0	0.0
			16.0mm	21.96	96.3	3.7
			13.2mm	42.25	92.8	7.2
			9.5mm	65.70	88.8	11.2
			4.75mm	117.98	79.9	20.1
			2.36mm	156.94	73.3	26.7
			1.18mm	187.62	68.1	31.9
			0.600mm	214.64	63.5	36.5
			0.300mm	248.12	57.8	42.2
			0.150mm	288.63	50.9	49.1
			0.075mm	337.07	42.7	57.3

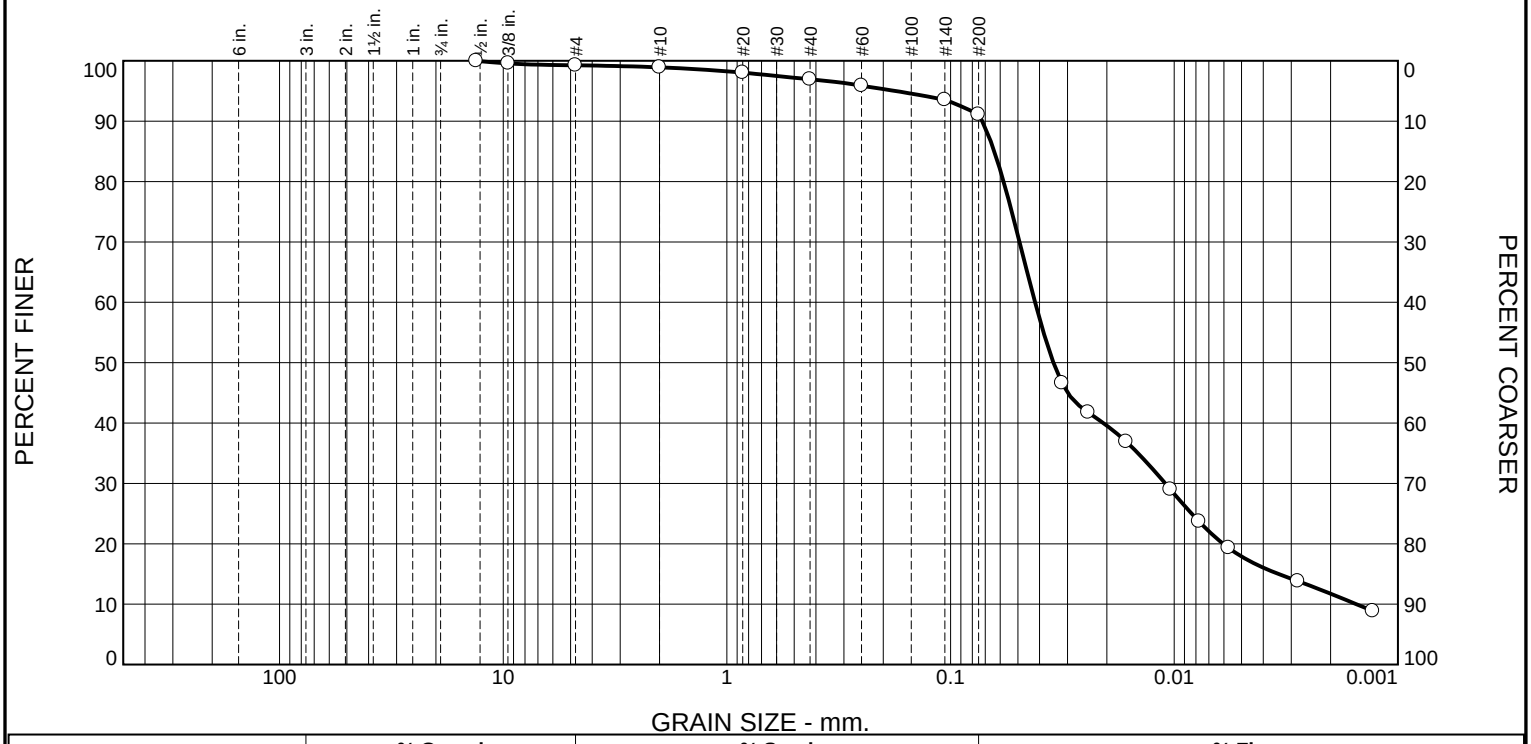
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	20.1	20.1	7.9	11.2	18.1	37.2			42.7

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.1382	0.3854	4.7759	7.0195	10.5513	15.0032

Fineness Modulus
2.18

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	0.4	2.0	5.8	79.4	11.7

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
13.2mm	100.0		
9.5mm	99.6		
4.75mm	99.3		
2.00mm	98.9		
0.850mm	98.0		
0.425mm	96.9		
0.250mm	95.9		
0.106mm	93.5		
0.075mm	91.1		
0.0317 mm.	46.6		
0.0243 mm.	41.8		
0.0164 mm.	36.9		
0.0104 mm.	29.0		
0.0078 mm.	23.7		
0.0057 mm.	19.3		
0.0028 mm.	13.8		
0.0013 mm.	8.9		

* (no specification provided)

Material Description

Silt some Clay trace Sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.0722 D_{85}= 0.0638 D_{60}= 0.0419
D_{50}= 0.0347 D_{30}= 0.0110 D_{15}= 0.0034
D_{10}= 0.0015 C_u= 27.30 C_c= 1.87

Remarks

F.M.=0.15

Date Received: Aug 20,2024 **Date Tested:** Aug 25,2024

Tested By: R.C

Checked By: J.Hopwood-Jones

Title: Lab Manager

Location: BH24-3 SS-2
Sample Number: SS-2 **Depth:** 2'6"-4'6"

Date Sampled: Aug 14,2024

egis

Client: WO MW Realty Limited
Project: 145 Walgreen Road

Project No: CCO-251370-01 **Figure**

GRAIN SIZE DISTRIBUTION TEST DATA

2024-08-29

Client: WO MW Realty Limited
Project: 145 Walgreen Road
Project Number: CCO-251370-01
Location: BH24-3 SS-2
Depth: 2'6"-4'6" **Sample Number:** SS-2
Material Description: Silt some Clay trace Sand
Sample Date: Aug 14,2024
Date Received: Aug 20,2024
Tested By: R.C **Test Date:** Aug 25,2024
Checked By: J.Hopwood-Jones **Title:** Lab Manager

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Percent Retained
406.62	0.00	0.00	13.2mm	0.00	100.0	0.0
			9.5mm	1.71	99.6	0.4
			4.75mm	3.01	99.3	0.7
			2.00mm	4.38	98.9	1.1
109.35	0.00	0.00	0.850mm	0.97	98.0	2.0
			0.425mm	2.19	96.9	3.1
			0.250mm	3.38	95.9	4.1
			0.106mm	5.94	93.5	6.5
			0.075mm	8.65	91.1	8.9

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 98.9
Weight of hydrometer sample =109.35
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.5
Meniscus correction only = -1.0
Specific gravity of solids = 2.775
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.6007 **-** 0.187 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer	Percent Retained
1.00	22.1	57.0	52.9	0.0128	56.0	6.1	0.0317	46.6	53.4
2.00	22.1	51.5	47.4	0.0128	50.5	7.2	0.0243	41.8	58.2
5.00	22.1	46.0	41.9	0.0128	45.0	8.2	0.0164	36.9	63.1
15.00	22.1	37.0	32.9	0.0128	36.0	9.9	0.0104	29.0	71.0
30.00	22.1	31.0	26.9	0.0128	30.0	11.0	0.0078	23.7	76.3
60.00	22.1	26.0	21.9	0.0128	25.0	11.9	0.0057	19.3	80.7
280.00	21.1	20.0	15.7	0.0130	19.0	13.0	0.0028	13.8	86.2
1440.00	20.5	14.5	10.1	0.0131	13.5	14.1	0.0013	8.9	91.1

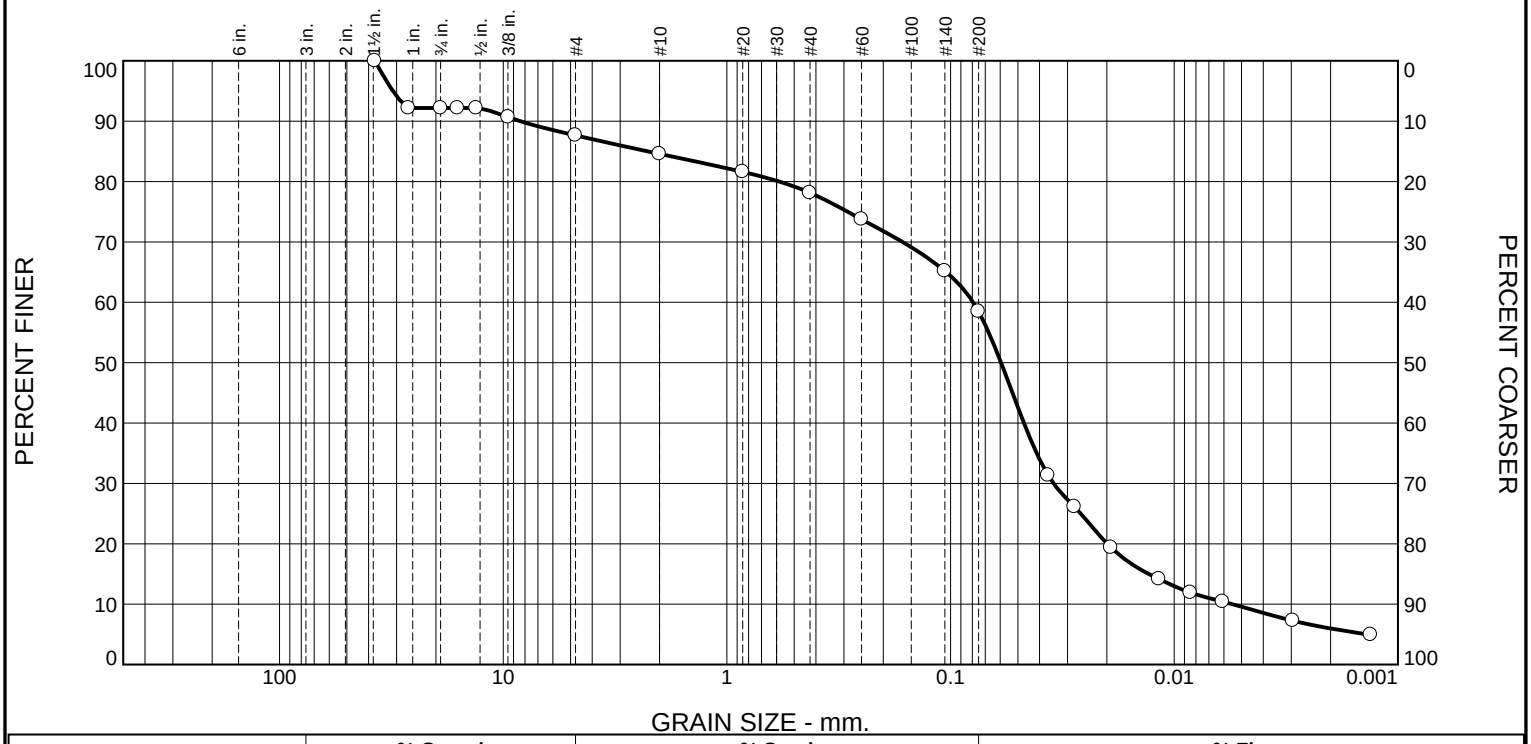
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.7	0.7	0.4	2.0	5.8	8.2	79.4	11.7	91.1

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0015	0.0034	0.0060	0.0110	0.0208	0.0347	0.0419	0.0580	0.0638	0.0722	0.1758

Fineness Modulus	C_u	C_c
0.15	27.30	1.87

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	7.8	4.5	3.1	6.5	19.6	52.5	6.0

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
37.5mm	100.0		
26.5mm	92.2		
19.0mm	92.2		
16.0mm	92.2		
13.2mm	92.2		
9.5mm	90.7		
4.75mm	87.7		
2.00mm	84.6		
0.850mm	81.6		
0.425mm	78.1		
0.250mm	73.7		
0.106mm	65.2		
0.075mm	58.5		
0.0367 mm.	31.4		
0.0279 mm.	26.1		
0.0192 mm.	19.4		
0.0117 mm.	14.2		
0.0085 mm.	11.9		
0.0061 mm.	10.4		
0.0029 mm.	7.3		
0.0013 mm.	4.9		

* (no specification provided)

Material Description

Sandy Silt some Gravel trace Clay

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 8.3700 D_{85}= 2.2614 D_{60}= 0.0793
D_{50}= 0.0595 D_{30}= 0.0347 D_{15}= 0.0130
D_{10}= 0.0055 C_u= 14.41 C_c= 2.76

Remarks

F.M.=1.37

Date Received: Aug 20,2024 **Date Tested:** Aug 25,2024

Tested By: R.C

Checked By: J.Hopwood-Jones

Title: Lab Manager

Location: BH24-4 SS-4
Sample Number: SS-4 **Depth:** 7'6"-9'5"

Date Sampled: Aug 14,2024

egis

Client: WO MW Realty Limited
Project: 145 Walgreen Road

Project No: CCO-251370-01 **Figure**

GRAIN SIZE DISTRIBUTION TEST DATA

2024-08-29

Client: WO MW Realty Limited
Project: 145 Walgreen Road
Project Number: CCO-251370-01
Location: BH24-4 SS-4
Depth: 7'6"-9'5" **Sample Number:** SS-4
Material Description: Sandy Silt some Gravel trace Clay
Sample Date: Aug 14,2024
Date Received: Aug 20,2024
Tested By: R.C **Test Date:** Aug 25,2024
Checked By: J.Hopwood-Jones **Title:** Lab Manager

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Percent Retained
482.34	0.00	0.00	37.5mm	0.00	100.0	0.0
			26.5mm	37.70	92.2	7.8
			19.0mm	37.70	92.2	7.8
			16.0mm	37.70	92.2	7.8
			13.2mm	37.70	92.2	7.8
			9.5mm	44.97	90.7	9.3
			4.75mm	59.53	87.7	12.3
			2.00mm	74.39	84.6	15.4
110.12	0.00	0.00	0.850mm	3.87	81.6	18.4
			0.425mm	8.38	78.1	21.9
			0.250mm	14.11	73.7	26.3
			0.106mm	25.28	65.2	34.8
			0.075mm	33.97	58.5	41.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 84.6
Weight of hydrometer sample =110.12
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.5
Meniscus correction only = -1.0
Specific gravity of solids = 2.775
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.6007 **-** 0.187 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer	Percent Retained
1.00	22.1	46.0	41.9	0.0128	45.0	8.2	0.0367	31.4	68.6
2.00	22.1	39.0	34.9	0.0128	38.0	9.5	0.0279	26.1	73.9
5.00	22.1	30.0	25.9	0.0128	29.0	11.2	0.0192	19.4	80.6
15.00	22.1	23.0	18.9	0.0128	22.0	12.5	0.0117	14.2	85.8
30.00	22.1	20.0	15.9	0.0128	19.0	13.0	0.0085	11.9	88.1
60.00	22.1	18.0	13.9	0.0128	17.0	13.4	0.0061	10.4	89.6
275.00	21.1	14.0	9.7	0.0130	13.0	14.2	0.0029	7.3	92.7
1440.00	20.5	11.0	6.6	0.0131	10.0	14.7	0.0013	4.9	95.1

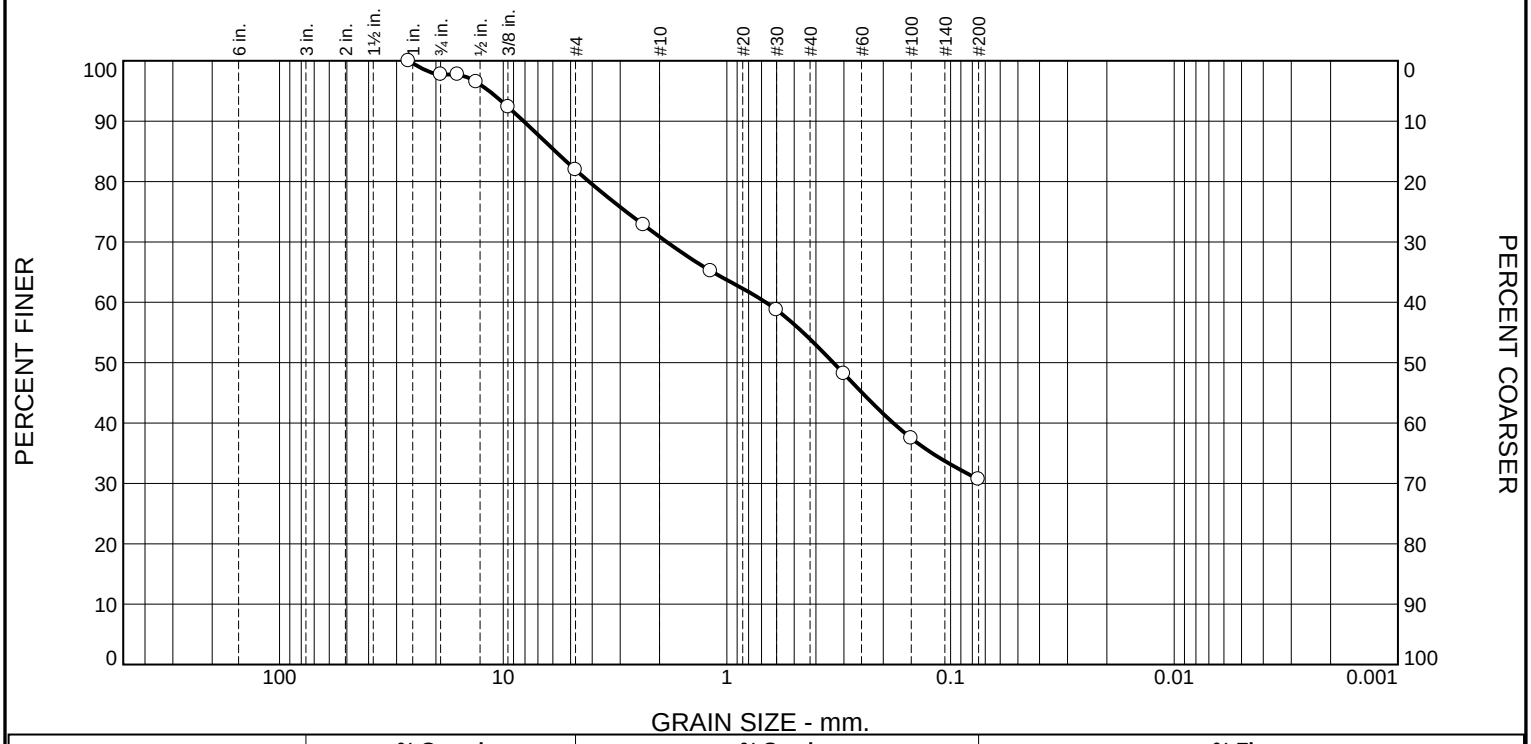
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	7.8	4.5	12.3	3.1	6.5	19.6	29.2	52.5	6.0	58.5

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0014	0.0055	0.0130	0.0199	0.0347	0.0470	0.0595	0.0793	0.5824	2.2614	8.3700	31.1651

Fineness Modulus	C_u	C_c
1.37	14.41	2.76

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	2.3	15.8	11.0	17.0	23.2	30.7	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
26.5mm	100.0		
19.0mm	97.7		
16.0mm	97.7		
13.2mm	96.5		
9.5mm	92.3		
4.75mm	81.9		
2.36mm	72.8		
1.18mm	65.2		
0.600mm	58.7		
0.300mm	48.2		
0.150mm	37.5		
0.075mm	30.7		

* (no specification provided)

Material Description

Silty/Clayey Sand some Gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 8.1118 D_{85}= 5.8393 D_{60}= 0.6706
D_{50}= 0.3344 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Note: Organics present.
F.M.=2.46

Date Received: Aug 20,2024 **Date Tested:** Aug 25,2024

Tested By: J.H-J

Checked By: J.Hopwood-Jones

Title: Lab Manager

Location: BH24-7 SS-1
Sample Number: SS-1 **Depth:** 0'0"-2'0"

Date Sampled: Aug 14,2024

egis

Client: WO MW Realty Limited
Project: 145 Walgreen Road

Project No: CCO-251370-01 **Figure**

GRAIN SIZE DISTRIBUTION TEST DATA

2024-08-29

Client: WO MW Realty Limited
Project: 145 Walgreen Road
Project Number: CCO-251370-01
Location: BH24-7 SS-1
Depth: 0'0"-2'0" **Sample Number:** SS-1
Material Description: Silty/Clayey Sand some Gravel
Sample Date: Aug 14,2024
Date Received: Aug 20,2024
Testing Remarks: Note: Organics present.
Tested By: J.H-J **Test Date:** Aug 25,2024
Checked By: J.Hopwood-Jones **Title:** Lab Manager

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Percent Retained
806.09	0.00	0.00	26.5mm	0.00	100.0	0.0
			19.0mm	18.31	97.7	2.3
			16.0mm	18.31	97.7	2.3
			13.2mm	28.36	96.5	3.5
			9.5mm	61.82	92.3	7.7
			4.75mm	145.56	81.9	18.1
			2.36mm	218.99	72.8	27.2
			1.18mm	280.56	65.2	34.8
			0.600mm	332.55	58.7	41.3
			0.300mm	417.76	48.2	51.8
			0.150mm	503.97	37.5	62.5
			0.075mm	558.91	30.7	69.3

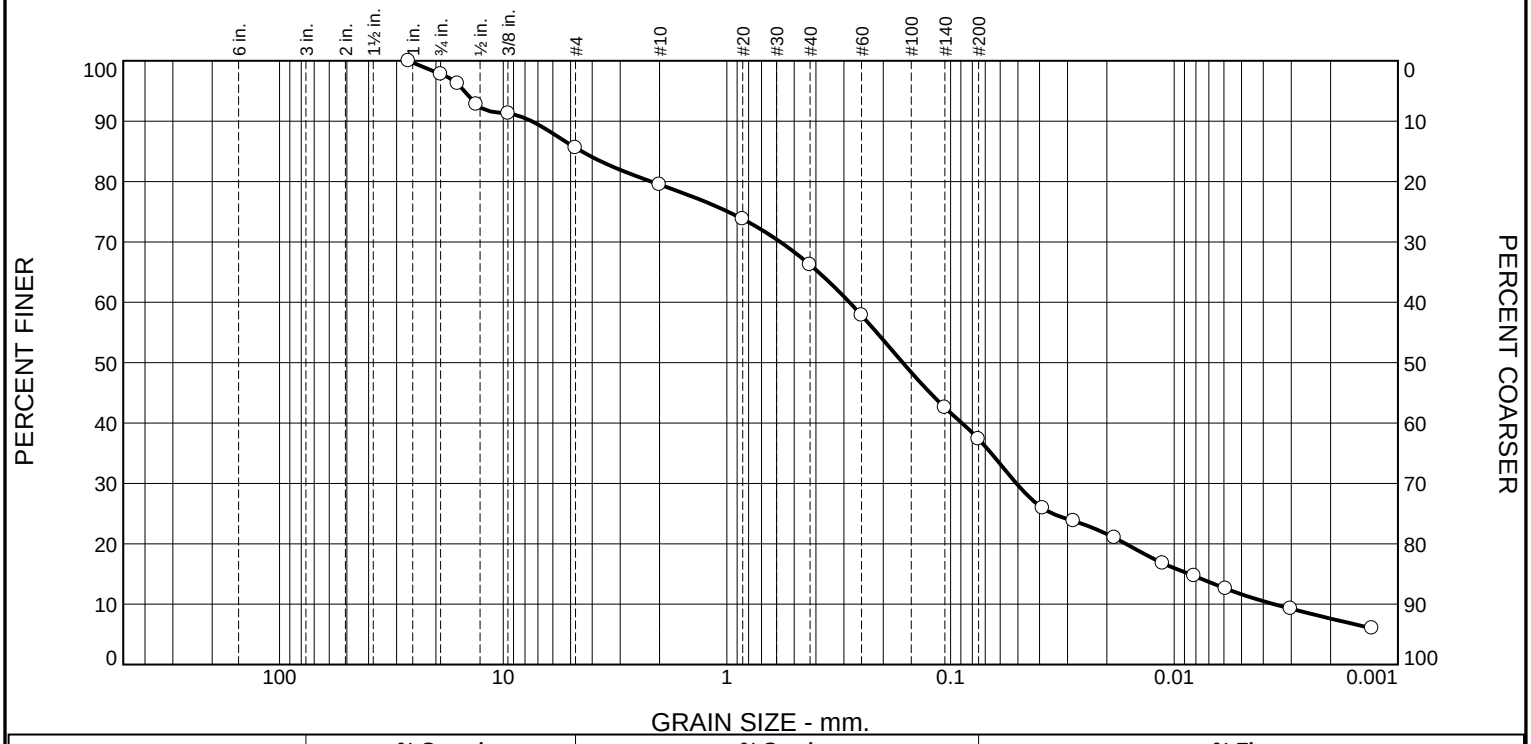
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	2.3	15.8	18.1	11.0	17.0	23.2	51.2			30.7

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.1804	0.3344	0.6706	4.1366	5.8393	8.1118	11.5636

Fineness Modulus
2.46

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	2.2	12.2	6.1	13.3	28.8	29.8	7.6

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
26.5mm	100.0		
19.0mm	97.8		
16.0mm	96.2		
13.2mm	92.8		
9.5mm	91.3		
4.75mm	85.6		
2.00mm	79.5		
0.850mm	73.8		
0.425mm	66.2		
0.250mm	57.8		
0.106mm	42.5		
0.075mm	37.4		
0.0387 mm.	25.9		
0.0282 mm.	23.8		
0.0185 mm.	21.0		
0.0113 mm.	16.8		
0.0081 mm.	14.7		
0.0059 mm.	12.6		
0.0030 mm.	9.3		
0.0013 mm.	6.0		

* (no specification provided)

Material Description

Silty Sand some Gravel trace Clay

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 7.4579 D_{85}= 4.4584 D_{60}= 0.2832
D_{50}= 0.1635 D_{30}= 0.0508 D_{15}= 0.0086
D_{10}= 0.0036 C_u= 78.93 C_c= 2.54

Remarks

F.M.=1.89

Date Received: Aug 20,2024 **Date Tested:** Aug 25,2024

Tested By: R.C

Checked By: J.Hopwood-Jones

Title: Lab Manager

Location: BH24-7 SS-3
Sample Number: SS-3 **Depth:** 5'0"-7'0"

Date Sampled: Aug 14,2024

egis

Client: WO MW Realty Limited
Project: 145 Walgreen Road

Project No: CCO-251370-01 **Figure**

GRAIN SIZE DISTRIBUTION TEST DATA

2024-08-29

Client: WO MW Realty Limited
Project: 145 Walgreen Road
Project Number: CCO-251370-01
Location: BH24-7 SS-3
Depth: 5'0"-7'0" **Sample Number:** SS-3
Material Description: Silty Sand some Gravel trace Clay
Sample Date: Aug 14,2024
Date Received: Aug 20,2024
Tested By: R.C **Test Date:** Aug 25,2024
Checked By: J.Hopwood-Jones **Title:** Lab Manager

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Percent Retained
616.54	0.00	0.00	26.5mm	0.00	100.0	0.0
			19.0mm	13.62	97.8	2.2
			16.0mm	23.34	96.2	3.8
			13.2mm	44.37	92.8	7.2
			9.5mm	53.64	91.3	8.7
			4.75mm	88.82	85.6	14.4
			2.00mm	126.38	79.5	20.5
110.36	0.00	0.00	0.850mm	7.92	73.8	26.2
			0.425mm	18.44	66.2	33.8
			0.250mm	30.07	57.8	42.2
			0.106mm	51.30	42.5	57.5
			0.075mm	58.50	37.4	62.6

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 79.5
Weight of hydrometer sample =110.36
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.5
Meniscus correction only = -1.0
Specific gravity of solids = 2.775
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.6007 **-** 0.187 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer	Percent Retained
1.00	22.1	41.0	36.9	0.0128	40.0	9.1	0.0387	25.9	74.1
2.00	22.1	38.0	33.9	0.0128	37.0	9.7	0.0282	23.8	76.2
5.00	22.1	34.0	29.9	0.0128	33.0	10.4	0.0185	21.0	79.0
15.00	22.1	28.0	23.9	0.0128	27.0	11.6	0.0113	16.8	83.2
30.00	22.1	25.0	20.9	0.0128	24.0	12.1	0.0081	14.7	85.3

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer	Percent Retained
60.00	22.1	22.0	17.9	0.0128	21.0	12.7	0.0059	12.6	87.4
250.00	21.1	17.5	13.2	0.0130	16.5	13.5	0.0030	9.3	90.7
1440.00	20.5	13.0	8.6	0.0131	12.0	14.4	0.0013	6.0	94.0

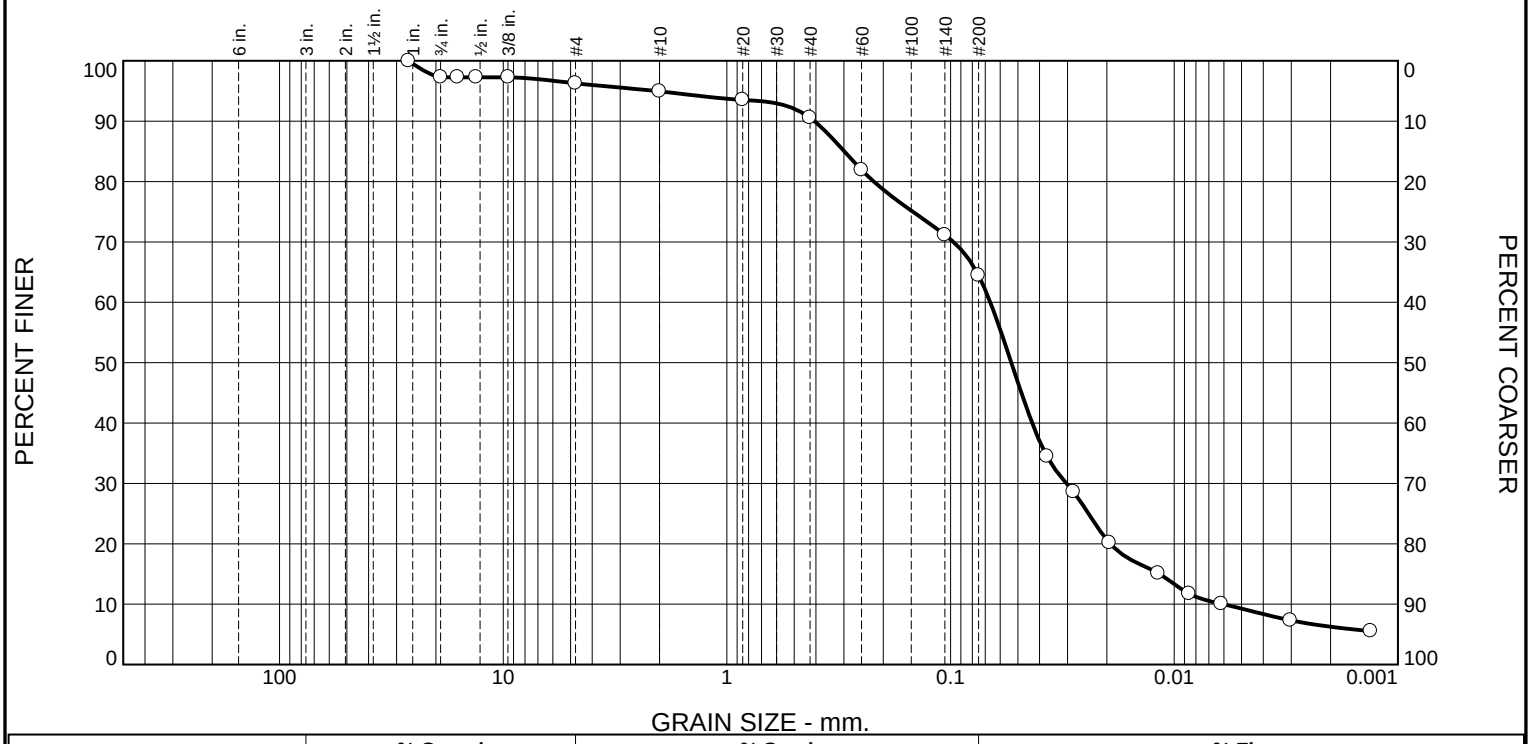
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	2.2	12.2	14.4	6.1	13.3	28.8	48.2	29.8	7.6	37.4

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0036	0.0086	0.0165	0.0508	0.0890	0.1635	0.2832	2.1807	4.4584	7.4579	14.9175

Fineness Modulus	C_u	C_c
1.89	78.93	2.54

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	2.7	1.0	1.4	4.3	26.1	58.2	6.3

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
26.5mm	100.0		
19.0mm	97.3		
16.0mm	97.3		
13.2mm	97.3		
9.5mm	97.3		
4.75mm	96.3		
2.00mm	94.9		
0.850mm	93.5		
0.425mm	90.6		
0.250mm	81.9		
0.106mm	71.2		
0.075mm	64.5		
0.0371 mm.	34.5		
0.0282 mm.	28.6		
0.0195 mm.	20.2		
0.0118 mm.	15.1		
0.0086 mm.	11.7		
0.0061 mm.	10.1		
0.0030 mm.	7.3		
0.0013 mm.	5.5		

* (no specification provided)

Material Description

Sandy Silt trace Clay trace Gravel

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 0.4062 D_{85}= 0.2987 D_{60}= 0.0664
D_{50}= 0.0535 D_{30}= 0.0303 D_{15}= 0.0117
D_{10}= 0.0061 C_u= 10.96 C_c= 2.28

Remarks

F.M.=0.67

Date Received: Aug 20,2024 **Date Tested:** Aug 25,2024

Tested By: R.C

Checked By: J.Hopwood-Jones

Title: Lab Manager

Location: BH24-8 SS-2
Sample Number: SS-2 **Depth:** 2'6"-4'6"

Date Sampled: Aug 14,2024

egis

Client: WO MW Realty Limited
Project: 145 Walgreen Road

Project No: CCO-251370-01 **Figure**

GRAIN SIZE DISTRIBUTION TEST DATA

2024-08-29

Client: WO MW Realty Limited
Project: 145 Walgreen Road
Project Number: CCO-251370-01
Location: BH24-8 SS-2
Depth: 2'6"-4'6" **Sample Number:** SS-2
Material Description: Sandy Silt trace Clay trace Gravel
Sample Date: Aug 14,2024
Date Received: Aug 20,2024
Tested By: R.C **Test Date:** Aug 25,2024
Checked By: J.Hopwood-Jones **Title:** Lab Manager

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Percent Retained
365.32	0.00	0.00	26.5mm	0.00	100.0	0.0
			19.0mm	9.93	97.3	2.7
			16.0mm	9.93	97.3	2.7
			13.2mm	9.93	97.3	2.7
			9.5mm	9.93	97.3	2.7
			4.75mm	13.57	96.3	3.7
			2.00mm	18.47	94.9	5.1
109.71	0.00	0.00	0.850mm	1.64	93.5	6.5
			0.425mm	5.06	90.6	9.4
			0.250mm	15.04	81.9	18.1
			0.106mm	27.49	71.2	28.8
			0.075mm	35.20	64.5	35.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 94.9
Weight of hydrometer sample =109.71
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.5
Meniscus correction only = -1.0
Specific gravity of solids = 2.775
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.6007 **-** 0.187 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer	Percent Retained
1.00	22.1	45.0	40.9	0.0128	44.0	8.4	0.0371	34.5	65.5
2.00	22.1	38.0	33.9	0.0128	37.0	9.7	0.0282	28.6	71.4
5.00	22.1	28.0	23.9	0.0128	27.0	11.6	0.0195	20.2	79.8
15.00	22.1	22.0	17.9	0.0128	21.0	12.7	0.0118	15.1	84.9
30.00	22.1	18.0	13.9	0.0128	17.0	13.4	0.0086	11.7	88.3

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer	Percent Retained
60.00	22.1	16.0	11.9	0.0128	15.0	13.8	0.0061	10.1	89.9
265.00	21.1	13.0	8.7	0.0130	12.0	14.4	0.0030	7.3	92.7
1440.00	20.5	11.0	6.6	0.0131	10.0	14.7	0.0013	5.5	94.5

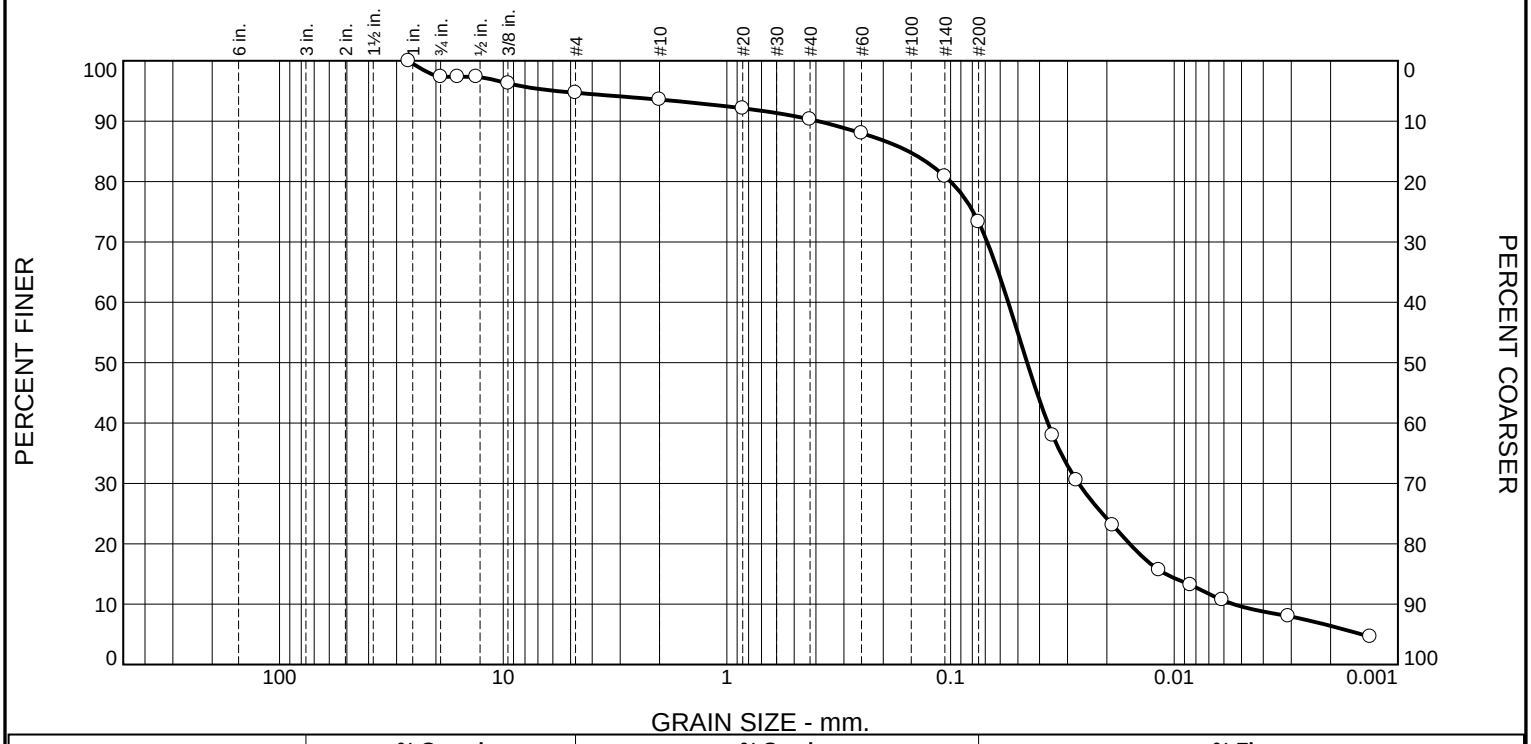
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	2.7	1.0	3.7	1.4	4.3	26.1	31.8	58.2	6.3	64.5

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0061	0.0117	0.0193	0.0303	0.0432	0.0535	0.0664	0.2203	0.2987	0.4062	2.0669

Fineness Modulus	C_u	C_c
0.67	10.96	2.28

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	2.6	2.7	1.1	3.3	17.0	66.9	6.4

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
26.5mm	100.0		
19.0mm	97.4		
16.0mm	97.4		
13.2mm	97.4		
9.5mm	96.3		
4.75mm	94.7		
2.00mm	93.6		
0.850mm	92.1		
0.425mm	90.3		
0.250mm	88.0		
0.106mm	80.9		
0.075mm	73.3		
0.0350 mm.	38.0		
0.0274 mm.	30.5		
0.0188 mm.	23.1		
0.0117 mm.	15.7		
0.0085 mm.	13.2		
0.0061 mm.	10.7		
0.0031 mm.	8.0		
0.0013 mm.	4.6		

* (no specification provided)

Material Description

Sandy Silt trace Clay trace Gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.3907 D_{85}= 0.1541 D_{60}= 0.0552
D_{50}= 0.0455 D_{30}= 0.0268 D_{15}= 0.0109
D_{10}= 0.0054 C_u= 10.16 C_c= 2.39

Remarks

F.M.=0.60

Date Received: Aug 20,2024 **Date Tested:** Aug 25,2024

Tested By: R.C

Checked By: J.Hopwood-Jones

Title: Lab Manager

Location: BH24-9 SS-3
Sample Number: SS-3 **Depth:** 5'0"-7'0"

Date Sampled: Aug 14,2024

egis

Client: WO MW Realty Limited
Project: 145 Walgreen Road

Project No: CCO-251370-01 **Figure**

GRAIN SIZE DISTRIBUTION TEST DATA

2024-08-29

Client: WO MW Realty Limited
Project: 145 Walgreen Road
Project Number: CCO-251370-01
Location: BH24-9 SS-3
Depth: 5'0"-7'0" **Sample Number:** SS-3
Material Description: Sandy Silt trace Clay trace Gravel
Sample Date: Aug 14,2024
Date Received: Aug 20,2024
Tested By: R.C **Test Date:** Aug 25,2024
Checked By: J.Hopwood-Jones **Title:** Lab Manager

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Percent Retained
506.63	0.00	0.00	26.5mm	0.00	100.0	0.0
			19.0mm	13.37	97.4	2.6
			16.0mm	13.37	97.4	2.6
			13.2mm	13.37	97.4	2.6
			9.5mm	18.95	96.3	3.7
			4.75mm	26.80	94.7	5.3
			2.00mm	32.56	93.6	6.4
110.16	0.00	0.00	0.850mm	1.69	92.1	7.9
			0.425mm	3.84	90.3	9.7
			0.250mm	6.55	88.0	12.0
			0.106mm	14.96	80.9	19.1
			0.075mm	23.83	73.3	26.7

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 93.6
Weight of hydrometer sample =110.16
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.5
Meniscus correction only = -1.0
Specific gravity of solids = 2.775
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.6007 **-** 0.187 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer	Percent Retained
1.00	22.1	50.0	45.9	0.0128	49.0	7.4	0.0350	38.0	62.0
2.00	22.1	41.0	36.9	0.0128	40.0	9.1	0.0274	30.5	69.5
5.00	22.1	32.0	27.9	0.0128	31.0	10.8	0.0188	23.1	76.9
15.00	22.1	23.0	18.9	0.0128	22.0	12.5	0.0117	15.7	84.3
30.00	22.1	20.0	15.9	0.0128	19.0	13.0	0.0085	13.2	86.8

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer	Percent Retained
60.00	22.1	17.0	12.9	0.0128	16.0	13.6	0.0061	10.7	89.3
250.00	21.1	14.0	9.7	0.0130	13.0	14.2	0.0031	8.0	92.0
1440.00	20.5	10.0	5.6	0.0131	9.0	14.9	0.0013	4.6	95.4

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	2.6	2.7	5.3	1.1	3.3	17.0	21.4	66.9	6.4	73.3

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0015	0.0054	0.0109	0.0158	0.0268	0.0368	0.0455	0.0552	0.1001	0.1541	0.3907	5.7715

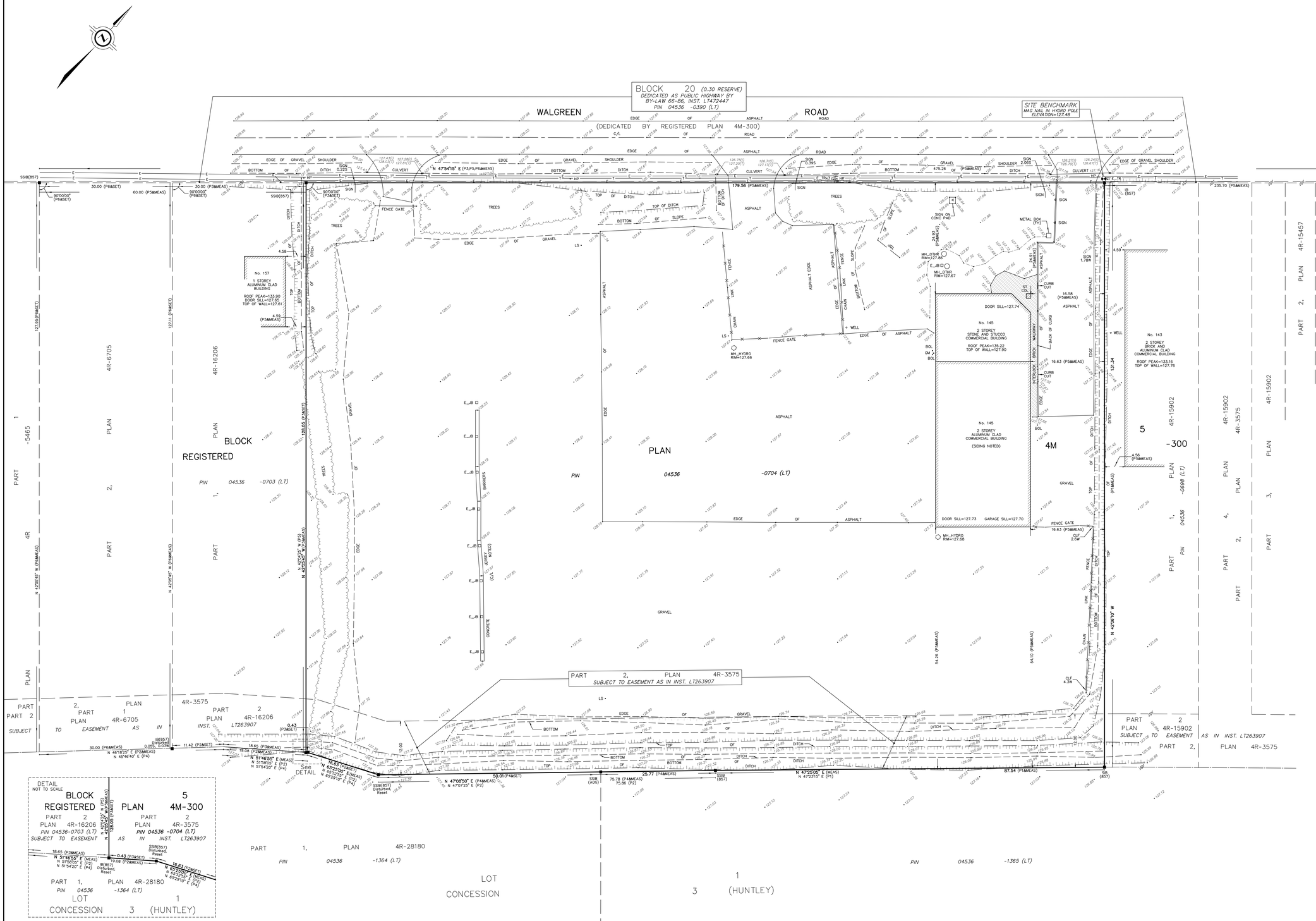
Fineness Modulus	C_u	C_c
0.60	10.16	2.39

GEOTECHNICAL INVESTIGATION OF THE PROPOSED BUILDING ADDITION AND SITE DEVELOPMENT

145 WALGREEN RD, OTTAWA, ON

APPENDIX E: ADDITIONAL DRAWINGS

egis



SURVEYOR'S REAL PROPERTY REPORT
WITH TOPOGRAPHIC DETAILS
PART 1 - PLAN SHOWING

PART OF BLOCK 5
REGISTERED PLAN 4M-300
CITY OF OTTAWA

J.D. BARNES LIMITED

SCALE 1 : 300

5 0 5 10 20 metres

METRIC DISTANCES AND/OR COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

NOTES

BEARINGS ARE MTM GRID, AND DERIVED FROM GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS) BY REAL TIME NETWORK (RTN) OBSERVATIONS, MTM ZONE 9, NAD 83, (CSRS) (2010.0).

FOR BEARING COMPARISONS, A COUNTER-CLOCKWISE ROTATION OF 0°21'45" WAS APPLIED TO BEARINGS ON PLANS 4R-3575, 4R-6705, 4R-15902 AND 4R-16206.

DISTANCES ARE GROUND.

ALL BUILDING TIES ARE TAKEN TO CONCRETE FOUNDATION UNLESS OTHERWISE NOTED.

COMPLIANCE WITH ONTARIO BUILDING CODE SETBACK REQUIREMENTS ARE NOT VERIFIED BY THIS SURVEY.

PART 2 - SURVEY REPORT

- DESCRIPTION
  PART OF BLOCK 5 REGISTERED PLAN 4M-300, BEING ALL OF PIN 04536 -0704 (LT), IN THE CITY OF OTTAWA.
- REGISTERED EASEMENTS AND/OR RIGHTS-OF-WAY
  SUBJECT TO AN EASEMENT OVER PART 2, PLAN 4R-3575 AS IN INST. LT263907
- BOUNDARY FEATURES
  NOTE LOCATION OF THE DITCH ALONG THE WESTERLY LIMIT OF THE SUBJECT PROPERTY
  NOTE LOCATION OF THE DITCHES ALONG THE SOUTHERLY LIMIT OF THE SUBJECT PROPERTY
  NOTE LOCATION OF THE DITCH, THE CHAIN LINK FENCE AND THE SIGN ALONG THE EASTERLY LIMIT OF THE SUBJECT PROPERTY
  NOTE LOCATION OF THE OVERHEAD UTILITY CABLES, THE HYDRO POLES, THE CULVERTS AND THE DITCHES ALONG THE NORTHERLY LIMIT OF THE SUBJECT PROPERTY

LEGEND

■	DENOTES	SURVEY MONUMENT FOUND
SIB	DENOTES	STANDARD IRON BAR
SSIB	DENOTES	SHORT STANDARD IRON BAR
IB	DENOTES	IRON BAR
MEAS	DENOTES	MEASURED
WIT	DENOTES	WITNESS
Acc	DENOTES	ACCEPT
RP	DENOTES	REGISTERED PLAN 4M-300
P1	DENOTES	PLAN 4R-15902
P2	DENOTES	PLAN 4R-3575
P3	DENOTES	PLAN 4R-16206
P4	DENOTES	PLAN 4R-28180
P5	DENOTES	SURVEYOR'S REAL PROPERTY REPORT BY FAIRHALL, MOFFATT & WOODLAND LIMITED DATED DECEMBER 16, 2015
P6	DENOTES	PLAN 4R-6705
AOG	DENOTES	ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
857	DENOTES	FAIRHALL, MOFFATT & WOODLAND LIMITED
	DENOTES	PROPERTY LINE

N=NORTH / S=SOUTH / E=EAST / W=WEST

TOPOGRAPHIC LEGEND

FDN	DENOTES FOUNDATION
CONC	DENOTES CONCRETE
ALUM	DENOTES ALUMINUM
C/L	DENOTES CENTERLINE
ST C	DENOTES STONE COLUMN
CLF	DENOTES CHAIN LINK FENCE
(T)	DENOTES TOP
(I)	DENOTES INVERT
• BOL	DENOTES BOLLARD
• HP	DENOTES HYDRO POLE
• LS	DENOTES LIGHT STANDARD
• GM	DENOTES GAS METER
□ E_iB	DENOTES HYDRO JUNCTION BOX
⊠ E_TR	DENOTES HYDRO TRANSFORMER
○ MH_HYDRO	DENOTES HYDRO MANHOLE
—— E ——	DENOTES OVERHEAD HYDRO CABLE
—— T ——	DENOTES OVERHEAD TELEPHONE CABLE

ELEVATION NOTE:

1. IT IS THE RESPONSIBILITY OF THE USER OF THIS INFORMATION TO VERIFY THAT THE SITE BENCHMARKS HAVE NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION SHOWN ON THIS DRAWING.

2. ELEVATIONS ARE GEODETIC AND ARE REFERRED TO CITY OF OTTAWA BENCHMARK POINT 0011968118 HAVING A PUBLISHED ELEVATION OF 126.18 METRES (CGVD28:78).

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.

2. THE SURVEY WAS COMPLETED ON MARCH 21, 2024.

APRIL 1, 2024
DATE

GEORGE ZERVOS
ONTARIO LAND SURVEYOR

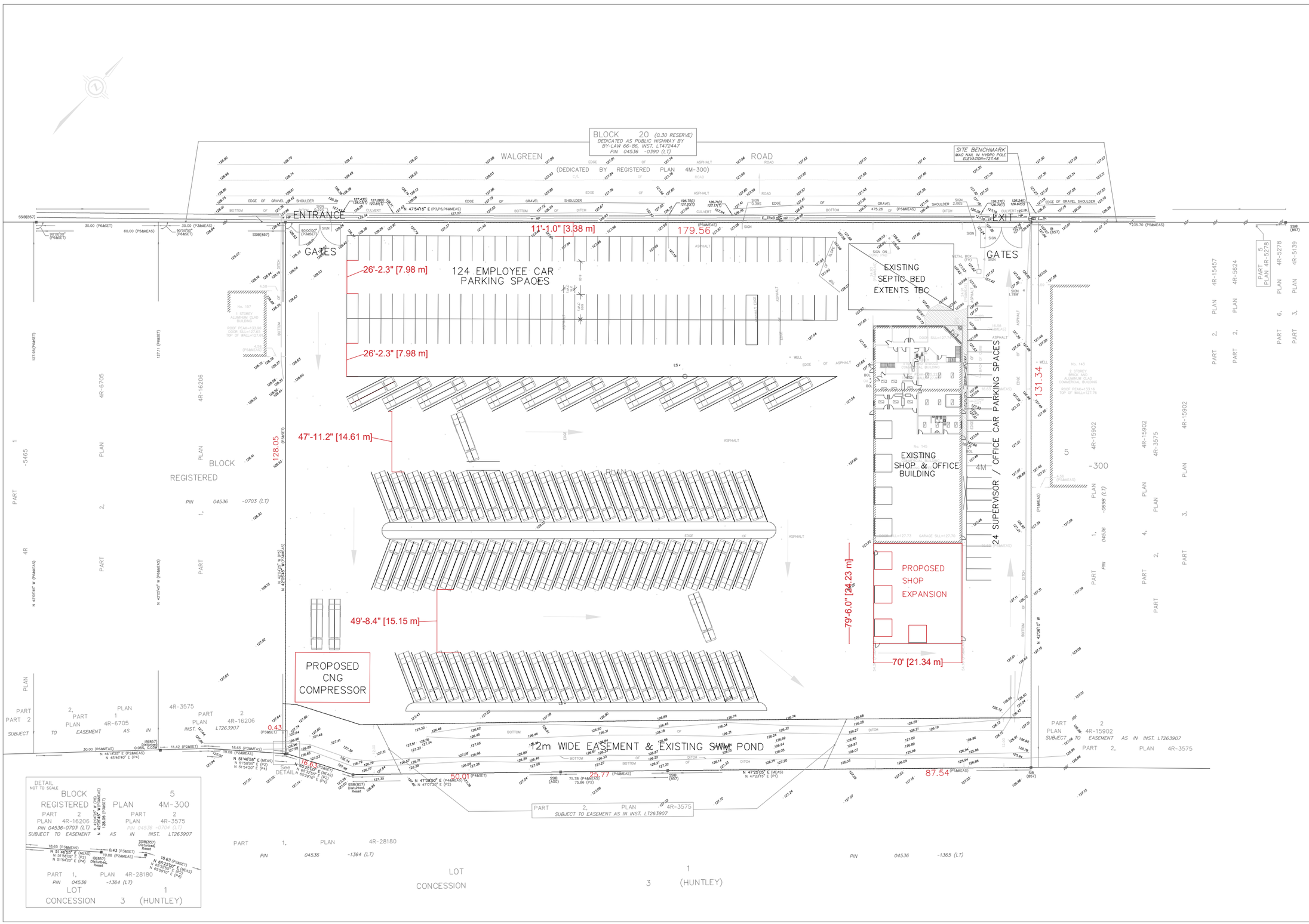
THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION FORM NUMBER V-58135

J.D.BARNES LIMITED
SURVEYING MAPPING GIS
LAND INFORMATION SPECIALISTS
62 STEACIE DRIVE, SUITE 103, KANATA, ON K2K 2A9
T: (613) 731-7244 F: (613) 254-8659 www.jdbarnes.com

DRAWN BY:	CHECKED BY:	REFERENCE NO.:
RP/NS	GZ/NS	24-10-026-00
PLOTTED: 4/5/2024		DATED: 04/01/24

PREPARED FOR: WHITE OWL GROUP

FILE: G:\24-10-026\001\drawing\TOP01\24-10-026-00_TOP0.dgn



PART 1 - PLAN SHOWING

PART OF BLOCK 5 REGISTERED PLAN 4M-300 CITY OF OTTAWA

SCALE 1 : 300

5 0 5 10 20 metres

METRIC DISTANCES AND/OR COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

LEGEND

■	DENOTES	SURVEY MONUMENT FOUND
SIB	DENOTES	STANDARD IRON BAR
SSIB	DENOTES	SHORT STANDARD IRON BAR
IB	DENOTES	IRON BAR
MEAS	DENOTES	MEASURED
WIT	DENOTES	WITNESS
Acc	DENOTES	ACCEPT
RP	DENOTES	REGISTERED PLAN 4M-300
P1	DENOTES	PLAN 4R-15902
P2	DENOTES	PLAN 4R-3575
P3	DENOTES	PLAN 4R-16206
P4	DENOTES	PLAN 4R-28180
P5	DENOTES	SURVEYOR'S REAL PROPERTY REPORT BY FAIRHALL, MOFFATT & WOODLAND LIMITED DATED DECEMBER 16, 2015
P6	DENOTES	PLAN 4R-6705
AOG	DENOTES	ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
857	DENOTES	FAIRHALL, MOFFATT & WOODLAND LIMITED
	DENOTES	PROPERTY LINE

N=NORTH / S=SOUTH / E=EAST / W=WEST

SITE DATA:

GROSS LOT AREA: 21545.47sq.m. (231908.45 sq.ft) - (5.32 Ac.)

PHASE 1-
BUILDING AREA = 1764.31 sq.m. (18990.87sq.ft) - (8.18%)

ASPHALT AREA = 577.05 sq.m. (6211.31sq.ft.) - (2.67%)

CONCRETE AREA = 109.5sq.m. (1178.65sq.ft.) - (0.47%)

LANDSCAPED AREA = 7204.67sq.m. (77550.42sq.ft) - (33.43%)

GRAVEL AREA = 11904.1sq.m. (128134.66sq.ft) - (55.25%)

148 Employee car parking spaces

Total Truck Parking Spots : 80 (12ft wide)

Existing Office: 486.61 sq.m

Existing Office Level 2: 188.4sq.m

Existing Shop: 624.87 sq.m

Proposed Shop Expansion: 519.60 sq.m

DRAWING TITLE:

Miller Waste Systems
145 WALGREEN RD.
SITE PLAN

PROJECT NO. --	SCALE: 1: 300
DATE: 2024-06-25	SHEET: SP-1
DESIGNED BY: --	
DRAWN BY: SV	

APPENDIX D - HISTORICAL PERMIT FOR EXISTING SEWAGE SYSTEM PERMIT

Copy for Houle Chev.

Houle Chevrier Engineering Ltd.
180 Wescar Lane
R.R. 2
Carp, Ontario K0A 1L0
Tel.: (613) 836-1422
Fax: (613) 836-9731
www.hceng.ca

November 13, 2008

Our ref: 08-536

Baird Construction Management Ltd.
151 Tansley Road
Carp, Ontario
K0A 1L0

Attention: Mr. K. Riley

RE: DESIGN BRIEF FOR PROPOSED SEPTIC SYSTEM
PROPOSED COMMERCIAL BUILDING
145 WALGREEN ROAD
CARP, ONTARIO

Dear Sir:

This letter provides our design brief for a septic disposal system to service the proposed facility to be located at 145 Walgreen Road in Carp, Ontario.

BACKGROUND

It is understand that a proposed commercial building is to be constructed on a vacant lot located at 145 Walgreen Road in, Ontario.

As per plans provided to our office, there are two (2) buildings planned for construction. At the present time, one (1) building (Phase 1 and 2) will be constructed and referred to herein as Building A. The second building (Phase 3) will be referred to as Building B. Building A will serve both as main office area and a warehouse. It has been indicated to us that Building B may not be constructed and that in the future the land may be severed. As such the septic plan will be designed for Building A only.

It has also been indicated to us that the proposed septic system will receive wastewater solely from domestic type sources within the proposed facility, such as typical washroom fixtures. That is, we understand that no industrial process waste water will be discharged to the septic system. We are also not aware of any process water use for this facility.

SEPTIC SYSTEM DESIGN

Design Flow Rates

The Ontario Building Code (OBC) provides information regarding daily sewage flows for office and warehouse establishments.

In terms of Building A, the design daily flow rate for 372 square metres of office space with three (3) water closets, three (3) hand sinks and three (3) kitchenette sinks and a maximum of 10 employees, combined with warehouse space having a maximum of five (5) loading bays, one (1) service sink and a maximum of 4 employees, is 3750 litres per day.

Based on information received by our office, two (2) floor drains each with an oil/water separator will be installed in Building A. It is understood that there will not be any waste water introduced into these drains (such as vehicle wash water). The floor drains will drain by gravity directly to the Storm Water Detention Pond at the rear of the property.

Septic System Design Requirements for Current Site Usage

Several test pits were advanced by backhoe on September 26, 2008, at various locations across the subject site. The soil observed within the test pits in the area of the proposed septic leaching field consists of a surficial layer of topsoil over dark brown silty sand and organic material (fill) over compact grey brown fine to coarse sand to silty sand, followed by a layer of dense grey brown silty fine sand trace gravel.

The native soils observed within the test pits at the proposed area of the septic leaching bed are considered to have a percolation rate (T-Time) which is not suitable for use in the construction of the proposed septic leaching bed. As such, the proposed system will be a fully raised Class IV system constructed with a sand mantle extending from the south end of the tile bed.

Area Bed

For the proposed area bed, the total required contact area was determined using

$$A = \frac{QT}{850}$$

where A = Footprint area required (contact area)
Q = Daily effluent volume
T = Percolation time of underlying soil.

$$= \frac{3750 \times 50}{850}$$

= 221 square metres

Area provided in design is 245 square metres.

For the proposed area bed, the minimum area of the stone layer shall be such that the loading rate on the surface of the stone layer does not exceed 50 litres per square metre per day. Therefore the minimum required stone layer area is 75 square metres (3750L/50).

Septic Tank

When incorporating the use of tertiary treatment units within a septic system, the septic tank is considered a 'trash tank'. As such, the OBC guidelines do not apply in regards to sizing of the tank. The required volume of the 'trash tank' is typically based on recommendations provided by the treatment unit manufacturer. Clearstream recommends the trash tank have a working volume of no less than the equivalent daily effluent capacity of the treatment units. The proposed system will therefore require a minimum septic tank volume of 3750 litres.

Pumping Station

Due to the proposed construction elevation of the building, it will not be possible to discharge the effluent by gravity to the septic leaching bed. As such, we have allowed for a pump chamber and pump.

In accordance wit the OBC, the quantity of effluent discharged from the pumping chamber should not be less than 75 percent of the total interior volume of the distribution pipe in the septic tile field during a maximum 15 minute pumping cycle.

- Length of distribution pipe = 72.0 metres

- Volume of distribution pipe = $\frac{\pi D^2 \times 72.0}{4}$ = 0.318 m^3 = 318 litres

- Minimum dosing volume = 0.75 x 318 = 238.5 litres

Therefore, 238.5 litres of effluent must be pumped from the pumping chamber with each pumping cycle.

Pump

The pump will discharge effluent from the chamber for not more than 15 minutes per cycle. Fifteen minutes per pump cycle is selected for design purposes.

Minimum pumping rate = $\frac{238.5 \text{ litres}}{15}$ = 16 litres per minute

Alarms, sensors, and floats will be installed as per OBC and manufacturer requirements.

Forcemain

The diameter of the forcemain will be 38 mm (or as required by the manufacturer of the selected pump). The forcemain should be insulated from frost by utilizing heat tracing wire, burial depth, and/or insulation (See Figure 2).

Sewage System Management/Monitoring

Maintenance of the septic system will be the responsibility of the building owner currently known as Lischer Holdings. As a minimum, it is suggested that the maintenance include the following;

- annual inspection of the septic system including pumps, controls and alarms,
- inspection/cleaning of the effluent filter as per manufacturer's recommendations,
- annual inspection of the septic tanks; pumping of tanks when determined to be necessary,
- Inspection/maintenance of Clearstream units as required.

Additional Considerations

As indicated, a layer of silty sand and organic material (fill) exists in the area of the proposed leaching bed. The leaching bed can be constructed on the fill once all topsoil and organics are removed from the surface. As such, it is our opinion that mounding will not occur within the proposed leaching bed if installed and operated as proposed.

We trust that this letter is sufficient for your purposes. If you have any questions or require additional information, please call.

Yours truly,

HOULE CHEVRIER ENGINEERING LTD.

Renee Burt
Engineering Technologist

A.C. Houle, M.Eng, P.Eng.
Principal

Attachments

ATTACHMENTS

APPLICATION FOR PERMIT TO CONSTRUCT
RECORD OF TEST PIT SHEETS
FIGURE 1 – SITE PLAN
FIGURE 2 – FORCEMAIN INSULATION DETAIL
FIGURE 3 – GRAIN SIZE ANALYSIS

SEPTIC APPLICATION

R.V.C.A. RECEIVED
NOV 14 2008
REFER TO:

08-681
REQUIRED FOR ALL INQUIRIES

Application for a Permit to Construct or Demolish

This form is authorized under the Building Code Sentence 2.4.1.1A.(2).

For use by Principal Authority	
Application number:	Permit number (if different):
Date received:	Roll number:

Application submitted to: Ottawa Septic Systems Office
(Name of municipality, upper-tier municipality, board of health or conservation authority)

A. Project information

Building number, street name	Unit number	Lot/con.
145 Walgreen Road		

Municipality	Postal code	Plan number/other description
Carp		
Project value est. $		Area of work (m^2)

B. Applicant

Applicant is: ☐ Owner or ☑ Authorized agent of owner

Last name	First name	Corporation or partnership	
		Baird Construction Management Ltd.	
Street address		Unit number	Lot/con.
151 Tansley Road			
Municipality	Postal code / Province	E-mail	
Carp	K0A 1L0 / Ontario		
Telephone number	Fax	Cell number	
(613) 831-7044	(613) 831-6344	( )	

C. Owner (if different from applicant)

Last name	First name	Corporation or partnership	
		Lischer Holdings	
Street address		Unit number	Lot/con.
Municipality	Postal code / Province	E-mail	
Telephone number	Fax	Cell number	
( )	( )	( )	

D. Builder (optional)

Last name	First name	Corporation or partnership (if applicable)	
Street address		Unit number	Lot/con.
Municipality	Postal code / Province	E-mail	
Telephone number	Fax	Cell number	
( )	( )	( )	

E. Purpose of application

☑ New construction ☐ Addition to an existing building ☐ Alteration/repair ☐ Demolition ☐ Conditional Permit

Proposed use of building	Current use of building
Office / Warehouse	

Description of proposed work

Construction of on-site wastewater mangement system to service commercial building.

F. Tarion Warranty Corporation (Ontario New Home Warranty Program)

i. Is proposed construction for a new home as defined in the *Ontario New Home Warranties Plan Act*? If no, go to section G. ☐ Yes ☐ No

ii. Is registration required under the *Ontario New Home Warranties Plan Act*? ☐ Yes ☐ No

iii. If yes to (ii) provide registration number(s): _____

SEPTIC APPLICATION

R.V.C.A. RECEIVED
NOV 14 2008
REFER TO:

08-681
REQUIRED FOR ALL INQUIRIES

G. Attachments

i. Attach documents establishing compliance with applicable law as set out in Article 1.1.3.3.
ii. Attach Schedule 1 for each individual who reviews and takes responsibility for design activities.
iii. Attach Schedule 2 where application is to construct on-site, install or repair a sewage system.
iv. Attach types and quantities of plans and specifications for the proposed construction or demolition that are prescribed by the by-law, resolution, or regulation of the municipality, upper-tier municipality, board of health or conservation authority to which this application is made.

H. Declaration of applicant

I _____ certify that:
(print name)

1. The information contained in this application, attached schedules, attached plans and specifications, and other attached documentation is true to the best of my knowledge.
2. I have authority to bind the corporation or partnership (if applicable).

_____ _____
Date Signature of applicant

Personal information contained in this form and schedules is collected under the authority of subsection 8(1.1) of the *Building Code Act, 1992*, and will be used in the administration and enforcement of the *Building Code Act, 1992*. Questions about the collection of personal information may be addressed to: a) the Chief Building Official of the municipality or upper-tier municipality to which this application is being made, or, b) the inspector having the powers and duties of a chief building official in relation to sewage systems or plumbing for an upper-tier municipality, board of health or conservation authority to whom this application is made, or, c) Director, Building and Development Branch, Ministry of Municipal Affairs and Housing 777 Bay St., 2nd Floor. Toronto, M5G 2E5 (416) 585-6666.

Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information

Building number, street name	Unit no.	Lot/con.
145 Walgreen Road		

Municipality	Postal code	Plan number/ other description
Carp		

B. Individual who reviews and takes responsibility for design activities

Name	Firm
	Houle Chevrier Engineering Ltd.

Street address	Unit no.	Lot/con.
180 Wescar Lane		

Municipality	Postal code	Province	E-mail
Carp	K0A 1L0	Ontario	

Telephone number	Fax number	Cell number
(613) 836-1422	(613) 836-9731	( )

C. Design activities undertaken by individual identified in Section B. [Building Code Table 2.20.2.1]

☐ House	☐ HVAC – House	☐ Building Structural
☐ Small Buildings	☐ Building Services	☐ Plumbing – House
☐ Large Buildings	☐ Detection, Lighting and Power	☐ Plumbing – All Buildings
☐ Complex Buildings	☐ Fire Protection	☑ On-site Sewage Systems

Description of designer's work

Design of on-site wastewater mangement system to service commercial building.

D. Declaration of Designer

I _____ declare that (choose one as appropriate):
(print name)

☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 2.17.4. of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.

Individual BCIN: _____

Firm BCIN: _____

☐ I review and take responsibility for the design work and am qualified in the appropriate category as an "other designer" under subsection 2.17.5. of the Building Code.

Individual BCIN: _____

Basis for exemption from registration: _____

☐ The design work is exempt from the registration and qualification requirements of the Building Code.

Basis for exemption from registration and qualification: _____

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. I have authority to bind the corporation or partnership (if applicable).

_____ N/A _____
Date Signature of Designer

*For the purposes of this form, "individual" means the "person" referred to in Clause 2.17.4.7.(1)(d), Article 2.17.5.1. and all other persons who are exempt from qualification under Subsections 2.17.4. and 2.17.5.

NOTE:

1. Firm and Individual BCIN numbers are not required for building permit applications submitted prior to January 1, 2006
2. Schedule 1 does not need to be completed by architects, or holders of a Certificate of Practice or a Temporary License under the *Architects Act.*

SEPTIC APPLICATION

R.V.C.A. RECEIVED
NOV 14 2008
REFER TO:

08-681

Schedule 2: Sewage System Installer Information

REQUIRED FOR ALL INSTALLS

A. Project Information			
Building number, street name 145 Walgreen Road		Unit number	Lot/con.
Municipality Carp	Postal code	Plan number/ other description	

B. Sewage system installer

Is the installer of the sewage system engaged in the business of constructing on-site, installing, repairing, servicing, cleaning or emptying sewage systems, in accordance with Building Code Article 2.18.1.1?

☐ Yes (Continue to Section C) ☐ No (Continue to Section E) ☑ Installer unknown at time of application (Continue to Section E)

C. Registered installer information (where answer to B is "Yes")			
Name			BCIN
Street address			Unit number / Lot/con.
Municipality	Postal code	Province	E-mail
Telephone number ( )	Fax ( )		Cell number ( )

D. Qualified supervisor information (where answer to section B is "Yes")	
Name of qualified supervisor(s)	Building Code Identification Number (BCIN)

E. Declaration of Applicant:

I _____ declare that:
(print name)

☐ I am the applicant for the permit to construct the sewage system. If the installer is unknown at time of application, I shall submit a new Schedule 2 prior to construction when the installer is known;

OR

☐ I am the holder of the permit to construct the sewage system, and am submitting a new Schedule 2 now that the installer is known.

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. I have authority to bind the corporation or partnership (if applicable).

_____ _____
Date Signature of applicant

Ottawa Septic System Office | Bureau des systèmes septiques d'Ottawa

R.V.C.A. RECEIVED
NOV 14 2008
REFER TO:

SEPTIC APPLICATION

Do Not Complete
Permit No 08-681
Revision No
Date
REQUIRED FOR ALL INQUIRIES

Schedule 4
Proposed Services

1. Engineered
   - [x] Yes
   - [ ] No

2. Water supply
   - [x] Proposed
   - [ ] Existing

3. Type of work proposed
   - [x] New Installation
   - [ ] Replacement
   - [ ] Alteration

4. Type of Well
   - [ ] Dug/bored/Sandpoint well
   - [x] Drilled well
   - [ ] Municipal
   - [ ] Other

5. Residential Sewage Design Flow Info.
   Bedrooms na
   House (floor area) na m
   People na
   Total Fixture Units na (Schedule 8)
   Residential Flow na L/day

6. Sewage Design Flow for Other Occupancies
   Design Flow 3750 L/day
   Detailed sewage flow calculations:

7. Type of System
   - [ ] Treatment Unit
   - [ ] Class 2 – Leaching Pit
   - [ ] Class 3 – Cesspool
   - [ ] Class 4 – Shallow Buried Trench
   - [ ] Class 4 – Trench
     - [ ] Fully raised
     - [ ] Partially raised
     - [ ] In-ground
   - [ ] Class 4 – Filter Media
     - [ ] Fully raised
     - [ ] Partially raised
     - [ ] In-ground
   - [x] Class 4 – Area Bed
     - [x] Fully raised
     - [ ] Partially raised
     - [ ] In-ground
   - [ ] Class 4 – Aerobic with Trench
     - [ ] Fully raised
     - [ ] Partially raised
     - [ ] In-ground
   - [ ] Class 4 – Aerobic with Filter Media
     - [ ] Fully raised
     - [ ] Partially raised
     - [ ] In-ground
   - [ ] Class 5 – Holding Tank

Ottawa Septic System Office | Bureau des systèmes septiques d'Ottawa

R.V.C.A. RECEIVED
NOV 14 2008
REFER TO:

Do Not Complete
Permit No
Revision No 08-681
Date
SEPTIC APPLICATION
REQUIRED FOR ALL INQUIRIES

Schedule 5
Sewage System Details

Type of System Class IV - Area Bed (Schedule 4)

Septic/Holding Tank 3750 (min.) L

Septic Tank Effluent Filter Required as per OBC

Treatment Unit – Make & Model Clearstream 500N

Number of Units 2

Refer to Typical Drawing C

Mantle Information:

☐ Native or imported =15m in 1 direction(s)

Slope subgrade 1 % slope

Northeast direction(s)

Site to be Scarified (If in clay) ☐ YES / NO ☑

Clay Seal Required (If in bedrock) ☐ YES / NO ☑

☑ **Trench**

Distribution Pipe Length _____ m

Loading Area _____ m^2

Type of Chamber _____

Length of Chamber _____ m

☐ **Area Bed**

Stone 80 m^2

Sand 245 m^2

Pipe 72 m

☐ **Shallow Buried Trench**

Pipe Length _____ m

☐ **Filter Media Bed**

Stone _____ m^2

Extended Base _____ m^2

Pipe _____ m

Weight of Filter Media _____ Kg

Loading Area _____ m^2

Note: Alarm required for all pumping systems

Construction Notes: * Pump floats to be set to pump minimum 240 litres per maximum 15 minute cycle.

Ottawa Septic System Office | Bureau des systèmes septiques d'Ottawa

Schedule 6
Soil and Water Table Information
(Minimum depth of test pit: 2 metres)

Name of Applicant/Agent: _____
Date: _____ Time: _____
Applicant/Agent Signature: _____

Inspector: TKM
Date: _____ Time: _____
Inspector Signature: _____

TP 1 EG	Soil Description	T	EG (……..)	Soil Description	T
.5m	See test pit logs attached.		.5m	AS PER ENGINEER	
1.0 m			1.0 m		
1.5m			1.5m		
2.0 m			2.0 m		

TP 2 EG	Soil Description	T	EG (……..)	Soil Description	T
.5m			.5m		
1.0 m			1.0 m		
1.5m			1.5m		
2.0 m			2.0 m		

LEGEND

BR = Bedrock
GWT = Ground water table
HGWT = High ground water table
M = metres
EG = Existing grade
T = percolation rate

Ottawa Septic System Office | Bureau des systèmes septiques d'Ottawa

R.V.C.A. RECEIVED

NOV 14 2008

Schedule 7

Layout Section

Do Not Complete
Permit No _____
Revision No 08-681
Date _____

SEPTIC APPLICATION

REQUIRED FOR ALL INQUIRIES

Scale: 1Block = _____

REFER TO

N

Please see attached - Figure 1 Septic & Grading Plan

_Dug Well _Drilled Well _Neighbouring Homes ◊Benchmark ---Tile Drainage __Property Line

Elevations (metric only)
B.M _____ m
B.M Description _____
_____
Exact Location _____

Min. of 5 elevations in proposed system area (in X pattern)

X_1 _____ X_2 _____
X_3 _____ X_4 _____
X_5 _____ $X_{6\ (toe)}$ _____
X_7 X_8

Ottawa Septic System Office | Bureau des systèmes septiques d'Ottawa

Schedule 8
Fixture unit count

Fixtures	# Existing	+	# Proposed	X	unit count	=	Fixture Count
Bathroom							
Bathroom group (toilet, sink and tub or shower) with flush tank		+		X	6	=	
Bathtub with/without overhead shower		+		X	1.5	=	
Shower stall		+		X	1.5	=	
Wash basin (1_inch trap)		+		X	1.5	=	
Watercloset (toilet) tank operated		+		X	4	=	
Bidet		+		X	1	=	
Kitchen							
Dishwasher		+		X	1	=	
Sink with/without garbage grinder(s), domestic and other small type single, double or 2 single with a common trap		+		X	1.5	=	
Other							
Domestic washing machine		+		X	1.5	=	
Combination sink and laundry tray single or double (Installed on 1_ trap)		+		X	1.5	=	
						Total:	

Insert the TOTAL in section 5 of Schedule 4 (0.Reb.403/97 Table 7.4.9.3)

1. Sump pumps and floor drains are not to be connected to the sewage system. Connection of such fixtures to a sewage system may lead to a hydraulic failure of the said system. The above mentioned fixtures should be discharged separately to an approved Class 2 (leaching pit) sewage system.
2. Where laundry waste is not more than 20% of the total daily design sanitary sewage flow, it may discharge to a sewage system (Part 8, OBC, 8.1.3.1(2)).

Agent/Owner signature

Date

Ottawa Septic System Office
Bureau des systèmes septiques d'Ottawa

SCHEDULE 11 - TYPICAL DRAWING C

BURIED OR RAISED TILE BED - AREA BED METHOD

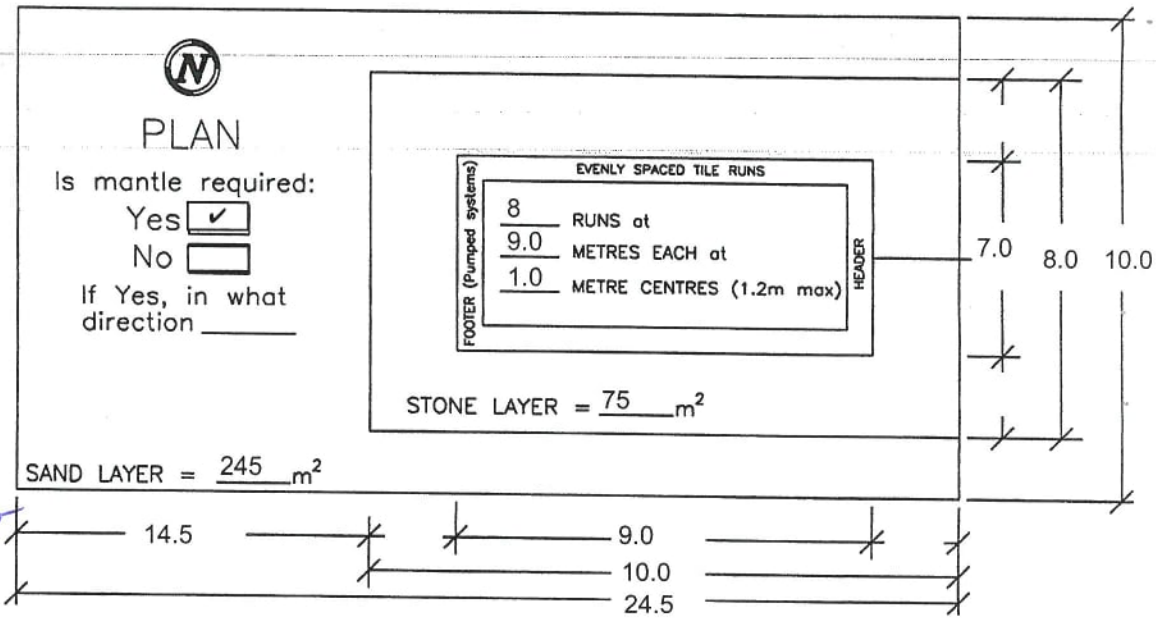
Septic Permit # _____
Date _____
Revision _____
Applicant _____
Municipality _____
Scarification required Yes ☐ No ☑

NOV 20/08 _____
DATE

_____
MANAGER, O.S.S.O.

PLAN

Is mantle required:
Yes ☑
No ☐
If Yes, in what direction _____

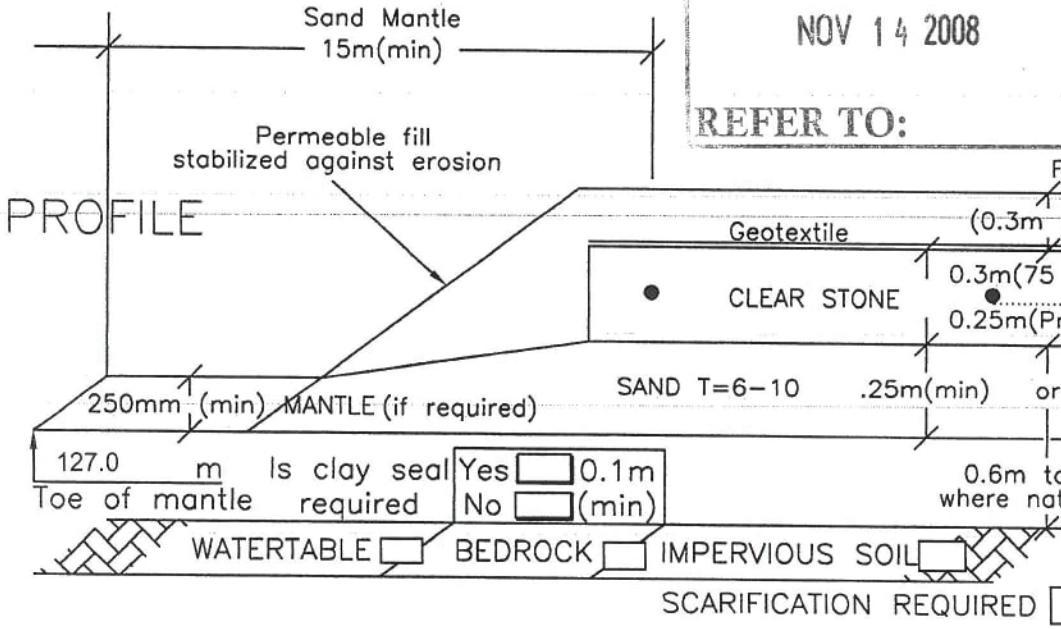


NOT TO SCALE

R.V.C.A. RECEIVED
NOV 14 2008
REFER TO:

SEPTIC APPLICATION
08-681
REQUIRED FOR ALL INQUIRIES

PROFILE



PROPOSED INSTALLATION GRADES	APPROVED INSTALLATION GRADES (OCSSO)	EXISTING GRADE
128.00	AS PER ENGINEER	127.0
127.70		
127.40		
127.15		

RECORD OF TEST PIT 1

PROJECT: 08-536

LOCATION: Refer to Site Plan, Figure 2

DATE OF EXCAVATION: September 26, 2008

SHEET 1 OF 1

DATUM: Not Applicable

TYPE OF EXCAVATOR: Backhoe

DEPTH SCALE METRES	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLE NUMBER	SHEAR STRENGTH, Cu (kPa) Natural. V - + Remoulded. V - ⊕ (20 40 60 80)	WATER CONTENT (PERCENT) Wp W Wl (20 40 60 80)	ADDITIONAL LAB. TESTING	WATER LEVEL IN OPEN TEST PIT OR STANDPIPE INSTALLATION
0	Ground Surface							
	Dark brown silty sand (TOPSOIL)							
	Compact grey brown fine to coarse SAND with trace to some silt and trace gravel		0.28	1		O	M See Fig 3	
	Dense grey brown SILTY fine SAND, trace gravel and rounded cobbles, pocket of fine to coarse SAND		0.80					
1								
	End of test pit		1.75					No groundwater inflow observed at time of excavation.
2								
3								

DEPTH SCALE
1 to 15

Houle Chevrier Engineering Ltd.

LOGGED: B.W.

CHECKED:

TESTPIT RECORD 08-536 TP LOGS.GPJ MHECL.GDT 10/22/08

PROJECT: 08-536

LOCATION: Refer to Site Plan, Figure 2

DATE OF EXCAVATION: September 26, 2008

RECORD OF TEST PIT 2

SHEET 1 OF 1

DATUM: Not Applicable

TYPE OF EXCAVATOR: Backhoe

DEPTH SCALE METRES	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLE NUMBER	SHEAR STRENGTH, Cu (kPa) Natural. V - + Remoulded. V - ⊕ (20 40 60 80)	WATER CONTENT (PERCENT) Wp — W — Wl (20 40 60 80)	ADDITIONAL LAB. TESTING	WATER LEVEL IN OPEN TEST PIT OR STANDPIPE INSTALLATION
0	Ground Surface							
	Dark brown silty sand and organic material, some metal and wire (FILL)							
	Compact grey brown fine to coarse SAND with trace to some silt and trace gravel		0.48					
	Dense grey brown SILTY fine SAND, trace gravel		0.71					
1								
	End of test pit		1.50					No groundwater inflow observed at time of excavation.
2								
3								

DEPTH SCALE
1 to 15

Houle Chevrier Engineering Ltd.

LOGGED: B.W.

CHECKED:

TESTPIT_RECORD 08-536 TP LOGS.GPJ MHECL.GDT 10/22/08

RECORD OF TEST PIT 3

PROJECT: 08-536

LOCATION: Refer to Site Plan, Figure 2

DATE OF EXCAVATION: September 26, 2008

SHEET 1 OF 1

DATUM: Not Applicable

TYPE OF EXCAVATOR: Backhoe

DEPTH SCALE METRES	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLE NUMBER	SHEAR STRENGTH, Cu (kPa) Natural. V - Remoulded. V - ⊕ (20 40 60 80)	WATER CONTENT (PERCENT) Wp W Wl (20 40 60 80)	ADDITIONAL LAB. TESTING	WATER LEVEL IN OPEN TEST PIT OR STANDPIPE INSTALLATION
0	Ground Surface							
	Dark brown peat (TOPSOIL)							
	Compact grey brown fine to coarse SAND with trace to some silt and trace gravel		0.18					
	Dense grey brown SILTY fine SAND, trace gravel		0.58					
1								
2	Compact to dense, grey brown silty sand, some gravel, cobbles and boulders (GLACIAL TILL)		2.10					
	End of test pit		2.60					No groundwater inflow observed at time of excavation.
3								

DEPTH SCALE
1 to 15

Houle Chevrier Engineering Ltd.

LOGGED: B.W.

CHECKED:

TESTPIT_RECORD 08-536 TP LOGS.GPJ MHECL.GDT 10/22/08

RECORD OF TEST PIT 4

PROJECT: 08-536
LOCATION: Refer to Site Plan, Figure 2
DATE OF EXCAVATION: September 26, 2008

SHEET 1 OF 1
DATUM: Not Applicable
TYPE OF EXCAVATOR: Backhoe

REFER TO:

DEPTH SCALE METRES	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLE NUMBER
0	Ground Surface			
	Dark brown silty sand (TOPSOIL)			
	Compact grey brown fine to coarse SAND, trace silt		0.15	
	Dense grey brown SILTY fine SAND, trace gravel		0.29	
1				
	Dense grey brown SILTY SAND to SANDY SILT		1.10	
2				
	Compact to dense, grey brown silty sand, some gravel, cobbles and boulders (GLACIAL TILL)		2.09	
	End of test pit		2.54	
3				

SHEAR STRENGTH, Cu (kPa)
Natural. V - +
Remoulded. V - ⊕
20 40 60 80

WATER CONTENT (PERCENT)
Wp — W — Wl
20 40 60 80

ADDITIONAL LAB. TESTING

WATER LEVEL IN OPEN TEST PIT OR STANDPIPE INSTALLATION

No groundwater inflow observed at time of excavation.

DEPTH SCALE
1 to 15

Houle Chevrier Engineering Ltd.

LOGGED: B.W.
CHECKED:

TESTPIT_RECORD 08-536 TP LOGS.GPJ MHECL.GDT 10/22/08

PROJECT: 08-536

LOCATION: Refer to Site Plan, Figure 2

DATE OF EXCAVATION: September 26, 2008

RECORD OF TEST PIT 5

SHEET 1 OF 1

DATUM: Not Applicable

TYPE OF EXCAVATOR: Backhoe

DEPTH SCALE METRES	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLE NUMBER	SHEAR STRENGTH Cu (kPa) Natural. V - + Remoulded. V - ⊕ (20 40 60 80)	WATER CONTENT (PERCENT) Wp W Wl (20 40 60 80)	ADDITIONAL LAB. TESTING	WATER LEVEL IN OPEN TEST PIT OR STANDPIPE INSTALLATION
0	Ground Surface							
	Dark brown silty sand (TOPSOIL)							
	Compact grey brown fine to coarse SAND with trace to some silt and trace gravel		0.20					
	Dense grey brown SILTY fine SAND, trace gravel		0.60					
1								
2								▽
	Compact to dense, grey brown silty sand, some gravel, cobbles and boulders (GLACIAL TILL)		2.20					
	End of test pit Refusal on boulders or possible bedrock		2.60					Groundwater inflow observed at about 2.1 metres below ground surface at time of excavation.
3								

DEPTH SCALE
1 to 15

Houle Chevrier Engineering Ltd.

LOGGED: B.W.

CHECKED:

TESTPIT_RECORD 08-536 TP LOGS.GPJ MHECL.GDT 10/22/08

RECORD OF TEST PIT 6

PROJECT: 08-536
LOCATION: Refer to Site Plan, Figure 2
DATE OF EXCAVATION: September 26, 2008

SHEET 1 OF 1
DATUM: Not Applicable
TYPE OF EXCAVATOR: Backhoe

DEPTH SCALE METRES	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLE NUMBER	SHEAR STRENGTH, Cu (kPa) Natural. V - + Remoulded. V - ⊕ (20 40 60 80)	WATER CONTENT (PERCENT) Wp W Wl (20 40 60 80)	ADDITIONAL LAB. TESTING	WATER LEVEL IN OPEN TEST PIT OR STANDPIPE INSTALLATION
0	Ground Surface							
	Dark brown silty sand (TOPSOIL)							
	Compact grey brown fine to coarse SAND with trace to some silt and trace gravel		0.26	1		O	M See Fig 3	
	Dense grey brown SILTY fine SAND, trace gravel		0.58					
1	Dense grey brown SILTY SAND to SANDY SILT		1.07					
2	Compact to dense, grey brown silty sand, some gravel, cobbles and boulders (GLACIAL TILL)		2.65					No groundwater inflow observed at time of excavation.
	End of test pit		2.90					
3								

DEPTH SCALE
1 to 15

Houle Chevrier Engineering Ltd.

LOGGED: B.W.
CHECKED:

TESTPIT RECORD 08-536 TP LOGS.GPJ MHECL.GDT 10/22/08

RECORD OF TEST PIT 7

PROJECT: 08-536
LOCATION: Refer to Site Plan, Figure 2
DATE OF EXCAVATION: September 26, 2008

SHEET 1 OF 1
DATUM: Not Applicable
TYPE OF EXCAVATOR: Backhoe

DEPTH SCALE METRES	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLE NUMBER	SHEAR STRENGTH, Cu (kPa) Natural. V - + Remoulded. V - ⊕ (20 40 60 80)	WATER CONTENT (PERCENT) Wp — W — Wl (20 40 60 80)	ADDITIONAL LAB. TESTING	WATER LEVEL IN OPEN TEST PIT OR STANDPIPE INSTALLATION
0	Ground Surface							
	Dark brown peat (TOPSOIL)							
			0.15					
	Compact grey brown fine to coarse SAND with trace to some silt and trace gravel							
			0.84					
1	Dense grey brown SILTY fine SAND, trace gravel							
	Compact to dense, grey brown silty sand, some gravel, cobbles and boulders (GLACIAL TILL)		1.39					
	End of test pit Practical refusal to excavation on bedrock		1.50					No groundwater inflow observed at time of excavation.
	Note: Pocket of silty clay with some gravel (FILL) in southern wall of test pit from ground level to 0.5 metres.							
2								
3								

DEPTH SCALE
1 to 15

Houle Chevrier Engineering Ltd.

LOGGED: B.W.
CHECKED:

TESTPIT_RECORD 08-536 TP LOGS.GPJ MHECL.GDT 10/22/08

RECORD OF TEST PIT 8

PROJECT: 08-536

LOCATION: Refer to Site Plan, Figure 2

DATE OF EXCAVATION: September 26, 2008

SHEET 1 OF 1

DATUM: Not Applicable

TYPE OF EXCAVATOR: Backhoe

DEPTH SCALE METRES	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLE NUMBER	SHEAR STRENGTH, Cu (kPa) Natural. V - + Remoulded. V - ⊕ (20 40 60 80)	WATER CONTENT (PERCENT) Wp W Wl (20 40 60 80)	ADDITIONAL LAB. TESTING	WATER LEVEL IN OPEN TEST PIT OR STANDPIPE INSTALLATION
0	Ground Surface							
	Dark brown peat (TOPSOIL)							
	Dense grey brown SILTY fine SAND, trace gravel		0.18	1		O	M See Fig 3	
1	Compact to dense, grey brown silty sand, some gravel, cobbles and boulders (GLACIAL TILL)		1.34					
	End of test pit		1.80					No groundwater inflow observed at time of excavation.
2								
3								

DEPTH SCALE
1 to 15

Houle Chevrier Engineering Ltd.

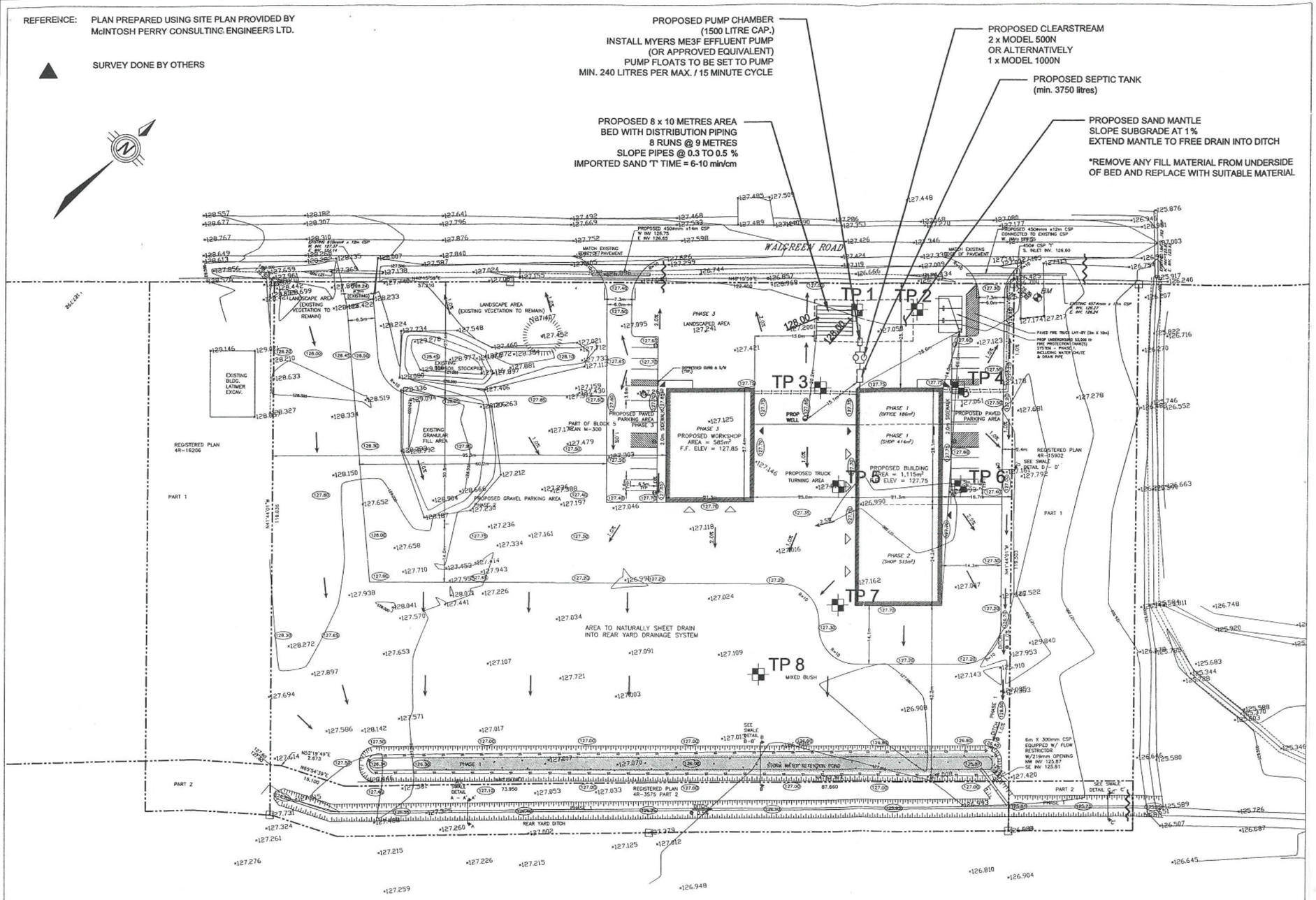
LOGGED: B.W.

CHECKED:

TESTPIT_RECORD 08-536 TP LOGS.GPJ MHECL.GDT 10/22/08

REFERENCE: PLAN PREPARED USING SITE PLAN PROVIDED BY McINTOSH PERRY CONSULTING ENGINEERS LTD.

▲ SURVEY DONE BY OTHERS



TEM
NOV 20/08

Houle Chevrier Engineering
Ottawa, ON
www.hceng.ca
(613) 836-1422
info@hceng.ca

GENERAL NOTES

1. ALL WORKS TO BE COMPLETED IN ACCORDANCE WITH MUNICIPAL, PROVINCIAL, AND LOCAL AUTHORITY STANDARDS AND REGULATIONS WHERE APPLICABLE, AND IN ACCORDANCE WITH ACCEPTED INDUSTRY BEST PRACTICE.
2. INFORMATION PROVIDED ON THE PLAN IS BASED ON INFORMATION REASONABLY AVAILABLE AND/OR PROVIDED TO HOULE CHEVRIER ENGINEERING LTD AT THE TIME OF DESIGN. THE CONTRACTOR/OWNER IS TO VERIFY THE ACCURANCY OF THE INFORMATION CONTAINED HEREIN REGARDING, BUT NOT LIMITED TO, ELEVATIONS, DIMENSIONS, SETBACKS, EASEMENTS, UTILITY LOCATIONS AND DETAILS, ...ETC., AND REPORT ANY ERRORS OR OMISSIONS TO HOULE CHEVRIER ENGINEERING LTD.
3. THE LOCATION OF ALL OVERHEAD AND UNDERGROUND UTILITIES MAY NOT BE DISPLAYED ON THIS PLAN AND, WHERE SHOWN, THEIR POSITIONS MAY NOT BE ACCURATE. IT IS THE RESPONSIBILTY OF THE OWNER/CONTRACTOR TO LOCATE SUCH UTILITIES PRIOR TO COMMENCING WORKS. HOULE CHEVRIER ENGINEERING LTD. DOES NOT ASSUME LIABILTY FOR DAMAGE TO SERVICES, UTILITIES, AND STRUCTURES DURING CONSTRUCTION OPERATIONS.
4. IT IS THE RESPONSIBILTY OF THE OWNER/CONTRACTOR TO ENSURE THAT THE PLAN USED FOR CONSTRUCTION IS AN APPROVED AND LATEST VERSION.
5. DIMENSIONS AND ELEVATIONS DISPLAYED ON THIS PLAN ARE IN METRES. THIS IS NOT A PLAN OF SURVEY. THIS PLAN IS NOT TO BE SCALED, ALTERED OR REPRODUCED AND IS INTENDED FOR USE ONLY IN RELATION TO THE PROJECT FOR WHICH IT WAS PREPARED.
6. THIS PLAN SHOULD BE USED IN CONJUNCTION WITH RELEVANT DOCUMENTS, PLANS, AND DETAILS PREPARED BY HOULE CHEVRIER ENGINEERING LTD.
7. SOIL, BEDROCK, AND GROUNDWATER CHARACTERISTICS WERE IDENTIFIED AT TEST PIT/AUGERHOLE LOCATIONS ONLY AND MAY VARY BEYOND THE TEST LOCATIONS.
8. THE APPROVED SEPTIC SYSTEM DESIGN AS PREPARED BY HOULE CHEVRIER ENGINEERING LTD. MEETS ALL ONTARIO BUILDING CODE REQUIREMENTS AND MANUFACTURER SPECIFICATIONS IN EFFECT AT THE TIME THE DESIGN WAS PREPARED. HOULE CHEVRIER ENGINEERING LTD. DOES NOT WARRANT THE PERFORMANCE OR DURABILITY OF THE PROPOSED SEPTIC SYSTEM AND ITS COMPONENTS OR ASSUME LIABILITY FOR ANY DEFECTS OR ADVERSE PERFORMANCE CONCERNING THE PROPOSED SEPTIC SYSTEMS.

LEGEND:

- TP 1 — TEST PIT LOCATION IN PLAN
- 99.99 — PROPOSED GROUND SURFACE ELEVATION, METRES
- x 99.99 — EXISTING GROUND SURFACE ELEVATION

REQUIRED SEPTIC SYSTEM SEPARATION DISTANCES:
1) Septic tank/tertiary unit to dwelling/structures = 1.5 m (min)
2) Septic tank/tertiary treatment unit to well = 15 m (min)
3) Septic tank/tertiary unit to property line = 3 m (min)
4) Distribution pipe to dwelling/structures = 7.0 m (min)
5) Distribution pipe to property line = 5.0 m (min)
6) Distribution pipe to drilled well = 17.0 m (min)

LICENSED PROFESSIONAL ENGINEER
Nov. 13/08
A. C. HOULE
A.C. Houle
PROVINCE OF ONTARIO

Location: 145 Walgreen Road, Carp, Ontario		Revision: 0
Client: Baird Construction Management Ltd.	Project No.: 08-536	Scale: 1 : 1000
Designed by: R.B.	SEPTIC DESIGN	
Approved by: A.C.H.	Date: November 13, 2008	FIGURE 1

Houle Chevrier Engineering
Ottawa, ON
www.hceng.ca
(613) 836-1422
info@hceng.ca

FORCEMAIN INSULATION DETAIL

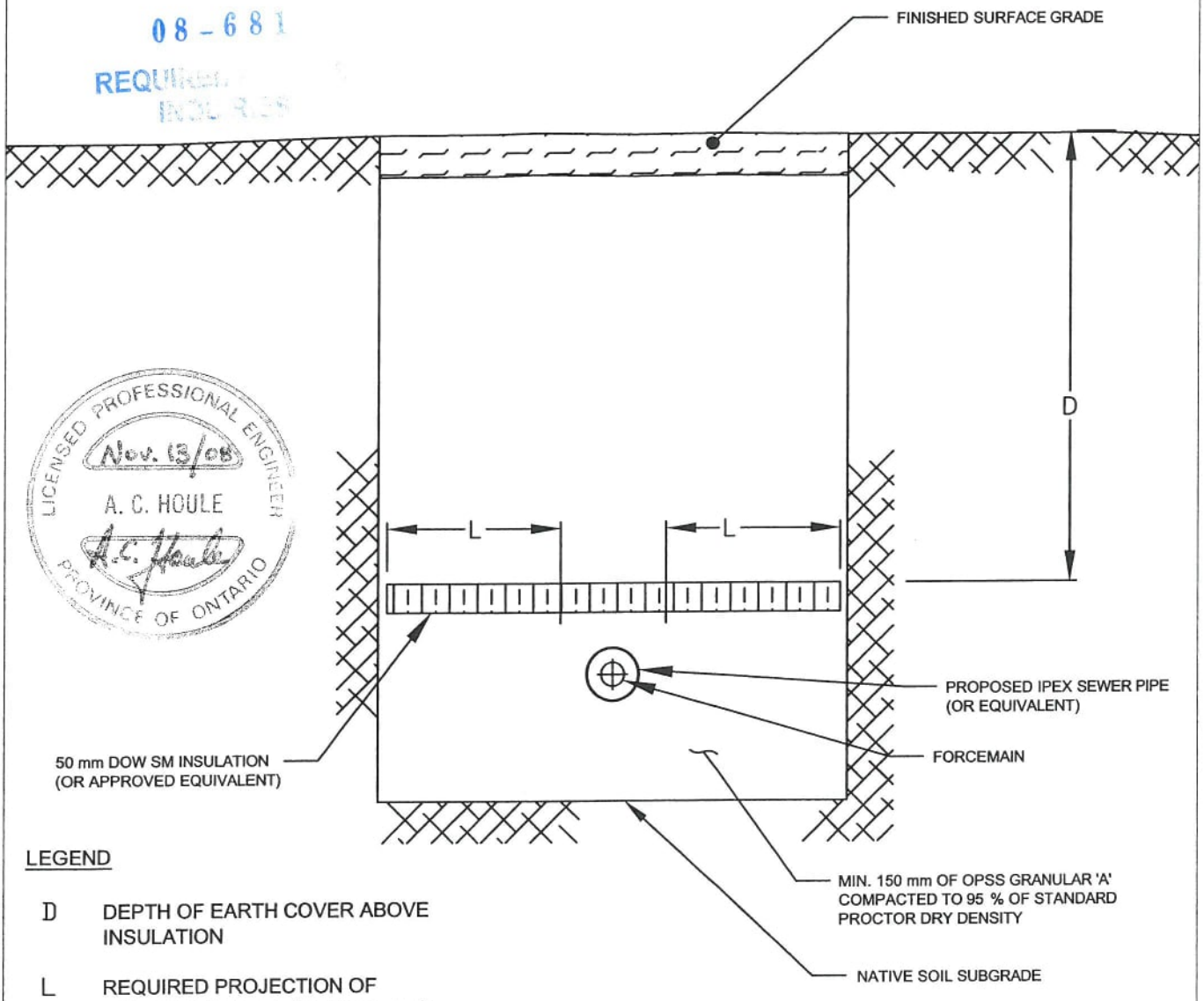
145 WALGREEN ROAD
CARP, ONT.

FIGURE 2

OUR REF: 08-536
DATE: NOVEMBER 13, 2008

NOTES

1) INSULATION JOINTS TO BE TIGHTLY BUTT JOINED OR SHIP LAPPED.
2) FOR ADEQUATE FROST PROTECTION D + L $\geq$ 1.5 METRES.
3) FOR D $\geq$ 1.0 METRE, AN INSULATION THICKNESS OF 25 MILLIMETRES IS ADEQUATE.
4) THE SURFACE BENEATH THE INSULATION SHOULD BE FLAT TO ENSURE THAT SPLITTING OR BREAKAGE OF THE SHEETS DOES NOT OCCUR.



LEGEND

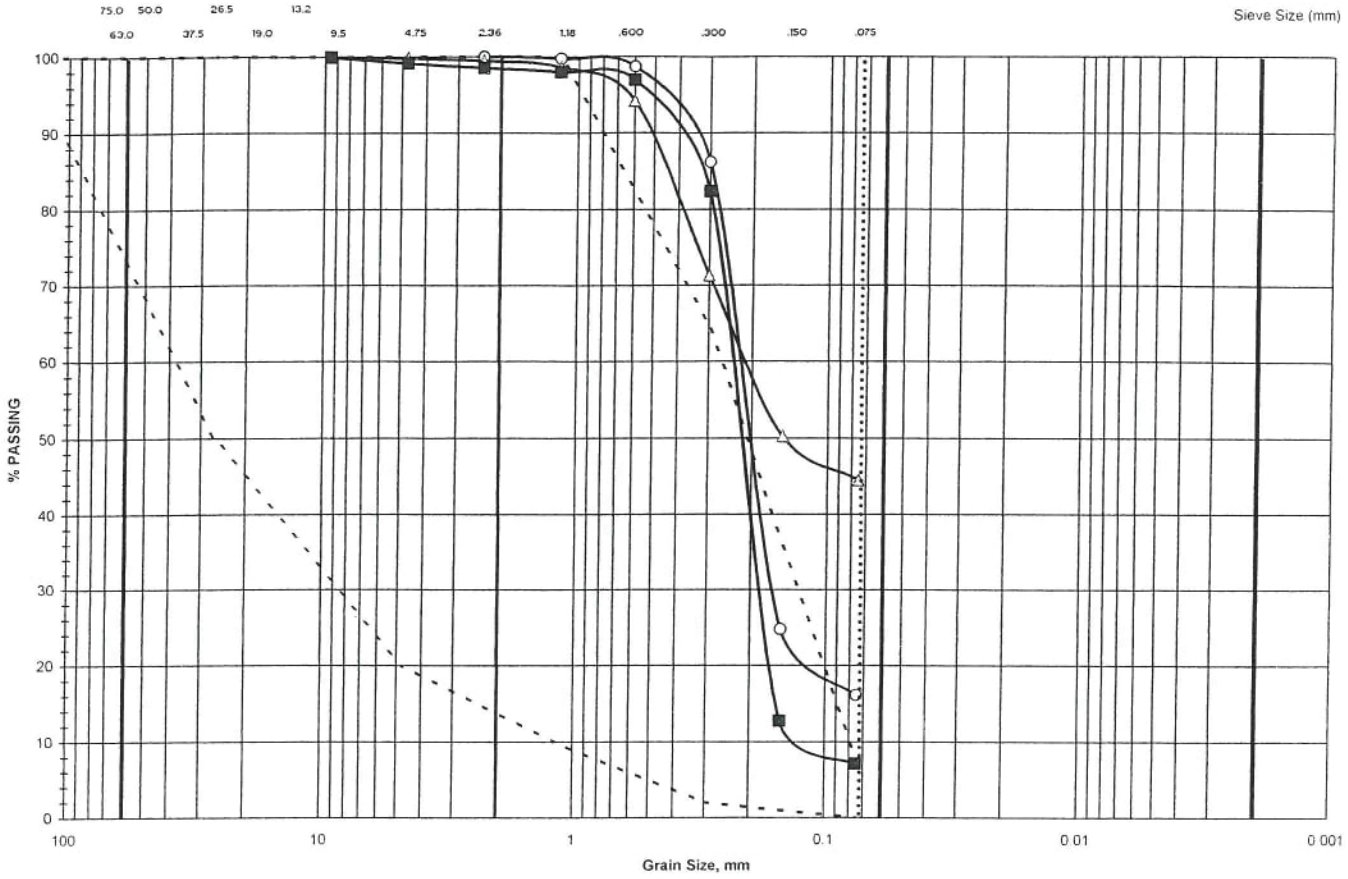
D DEPTH OF EARTH COVER ABOVE INSULATION

L REQUIRED PROJECTION OF INSULATION IN AREAS WITH LESS THAN 1.5 m OF EARTH COVER.

NOT TO SCALE

GRAIN SIZE ANALYSIS

FIGURE 3



	COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE	CLAY
	GRAVEL			SAND			SILT			
Modified M.I.T. Classification										

Test Pit	Sample	Depth (m)	Legend
1	1	0.30 - 0.45	△
6	1	0.30 - 0.40	■
8	1	0.20 - 0.35	○

Gradation Envelope OPSS: Granular BI Pit Run --------

Houle Chevrier Engineering

Date: September 2008
Project : 08-536

Ottawa Septic System Office | Bureau des systèmes septiques d'Ottawa

Do Not Complete
Permit No. 08-687
Revision No.
Date

Permit
Part 8 - Sewage System
Ontario Building Code

Inspected & Recommended by: TKD
Inspection Date & Time: NOV 17/08 @ 2 PM
Civic Address: 145 WALGREEN

Owner: LISCHER HOLDINGS
Weather: CLOUDY.
Legal:

Design T	min/cm	Percolation test required	Yes/No
Design HGWT	m	Grain size analysis required	Yes/No
Subgrade Elevation	m	Site to be Scarified	Yes/No
Depth to rock/impervious soil	m	Clay Seal Inspection	Yes/No
		Mantle required	Yes/No

Septic/~~Holding Tank~~/Pretreatment Tank 3750 L
Septic Tank Effluent Filter
Pump Rate 238.5 L/15 min
Treatment Unit – Make & Model CLEARSTREAM 500N
Number of Units 2

ELEVATION ☐ In Ground ☐ Partially Raised ☒ Fully Raised

TYPE OF SYSTEM

☐ **Trench**
Distribution Pipe Length m
Loading Area m^2
Type of Chamber
Length of Chamber m

☒ **Area Bed**
Stone 80 m^2
Sand 245 m^2
Pipe 72 m

☐ **Shallow Buried Trench**
Pipe Length m

☐ **Filter Media Bed**
Stone m^2
Extended Base m^2
Pipe m
Weight of Filter Media Kg
Loading Area m^2

Manager, Septic System Approvals: Jeff Davidson
Permit Issued Date: NOVEMBER 20, 2008
Comments:

☒ Maintenance Contract Required per 8.9.2.3 OBC

☐ Engineer to Verify
☐ Subgrade
☐ Squirt Height

Manager, Septic System Approvals:
Revision Issued Date:
Comments:

NOTE: For further details, refer to corresponding application

Version 07/07

APPENDIX E - NEW PERMIT FOR EXISTING SEWAGE SYSTEM PERMIT

Reno Part 10,11
Change of Use

Application for a Permit to Construct or Demolish

This form is authorized under subsection 8(1.1) of the *Building Code Act, 1992*

For use by Principal Authority

Application number: [illegible]-24-086	Permit number (if different):
Date received: PART 10 & 11	Roll number: [illegible]980-74-0

R.V.C.A. RECEIVED
DEC 19 2024

Application submitted to: OTTAWA SEPTIC SYSTEM OFFICE
(Name of municipality, upper-tier municipality, board of health or conservation authority)

A. Project information

Building number, street name	Unit number	Lot/con.
145 Walgreen Road		**Part of Lot 1 /Conc. 3 (Huntley)**

Municipality	Postal code	Plan number/other description
City of Ottawa	**K0A 1L0**	

Project value est. $	Area of work (m^2)

B. Purpose of application

New construction | (Addition to an existing building) | Alteration/repair | Demolition | Conditional Permit

Proposed use of building	Current use of building
Residential, (Commercial), Other:	Residential, (Commercial), Other:

Description of proposed work — Check ALL that apply

- Add BEDROOMS (Y) / (N)
- Add FIXTURES (Y) / (N)
- Add FINISHED FLOOR AREA (Y) / (N)
- CHANGE of USE (Y) / (N)

If OTHER, please describe project here: _____

Proposed re-use of existing approved Class 4 sewage system (OSSO Permit 08-681) to service proposed re-development of property, including interior retrofits within existing building and building expansion.

C. Applicant

Applicant is: [ ] Owner or [x] Authorized agent of owner

Last name	First name	Corporation or partnership
Leblanc	**Patrick**	**Egis Canada Ltd.**

Street address	Unit number	Lot/con.
115 Walgreen Road		

Municipality	Postal code	Province	E-mail
Carp	**K0A 1L0**	**ON**	**patrick.leblanc@egis-group.com**

Telephone number	Fax	Cell number
(613) 714-4586	**(613) 836-3742**	**(613) 229-5863**

D. Owner (if different from applicant)

Last name	First name	Corporation or partnership
		WO MW Realty Limited

Street address	Unit number	Lot/con.
180 Renfrew Drive, Suite 230		

Municipality	Postal code	Province	E-mail
Markham	**L3R 9Z2**	**Ontario**	**Christine.yee@whiteowlgroup.ca**

Telephone number	Fax	Cell number
( )	**(289) 818-2406**	**(647) 225-7021**

E. Builder (optional)

Last name	First name	Corporation or partnership (if applicable)	
Street address -24-0863			Unit number / Lot/con.
Municipality PART 10 & 11	Postal code	Province	E-mail
Telephone number ( )	Fax ( )		Cell number ( )

R.V.C.A. RECEIVED DEC 19 2024

F. Tarion Warranty Corporation (Ontario New Home Warranty Program)

i. Is proposed construction for a new home as defined in the *Ontario New Home Warranties Plan Act*? If no, go to section G.	Yes	No x
ii. Is registration required under the *Ontario New Home Warranties Plan Act*?	Yes	No x

iii. If yes to (ii) provide registration number(s): _____

G. Required Schedules

i) Attach Schedule 1 for each individual who reviews and takes responsibility for design activities.

ii) Attach Schedule 2 where application is to construct on-site, install or repair a sewage system.

H. Completeness and compliance with applicable law

i) This application meets all the requirements of clauses 1.3.1.3 (5) (a) to (d) of Division C of the Building Code (the application is made in the correct form and by the owner or authorized agent, all applicable fields have been completed on the application and required schedules, and all required schedules are submitted).	Yes x	No
Payment has been made of all fees that are required, under the applicable by-law, resolution or regulation made under clause 7(1)(c) of the *Building Code Act, 1992*, to be paid when the application is made.	Yes x	No
ii) This application is accompanied by the plans and specifications prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the *Building Code Act, 1992*.	Yes x	No
iii) This application is accompanied by the information and documents prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the *Building Code Act, 1992* which enable the chief building official to determine whether the proposed building, construction or demolition will contravene any applicable law.	Yes x	No
iv) The proposed building, construction or demolition will not contravene any applicable law.	Yes x	No

I. Declaration of applicant

I **Patrick Leblanc** (print name) declare that:

1. The information contained in this application, attached schedules, attached plans and specifications, and other attached documentation is true to the best of my knowledge.
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.

Date **December 19, 2024** Signature of applicant

Personal information contained in this form and schedules is collected under the authority of subsection 8(1.1) of the *Building Code Act, 1992*, and will be used in the administration and enforcement of the *Building Code Act, 1992*. Questions about the collection of personal information may be addressed to: a) the Chief Building Official of the municipality or upper-tier municipality to which this application is being made, or, b) the inspector having the powers and duties of a chief building official in relation to sewage systems or plumbing for an upper-tier municipality, board of health or conservation authority to whom this application is made, or, c) Director, Building and Development Branch, Ministry of Municipal Affairs and Housing 777 Bay St., 2nd Floor. Toronto, M5G 2E5 (416) 585-6666.

Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

24-0869

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A. Project Information

Building number, street name		Unit no.	Lot/con.
145 Walgreen Road PART 10 & 11			Part of Lot 1 /Conc. 3 (Huntley)
Municipality: City of Ottawa	Postal code: K0A 1L0	Plan number/ other description	

B. Individual who reviews and takes responsibility for design activities

Name		Firm	
Patrick Leblanc, P.Eng.		Egis Canada Ltd. (Egis)	
Street address: 115 Walgreen Road, R.R.3		Unit no.	Lot/con.
Municipality: Carp (City of Ottawa)	Postal code: K0A 1L0	Province	E-mail: patrick.leblanc@egis-group.com
Telephone number: (613) 714-4586	Fax number: (613) 836-3742	Cell number: (613) 229-5863	

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]

House	HVAC – House	Building Structural
Small Buildings	Building Services	Plumbing – House
Large Buildings	Detection, Lighting and Power	Plumbing – All Buildings
Complex Buildings	Fire Protection	[x] On-site Sewage Systems

Description of designer's work

Obtain approval for proposed re-use of existing approved Class 4 sewage system (OSSO Permit 08-681) to service proposed re-development of property, including interior retrofits within existing building and building expansion.

D. Declaration of Designer

I **Patrick Leblanc, P.Eng.** declare that (choose one as appropriate):

(print name)

I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4.of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.

Individual BCIN: _____

Firm BCIN: _____

I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5.of Division C, of the Building Code.

Individual BCIN: _____

Basis for exemption from registration: **P.Eng. (Licence # 100141438)**

The design work is exempt from the registration and qualification requirements of the Building Code.

Basis for exemption from registration and qualification: _____

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. I have submitted this application with the knowledge and consent of the firm.

Date **December 19, 2024** Signature of Designer

NOTE:

1. For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) (c).of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
2. Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of practice, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

Schedule 2: Sewage System Installer Information

A. Project Information			
Building number, street name **145 Walgreen Road** 6-24-086		Unit number	Lot/con. **Part of Lot 1 /Conc. 3 (Huntley)**
Municipality **City of Ottawa**	Postal code **K0A 1L0**	Plan number/ other description	

PART 10 & 11

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B. Sewage system installer

Is the installer of the sewage system engaged in the business of constructing on-site, installing, repairing, servicing, cleaning or emptying sewage systems, in accordance with Building Code Article 3.3.1.1, Division C?

Yes (Continue to Section C) No (Continue to Section E) [x] Installer unknown at time of application (Continue to Section E)

C. Registered installer information (where answer to B is "Yes")			
Name			BCIN
Street address			Unit number / Lot/con.
Municipality	Postal code	Province	E-mail
Telephone number ( )	Fax ( )		Cell number ( )

D. Qualified supervisor information (where answer to section B is "Yes")	
Name of qualified supervisor(s)	Building Code Identification Number (BCIN)

E. Declaration of Applicant:

I **Patrick Leblanc** declare that:
(print name)

I am the applicant for the permit to construct the sewage system. If the installer is unknown at time of application, I shall submit a new Schedule 2 prior to construction when the installer is known;

OR

I am the holder of the permit to construct the sewage system, and am submitting a new Schedule 2, now that the installer is known.

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.

Date **December 19, 2024** Signature of applicant

Ottawa Septic System Office | Bureau des systèmes septiques d'Ottawa

6-24-0865

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PART 10 & 11

Schedule 13
Part 10 & 11 Site Amendment
Check All that apply to project

Site Amendment/Description of Proposed Change/Renovation

☐ Residential

☒ Commercial Property

Vehicle Service Bays	#Existing	5	+ #Proposed	4	=	9	@ 2 factory workers (no showers) per service bay =18x75 L/day = 1,350 L/day
Fixture Units	#Existing	22.5	+ #Proposed	49.5	=	72.0	Schedule 8
Office Floor Area	#Existing	372	+ #Proposed	-85.96	=	286.04 m2	@ 75 L/day per 9.3 m2 of floor space = 2325 L/day

Total Q = 1,350 + 2325
= **3,675 L/day**

☒ Exceeding 15% of the gross area of the dwelling units for proposed addition

☒ Change in Use:
- Major occupancy (e.g. residential to commercial)
- Occupant load (e.g. Office to warehouse)

Please describe proposed use:

Internal retrofits to office space, restrooms, and storage areas. Building addition to increase number of vehicle service bays.

☐ Installation of a POOL not meeting O.B.C Regulation setback distances

☐ Installation of a DECK not meeting O.B.C Regulation setback distances

Required attachments

To be supplied by applicant/agent at applicant's expense:

1. **One** of the following documents to **DESCRIBE CURRENT SEPTIC SYSTEM** (ONE x1 copy):
   - ☒ A. Copy of current sewage system approval (Use permit/ Certificate of Completion)
   - ☐ B. Professional engineer's report indicating size and location of system

2. **Each** of these documents to **DESCRIBE PROPOSED RENOVATION** (ONE x1 copy)
   - ☒ A. Copy of site plan: Drawn to scale, indicating the layout of the existing building, well, other structures i.e shed,workshop,cabana
   - ☒ B. Completed Reno 10,11 Application Form
   - ☒ C. Copy of Building Plans: Drawn to scale, showing the changes/additions as proposed

Ottawa Septic System Office | Bureau des systèmes septiques d'Ottawa

4-24-0865

PART 10 & 11

Do Not Complete
Permit #

Revision #_____
Date:

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DEC 19 2024

Schedule 8
Fixture unit count

Fixtures	# Existing	+	# Proposed	X	unit count	=	Fixture Count
Bathroom Bathroom group (toilet, sink and tub **or** shower) installed in the **same** room		+		X	6	=	
Bathtub with/without overhead shower		+		X	1.5	=	
Shower stall		+		X	1.5	=	
Wash basin (SINK) (1½inch trap)	3	+	6	X	1.5	=	13.5
Watercloset (TOILET) tank operated	3	+	9	X	4	=	48
Urinal		+	5	X	1.5	=	
Kitchen Dishwasher		+		X	1	=	
Sink with/without garbage grinder(s), domestic and other small type single, double or 2 single with a common trap	3	+	-1	X	1.5	=	3.0
Other Domestic washing machine		+		X	1.5	=	
Combination sink and laundry tray single or double (Installed on 1½ trap)	1	+	-1	X	1.5	=	

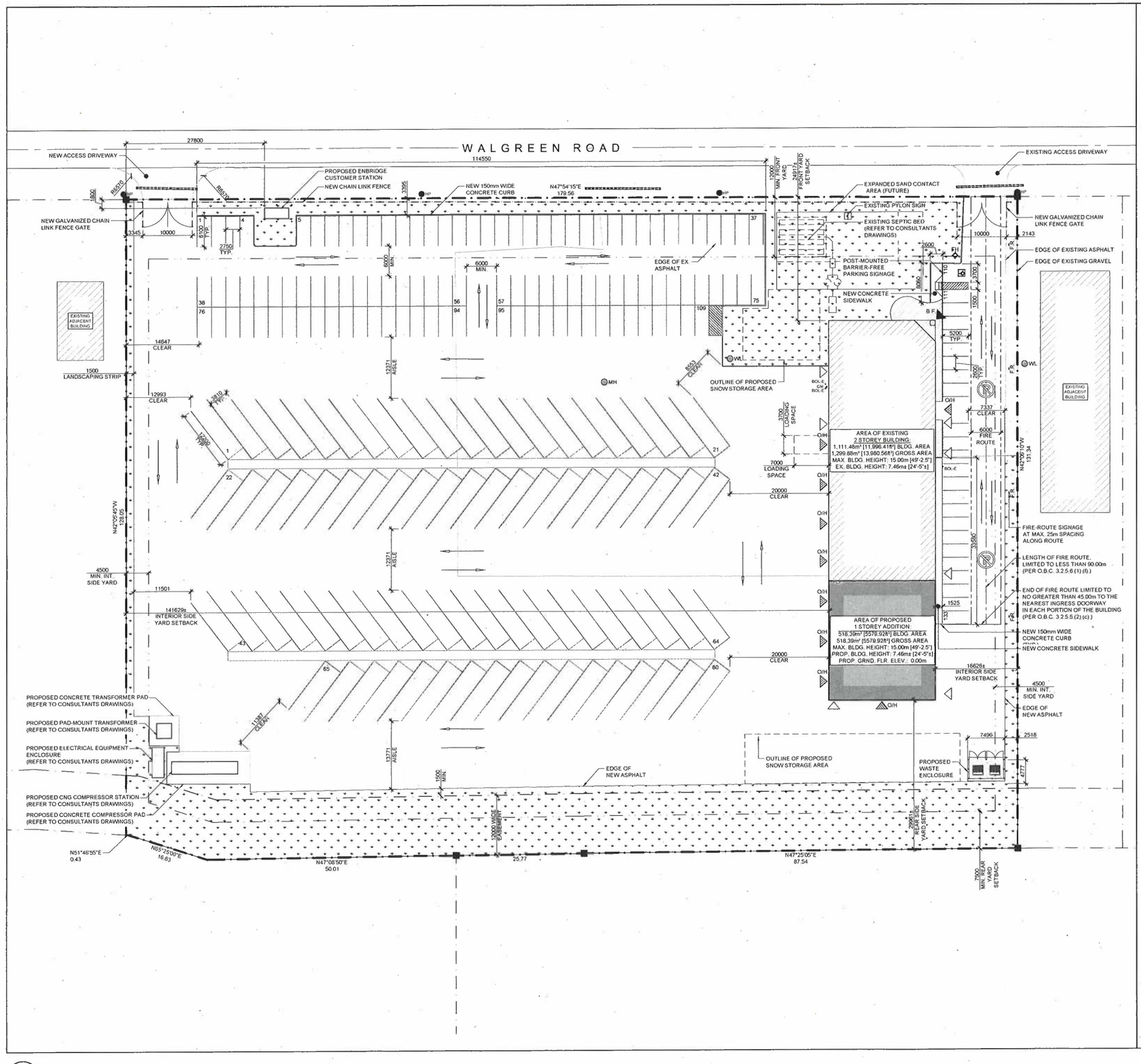
***Total:** 72.0

***Insert the TOTAL in Schedule 13** (0.Reg 151/13 Table 7.4.9.3)

1. **Sump pumps and floor drains are not to be connected to the sewage system.** Connection of such fixtures to a sewage system may lead to a hydraulic failure of the said system. The above mentioned fixtures should be discharged separately to an approved Class 2 (leaching pit) sewage system.
2. Where laundry waste is not more than 20% of the total daily design sanitary sewage flow, it may discharge to a sewage system (Part 8, OBC, 8.1.3.1(2)).

_____ December 19, 2024

Agent/Owner signature **Date**



ZONING INFORMATION

1.0 GENERAL INFORMATION:

LEGAL DESCRIPTION:
PART OF BLOCK 5 REGISTERED PLAN 4M-300, THE CITY OF OTTAWA

BUILDING AREA (B.A.):
1,627.31m²

GROSS FLOOR AREA (G.F.A.):
1,815.71m²

PROPOSED USE:
LIGHT INDUSTRIAL USE

2.0 ZONING PROVISIONS:

DESIGNATION:
RURAL GENERAL INDUSTRIAL ZONE (RG4)

LOT AREA:		
REQUIRED:	1,800.00m² (MIN.)	
PROPOSED:	23,696.64m²	
LOT FRONTAGE:		
REQUIRED:	0.00m	
PROPOSED:	24.92m	
SETBACKS:		
FRONT YARD:		
REQUIRED:	12.00m (MIN.)	
PROPOSED:	24.92m	
CORNER SIDE YARD:		
REQUIRED:	12.00m (MIN.)	
PROPOSED:	N/A	
INTERIOR SIDE YARD:		
REQUIRED:	4.50m (MIN.)	
PROPOSED:	16.63m	
REAR YARD:		
REQUIRED:	7.50m (MIN.)	
PROPOSED:	29.96m	
LOT COVERAGE:		
REQUIRED:	50% (MAX.)	
PROPOSED:	7%	
BUILDING HEIGHT		
REQUIRED:	15.00m (MAX.)	
PROPOSED:	7.46m	

3.0 PARKING (PER SECTIONS 3.30 & 3.41):

STANDARD SPACES:	
PROVISION:	0.8 SPACE PER 100m² G.F.A.
REQUIRED:	15 SPACES
PROVIDED:	109 PRIVATE SPACES 24 PUBLIC SPACES 80 TRUCK PARKING SPACES
BARRIER-FREE SPACES:	
PROVISION:	1-19 STANDARD = 1 SPACE
REQUIRED:	1 SPACE
PROVIDED:	1 SPACE
LOADING SPACES:	
PROVISION:	1000m² - 1,999m² G.F.A. = 1 SPACE
REQUIRED:	1 SPACE
PROVIDED:	1 SPACE (EXISTING)

SYMBOL LEGEND

- SITE PROPERTY LINE
- ADJACENT PROPERTY LINE
- SETBACK LINE
- ROAD CENTRELINE
- FIRE ROUTE LINE
- NEW CHAIN LINK FENCE
- MUNICIPAL ROAD BOUNDARY
- SNOW STORAGE AREA BOUNDARY LINE
- DIRECTION OF TRAVEL
- EXISTING BUILDING
- PROPOSED BUILDING
- EXISTING HEAVY DUTY ASPHALT
- PROPOSED HEAVY DUTY ASPHALT
- EXISTING GRAVEL
- EXISTING INTERLOCK
- PROPOSED CONCRETE SIDEWALK AREA
- LANDSCAPED AREA
- NEW CULVERT
- EXISTING UTILITY POLE
- PRIMARY BUILDING ENTRANCE OR BARRIER-FREE ENTRANCE
- SECONDARY ENTRANCES / EXITS OR BARRIER-FREE ENTRANCE / EXITS
- OVERHEAD DOOR
- BARRIER-FREE CURB RAMP w/ TACTILE ATTENTION INDICATORS
- FIRE ROUTE/NO PARKING SIGNAGE INSTALLED 25m MAX. ALONG ROUTE
- BARRIER-FREE PARKING SIGN
- FIRE HYDRANT (EXISTING)
- EXISTING WELL
- EXISTING MANHOLE
- EXISTING HYDRO POLE
- EXISTING GAS METER
- EXISTING BOLLARD

01 PROPOSED SITE PLAN

DEIMLING
ARCHITECTURE & INTERIOR DESIGN

D-24-086
PART 10 & 11

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DEC 19 2024

North

Revisions

No.	By	Description	Date
02	T.D.	ISSUED FOR COORDINATION	13 NOV 2024
01	T.D.	ISSUED FOR COORDINATION	08 NOV 2024

Project
EGIS
SITE PLAN DEVELOPMENT

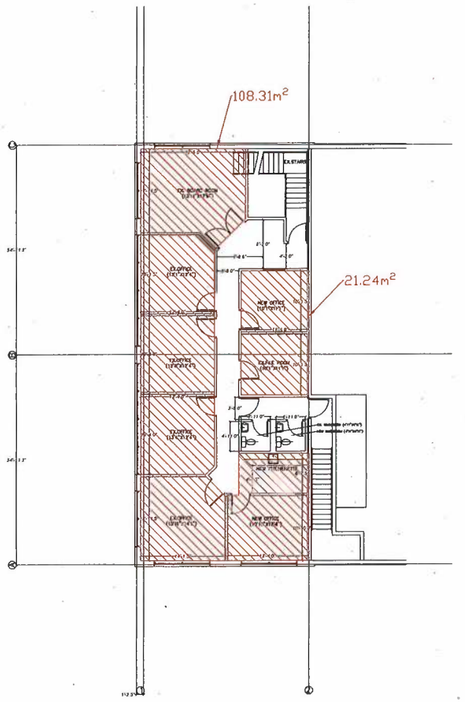
145 WALGREEN RD, OTTAWA, ON

Drawing
PROPOSED
SITE PLAN

Scale: AS NOTED
Drawn: T.D.
Checked: W.P.
Stamp

Project No.: 24-138
Drawing No.: SP-A01

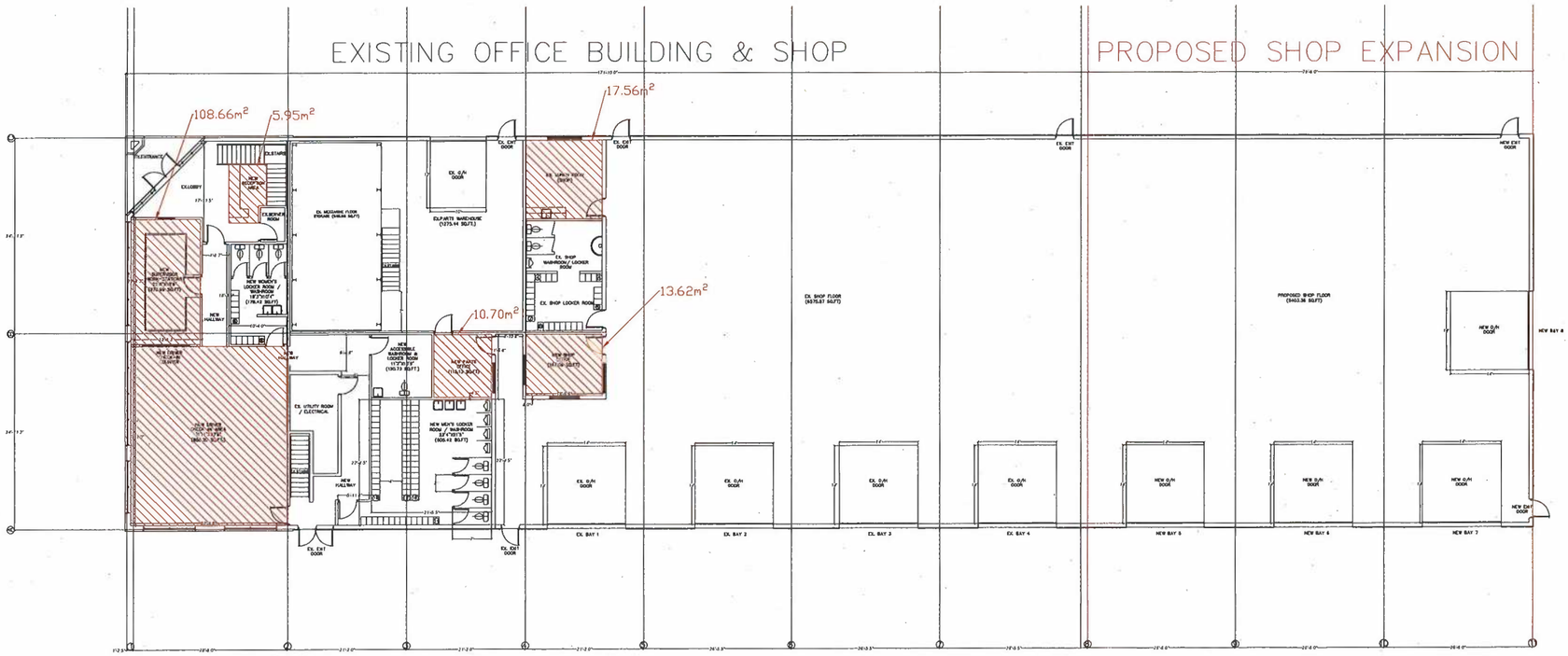
TOTAL FLOOR OFFICE FLOOR SPACE = 156.49 m^2 + 129.55 m^2 = 286.04 m^2



LEVEL 2 – PLAN VIEW
2ND FLOOR OFFICE FLOOR SPACE =129.55 m^2

R.V.C.A. RECEIVED
DEC 19 2024

[redacted]-24-086
PART 10 & 11



LEVEL 1 – PLAN VIEW
1ST FLOOR OFFICE FLOOR SPACE =159.49 m^2

LEGEND:

NO.	REVISIONS/ISSUE	BY	DATE
6.	REVISION 05 (L-1NEW SHOP OFC)	SV	15 JULY
5.	REVISION 04 (L-2 ROOM DOOR)	SV	08 JULY
4.	REVISION 03 (RECP. H/C W/R)	SV	04 JULY
3.	REVISION 02 (SUP'S ROOM MOD.)	SV	28 JUNE
2.	REVISION 01 (HATCH & STAIRS)	SV	28 JUNE
1.	ISSUE 01	SV	26 JUNE

STAMP

STAMP

CLIENT

OPERATOR
Miller Waste Systems

BUILDER

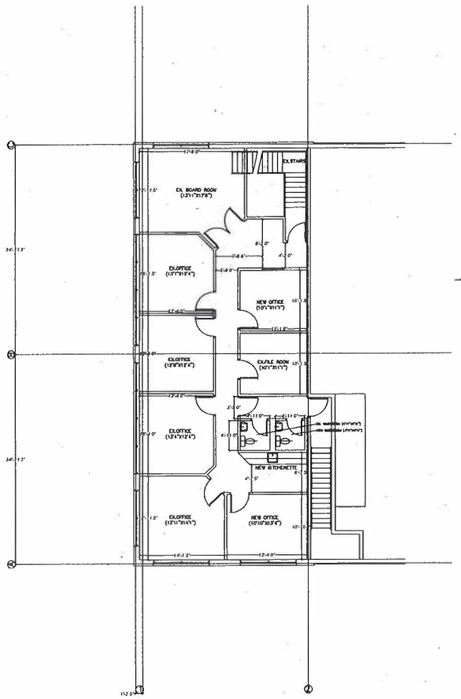
PROJECT
BUILDING RENOVATION

CONSULTANT

BUILDING
145 WALGREEN RD.
OTTAWA

DRAWING TITLE:
BUILDING PLAN VIEW
(MAIN FLOOR PLAN)

PROJECT NO.	SCALE: N.T.S
DATE: 2024-06-28	SHEET: OW1
DESIGNED BY:	
DRAWN BY: SV	



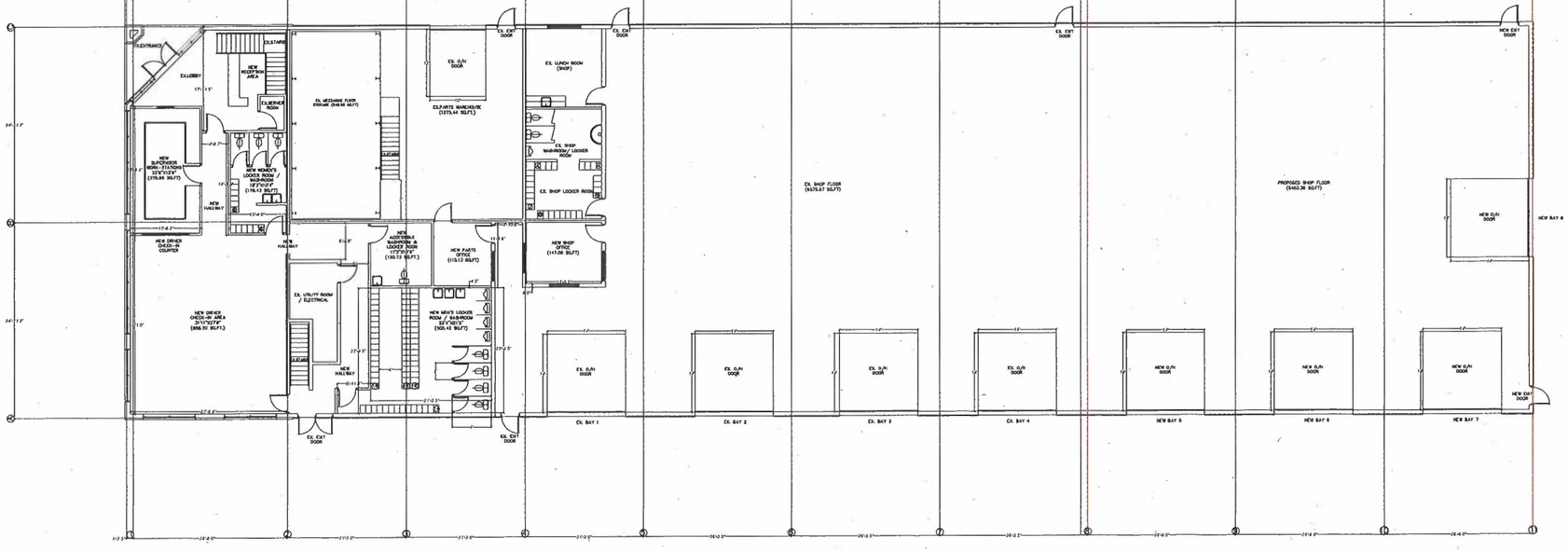
PART 10 & 11

-24-086-

LEVEL 2 – PLAN VIEW

EXISTING OFFICE BUILDING & SHOP

PROPOSED SHOP EXPANSION



LEVEL 1 – PLAN VIEW

LEGEND:

NO.	REVISIONS/ISSUE	BY	DATE
6.	REVISION 05 (1-NEW SHOP OFC)	SV	15 JULY
5.	REVISION 04 (1-2 ROOM DOOR)	SV	08 JULY
4.	REVISION 03 (RECP. H/C W/R)	SV	04 JULY
3.	REVISION 02 (SUP'S ROOM MOD.)	SV	28 JUNE
2.	REVISION 01 (HATCH & STAIRS)	SV	28 JUNE
1.	ISSUE 01	SV	28 JUNE

STAMP

STAMP

CLIENT

OPERATOR

Miller Waste Systems

BUILDER

PROJECT

BUILDING RENOVATION

CONSULTANT

BUILDING

145 WALGREEN RD.
OTTAWA

DRAWING TITLE:

BUILDING PLAN VIEW
(MAIN FLOOR PLAN)

PROJECT NO.	SCALE: N.T.S
DATE: 2024-06-28	SHEET: OW1
DESIGNED BY:	
DRAWN BY: SV	

Rideau Valley Conservation Authority

Do Not Complete
Permit No B-24-086
Revision No _____
Date _____

Permit

Part 10/11- Change of Use/Renovation
Ontario Building Code

This permit verifies that the on-site sewage system was reviewed under the *Ontario Building Code* and *Ontario Regulation 350/06* as amended by *Ontario Regulation 503/09*

Reviewed & Recommended by: Ryan Hiemstra Owner: WO MW Realty Limited

Civic Address: 145 Walgreen Road Legal: Lot 1, Con 3

Roll #: _____

Commercial Property:
Factory area (75 L/day/employee x 18 employees = 1350 L/day)
Office area (286.04 m2 x 75 L/day/9.3 m2 = 2325 L/day)

Total Daily Design Flow Rate = 3675 L/day

Bed Configuration 8 runs at 9m m Type A bed w/ 2x Clearstream 600NC

Tank size 4500 L

Permit Refused By:

_____ _____
Terry K. Davidson, P.Eng., Manager Septic System Approvals Date

Permit Refused for the following reasons:

_____
_____
_____
_____

☐	Contact a licensed installer	☐	Building plans required
☐	Must obtain a permit for tank replacement	☐	Septic system records required
☐	Must obtain a permit for new sewage system	☐	Engineer's assessment of septic system required
☐	Must obtain a permit for effluent filter and riser		

Permit Approved and Issued By:

Jason Hunter _____ December 20, 2024
~~Terry K. Davidson~~, P.Eng., Manager - Septic System Approvals Permit Date

Details and Conditions of Approval:

_____
_____
_____

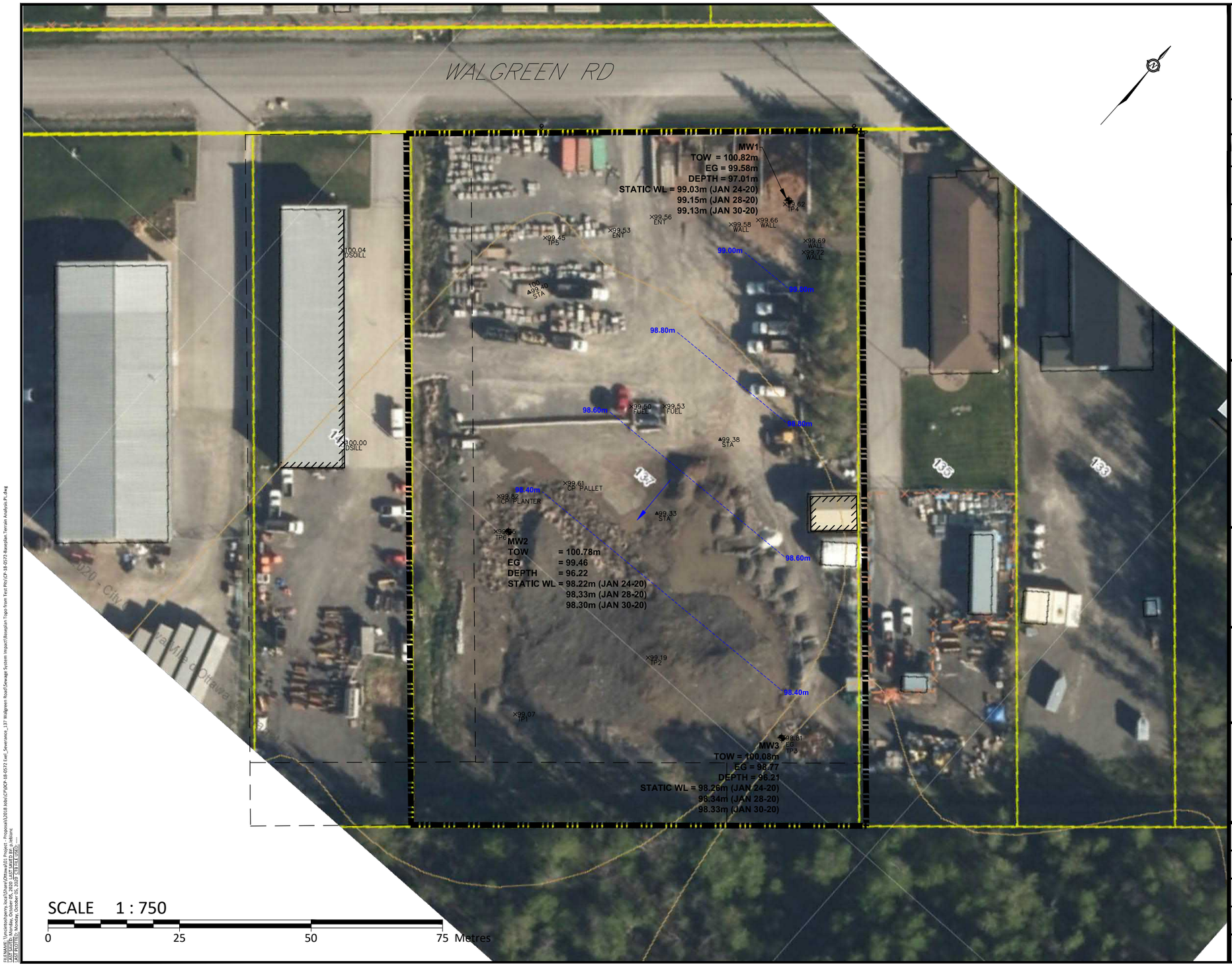
_____ _____
Terry K. Davidson, P.Eng., Manager - Septic System Approvals Revision Date

Details and Conditions of Approval:

_____
_____
_____

Note: this permit is valid for 12 months from the date of signing. It is not renewable.

APPENDIX F - SHALLOW GROUNDWATER FLOW DIRECTION FOR HYDROGEOLOGICAL STUDY AT 137 WALGREEN RD



LEGEND:

99.00m GROUNDWATER CONTOURS

GROUNDWATER FLOW DIRECTION

No.	Revision/Issue	Date

McINTOSH PERRY
115 Walgreen Road, RR 3
Carp, ON K0A 1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

Stamp:

Stamp:

Client:
EXEL CONTRACTING
135 WALGREEN RD, CARP, ON

Project:
HYDROGEOLOGICAL AND SEPTIC IMPACT ASSESSMENT
137 WALGREEN RD, CARP, ON

Drawing Title:
TERRAIN ANALYSIS

Scale:	1:750
Drawn by:	BA
Checked By:	PL
Designed By:	BA
Date:	SEP.30.2020

Project Number:
0CP-18-0572

Drawing Number:
FIG. 4