365 Forest Street, Ottawa, Ontario

K2B 7Z7
Hydrogeological Investigation

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1 Introduction

1.1 Project Description

EXP Services Inc. (EXP) was retained by 11061917 Canada Inc. to prepare a Hydrogeological Investigation associated with the proposed residential development located at 365 Forest Street, Ottawa, Ontario (hereinafter referred to as the 'Site').

The Site is currently occupied by a commercial building and parking lots. The proposed underground parking dimensions utilized for this report are referenced from architectural drawing A07 prepared by Laplame Rheault Architects & Associates and PMA Architects (May 28, 2021).

It is our understanding that the proposed construction for the Site will comprise of two (2) mid-rise buildings with a common four (4) levels of underground parking. The Site location plan is shown on Figure 1.

EXP previously conducted a Geotechnical Investigation and Environmental Site Assessments. The pertinent information gathered from the noted investigations is utilized for this assessment.

2 Hydrogeological Setting

2.1 Regional Setting

2.1.1 Regional Physiography

The Site is located within a physiographic region known as the Ottawa Valley Clay Plains. The physiographic landform consists of Clay Plains (Chapman & Putnam, 2007).

2.1.2 Regional Geology and Hydrogeology

The surficial geology (Figure 2) can be described as older alluvial deposits consisting of clay, silt, sand, gravel with organics (Ministry of Northern Development and Mines, 2012).

Based on the boreholes drilled as part of the Geotechnical Investigation there is approximately 7 m of overburden soil overlying the bedrock (borehole logs provided in Appendix B, borehole plan shown in Figure 4). The underlying bedrock is known regionally as the Ottawa Formation and is considered to be limestone bedrock (with shaly partings) .

2.1.3 Existing Water Well Survey

Water Well Records (WWRs) were compiled from the database maintained by the Ministry of the Environment, Conservation and Parks (MECP) and reviewed to determine the number of water wells documented within a 500-m radius of the Site boundaries. The locations of the MECP WWRs within 500 m of the Site are shown on Figure 3. A summary of the WWR is included in Appendix A.

The MECP WWR database indicates one hundred and fifty six (156) records within a 500 m radius from the Site centroid (Figure 3 and Appendix A). Well distances are calculated relative to the Site centroid, therefore some distances in Appendix A exceed 500 m.

The database indicates that the offsite wells are at an approximate distance of twenty (23) m or greater from the Site centroid. All offsite wells were reportedly identified as monitoring and observation wells, test holes, dewatering wells, water supply wells, abandoned and/or listed with unknown use. The reported water levels ranged from depths of 2.0 m to 52.0 meters below ground surface (mbgs).

The Well Identification Numbers (Well ID No.) of the offsite water supply wells are as follows: 1503867, 1503868, 1503869, 1503870, 1503871, 1503872, 1503873, 1503874, 1504044, 1504045, 1504046, 1504047, 1504048, 1504049, 1504050, 1504051, 1504052, 1504053, 1504054, 1504055, 1504056, 1504057, 1504060, 1504061, 1504062, 1504063, 1504064, 1504065, 1504066, 1504067, 1504068, 1504069, 1504075, 1507781, 1507782, 1507784, 1507791, 1507792, 1507793, 1507794, 1507795, 1507796, 1507797, 1507928, 1507929, 1507930, 1507931, 1507932, 1507933, 1507968, 1507969, 1507970, 1508048, 1508049, 1508050, 1508051, 1508052, 1508063, 1508100, 1508102, 1508120, 1508122, 1508123, 1508124, 1508125, 1508127, 1508128, 1508155, 1508163, 1508215, 1508216, 1508217, 1508335, 1508337, 1508338, 1508339, 1508340, 1508590, 1508591, 1508592, 1508595, 1508645, 1508646, 1508667, 1508668, 1508669, 1508670, 1508671, 1508672, 1508673, 1508674, 1508675, 1508686, 1508687, 1508688, 1508689, 1508761, 1508769, 1508772, 1508773, 1508774, 1508879, 1508921, 1508922, 1508923, 1510572, and 1510573.

Based on the date of installation of the water supply wells (1940-1950s) and since the area is municipally serviced, it is unlikely that the noted water supply wells are still active.

2.2 Site Setting

2.2.1 Site Topography

The Site is in an mixed residential and commercial land use setting. The topography is considered relatively flat with a regional gradual northwesterly slope towards Ottawa River.

As indicated on the borehole logs included in Appendix B, the surface elevation of the Site ranges between approximately 74.13 to 75.74 meters above sea level (masl).

2.2.2 Local Surface Water Features

The Site is within the Ottawa River West watershed, within the Ottawa 6 subwatershed. No surface water features exist on site. The nearest surface water features is Pinecrest Creek, approximately located 450 meters east of the Site boundary and Mud Lake, approximately located 650 meters northwest of the Site boundary.

2.2.3 Local Geology and Hydrogeology

A summary of subsurface soil stratigraphy is provided in the following paragraphs. The soil descriptions are based on the geotechnical investigation report (EXP, 2021). They are summarized for the hydrogeological interpretations. As such, the information provided in this section shall not be used for construction design purposes.

The detailed soil profiles encountered in each borehole and the results of moisture content determinations are presented on the attached borehole logs (Appendix B). The soil boundaries indicated on the borehole logs are inferred from non-continuous sampling and observations during drilling. These boundaries are intended to reflect approximate transition zones for the Hydrogeological Investigation and shall not be interpreted as exact planes of geological change.

The "Notes on Sample Description" preceding the borehole logs form an integral part of and should be read in conjunction with this report. The following is a brief description of the soil conditions encountered during the investigation.

Based on the results of the geotechnical investigation, the general subsurface soil stratigraphy consists of the following units from top to bottom:

Pavement Structure
Borehole Nos. 19-03, 19-04, 19-06 and 19-07 are located in paved areas of the site. The pavement structure consists of 30 mm and 60 mm thick asphaltic concrete underlain by 150 mm to 250 mm thick granular fill base.

Gravel Surface
The remaining boreholes are located in unpaved areas consisting of a surficial 100 mm to 500 mm thick granular fill layer.

Fill
Fill was contacted beneath the pavement structure and surficial granular layer in all the boreholes. The fill extends to depths ranging from 1.4 m to 3.0 m (Elevation 73.6 m to Elevation 71.8 m). Borehole No. 19-12 terminated within the fill at 4.4 m depth (Elevation 71.0 m). The fill consists of clayey silty sand to silty sand with gravel. The fill contains rootlets and brick debris. A petroleum odour was noted in the fill samples from Borehole Nos. 19-05 and 19-11. Based on the standard penetration test (SPT) N values of 1 to 16, the fill is in a very loose to compact state. The moisture content of the fill is 4 percent to 30 percent. The unit weight of the fill is 19.1 kN/m^3 to 22.9 kN/m^3.

Sandy Silt to Silty Sand
The fill in Borehole Nos. 19-01 to 19-03 is underlain by a sandy silt to silty sand layer from 1.4 m to 2.2 m depths (Elevation 73.6 m to Elevation 71.9 m). The SPT N values are 4 and 6 indicating the sandy silt to silty sand is in a loose state. The natural moisture content of the sandy silt to silty sand is 22 percent and 23 percent. The natural unit weight of the sandy silt to silty sand is 19.4 kN/m^3.

Glacial Till

The fill and sandy silt to silty sand layer are underlain by glacial till that extends to depths of 6.5 m to 7.8 m (Elevation 68.2 m to Elevation 67.6 m). The glacial till ranges from a clayey silty sand to a silty sand with gravel. The glacial till is a silty clay in Borehole Nos. 19-03 to 19-05 from 2.2 m to 5.3 m depths (Elevation 72.8 m to Elevation 69.7 m). The glacial till contains shale fragments, cobbles and boulders. The SPT N values of the cohesionless silty clayey sand till ranges from 1 to 81 indicating the glacial till is in a very loose to very dense state. The SPT N values of the cohesive portion of the silty clay till of 2 to 4 indicates the silty clay till has a soft consistency. The natural moisture content and unit weight of the cohesionless silty clayey sand to silty sand with gravel till is 5 percent to 26 percent and 23.1 kN/m^3 to 23.9 kN/m^3, respectively.

Limestone Bedrock

Auger refusal was met in Borehole Nos. 19-01 to 19-05, 19-08, 19-09 and 19-11 at 6.2 m to 7.8 m depths (Elevation 68.4 m to Elevation 67.9 m). Conventional core drilling techniques were used to advance Borehole Nos. 19-01, 19-03, 19-08, 19-09 and 19-11 beyond the auger refusal depths to termination depths of 8.0 m to 9.6 m (Elevation 67.0 m to Elevation 65.8 m) confirming that auger refusal in these boreholes was met on Ottawa formation limestone with thin shaly partings.

The borehole and monitoring well locations are shown on Figure 4. Geological cross-sections were generated based on the available borehole logs completed as part of the previous and current investigations and shown on Figure 5 (Cross section A-A'). The cross section shows a simplified representation of soil conditions and soil deposits may be interconnected differently than represented. Borehole logs used to generate both cross-sections are provided in Appendix B.

3 Results

3.1 Monitoring Well Details

The monitoring well network was installed as part of the Geotechnical and Environmental Investigations at the Site. It consists of the following:

- Seven (7) shallow overburden monitoring wells (BH19-01, BH19-02, BH19-06, BH19-07, BH19-08, BH19-09, and BH19-10) were installed;
- Two (2) deep overburden monitoring well (BH21-13 and BH21-14) were installed.

The diameter for the shallow monitoring wells is 32 and the diameter of the deep monitoring wells is 38 mm. All wells were installed with a flush mount protective casing. Borehole logs and monitoring well installation details are provided in Appendix B. The monitoring well locations are shown on Figure 4.

3.2 Water Level Monitoring

As part of the Hydrogeological Investigation, static water levels in the monitoring wells installed outside of the existing building were recorded in four (4) monitoring events, including May 10 and May 15, 2019, and May 10 and October 20, 2021. A summary of all static water level data as it relates to the elevation survey is given in Table 3-1 below.

The groundwater elevation range for the Shallow Wells ranged from 69.65 masl (6.00 mbgs at BH19-09 on 15-May-19) to 73.81 masl (1.40 mbgs at BH19-07 on 15-May-19). The groundwater elevation range for the Deep Well ranged from 67.75 masl (6.55 mbgs at BH21-14 on 20-Oct-21) to 68.94 masl (6.26 mbgs at BH21-13 on 20-Oct-21).

Table 3-1: Summary of Measured Groundwater Elevations

Monitoring Well ID	Ground Surface Elevation (masl)	Approximate Full Well Depth (mbgs)	Depth	10 -May-19	15 -May-19	10-May-21	20-Oct-21
BH 19-01	74.13	8.30	mbgs	Damaged			
			masl	Damaged			
BH 19-02	74.37	6.20	mbgs	1.80	1.90	2.20	-
			masl	72.57	72.47	72.17	-
BH 19-06	75.28	5.90	mbgs	2.50	2.40	2.90	-
			masl	72.78	72.88	72.38	-
BH 19-07	75.21	5.90	mbgs	1.40	1.40	1.70	-
			masl	73.81	73.81	73.51	-
BH 19-08	75.51	5.90	mbgs	5.60	5.70	4.00	-
			masl	69.91	69.81	71.51	-
BH 19-09	75.65	6.20	mbgs	-	6.00	5.70	-
			masl	-	69.65	69.95	-
BH 19-10	75.74	5.90	mbgs	2.20	2.30	-	-
			masl	73.54	73.44	-	-
BH 21-13	75.20	14.40	mbgs	-	-		6.26
			masl	-	-		68.94
BH 21-14	74.30	12.80	mbgs	-	-		6.55

Monitoring Well ID	Ground Surface Elevation (masl)	Approximate Full Well Depth (mbgs)	Depth	10 -May-19	15 -May-19	10-May-21	20-Oct-21
			masl	-	-		67.75

Groundwater levels are expected to show seasonal fluctuations and vary in response to prevailing climate conditions. This may also affect the direction and rate of flow. It is recommended to conduct seasonal groundwater level measurements to provide more information on seasonal groundwater level fluctuations.

3.3 Hydraulic Conductivity Testing

Five (5) Single Well Response Tests (SWRT's) were completed on monitoring wells (BH19-02, BH19-07, BH19-10, BH21-13, and BH21-14) on October 25, 2021. The tests were completed to estimate the saturated hydraulic conductivity (K) of the soils at the well screen depths.

The static water level within each monitoring well was measured prior to the start of testing. In advance of performing SWRTs, each monitoring well underwent development to remove fines introduced into the screens following construction. The development process involved purging of the monitoring wells to induce the flow of fresh formation water through the screen. Each monitoring well was permitted to fully recover prior to performing SWRTs.

Hydraulic conductivity values were calculated from the SWRT and constant rate test data as per Hvorslev's solution included in the Aqtesolv Pro. V.4.5 software package. The semi-log plots for normalized drawdown versus time are included in Appendix C.

A summary of the hydraulic conductivities (K-values) estimated from the SWRTs are provided in Tables 3-2A and 3-2B.

Table 3-2A: Summary of Hydraulic Conductivity Testing – Glacial Till

Monitoring Well	Well Depth (mbgs)	Screen Interval (mbgs)		Soil Formation Screened	Estimated Hydraulic Conductivity (m/s)
		from	to		
BH19-02	6.2	3.15	6.2	GLACIAL TILL (Silty Sand)	2.47E-08
BH19-07	5.9	2.85	5.9	GLACIAL TILL (Silty Sand)	7.77E-07
BH19-10	5.9	2.85	5.9	GLACIAL TILL (Silty Sand)	2.97E-08
				Highest Estimated K Value	7.8E-07
				Arithmetic Mean of Estimated K Values	2.8E-07
				Geometric Mean of Estimated K Values	8.3E-08

Table 3-2B: Summary of Hydraulic Conductivity Testing – Limestone Bedrock

Monitoring Well	Well Depth (mbgs)	Screen Interval (mbgs)		Soil Formation Screened	Estimated Hydraulic Conductivity (m/s)
		from	to		
BH21-13	14.4	11.35	14.4	LIMESTONE BEDROCK	6.21E-06
BH21-14	12.8	9.75	12.8	LIMESTONE BEDROCK	4.00E-06
				Highest Estimated K Value	6.2E-06
				Arithmetic Mean of Estimated K Values	5.1E-06

Monitoring Well	Well Depth (mbgs)	Screen Interval (mbgs)		Soil Formation Screened	Estimated Hydraulic Conductivity (m/s)
		from	to		
				Geometric Mean of Estimated K Values	5.0E-06

SWRTs provide K-estimates of the geological formation surrounding the well screens and may not be representative of bulk formation hydraulic conductivity. As shown in Table 3-2A, the highest K-value of the tested water-bearing zone for the silty sand aquifer is 7.8E-07 m/s, and the geometric mean of the K-values is 8.3E-08 m/s. As shown in Table 3-2A, the highest K-value of the tested water-bearing zone for the limestone bedrock is 6.2E-06 m/s, and the geometric mean of the K-values is 5.0E-6 m/s.

3.4 Groundwater Quality

No groundwater sampling has been performed as part of the hydrogeological investigation at this time. The Phase Two Environmental Site Assessment determined that a single groundwater sample located near the south side of the west building exceeded MECP Table 3 SCS for PHC F2 and F3. A groundwater bylaw sample is recommended for future compliance before permitting.

4 Construction Dewatering Assessment

To estimate the groundwater flow rates to the proposed excavation areas a numerical method using Feflow Version 7.4 software developed by DHI was utilized. Feflow is an industry standard software for developing three-dimensional (3D) groundwater flow and contaminant transport models using a finite element mathematical approach (FEM).

4.1 Construction Dewatering Rate Assumptions

It is our understanding that the proposed construction for the Site will comprise of two (2) mid-rise buildings with a common four (4) levels of underground parking.

Table 4-1 presents the assumptions used to calculate the dewatering rate for the Site. The model domain specifications and the estimated dewatering volumes are presented in Appendix C.

Table 4-1 Dewatering Estimate Assumptions

Input Parameter	Assumption	Units	Notes
Ground Surface Elevation	75.0	masl	Approximate elevation based on average elevation of borehole surveyed on Site.
Groundwater elevation	74.0	masl	Approximate groundwater elevation across site.
Top of Bedrock	68.0	masl	Approximate elevation of Rockcliffe bedrock formation based on borehole logs,
Number of Subgrade Levels	4 Levels	-	Based on architectural drawings prepared by Laplame Rheault Architects & Associates and PMA Architectes (May 28, 2021).
Top of Slab Elevation	62.6	masl	P4 slab elevation
Construction Dewatering Target Elevation	60	masl	Assumed to be approximately 2.6 m below the P4 slab elevation.
Post Construction Dewatering Target Elevation	62	masl	0.6 m below top of slab elevation
Bottom Elevation of Water-Bearing Zone	50.0	masl	Base of bedrock elevation used for model input.
Excavation Area (Length x Width)	7000 (100 x 70)	m^2 (m x m)	Approximate area (length x width) for the proposed underground parking garage based on the architectural site plan (referenced on Fig. 4)
Hydraulic Conductivity (K) Overburden	2.8E-7	m/s	Arithmetic mean K-value for silty sand/sandy silt aquifer. Kv=Kh/2

Input Parameter	Assumption	Units	Notes
Hydraulic Conductivity (K) Bedrock	5.0E-6	m/s	Arithmetic mean K-value for limestone bedrock. Kv=Kh/2

4.2 Numerical Model Simulation

A 3D numerical box groundwater flow model was developed by using FEFLOW 7.4 for assessing construction and post construction dewatering. This model is a simplified representation of reality and assumes homogeneous hydrogeological conditions throughout the model domain, a flat ground water table and is not a calibrated model. Given the irregular shape of the proposed development, a numerical approach was preferred to conventional analytical methods which are more suited for square or rectangular shaped developments and a single hydraulic conductivity. This model does not take into account any hydrogeological conditions beyond those encountered on site (ex: regional fractures, varying bedrock formations and conditions) and actual dewatering may vary. The numerical model utilized Richard's equation to model the unsaturated zone and simulate the groundwater table under dewatered conditions. Model outputs can be seen in Figures 101 through 104.

The model domain can be seen in Figure 101 below. A constant head set as 74 masl was applied to the periphery of the model. The dewatering at the site was modeled using a boundary condition set with the construction and post construction dewatering targets as shown in Table 4-1.

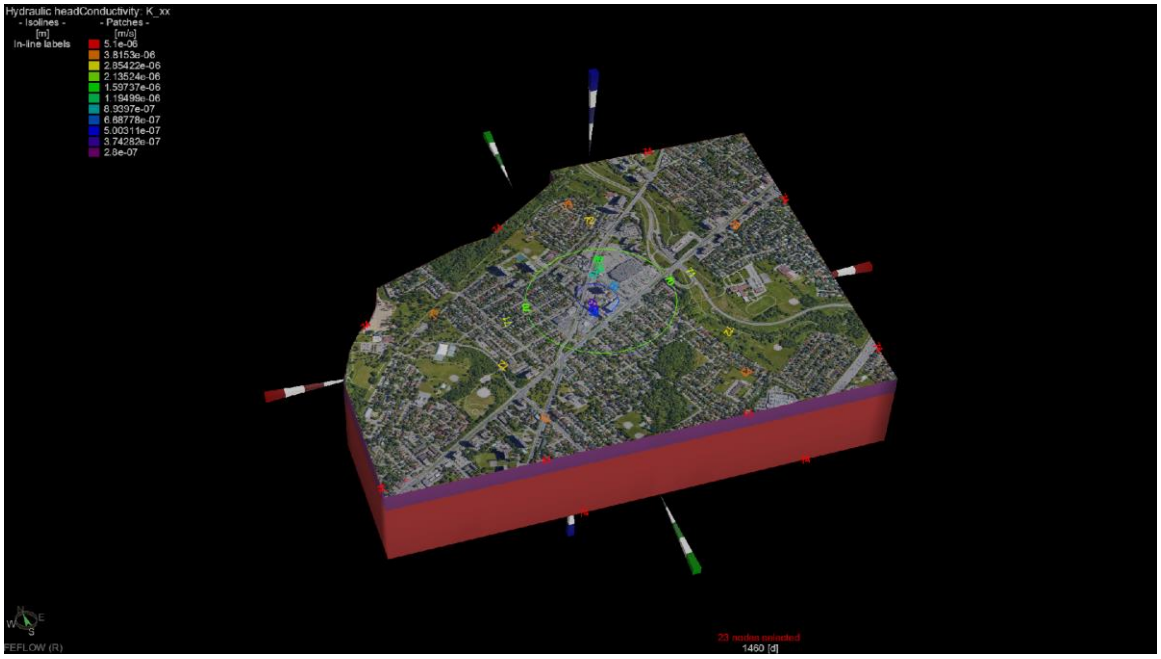


Figure 101: 3D view of numerical model representing model domain, hydraulic conductivity distribution and aerial imagery.

The drawdown cone due to the dewatering is shown in plan view (2D) on Figure 102 below.

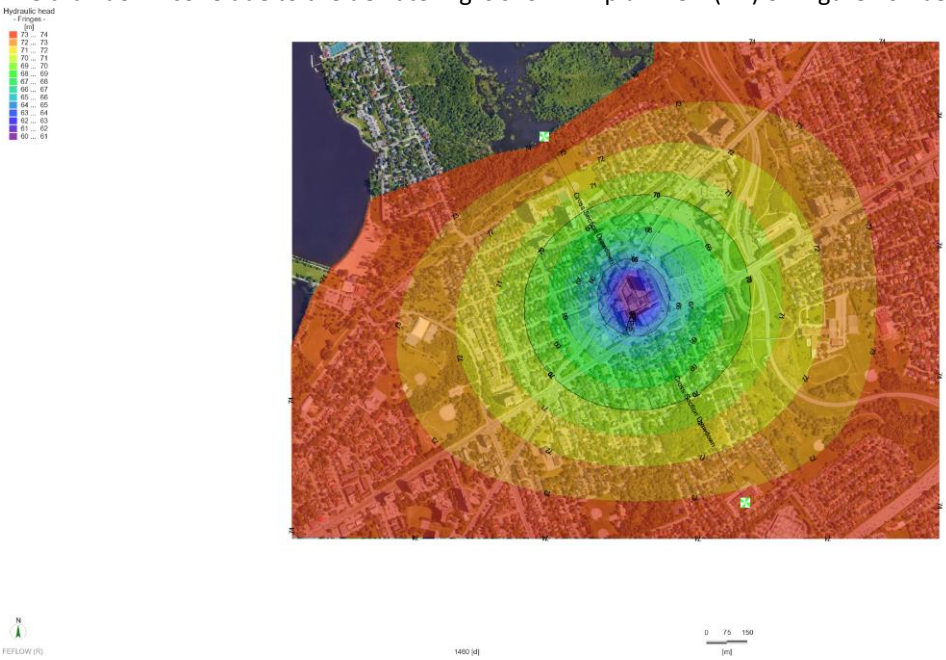


Figure 102: Drawdown cone in plan view

The effect of the dewatering extends from the base of the excavation in all directions as can be seen in Figure 103 below.

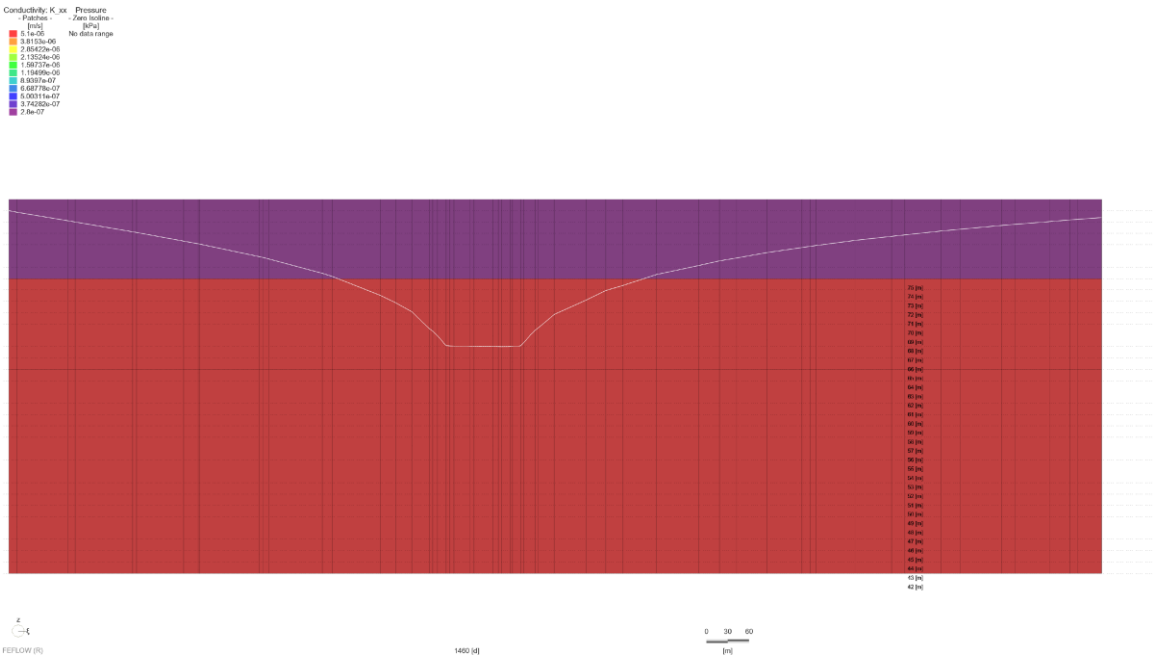


Figure 103: Drawdown after 1460 days (post construction: drain target elevation 62 masl). White line represents the groundwater table.

The output flow rates during construction and post construction show a decrease in the first 100 days of construction dewatering and stabilize at approximately 340 m^3/day (excluding precipitation and factor of safety) with a dewatering target of 60 masl (Figure 104). After 2 years (730 days), the dewatering target changes to the post construction target of 62 masl, which results in a slight decreased flow rate of approximately 300 m^3/day (excluding factor of safety)/

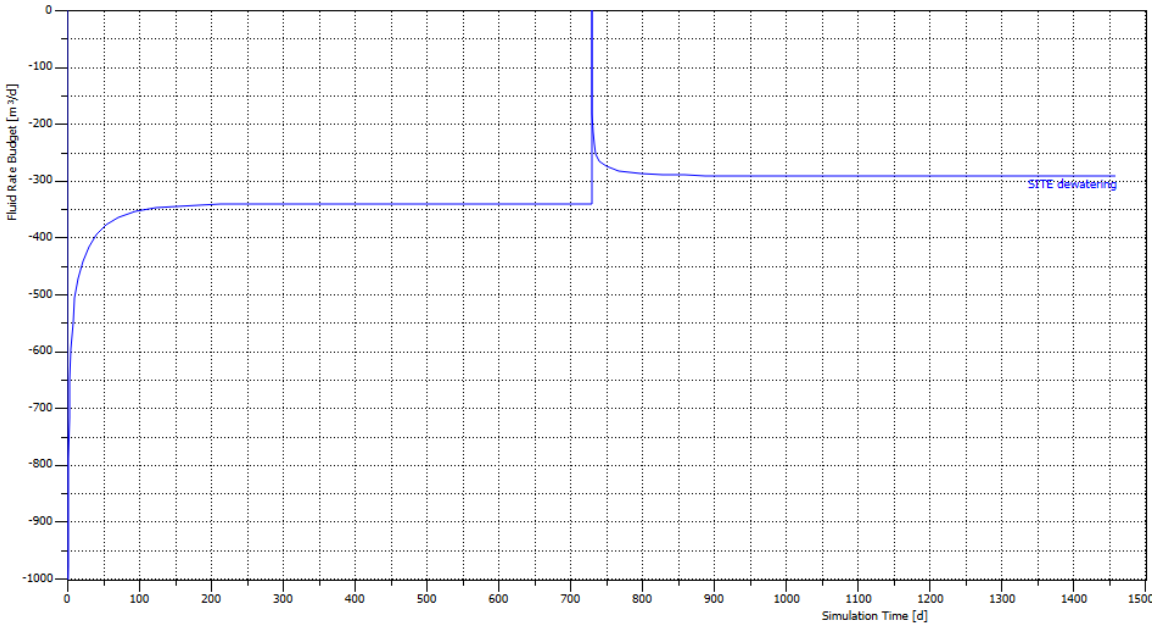


Figure 104: Flow rate over time in m3/day without factor of safety (15 days: 470 m3/day, 730 days: 340 m3/day, 1460 days: 300 m3/day (rounded))

Based on the assumptions provided in this report and the modeling results above, the rain collection volume, and resulted dewatering rates are provided in Tables 4-2 and Table 4-3, respectively.

Table 4-2 Estimated Rainwater Collection Volumes

Location	Approximate Area (m^2)	Rain Collection Volume (m^3/Day)
Excavation Area	7,000	105

*Note: * 15 mm precipitation event assumed*

Table 4-3 Summary of Dewatering Flow Rate Estimate

Stage	Peak Dewatering Flow Rate (Without Factor of Safety)	Factor of Safety Applied (FS)	Peak Dewatering Flow Rate (With Factor of Safety)	Peak Dewatering Flow Rate with Rain Collection Volume (With Factor of Safety)
Construction (15 Days)	470	1.5	705	810 (rounded)
Construction (730 Days)	340	1.5	510	620 (rounded)
Post Construction (1460 Days)	300	1.5	450	N.A.

Based on the preliminary results of the numerical model simulation the construction (15 and 730 Days) and post construction (1460 Days) phases dewatering flow rate for the proposed building would be 810, 620 and 450 m3/day respectively.

4.3 Radius of Influence

Based on the numerical model the zone of influence there will be 1 m of drawdown at approximately 550 m. A detail of the drawdown cone in post construction after 4 years is presented in Figure 101 to 103; drawdown after 1460 days post construction is presented in Figure 102.

4.4 Construction MECP Water Taking Permit

In accordance with the Ontario Water Resources Act, if the water taking for the construction dewatering is more than 50 m^3/day but less than 400 m^3/day, then an online registration in the Environmental Activity and Sector Registry (EASR) with the MECP will be required. If groundwater dewatering rates onsite exceed 400 m^3/day, a Category 3 Permit to Take Water (PTTW) will be required from the MECP.

Based on the dewatering estimate of approximately 810 m^3/day (810,000 L/day) applying a safety factor of 1.5 (approximately 470 m^3/day (470,000 L/day) without a safety factor including rain fall amount) for this project, a PTTW would be required to facilitate the construction dewatering program of the Site. Based on this assessment a PTTW will be required for post construction.

5 Environmental Impact

5.1 Surface Water Features

The Site is within the Ottawa River West watershed, within the Ottawa 6 subwatershed. No surface water features exist onsite. The nearest surface water features is Pinecrest Creek, approximately located 450 meters east of the Site boundary and Mud Lake, approximately located 650 meters northwest of the Site boundary.

Due to the limited extent of zone of influence and the wide distance to the nearest surface water feature, no detrimental impacts on surface water features are expected during construction activities.

5.2 Groundwater Sources

Well Records from the MECP Water Well Record (WWR) Database were reviewed to determine that no active water supply wells exist within a 500 m radius of the Site boundaries. Given that no active water supply wells exist and that the dewatering zone of influence is limited, no dewatering related impact is expected on water wells in the area, if existent.

5.3 Geotechnical Considerations

As per the MECP technical requirement for PTTW and EASRs, the geotechnical assessment of the stability of the soils due to water taking (ex: settlement, soil loss, subsidence, etc.) is required. The water taking should not have unacceptable interference on soils and underground structures (foundations, utilities, etc.).

A letter related to geotechnical issues as it pertains to the Site is required to be completed under a separate cover.

5.4 Groundwater Quality

It is our understanding that the potential effluent from the dewatering system during the construction will be released to the municipal sewer system. As such, the quality of groundwater discharge is required to conform the City of Ottawa Sewer Use By-Law.

Groundwater sampling is recommended to assess suitability of water taking with the municipal sewer use by law.

For the short-term dewatering system (construction phase), it is anticipated that TSS levels and some other parameters (for example, Total Metals) in the pumped groundwater may become elevated and exceed both, Sanitary and Storm Sewer Use By-Law limits. To control the concentration of TSS and associated metals, it is recommended that a suitable treatment method be implemented (filtration or decantation facilities and/ or any other applicable treatment system) during construction dewatering activities to discharge to the applicable sewer system. The specifications of the treatment system will need to be adjusted to the reported water quality results by the treatment contractor/process engineer.

Dewatering (short and long-term) may induce migration of contaminants within the zone of influence and beyond due to changing hydraulic gradients, hydrogeological conditions beyond Site boundaries and preferential pathways in utility beddings etc. The water quality sampling conducted as part of this assessment was performed under static conditions. As a result, monitoring may be required during dewatering activities (short and long-term) to monitor potential migration, and this should be performed more frequently during early dewatering stages.

The water quality may not be representative of the long-term condition of groundwater quality onsite. As such, regular water quality monitoring is recommended for the post-construction phase as required by the City.

An agreement to discharge into the sewers owned by the City of Ottawa will be required prior to releasing dewatering effluent.

The Environmental Site Assessment Report(s) shall be reviewed for more information on the groundwater quality conditions at the Site.

5.5 Well Decommissioning

In conformance with Regulation 903 of the Ontario Water Resources Act, the installation and eventual decommissioning of any dewatering system wells or monitoring wells must be completed by a licensed well contractor. This will be required for all wells that are no longer in use.

6 Conclusions and Recommendations

Based on the findings of the Hydrogeological Investigation, the following conclusions and recommendations are provided:

- Based on the preliminary dewatering estimate of approximately 810 m3/day (810,000 L/day) applying a safety factor of 1.5 (approximately 470 m^3/day (470,000 L/day) without a safety factor) including rain fall amount for this project. A PTTW will be required to facilitate the construction dewatering program of the Site for 705 m^3/day (705,000 L/day) (excluding rain fall) based on the recent July 1, 2021 amendment to the regulation regarding water takings. The post construction dewatering flow rate estimate is 450 m^3/day (450,000 L/day) applying a factor of safety of 1.5 (300 m^3/day without a factor of safety) Based on this preliminary assessment a PTTW will be required for post construction. The construction dewatering and long-term estimate of sub-drain discharge volumes is based on the assumptions outlined in this report. Any variations in hydrogeological conditions beyond those encountered as part of this preliminary investigation may significantly influence the discharge volumes.
- For the short-term dewatering system (construction phase), it is anticipated that TSS levels and some other parameters (for example, Total Metals) in the pumped groundwater may become elevated and exceed both, Sanitary and Storm Sewer Use By-Law limits. To control the concentration of TSS and associated metals, it is recommended that a suitable treatment method be implemented (filtration or decantation facilities and/ or any other applicable treatment system) during construction dewatering activities to discharge to the applicable sewer system. The specifications of the treatment system will need to be adjusted to the reported water quality results by the treatment contractor/process engineer.
- As per the MECP technical requirement for PTTW and EASRs, the geotechnical assessment of the stability of the soils due to water taking (ex: settlement, soil loss, subsidence etc.) is required. The water taking should not have unacceptable interference on soils and underground structures (foundations, utilities etc.). A letter related to geotechnical issues as it pertains to the Site is required to be completed under a separate cover.
- No groundwater sampling has been performed as part of the hydrogeological investigation at this time. The Phase Two Environmental Site Assessment determined that a single groundwater sample located near the south side of the west building exceeded MECP Table 3 SCS for PHC F2 and F3. A groundwater bylaw sample is recommended for future compliance before permitting and treatment of discharge.
- An agreement to discharge into the sewers owned by the City of Ottawa will be required prior to releasing dewatering effluent.
- The PTTW registration allows construction dewatering discharge of greater than 400,000 L/day in construction and 50,000 L/day in post construction. Separate PTTW will be required for construction and post construction.
- A Discharge Plan (dewatering sketch, sewer discharge agreement) must be developed and applied for any discharges from the Site. The Discharge Plan and monitoring for both water quantity and water quality must be carried at the Site during the entire construction dewatering phase. The daily water taking records must be maintained onsite for the entire construction dewatering phase. The PTTW, Discharge Plan, hydrogeological investigation report, and geotechnical assessment of settlements must always also be available at the construction Site for the entire construction dewatering. EXP should be notified immediately about any changes to the construction dewatering schedule or design, since the PTTW will need to be updated to reflect these modifications. The hydrogeological report, PTTW, Discharge Plan and geotechnical assessment constitutes the Water Taking Plan which needs to be available onsite for the duration of construction dewatering.
- In conformance with Regulation 903 of the Ontario Water Resources Act, the installation and eventual decommissioning of any dewatering system wells or monitoring wells must be completed by a licensed well contractor. This will be required for all wells that are no longer in use.

The conclusions and recommendations provided above should be reviewed in conjunction with the entirety of the report. They assume that the present design concept described throughout the report will proceed to construction. This report is solely

intended for the construction and long-term dewatering assessments. Any changes to the design concept may result in a modification to the recommendations provided in this report.

7 Limitations

This report is based on a limited investigation designed to provide information to support an assessment of the current hydrogeological conditions within the study area. The conclusions and recommendations presented within this report reflect Site conditions existing at the time of the assessment. EXP must be contacted immediately, if any unforeseen Site conditions are experienced during construction activities. This will allow EXP to review the new findings and provide appropriate recommendations to allow the construction to proceed in a timely and cost-effective manner.

Our undertaking at EXP, therefore, is to perform our work within limits prescribed by our clients, with the usual thoroughness and competence of the geoscience/engineering profession. No other warranty or representation, either expressed or implied, is included or intended in this report.

This report was prepared for the exclusive use of 11061917 Canada Inc.. This report may not be reproduced in whole or in part, without the prior written consent of EXP, or used or relied upon in whole or in part by other parties for any purposes whatsoever. Any use which a third party makes of this report, or any part thereof, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. EXP Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

We trust that this information is satisfactory for your purposes. Should you have any questions or comments, please do not hesitate to contact this office.

Sincerely,

EXP Services Inc.

Nicolas Sabo, M.E.S., B.Sc.
Environmental Scientist
Environmental Services

Francois Chartier, M.Sc., P.Geo.
Discipline Manager, Hydrogeology
Environmental Services

8 References

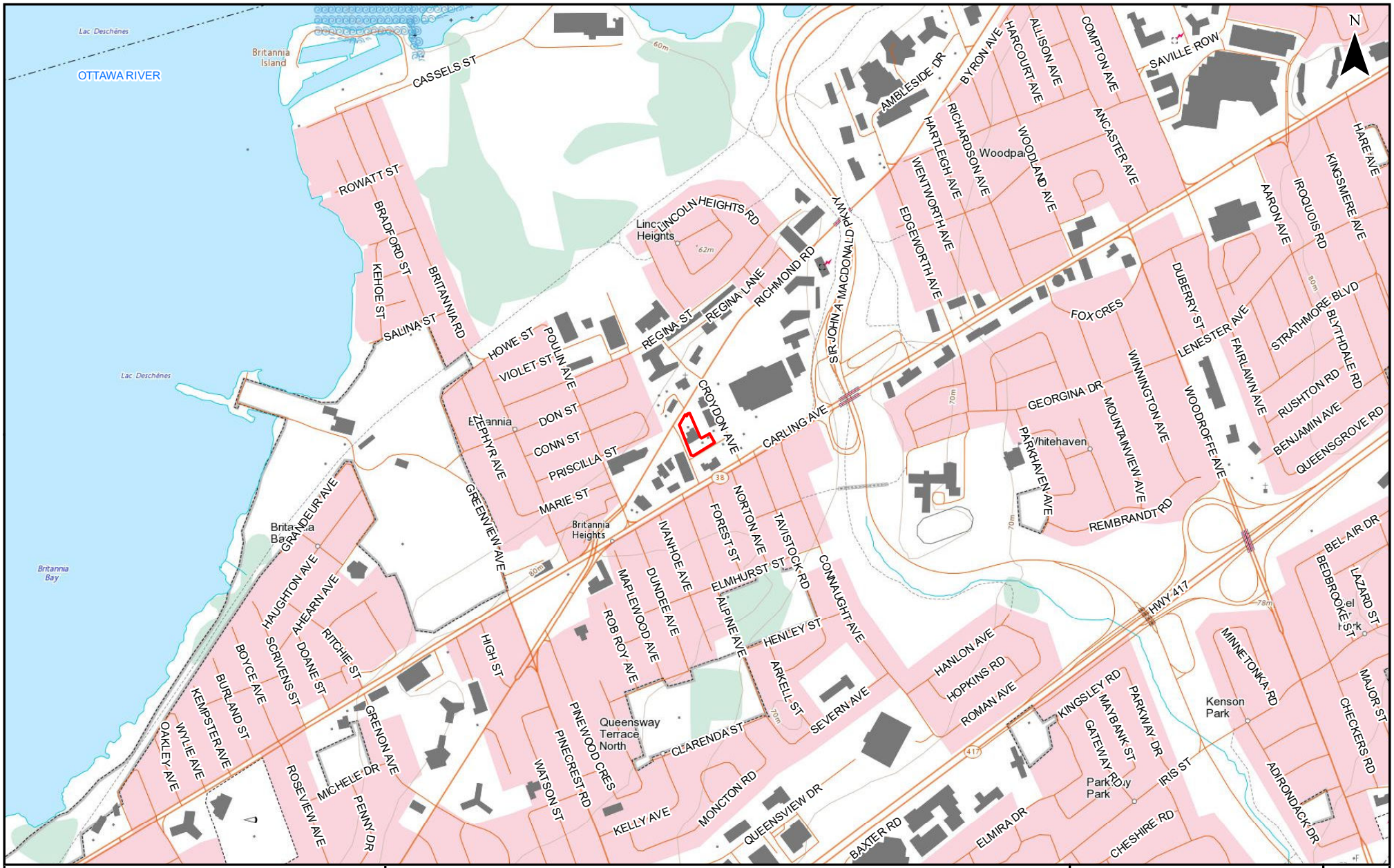
EXP Services Inc. (May 28, 2021), Geotechnical Investigation, 365 Forest Street, Ottawa, ON, prepared for 11061917 Canada Inc.

EXP Services Inc. (May 11, 2021), Phase II Environmental Site Assessment, 365 Forest Street, 1420 Richamond Road & 2589 Bond Street, Ottawa, ON, prepared for 11061917 Canada Inc.

J.P. Powers, A.B. Corwin, P.C. Schmall and W.E. Kaeck (2007). Construction Dewatering and Groundwater Control, Third Edition.

Ministry of Northern Development and Mines (May, 2012). OGS Earth. Retrieved from http://www.mndm.gov.on.ca/en/mines-and-minerals/applications/ogsearth.

Figures



SCALE:

0 150 300 450 600 750 m

LEGEND:

APPROXIMATE SITE BOUNDARY

SITE LOCATION PLAN

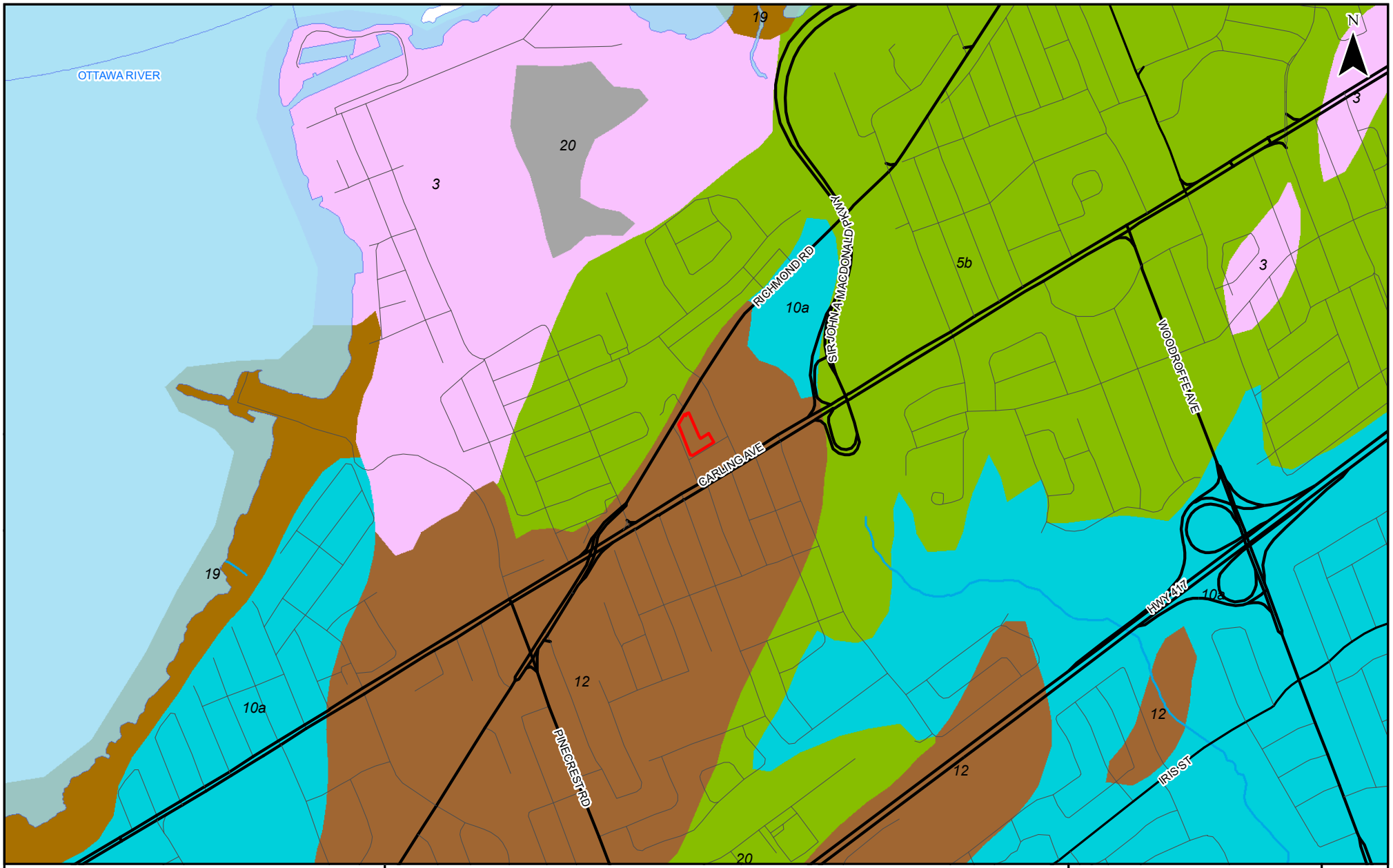
FIGURE: 1

HYDROGEOLOGICAL INVESTIGATION
365 FOREST STREET
OTTAWA, ONTARIO

DRAWN BY:	CHECKED BY:
JA	FC

PROJECT NUMBER: OTT-00252570-A0

DATE: OCTOBER 2021



SCALE:
0 200 400 600 800 1,000 m

SOURCE:
BASED ON ONTARIO GEOLOGICAL SURVEY DATA PUBLISHED IN 2010

exp.

DRAWN BY:	CHECKED BY:
JA	FC

LEGEND:
- APPROXIMATE SITE BOUNDARY
- 20: ORGANIC DEPOSITS
- 19: MODERN ALLUVIAL DEPOSITS
- 12: OLDER ALLUVIAL DEPOSITS
- 5B: STONE-POOR, CARBONATE-DERIVED SILTY TO SANDY TILL
- 3: PALEOZOIC BEDROCK
- 10A: MASSIVE-WELL LAMINATED

SURFICIAL GEOLOGY

FIGURE: 2

HYDROGEOLOGICAL INVESTIGATION
365 FOREST STREET
OTTAWA, ONTARIO

PROJECT NUMBER: OTT-00252570-A0

DATE: OCTOBER 2021

SCALE:

0 80 160 240 320 400 m

SOURCE:

BASED ON GOOGLE EARTH IMAGERY DATED 2019,
AVAILABLE WELL RECORD INFORMATION AS OF SEPTEMBER 2019

exp.

DRAWN BY:	CHECKED BY:
JA	FC

LEGEND:

- APPROXIMATE SITE BOUNDARY
- 500 m ZONE
- MONITORING WELL / TEST HOLE
- WATER SUPPLY WELL
- UNCLASSIFIED / UNFINISHED WELL

MECP WATER WELL RECORDS MAP

FIGURE: 3

HYDROGEOLOGICAL INVESTIGATION
365 FOREST STREET
OTTAWA, ONTARIO

PROJECT NUMBER: OTT-00252570-A0

DATE: OCTOBER 2021

SCALE:

0 8 16 24 32 40 m

LEGEND:

- APPROXIMATE SITE BOUNDARY
- BOREHOLE (EXP, 2019)
- BOREHOLE / MONITORING WELL (EXP, 2019)
- BOREHOLE / MONITORING WELL (EXP, 2021)

exp.

DRAWN BY:	CHECKED BY:
JA	FC

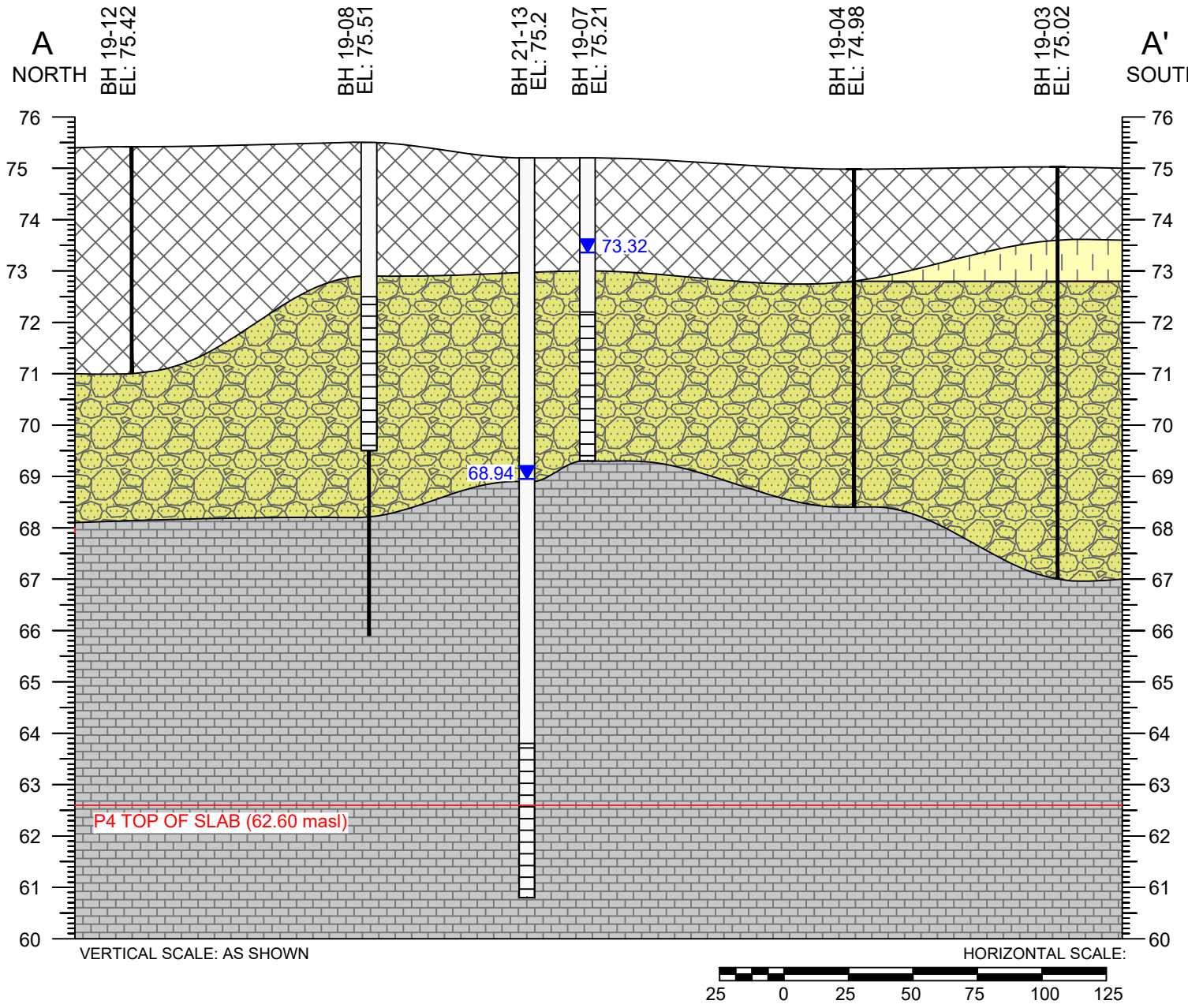
BOREHOLE / MONITORING WELL LOCATION PLAN

FIGURE: 4

HYDROGEOLOGICAL INVESTIGATION
365 FOREST STREET
OTTAWA, ONTARIO

PROJECT NUMBER: OTT-00252570-A0

DATE: OCTOBER 2021



EXP Services Inc.
t: +1.905.793.9800 | f: +1.905.793.0641
1595 Clark Boulevard
Brampton, ON L6T 4V1
Canada
www.exp.com

LEGEND:

- ASPHALT / CONCRETE
- FILL
- SANDY SILT / SILTY SAND
- GLACIAL TILL
- LIMESTONE BEDROCK
- GROUNDWATER ELEVATION AS MEASURED ON OCTOBER 20, 2021

TITLE AND LOCATION:

CROSS SECTION A-A'

365 FOREST STREET,
OTTAWA, ONTARIO

PROJECT NO.: OTT-00252570-A0	DWN.: NS
SCALE: AS NOTED	CK: FC
DATE: OCTOBER 2021	FIG. NO.: 5

I:\2003-Brampton\Projects\Environmental Sciences\Brampton Jobs\BRM\OTT\OTT-00252570-A0 - 365 Forest Street Ottawa\3 - Deliverables\Figures\Section.dwg

SCALE:

0 8 16 24 32 40 m

exp.

DRAWN BY:	CHECKED BY:
JA	FC

LEGEND:

- APPROXIMATE SITE BOUNDARY
- BOREHOLE (EXP, 2019)
- BOREHOLE / MONITORING WELL (EXP, 2019)
- BOREHOLE / MONITORING WELL (EXP, 2021)
- GROUNDWATER CONTOUR
- GROUNDWATER FLOW DIRECTION
- [XX.XX] GROUNDWATER ELEVATION (m asl) AS MEASURED ON OCTOBER 20, 2021
- * NOT USED FOR CONTOURING

GROUNDWATER CONTOUR PLAN

FIGURE: 6

HYDROGEOLOGICAL INVESTIGATION
365 FOREST STREET
OTTAWA, ONTARIO

PROJECT NUMBER: OTT-00252570-A0

DATE: OCTOBER 2021

Appendix A –MECP WWR Summary Table

On-Site

BORE_HOLE_ID	WELL_ID	DATE	EAST83	NORTH83	ELEVATION (m ASL)	STREET	CITY	DISTANCE FROM SITE CENTROID (m)	CONSTRUCTION METHOD	WELL DEPTH (m bgs)	WATER FOUND (m BGS)	CASING DIAMETER (cm)	1st USE	2nd USE	FINAL STATUS
								n/a							

Off-Site

BORE_HOLE_ID	WELL_ID	DATE	EAST83	NORTH83	ELEVATION (m ASL)	STREET	CITY	DISTANCE FROM SITE CENTROID (m)	CONSTRUCTION METHOD	WELL DEPTH (m bgs)	WATER FOUND (m BGS)	CASING DIAMETER (cm)	1st USE	2nd USE	FINAL STATUS
10025910	1503867	10/3/1949	437856	5023317	79.4			513	52	49	45.8	10.2	Domestic		Water Supply
10025911	1503868	11/24/1949	437786	5023472	70.0			489		13	12.2	10.2	Domestic		Water Supply
10025912	1503869	2/7/1947	437761	5023872	66.1			523		16	6.1	10.2	Domestic		Water Supply
10025913	1503870	8/15/1949	437856	5023832	67.9			419		27	12.2	10.2	Domestic		Water Supply
10025914	1503871	9/19/1949	437736	5023727	66.3			507		23	18.3	10.2	Domestic		Water Supply
10025915	1503872	6/30/1949	438271	5023532	76.5			131		43	12.2	12.7	Commerical		Water Supply
10025916	1503873	12/12/1949	438191	5023622	76.3			60		30	29.0	10.2	Domestic		Water Supply
10025917	1503874	6/3/1948	438326	5023742	75.6			121		29		12.7	Domestic		Water Supply
10026087	1504044	9/25/1949	438091	5023282	81.3			405		49	45.8	10.2	Domestic		Water Supply
10026088	1504045	11/14/1949	438141	5023272	81.7			399		27	25.9	10.2	Domestic		Water Supply
10026089	1504046	11/17/1949	438151	5023242	82.3			426		27	25.6	10.2	Domestic		Water Supply
10026090	1504047	11/21/1949	438161	5023222	82.2			444		30	29.0	10.2	Domestic		Water Supply
10026091	1504048	2/3/1948	438246	5023322	80.7			337		31		10.2	Domestic		Water Supply
10026092	1504049	2/26/1948	438136	5023392	79.7			286		34		10.2	Domestic		Water Supply
10026093	1504050	3/5/1948	438251	5023452	78.4			208		33		10.2	Domestic		Water Supply
10026094	1504051	3/22/1949	438131	5023302	81.6			373		30	29.0	10.2	Domestic		Water Supply
10026095	1504052	3/22/1949	438331	5023452	78.6			227		28	25.9	10.2	Domestic		Water Supply
10026096	1504053	4/4/1949	438176	5023262	81.9			402		31	29.0	10.2	Domestic		Water Supply
10026097	1504054	4/11/1949	438071	5023222	81.9			468		30	27.5	10.2	Domestic		Water Supply
10026098	1504055	4/16/1949	438131	5023177	82.7			494		30	28.1	10.2	Domestic		Water Supply
10026099	1504056	4/22/1949	438171	5023142	83.0			522		30	29.0	10.2	Domestic		Water Supply
10026100	1504057	5/12/1949	438101	5023362	80.3			327		32	30.5	10.2	Domestic		Water Supply
10026103	1504060	11/15/1949	438316	5023492	77.7			184		32	32.0	10.2	Domestic		Water Supply
10026104	1504061	12/15/1949	438441	5023502	77.3			257		32	29.9	12.7	Domestic		Water Supply
10026105	1504062	12/22/1949	438071	5023167	82.3			520		34	32.0	10.2	Domestic		Water Supply
10026106	1504063	12/30/1949	438451	5023582	76.6			226		32	30.5	12.7	Domestic		Water Supply
10026107	1504064	5/25/1949	438591	5023472	73.1			399		28	27.5	10.2	Domestic		Water Supply
10026108	1504065	6/3/1949	438560	5023562	77.1			336		39	38.1	10.2	Domestic		Water Supply
10026109	1504066	8/20/1949	438626	5023362	69.5			489		29	29.0	10.2	Domestic		Water Supply
10026110	1504067	10/19/1949	438531	5023522	78.4			323		37	35.7	10.2	Domestic		Water Supply
10026111	1504068	10/28/1949	438491	5023602	76.5			259		37	29.6	10.2	Domestic		Water Supply
10026112	1504069	11/6/1949	438521	5023422	75.8			369		35	35.1	10.2	Domestic		Water Supply
10026118	1504075	11/9/1949	438231	5023722	76.1			63		27	25.9	10.2	Domestic		Water Supply
10029816	1507781	3/30/1950	438261	5023162	81.8			498		23	22.9	12.7	Domestic		Water Supply
10029817	1507782	4/10/1950	438261	5023162	81.8			498		25	25.3	12.7	Domestic		Water Supply
10029819	1507784	5/2/1950	438261	5023162	81.8			498		34	27.5	10.2	Domestic		Water Supply
10029826	1507791	5/27/1952	438171	5023402	79.4			266		34	24.4	10.2	Domestic		Water Supply
10029827	1507792	5/28/1952	438171	5023402	79.4			266		34	17.7	10.2	Domestic		Water Supply
10029828	1507793	3/14/1953	438331	5023172	80.4			496		34	24.4	10.2	Domestic		Water Supply
10029829	1507794	3/10/1955	438261	5023342	80.0			318		34	34.2	12.7	Domestic		Water Supply
10029830	1507795	6/24/1954	438211	5023322	80.8			338		32	18.3	10.2	Domestic		Water Supply
10029831	1507796	10/22/1954	438211	5023302	81.0			358		32	21.4	10.2	Domestic		Water Supply
10029832	1507797	8/14/1953	438201	5023342	80.8			319		34	24.4	10.2	Domestic		Water Supply
10029963	1507928	8/27/1951	437851	5023742	69.0			396		32	14.6	12.7	Domestic		Water Supply
10029964	1507929	5/12/1951	437851	5023742	69.0			396		32	10.7	12.7	Domestic		Water Supply
10029965	1507930	8/18/1951	437911	5023542	70.3			348		18	18.3	10.2	Domestic		Water Supply
10029966	1507931	9/25/1951	437911	5023542	70.3			348		22	22.3	10.2	Domestic		Water Supply
10029967	1507932	9/22/1951	437881	5023522	70.6			383		19	19.2	10.2	Domestic		Water Supply
10029968	1507933	8/20/1951	437851	5023512	70.4			414		26	25.9	10.2	Domestic		Water Supply
10030003	1507968	10/2/1950	438056	5023422	77.8			299		24	24.4	10.2	Domestic		Water Supply
10030004	1507969	10/10/1950	437991	5023392	79.1			364		43	42.7	10.2	Domestic		Water Supply
10030005	1507970	10/31/1950	438261	5023662	76.0			23		28	27.5	10.2	Domestic		Water Supply
10030083	1508048	6/26/1953	437871	5023672	69.5			367		12	11.0	10.2	Domestic		Water Supply
10030084	1508049	2/18/1950	438456	5023542	77.2			247		45	21.4	12.7	Domestic		Water Supply
10030085	1508050	9/4/1950	438486	5023482	79.2			305		30	30.5	10.2	Domestic		Water Supply
10030086	1508051	1/15/1953	438521	5023532	78.9			310		36	21.4	10.2	Domestic		Water Supply
10030087	1508052	9/15/1953	438591	5023362	70.6			461		27	27.5	12.7	Domestic		Water Supply
10030098	1508063	6/8/1950	438291	5023602	76.3			78		40	38.1	10.2	Domestic		Water Supply
10030135	1508100	7/2/1953	437716	5023702	66.0			524		20	8.5	12.7	Domestic		Water Supply
10030137	1508102	10/18/1956	437761	5023722	67.0			481		21	21.0	10.2	Domestic		Water Supply
10030155	1508120	4/24/1950	438186	5023142	83.0			520		32	22.9	10.2	Domestic		Water Supply
10030157	1508122	5/15/1950	438151	5023182	82.6			485		32	30.5	10.2	Domestic		Water Supply
10030158	1508123	6/19/1950	438091	5023222	81.7			461		30	29.0	10.2	Domestic		Water Supply
10030159	1508124	10/13/1950	438121	5023252	81.4			424		30	29.9	10.2	Domestic		Water Supply
10030160	1508125	11/20/1950	438111	5023282	81.1			398		30	29.3	10.2	Domestic		Water Supply
10030162	1508127	12/27/1951	438101	5023172	82.4			506		35	18.3	10.2	Domestic		Water Supply
10030163	1508128	3/9/1953	438231	5023172	82.1			487		30	15.3	10.2	Domestic		Water Supply
10030190	1508155	9/6/1954	438111	5023887	68.8			261		24	9.2	12.7	Domestic		Water Supply
10030198	1508163	10/23/1950	438181	5023142	83.0			520		30	29.3	10.2	Domestic		Water Supply
10030250	1508215	6/29/1950	438051	5023222	81.9			476		30	29.0	10.2	Domestic		Water Supply
10030251	1508216	7/4/1950	437971	5023262	82.3			479		30	27.5	10.2	Domestic		Water Supply
10030252	1508217	10/1/1950	438011	5023182	82.7			529		39	27.5	10.2	Domestic		Water Supply
10030370	1508335	11/28/1950	438211	5023252	81.9			408		30	30.5	10.2	Domestic		Water Supply
10030372	1508337	11/28/1951	438201	5023122	83.0			538		30	20.1	10.2	Domestic		Water Supply
10030373	1508338	4/14/1952	438166	5023202	82.4			463		33	21.4	10.2	Domestic		Water Supply
10030374	1508339	5/20/1952	438166	5023202	82.4			463		33	24.4	10.2	Domestic		Water Supply
10030375	1508340	6/4/1952	438171	5023352	81.2			314		35	24.4	10.2	Domestic		Water Supply
10030624	1508590	5/8/1950	438341	5023392	79.9			286		36	27.5	10.2	Domestic		Water Supply
10030625	1508591	4/24/1951	438436	5023337	75.9			378		35	27.5	10.2	Domestic		Water Supply
10030626	1508592	11/10/1951	438351	5023382	80.1			299		39	18.3	10.2	Domestic		Water Supply
10030629	1508595	12/12/1956	438351	5023362	80.4			318		40	39.7	12.7	Domestic		Water Supply
10030679	1508645	9/30/1950	438221	5023622	75.7			41		34	33.6	10.2	Domestic		Water Supply
10030680	1508646	4/2/1953	437931	5023542	70.2			329		21	6.7	10.2	Domestic		Water Supply
10030701	1508667	8/11/1952	437771	5023552	69.1			479		20	18.3	10.2	Domestic		Water Supply
10030702	1508668	8/15/1952	437851	5023582	69.5			395		26	19.8	10.2	Domestic		Water Supply
10030703	1508669	10/9/1952	437801	5023502	70.2			465		18	16.8	10.2	Domestic		Water Supply
10030704	1508670	10/11/1952	437826	5023582	69.3			419		20	15.6	10.2	Domestic		Water Supply
10030705	1508671	10/17/1952	437851	5023522	70.4			411		19	15.6	10.2	Domestic		Water Supply
10030706	1508672	11/17/1952	437986	5023572	70.9			267		30	21.4	10.2	Domestic		Water Supply
10030707	1508673	3/26/1953	437926	5023552	70.2			330		20	7.6	10.2	Domestic		Water Supply
10030708	1508674	3/27/1953	437926	5023552	70.2			330		23	6.7	10.2	Domestic		Water Supply
10030709	1508675	9/29/1954	437891	5023532	70.5			370		31	18.3	10.2	Domestic		Water Supply
10030720	1508686	11/17/1958	438436	5024102	71.1			485		43	41.2	5.1	Domestic		Water Supply
10030721	1508687	11/24/1958	438461	5024132	71.0			523		44	42.7	5.1	Domestic		Water Supply
10030722	1508688	12/4/1958	438371	5024052	71.3			415		44	43.9	12.7	Domestic		Water Supply
10030723	1508689	12/14/1958	438371	5024052	71.3			415		44	42.7	12.7	Domestic		Water Supply
10030795	1508761	8/15/1951	437936	5023462	75.2			361		20	19.8	10.2	Domestic		Water Supply
10030803	1508769	7/19/1955	438156	5023602	76.4			100		46	25.9	12.7	Domestic		Water Supply
10030806	1508772	10/7/1957	438191	5023662	75.8			47		40	39.7	17.8	Commerical		Water Supply
10030807	1508773	8/2/1958	437981	5023392	79.5			371		61	51.9	10.2	Commerical		Water Supply
10030808	1508774	5/30/1959	438271	5024022	68.4			364		46	42.7	12.7	Domestic		Water Supply
10030913	1508879	11/6/1952	438421	5023442	77.9			284		45	30.5	12.7	Domestic		Water Supply
10030955	1508921	3/2/1951	438521	5023342	73.9			425		31	27.5	10.2	Domestic		Water Supply
10030956	1508922	4/20/1954	438466	5023322	75.6			407		32	21.4	10.2	Domestic		Water Supply
10030957	1508923	10/12/1954	438501	5023367	75.8			393		27	18.3	10.2	Domestic		Water Supply
10032599	1510572	6/12/1950	438031	5023267	81.1			444		30	29.0	10.2	Domestic		Water Supply
10032600	1510573	6/22/1950	438031	5023242	81.5			466		30	29.0	10.2	Domestic		Water Supply
23052464	7052464	10/15/2007	438476	5024140	70.7	1315 RICHMOND ROAD	Ottawa	537		6		3.8	Test Hole		Test Hole
1002551699	7126655	6/17/2009	438099	5023633	72.1	FORMER MCGEE LANDFILL	Ottawa	141		5		5.1			Test Hole
1003606877	7171715	8/5/2011	438364	5024051	71.0	1324 RICHMOND RD	Ottawa	412		7		5.2	Monitoring and Test Hole		Test Hole
1003606879	7171716	8/25/2011	438365	5024052	71.1	1324 RICHMOND RD	Ottawa	413		7		5.2	Monitoring and Test Hole		Test Hole
1003606881	7171717	8/25/2011	438365	5024052	71.1	1324 RICHMOND RD	Ottawa	413		7		5.2	Monitoring and Test Hole		Test Hole
1003606883	7171718	9/26/2011	438418	5024077	71.7	1324 RICHMOND RD	Ottawa	455		7		5.2	Monitoring and Test Hole		Test Hole
1003606885	7171719	8/26/2011	438415	5024083	71.3	1324 RICHMOND RD	Ottawa	459		6		5.2	Monitoring and Test Hole		Test Hole
1003606887	7171720	8/26/2011	438416	5024089	71.0	1324 RICHMOND ST	Ottawa	465		5		5.2	Monitoring and Test Hole		Test Hole
1003606889	7171721	8/26/2011	438407	5024089	70.7	1324 RICHMOND RD	Ottawa	462		5		5.2	Monitoring and Test Hole		Test Hole
1003764792	7180793	2/24/2012	438387	5024062	71.5	1324 RICHMOND ROAD	OTTAWA	430		8		0.1	Monitoring		Observation Wells
1003828982	7181777	4/25/2012	438058	5023618	71.3	2650 PRICILLA ST	Ottawa	185		5		4.0	Monitoring and Test Hole		Test Hole
1004163275	7187883	8/17/2012	438031	5023618	71.1	1486 RICHMOND RD	Ottawa	211		5		3.5	Monitoring and Test Hole		Test Hole
1004163278	7187884	8/17/2012	438053	5023613	71.4	1486 RICHMOND RD	Ottawa	191		5		3.5	Monitoring and Test Hole		Test Hole
1004163606	7187919	8/17/2012	438081	5023588	73.6	RICHMOND RD	Ottawa	172		5		4.0	Monitoring and Test Hole		Test Hole
1004163609	7187920	8/17/2012	438074	5023605	72.5	RICHMOND RD	Ottawa	173		12		4.0	Monitoring and Test Hole		Observation Wells
1004200021	7191049	10/12/2012	438414	5024076	71.6	1325 RICHMOND RD	Ottawa	452		6		4.0	Monitoring and Test Hole		Test Hole
1004200134	7191050	10/12/2012	438404	5024102	70.0	1325 RICHMOND RD	Ottawa	473		6		4.0	Monitoring and Test Hole		Test Hole
1004200137	7191051	10/11/2012	438395	5024083	70.7	1325 RICHMOND RD	Ottawa	452		6		4.0	Monitoring and Test Hole		Observation Wells
1004200140	7191052	10/11/2012	438407	5024088	70.8	1325 RICHMOND RD	Ottawa	461		6		4.0	Monitoring and Test Hole		Test Hole
1004200143	7191053	10/12/2012	438407	5024051	72.4	1325 RICHMOND RD	Ottawa	427		6		4.0	Monitoring and Test Hole		Test Hole
1004200146	7191054	10/12/2012	438412	5024081	71.3	1325 RICHMOND RD	Ottawa	456		6		3.5	Monitoring and Test Hole		Test Hole
1004200149	7191055	10/12/2012	438401	5024044	72.5	1325 RICHMOND RD	Ottawa	418		6		3.5	Monitoring and Test Hole		Test Hole
1004288940	7201232	10/12/2012	438395	5024061	71.8	1325 RICHMOND RD.	OTTAWA	431		6		4.0	Monitoring and Test Hole		Monitoring and Test Hol
1005060271	7225371	6/27/2014	438061	5023603	72.2	1495 RICHMOND RD.	Ottawa	186		6		3.5	Monitoring and Test Hole		Monitoring and Test Hol
1006056713	7264838	5/19/2016	438421	5024063	72.2	RICHMOND RD + ASSALY AVE	OTTAWA	443		3			Monitoring and Test Hole		Monitoring and Test Hol
1006282403	7274222	10/17/2016	438789	5023573	68.7	SW TRANSITWAY	OTTAWA	558		4	2.4		Monitoring		Test Hole
1006668132	7291639	7/20/2017	438471	5023841	74.5	2525 CARLING AVE.	OTTAWA	296		5	2.1		Test Hole	Monitoring	fonitoring and Test Hol
1006668135	7291640	7/20/2017	438481	5023853	74.2	2525 CARLING AVE	OTTAWA	311		5	2.1		Test Hole	Monitoring	fonitoring and Test Hol
1006698567	7291933	7/21/2017	438468	5023857	74.0	2525 CARLING AVE		303		5			Test Hole	Monitoring	Observation Wells
1006865873	7301091	11/21/2017	438483	5023877		2525 CARLING AVE	OTTAWA	328		5			Test Hole	Monitoring	Observation Wells
1007003468	7307570	2/28/2018	438446	5023806		2525 CARLING AVE	Ottawa	255		6			Test Hole	Monitoring	
1007003471	7307571	2/27/2018	438318	5023813		9086 CRAYDON AVE	OTTAWA	173		6			Test Hole	Monitoring	
1007003474	7307572	2/26/2018	438321	5023784		9086 CRAYDON AVE	OTTAWA	150		6			Test Hole	Monitoring	
1007003477	7307573	2/27/2018	438295	5023775		9086 CROYDON AVE	OTTAWA	129		9			Test Hole	Monitoring	
1007008376	7308475	3/21/2018	438471	5023876		2525 CARLING AVE	Ottawa	318		5			Test Hole	Monitoring	fonitoring and Test Hol
23051327	7051327	9/8/2007	438065	5023426	78.0			290		10		5.0	Not Used		Observation Wells
1004196559	7188588	1/12/2012	438056	5023430	77.5			293							
1004313246	7202132	12/6/2012	438364	5024051	71.0			412							
1004489954	7205862	5/10/2013	437998	5023486	74.2			296							
1004489957	7205863	6/7/2013	438038	5023490	75.2			262							
1005268598	7234607	12/5/2014	438083	5023477	77.3			239							
1005268601	7234608	7/28/2014	438065	5023440	77.5			279							
1005268604	7234609	5/9/2014	438053	5023441	77.1			286							
1006764420	7296910	8/1/2017	438215	5023721	76.4			66							
1007108620	7312991	3/8/2018	438013	5023476		1509 RICHMOND ROAD	Ottawa	290		5			Monitoring	Test Hole	Test Hole
1007108635	7312992	3/7/2018	438043	5023480		1509 RICHMOND RD	Ottawa	265		8			Monitoring	Test Hole	Test Hole
1007108638	7312993	3/8/2018	438007	5023494		1509 RICHMOND ROAD	Ottawa	284		4			Test Hole	Monitoring	Test Hole
1007305631	7321558	7/25/2018	438199	5023748		35 WINTHORP PVT	Ottawa	97		5			Test Hole	Monitoring	Observation Wells
1007305634	7321559	7/25/2018	438181	5023721		19 WINTHROP PVT	Ottawa	84		5			Test Hole	Monitoring	

Appendix B – Borehole Logs

Log of Borehole BH 19-01

Project No: OTT-00252625-A0

Project: Residential Development

Location: 365 Forest Street, Ottawa, Ontario

Figure No. 3

Page. 1 of 1

Date Drilled: 'April 30, 2019

Drill Type: CME-75 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.L. Checked by: I.T.

Split Spoon Sample ☒ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test ——— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits ⊢○ | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		GRANULAR FILL ~200 mm Crushed gravel with silt and sand, grey, damp	74.13 / 73.9	0				
		FILL Silty sand with gravel, brick debris, grey and brown, wet, (loose)	72.6	1	6	0	SS1	
		SANDY SILT With clay and gravel, brown and grey, wet, (loose)	71.9	2	4	30	SS2	
		GLACIAL TILL Silty clayey sand with gravel, cobbles and boulders, grey, wet, (very loose to loose)		3	3	35	SS3	
				3	3	25	SS4	
				4	4	35	SS5	
		GLACIAL TILL Silty sand with gravel, cobbles and boulders, grey, wet, (loose)	69.6	5	4	40	SS6	
		Cobbles and boulders from 5.8 m to 6.5 m depths		6	9 then 50/25 mm	25	SS7	
		LIMESTONE BEDROCK Ottawa formation limestone with thin shaly partings, laminated, grey, (poor to good quality)	67.6	7			Run 1	
		Weathered and highly fractured zone from 6.5 m to 7.3 m depths		8			Run 2	
		Borehole Terminated at 8.3 m Depth	65.8					

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A 32 mm diameter monitoring well installed in borehole as shown.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00252625-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Completion	N/A	
Damaged	N/A	
Damaged	N/A	
Damaged	N/A	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	6.5 - 7.2	90	29
2	7.2 - 8.3	100	84

LOG OF BOREHOLE BH LOGS - 252625 FOREST.GPJ TROW OTTAWA.GDT 10/27/21

Log of Borehole BH 19-02

Project No: OTT-00252625-A0

Project: Residential Development

Location: 365 Forest Street, Ottawa, Ontario

Figure No. 4

Page. 1 of 1

Date Drilled: 'April 29, 2019

Drill Type: CME-75 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.L. Checked by: I.T.

Split Spoon Sample ⊠
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○—|
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		GRANULAR FILL ~500 mm Crushed gravel with silt and sand, grey, damp	74.37	0				
		FILL Silty sand with gravel, brown and grey, wet, (loose)	73.9					
		SANDY SILT With clay and gravel, grey, wet, (loose)	73.0	1	6	5	SS1	20.6
			72.2	2	8	10	SS2	19.4
		GLACIAL TILL Silty clayey sand with gravel, cobbles, and boulders, grey wet, (very loose to loose)	72.17	3	5	20	SS3	
					1	25	SS4	
			70.7	4	4	20	SS5	
		GLACIAL TILL Silty sand with gravel, cobbles and boulders, grey, wet, (very loose to loose)		5	3		SS6	
				6	50 for 75 mm	15	SS7	
			68.2					
		Auger Refusal at 6.2 m Depth						

LOG OF BOREHOLE BH LOGS - 252625 FOREST.GPJ TROW OTTAWA.GDT 10/27/21

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A 32 mm diameter monitoring well installed in borehole as shown.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00252625-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Completion	5.2	
11 days	1.8	
17 days	1.9	
~ 2 years	2.2	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

Log of Borehole BH 19-03

Project No: OTT-00252625-A0

Project: Residential Development

Location: 365 Forest Street, Ottawa, Ontario

Figure No. 5

Page. 1 of 1

Date Drilled: 'April 30, 2019

Drill Type: CME-75 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.L. Checked by: I.T.

Split Spoon Sample ⊠ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test —— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits |—○| | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALTIC CONCRETE ~60 mm	75.02	0				
		GRANULAR FILL (BASE) ~150 mm Crushed gravel with silt and sand, grey, damp	74.9					
		FILL Silty sand and gravel, dark brown, moist, (compact)	74.8					
		SANDY SILT TO SILTY SAND Brown, wet, (loose)	73.6	1				
		GLACIAL TILL Silty clayey sand with gravel, cobbles and boulders, grey, wet, (loose)	72.8	2				
		GLACIAL TILL Silty clay with gravel, grey, wet, (soft)	71.3	3				
		GLACIAL TILL Silty sand with gravel, cobbles and boulders, grey, damp, (very dense)	69.7	4				
		Coring through cobbles and boulders from 6.6 m to 7.0 m depths	68.0	5				
		LIMESTONE BEDROCK Ottawa formation limestone with thin shaly partings, laminated, grey, (poor quality)		6				
		Weathered and highly fractured zone from 7.0 m to 7.5 m depths	67.0	7				
		Borehole Terminated at 8.0 m Depth		8				

Standard Penetration Test N Value: 20 40 60 80

Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750

Natural Moisture Content % / Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES	Natural Unit Wt. kN/m³	N	Shear Strength kPa	Combustible Vapour Reading (ppm)	Natural Moisture Content %
SS1		10		0	
SS2	20.5	15		0	
SS3		6		5	
SS4	23.1	4		5	
SS5		8		15	
SS6		3		20	
SS7		2		15	
SS8		65		15	
SS9		81		15	
Run 1					

LOG OF BOREHOLE BH LOGS - 252625 FOREST.GPJ TROW OTTAWA.GDT 10/27/21

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. Borehole backfilled upon completion of drilling.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00252625-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Completion	N/A	8.0

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	7 - 8	100	40

Log of Borehole BH 19-04

Project No: OTT-00252625-A0

Project: Residential Development

Location: 365 Forest Street, Ottawa, Ontario

Figure No. 6

Page. 1 of 1

Date Drilled: 'April 29, 2019

Drill Type: CME-75 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.L. Checked by: I.T.

Split Spoon Sample ⊠ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test —— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits ⊢○ | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALTIC CONCRETE ~60 mm	74.98	0	30	×	SS1	
		GRANULAR FILL (BASE) ~250 mm Crushed gravel with silt and sand, grey, damp	74.9					
		FILL Clayey silty sand to silty sand with gravel, brown, moist to wet, (loose)	74.7	1	5	×	SS2	19.1
				2	5	×	SS3	
			72.8					
		GLACIAL TILL Silty clay with sand and gravel, cobbles and boulders, grey, wet, (soft)		3	4	×	SS4	
		Petroleum odour from 3.0 m to 3.6 m depths			3	×	SS5	
			70.9	4				
		GLACIAL TILL Silty sand with gravel, cobbles and boulders, grey, wet, (compact to very dense)		5	22	×	SS6	23.9
		Petroleum odour from 5.5 m to 6.1 m depths		6	67	×	SS7	
			68.4					
		Auger Refusal at 6.6 m Depth						

LOG OF BOREHOLE BH LOGS - 252625 FOREST.GPJ TROW OTTAWA.GDT 10/27/21

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. Borehole backfilled upon completion of drilling.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00252625-A0

WATER LEVEL RECORDS		
Date	Water Level (m)	Hole Open To (m)
Completion	5.5	6.6

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

Log of Borehole BH 19-05

Project No: OTT-00252625-A0

Project: Residential Development

Location: 365 Forest Street, Ottawa, Ontario

Figure No. 7

Page. 1 of 1

Date Drilled: 'April 30, 2019

Drill Type: CME-75 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.L. Checked by: I.T.

Split Spoon Sample ⊠ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test ——— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits |—○—| | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		GRANULAR FILL ~100 mm Crushed gravel wtih silt and sand, grey, damp	74.82 / 74.7	0	11	40	SS1	
		FILL Clayey silty sand to silty sand with gravel, rootlets, brown and grey, moist to wet, petroleum odour, (loose)		1	9	40	SS2	20.5
				2	6	200	SS3	
				3	7	60	SS4	22.9
		GLACIAL TILL Silty clay with sand and gravel, grey, wet, petroleum odour, (soft)	71.8	3	2	45	SS5	
		GLACIAL TILL Silty clayey sand with gravel, cobbles and boulders, grey, wet, petroleum odour, (very loose)	71.1	4	3	30	SS6	
				5	1	15	SS7	
				6				
		Auger Refusal at 6.7 m Depth	68.1					

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. Borehole backfilled upon completion of drilling.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00252625-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Completion	4.6	5.5

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE BH LOGS - 252625 FOREST.GPJ TROW OTTAWA.GDT 10/27/21

Log of Borehole BH 19-06

Project No: OTT-00252625-A0

Project: Residential Development

Location: 365 Forest Street, Ottawa, Ontario

Figure No. 8

Page. 1 of 1

Date Drilled: 'April 25, 2019

Drill Type: CME-75 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.L. Checked by: I.T.

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALTIC CONCRETE ~30 mm	75.28	0				
		GRANULAR FILL (BASE) ~200 mm Crushed gravel with silt and sand, grey, damp	75.2					
		FILL Silty clayey sand to silty sand with gravel, brick debris, brown, moist to wet, (loose)	75.0		5	0	SS1	
				1	5	5	SS2	
					9	0	SS3	
				2				
			72.7		4	0	SS4	
		GLACIAL TILL Silty sand with gravel, cobbles and boulders, grey, wet, (very loose to loose)	72.38	3	3	0	SS5	
				4	5	0	SS6	
					3	0	SS7	
				5	9	0	SS8	
			69.4					
		Borehole Terminated at 5.9 m Depth						

NOTES:
1. Borehole data requires interpretation by EXP before use by others
2. A 32 mm diameter monitoring well installed in borehole as shown.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00252625-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Completion	4.6	
15 days	2.5	
20 days	2.4	
~ 2 years	2.9	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE BH LOGS - 252625 FOREST.GPJ TROW OTTAWA.GDT 10/27/21

Log of Borehole BH 19-07

Project No: OTT-00252625-A0

Project: Residential Development

Location: 365 Forest Street, Ottawa, Ontario

Figure No. 9

Page. 1 of 1

Date Drilled: 'April 24, 2019

Drill Type: CME-75 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.L. Checked by: I.T.

Split Spoon Sample ⊠
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALTIC CONCRETE ~60 mm	75.21	0				
		GRANULAR FILL (BASE) ~220 mm Crushed gravel with silt and sand, grey, damp	75.1 74.9					
		FILL Silty sand with gravel, brown, moist to wet, (loose)		1	9	0	SS1	19.4
			73.51		8	0	SS2	
			73.0	2				
		GLACIAL TILL Silty sand with gravel, cobbles and boulders, grey, wet, (loose to compact)			13	0	SS3	
		Shale fragements from 3.0 m to 3.6 m depths		3	8	0	SS4	
				4	13	0	SS5	
					8	0	SS6	
				5	8	0	SS7	
			69.3					
		Borehole Terminated at 5.9 m Depth						

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa
Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 20 40 60

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A 32 mm diameter monitoring well installed in borehole as shown.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00252625-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Completion	5.2	6.1
16 days	1.4	
22 Days	1.4	
~ 2 years	1.7	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE BH LOGS - 252625 FOREST.GPJ TROW OTTAWA.GDT 10/27/21

Log of Borehole BH 19-08

Project No: OTT-00252625-A0

Project: Residential Development

Location: 365 Forest Street, Ottawa, Ontario

Figure No. 10

Page. 1 of 1

Date Drilled: 'April 25, 2019

Drill Type: CME-75 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.L. Checked by: I.T.

Split Spoon Sample ⊠
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○—|
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		GRANULAR FILL ~150 mm Crushed limestone with silt and sand, grey, damp	75.51 75.4	0	4	0	SS1	
		FILL Silty sand with gravel, brown, moist to wet, (loose)		1	6	0	SS2	
				2	6	10	SS3	
			72.9		13	25	SS4	
		GLACIAL TILL Silty sand with gravel, cobbles and boulders, grey, moist to wet, (compact)		3	16	15	SS5	23.6
			71.51	4	17	25	SS6	23.3
				5	10	20	SS7	
					13	10	SS8	
				6				
				7	60		SS9	
		LIMESTONE BEDROCK Ottawa formation limstone with thin shaly partings, laminated, grey, (fair to good quality)	68.2	8			Run 1	
				9			Run 2	
		Borehole Terminated at 9.6 m Depth	65.9					

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A 32 mm diameter monitoring well installed in borehole as shown.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00252625-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Completion	N/A	N/A
15 days	5.6	
20 days	5.7	
~ 2 years	4.0	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	7.3 - 8.1	94	53
2	8.1 - 9.6	100	78

LOG OF BOREHOLE BH LOGS - 252625 FOREST.GPJ TROW OTTAWA.GDT 10/27/21

Log of Borehole BH 19-09

Project No: OTT-00252625-A0

Project: Residential Development

Location: 365 Forest Street, Ottawa, Ontario

Figure No. 11

Page. 1 of 1

Date Drilled: 'April 24, 2019

Drill Type: CME-75 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.L. Checked by: I.T.

Split Spoon Sample ⊠ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test —— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits |—○—| | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		GRANULAR FILL ~300 mm Crushed gravel with silt and sand, grey, damp	75.65 / 75.4	0	7	0	SS1	
		FILL Silty sand with gravel, brown, moist, (very loose to loose)		1	1	5	SS2	
				2	9	0	SS3	21.9
			73.1				SS4	
		GLACIAL TILL Silty sand with gravel, cobbles and boulders, grey, moist to wet, (loose to compact)		3	10	0	SS5	
				4	18	0	SS6	
				5	7	0	SS7	
			69.95		6	0	SS8	
				6	13	0	SS9	
				7				
		LIMESTONE BEDROCK Ottawa formation limestone with thin shaly partings, laminated, grey, (fair quality)	68.1	8			Run 1	
		Borehole Terminated at 8.7 m Depth	67.0					

LOG OF BOREHOLE BH LOGS - 252625 FOREST.GPJ TROW OTTAWA.GDT 10/27/21

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A 32 mm diameter monitoring well installed in borehole as shown.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00252625-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Completion	N/A	N/A
21 days	6.0	
~ 2 years	5.7	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	7.6 - 8.7	95	61

Log of Borehole BH 19-10

Project No: OTT-00252625-A0

Project: Residential Development

Location: 365 Forest Street, Ottawa, Ontario

Figure No. 12

Page. 1 of 1

Date Drilled: 'April 25, 2019

Drill Type: CME-75 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.L. Checked by: I.T.

Split Spoon Sample ⊠ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test ——— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits ⊢○ | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		GRANULAR FILL ~150 mm Crushed gravel with silt and sand, grey	75.74 / 75.6	0	5	5	SS1	
		FILL Silty sand, brown and grey, moist, (loose to compact)		1	4	10	SS2	
					12	10	SS3	20.9
			73.6	2				
		GLACIAL TILL Silty sand with gravel, grey, moist to wet, (loose to dense)	73.44		29	10	SS4	23.6
				3	41	30	SS5	
				4	16	25	SS6	
				5	5	25	SS7	
			69.8		10	15	SS8	
		Borehole Terminated at 5.9 m Depth						

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A 32 mm diameter monitoring well installed in borehole as shown.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00252625-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Completion	5.2	N/A
15 days	2.2	
20 days	2.3	
Not Found	N/A	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE BH LOGS - 252625 FOREST.GPJ TROW OTTAWA.GDT 10/27/21

Log of Borehole BH 19-11

Project No: OTT-00252625-A0

Project: Residential Development

Location: 365 Forest Street, Ottawa, Ontario

Figure No. 13

Page. 1 of 1

Date Drilled: 'April 29, 2019

Drill Type: CME-75 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.L. Checked by: I.T.

Split Spoon Sample ⊠
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		GRANULAR FILL ~200 mm Crushed limestone with silt and sand, grey, damp	75.71 / 75.5	0				
		FILL Silty sand with gravel, brown, moist to wet, (loose to compact)		1	14	0	SS1	
		Petroleum odour from 1.5 m to 2.1 m depths		2	6	0	SS2	
				3	7	0	SS3	
		GLACIAL TILL Silty sand with gravel, grey, moist to wet, (compact to dense)	72.7	3	32	0	SS4	
				4	12	0	SS5	
		Silty sand		5	10	0	SS6	
				6	10	0	SS7	
				7				
		LIMESTONE BEDROCK Ottawa formation limestone with thin shaly partings, laminated, grey, (good quality)	67.9	8			Run 1	
		Weathered and highly fractured zone from 7.8 m to 8.4 m depths	66.9				Run 2	
		Borehole Terminated at 8.8 m Depth						

LOG OF BOREHOLE BH LOGS - 252625 FOREST.GPJ TROW OTTAWA.GDT 10/27/21

NOTES:
1. Borehole data requires interpretation by EXP before use by others
2. Borehole backfilled upon completion of drilling.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00252625-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Completion	N/A	8.8

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	7.8 - 8.2	94	77
2	8.2 - 8.8	100	86

Log of Borehole BH 19-12

Project No: OTT-00252625-A0

Project: Residential Development

Location: 365 Forest Street, Ottawa, Ontario

Figure No. 14

Page. 1 of 1

Date Drilled: 'April 24, 2019

Drill Type: CME-75 Truck Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.L. Checked by: I.T.

Split Spoon Sample ⊠
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		GRANULAR FILL ~150 mm Crushed gravel with silt and sand, damp, grey	75.42	0	4	0	SS1	
		FILL Silty sand with gravel, brown, moist to wet, (loose to compact)	75.3	1	12	0	SS2	
				2	16	0	SS3	
					7	0	SS4	22.4
				3	7	0	SS5	
				4	5	0	SS6	
		Borehole Terminated at 4.4 m Depth	71.0					

Standard Penetration Test N Value: 20 40 60 80
Shear Strength kPa: 50 100 150 200
Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 20 40 60

NOTES:
1. Borehole data requires interpretation by EXP before use by others
2. Borehole backfilled upon completion of drilling.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00252625-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Completion	Dry	3.8

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE BH LOGS - 252625 FOREST.GPJ TROW OTTAWA.GDT 10/27/21

Log of Borehole BH 21-13

Project No: OTT-00252625-A0

Project: Residential Development

Location: 365 Forest Street, Ottawa, Ontario

Figure No. 15

Page. 1 of 2

Date Drilled: 'October 6, 2021

Drill Type: CME-850 Track Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.Z. Checked by: I.T.

Split Spoon Sample ⊠
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		Borehole advanced by power augering technique from ground surface to 4.6 m depth.	75.2	0	20 40 60 80 / 50 100 150 200	250 500 750 / 20 40 60		
		GLACIAL TILL Silty sand with gravel, shale fragments, cobbles and boulders, grey, wet, (compact)	70.6	5	18		SS1	
				6	50/50 mm sampler refusal		SS2	
		LIMESTONE BEDROCK Ottawa formation limestone with thin shaly partings, grey, (very poor to excellent quality)	68.9 68.9	7			Run 1	
				8			Run 2	
				9			Run 3	
				10				

Continued Next Page

LOG OF BOREHOLE BH LOGS - 252625 FOREST.GPJ TROW OTTAWA.GDT 10/27/21

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A 38 mm diameter monitoring well installed in borehole as shown.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00252625-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Oct. 19, 2021	6.3	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	6.3 - 6.7	92	27
2	6.7 - 8.2	80	18
3	8.2 - 9.8	100	79
4	9.8 - 11.3	100	83
5	11.3 - 12.9	100	100
6	12.9 - 14.4	98	92

Log of Borehole BH 21-13

Project No: OTT-00252625-A0

Project: Residential Development

Figure No. 15

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value (20 40 60 80) / Shear Strength kPa (50 100 150 200)	Combustible Vapour Reading (ppm) (250 500 750) / Natural Moisture Content % Atterberg Limits (% Dry Weight) (20 40 60)	SAMPLES	Natural Unit Wt. kN/m³
		LIMESTONE BEDROCK Ottawa formation limestone with thin shaly partings, grey, (very poor to excellent quality) *(continued)*	65.2	10			Run 4	
				11				
				12			Run 5	
				13				
				14			Run 6	
			60.8					
		Borehole Terminated at 14.4 m Depth NOTE: 1) The geodetic elevation of the borehole is considered approximate.						

NOTES:
1. Borehole data requires interpretation by EXP before use by others
2. A 38 mm diameter monitoring well installed in borehole as shown.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00252625-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Oct. 19, 2021	6.3	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	6.3 - 6.7	92	27
2	6.7 - 8.2	80	18
3	8.2 - 9.8	100	79
4	9.8 - 11.3	100	83
5	11.3 - 12.9	100	100
6	12.9 - 14.4	98	92

Log of Borehole BH 21-14

Project No: OTT-00252625-A0

Project: Residential Development

Location: 365 Forest Street, Ottawa, Ontario

Figure No. 16

Page. 1 of 2

Date Drilled: 'October 5, 2021

Drill Type: CME-850 Track Mounted Drill Rig

Datum: Geodetic Elevation

Logged by: M.Z. Checked by: I.T.

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○⊣
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		Borehole advanced by power augering technique from ground surface to a 4.6 m depth.	74.3	0	20 40 60 80 / 50 100 150 200	250 500 750 / 20 40 60		
		GLACIAL TILL Silty sand with gravel, rock fragments, cobbles and boulders, grey, wet	69.7	5	50/150 mm sampler refusal		SS1	
		HIGHLY WEATHERED LIMESTONE BEDROCK Greenish grey, shaly partings, interbedded with layers of clay	68.2	6	50/125 mm sampler refusal		SS2	
		LIMESTONE BEDROCK Ottawa formation limestone with thin shaly partings, grey, (very poor to excellent quality)	67.6 / 67.3	7			Run 1	
				8			Run 2	
				9			Run 3	
				10				

Continued Next Page

NOTES:
1. Borehole data requires interpretation by EXP before use by others
2. A 38 mm diameter monitoring well installed in borehole as shown.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00252625-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Oct. 19,2021	6.7	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	6.3 - 6.7	100	0
2	6.7 - 8.2	92	46
3	8.2 - 9.8	98	53
4	9.8 - 11.3	100	75
5	11.3 - 12.8	95	95

LOG OF BOREHOLE BH LOGS - 252625 FOREST.GPJ TROW OTTAWA.GDT 10/27/21

Log of Borehole BH 21-14

Project No: OTT-00252625-A0

Project: Residential Development

Figure No. 16

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		LIMESTONE BEDROCK Ottawa formation limestone with thin shaly partings, grey, (very poor to excellent quality) *(continued)*	64.3	10	20 40 60 80 Shear Strength 50 100 150 200 kPa	250 500 750 Natural Moisture Content % Atterberg Limits (% Dry Weight) 20 40 60	Run 4	
				11				
				12			Run 5	
			61.5					
		Borehole Terminated at 12.8 m Depth NOTE: 1) The geodetic elevation of the borehole is considered approximate.						

LOG OF BOREHOLE BH LOGS - 252625 FOREST.GPJ TROW OTTAWA.GDT 10/27/21

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A 38 mm diameter monitoring well installed in borehole as shown.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00252625-A0

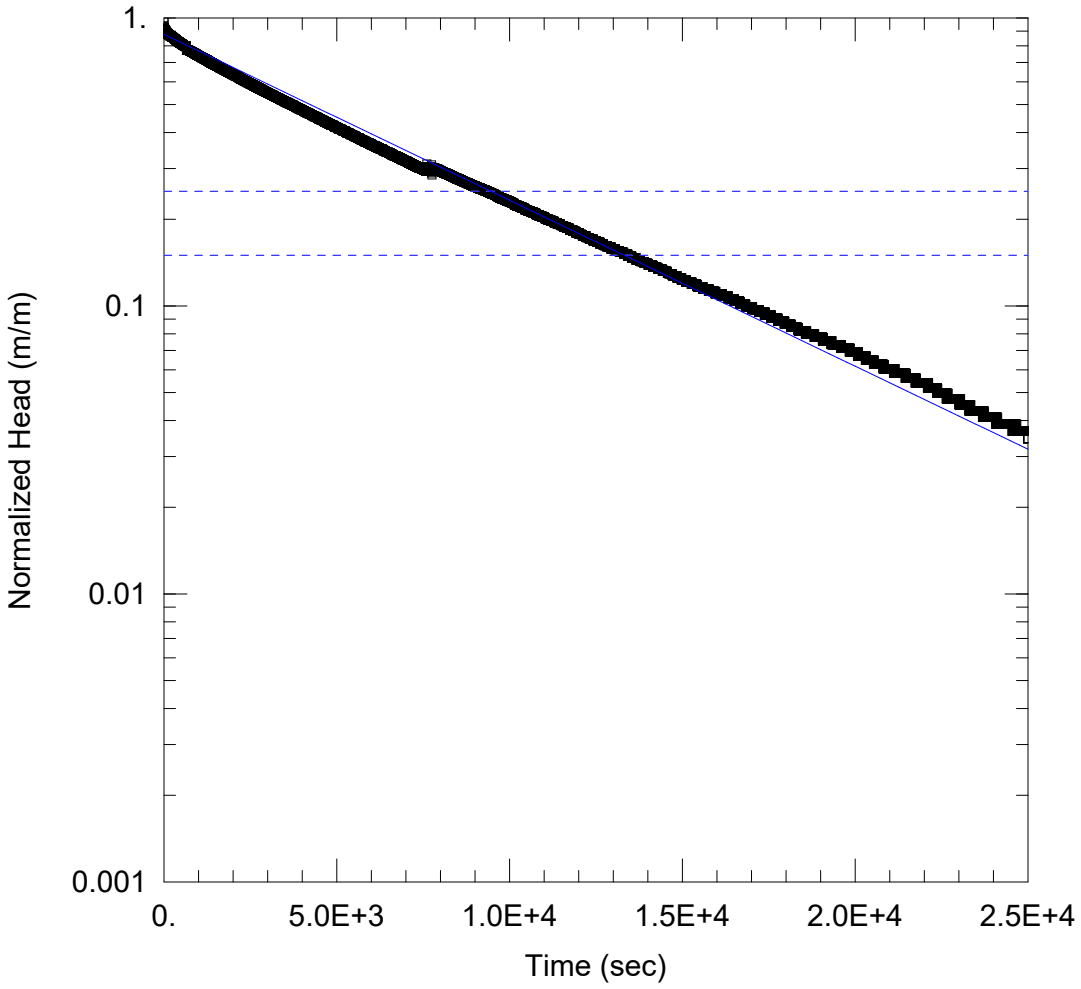
WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
Oct. 19,2021	6.7	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	6.3 - 6.7	100	0
2	6.7 - 8.2	92	46
3	8.2 - 9.8	98	53
4	9.8 - 11.3	100	75
5	11.3 - 12.8	95	95

Appendix C - SWRT Procedures and Results



SWRT BHMW 19 - 02 , 365 FOREST ST, OTTAWA, ONTARIO

Data Set: C:\Users\ranay\Desktop\365 Forest slug test\Analysed Data\BHMW 19 - 02.aqt
Date: 10/25/21 Time: 12:01:25

PROJECT INFORMATION

Company: EXP Services Inc
Project: OTT-00252625
Location: 365 Forest St, Ottawa, Ontario
Test Well: BHMW 19 - 02
Test Date: October 20, 2021

AQUIFER DATA

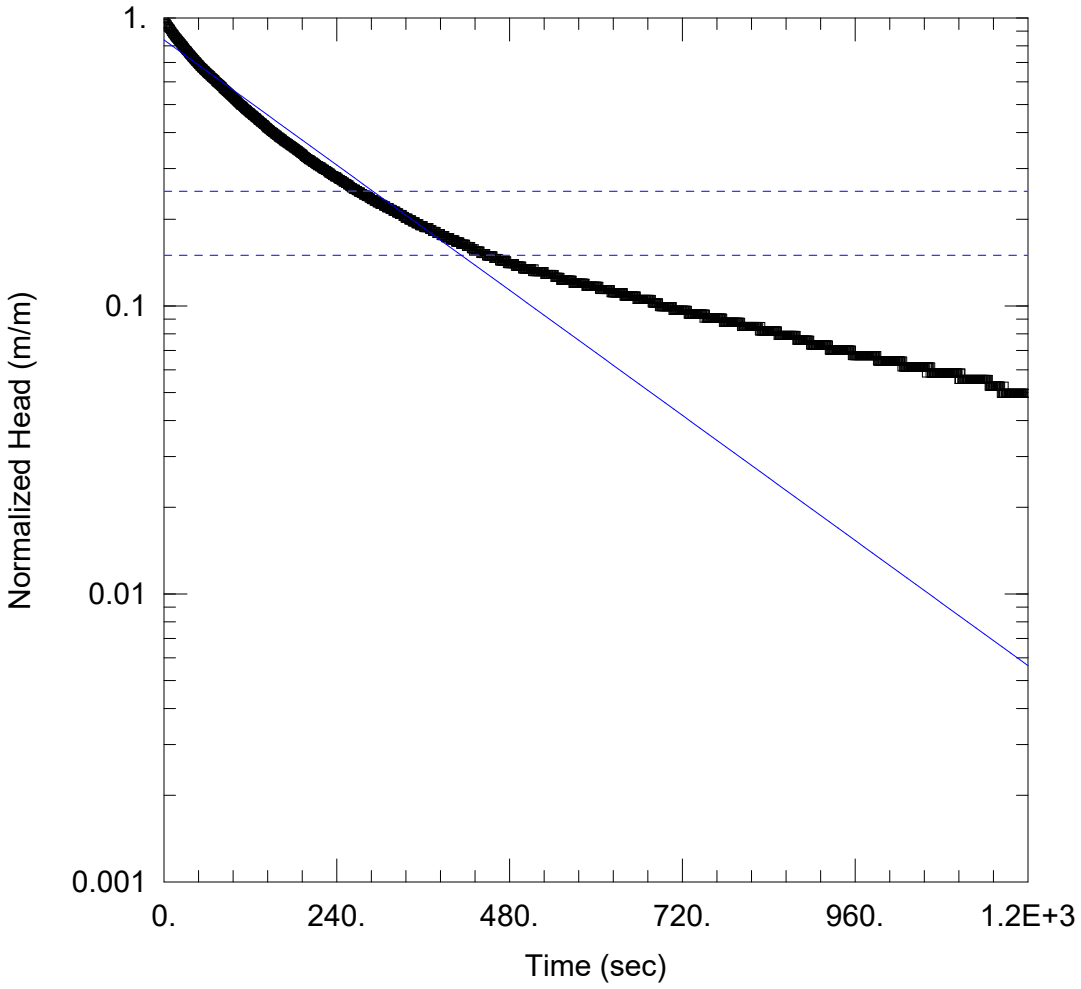
Saturated Thickness: 3.81 m
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (BHMW 19 - 02)

Initial Displacement: 1.389 m
Total Well Penetration Depth: 3.81 m
Casing Radius: 0.016 m
Static Water Column Height: 3.81 m
Screen Length: 3. m
Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 2.472E-8 m/sec
y0 = 1.219 m



SWRT - BHMW 19 - 07, 365 FOREST ST, OTTAWA, ONTARIO

Data Set: C:\Users\ranay\Desktop\365 Forest slug test\BHMW 19 - 07.aqt
Date: 10/25/21 Time: 10:37:34

PROJECT INFORMATION

Company: EXP Services Inc
Project: OTT-00252625
Location: 365 Forest St, Ottawa, Ontario
Test Well: BHMW 19 - 07
Test Date: October 20, 2021

AQUIFER DATA

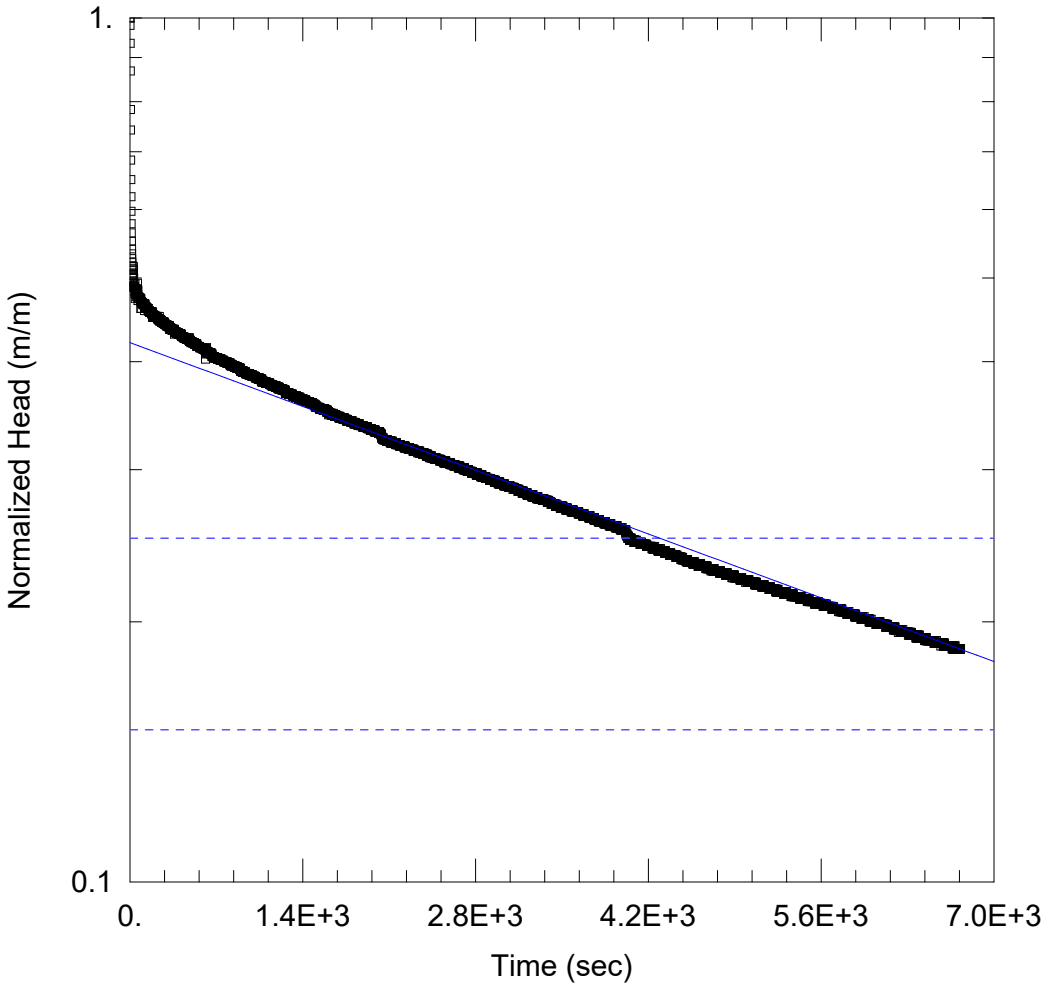
Saturated Thickness: 4.07 m
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (BHMW 19 - 07)

Initial Displacement: 1.026 m
Total Well Penetration Depth: 4.07 m
Casing Radius: 0.016 m
Static Water Column Height: 4.07 m
Screen Length: 3. m
Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Unconfined
K = 7.766E-7 m/sec
Solution Method: Hvorslev
y0 = 0.8603 m



SWRT BHMW 19 - 10, 365 FOREST ST, OTTAWA, ONTARIO

Data Set: C:\Users\ranay\Desktop\365 Forest slug test\Analysed Data\BHMW 19 - 10.aqt
Date: 10/25/21 Time: 11:33:01

PROJECT INFORMATION

Company: EXP Services Inc
Project: OTT-00252625
Location: 365 Forest St, Ottawa, Ontario
Test Well: BHMW 19 - 10
Test Date: October 20, 2021

AQUIFER DATA

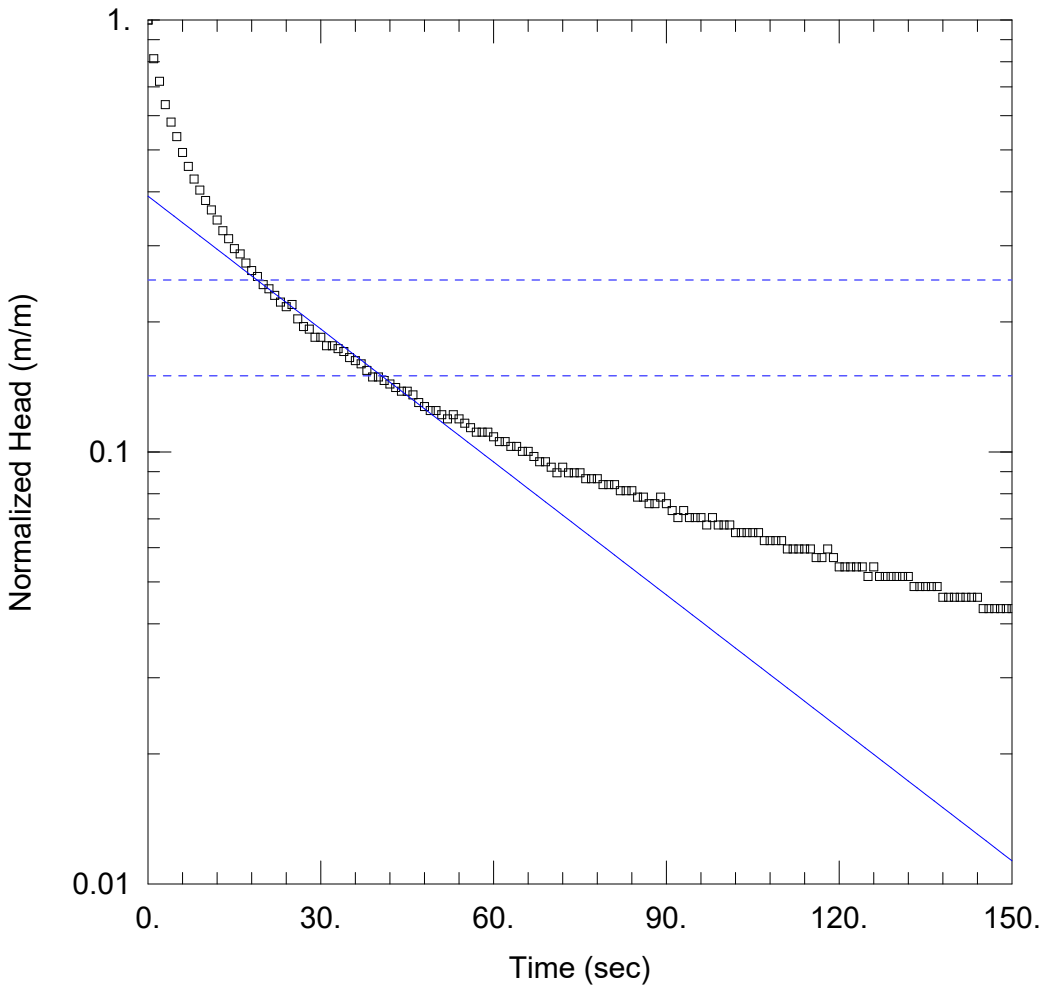
Saturated Thickness: 2.77 m
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (BHMW 19 - 10)

Initial Displacement: 0.72 m
Total Well Penetration Depth: 3. m
Casing Radius: 0.016 m
Static Water Column Height: 2.77 m
Screen Length: 3. m
Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 2.973E-8 m/sec
y0 = 0.303 m



SWRT BHMW 21 -13, 365 FOREST ST, OTTAWA, ONTARIO

Data Set: C:\Users\ranay\Desktop\365 Forest slug test\Analysed Data\BHMW 21 - 13.aqt
Date: 10/25/21 Time: 11:53:16

PROJECT INFORMATION

Company: EXP Services Inc
Project: OTT-00252625
Location: 365 Forest St, Ottawa, Ontario
Test Well: BHMW 21 - 13
Test Date: October 20, 2021

AQUIFER DATA

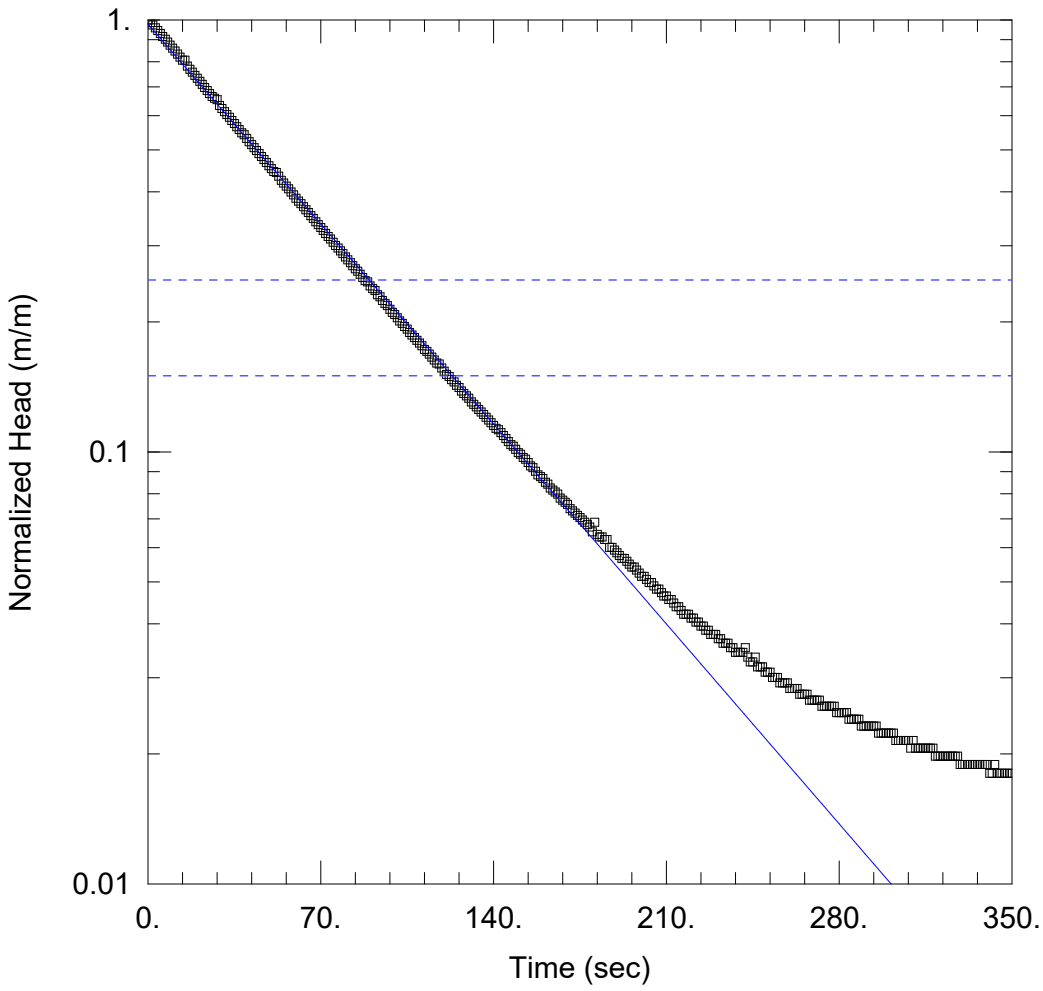
Saturated Thickness: 7.595 m
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (BHMW 21 -13)

Initial Displacement: 0.369 m
Total Well Penetration Depth: 7.595 m
Casing Radius: 0.019 m
Static Water Column Height: 7.595 m
Screen Length: 3. m
Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 6.205E-6 m/sec
y0 = 0.1443 m



SWRT BHMW 21 - 14, 365 FOREST ST, OTTAWA, ONTARIO

Data Set: C:\Users\ranay\Desktop\365 Forest slug test\Analysed Data\BHMW 21 -14.aqt
Date: 10/25/21 Time: 11:58:05

PROJECT INFORMATION

Company: EXP Services Inc
Project: OTT-00252625
Location: 365 Forest St, Ottawa, Ontario
Test Well: BHMW 21 - 14
Test Date: October 20, 2021

AQUIFER DATA

Saturated Thickness: 5.46 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (BHMW 21 - 14)

Initial Displacement: 1.164 m
Total Well Penetration Depth: 5.46 m
Casing Radius: 0.019 m
Static Water Column Height: 5.46 m
Screen Length: 3. m
Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 4.0E-6 m/sec
y0 = 1.138 m