HYDROGEOLOGIC REPORT

WYNDHAM RESIDENCE
15728 AIRPORT ROAD

TOWN OF CALEDON
REGION OF PEEL

PREPARED FOR:

WYNDHAM HOLDINGS INC

PREPARED BY:

C.F. CROZIER & ASSOCIATES INC.
2800 HIGH POINT DRIVE, SUITE 100
MILTON, ON L9T 6P4

JULY 2021

CFCA FILE NO. 1856-5524

CROZIER
CONSULTING ENGINEERS

Revision Number	Date	Comments
Rev. 0	June 16, 2020	Issued for 1st Submission.
Rev. 1	October 2, 2020	Re-issued with updated Grounded Engineering report.
Rev. 2	July 27, 2021	Re-issued with updates

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1.0 Background

C.F. Crozier & Associates Inc. (Crozier) was retained by Wyndham Holdings Inc. to prepare a Hydrogeologic Report to support the Official Plan Amendment (OPA) and Zoning By-Law Amendment (ZBA) applications for the proposed development located at 15728 Airport Road in the Town of Caledon, Regional Municipality of Peel. A site location plan is included as Figure 1. This report has been prepared in conjunction with a Functional Servicing & Preliminary Stormwater Management Report also prepared by Crozier under separate cover.

The site is located within the Village of Caledon East in the Town of Caledon, Region of Peel. The site is currently occupied by an existing residential home, which is to be removed. The site currently has two access points to Airport Road. The elements envisioned for this development include:

- 3-storey retirement home with basement
- At grade asphalt parking lot
- One site access to Airport Road

Our review and work plan for the Hydrogeologic Report was developed based on the Site Plan prepared by ABA Architects Inc., dated May 19, 2020.

We have also reviewed the pertinent background information associated with the Site, including:

- Site Plan (ABA Architects Inc., May 9, 2020)
- Topographic Survey (Young & Young Surveying Inc., May 29, 2018)
- Geotechnical Report (Grounded Engineering Inc., September 29, 2020)

2.0 Existing Conditions

2.1 Land Use

The subject property is approximately 0.96 ha and currently consists of a single-family residential dwelling, two asphalt driveways and three storage sheds. The landscaping on the property consists of trees and grass. The property is in a mixed-use residential area and is bounded by:

- Airport Road to the East
- Private residences to the South
- Caledon East Public School to the West
- Private lane access for the school to the North

Land uses in the area are largely Rural Residential (RR), Institutional (I) related to the Caledon East Public School, and Agricultural (A-1) per the Town of Caledon Zoning By-Law 2006-50, as amended.

The site is bounded by RR designated lands to the North, I to the West, RR-T1 to the south and a combination of A-1, I, EPA2 (Environmental Policy Area) and CV-294 (Village Commercial) to the East.

The RR-T1 designation refers to a temporary use to allow a garden suite located at the adjacent property at 15696 Airport Road. The I designated lands to the East refer to a Bell Telephone station and the EPA2 lands align with what appears to be a seasonal drainage feature draining to Innis Lake located to the East.

2.2 Physiography

The site is located within the physiographic region known as the Niagara Escarpment within the West Lowland area of the Great Lakes St Lawrence Lowlands. The Niagara Escarpment divides the West Lowlands in two areas. The ground surface west of the escarpment slopes gradually southwestward through an area of rolling topography of low relief. East of the escarpment, the land rises gently northward from Lake Ontario. The Niagara Escarpment in the area of the site is a thin band generally running in a north/south orientation from Milton to Collingwood. In the area of the site it is bounded by the Guelph Drumlin Field and Horseshoe Moraines regions.

The landforms in the area are comprised of Till Moraines at the site with Drumlinized Till Plains to the south and Kame Moraines to the north and west.

2.3 Drainage

The subject property currently consists of one residential dwelling and three storage sheds, complete with an asphalt driveway with two accesses to Airport Road. The site has dense coverage of trees and landscaping. No municipal storm sewer servicing or private storm infrastructure exists. Ditches in the Airport Road right-of-way convey stormwater from the property.

According to the topographic survey prepared by Young & Young Surveying Inc. (Project 18-B7160, dated May 29, 2018), there are two existing 400 mm diameter corrugated steel pipe culverts fronting the site in the western ditch along Airport Road. The culverts convey stormwater below the existing driveway access points.

Per the topographic survey, the property generally drains surface flow from north to south across the property. Drainage along the site's road frontage is conveyed overland directly into the Airport Road ditch.

2.4 Source Protection

The site lies within the Toronto Source Protection Area and is governed by the CTC Source Protection Plan. Schedule O of the Town of Caledon Official Plan indicates that the property could potentially lie within the 25-year time of travel wellhead protection area (WHPA) for the Caledon East Municipal Water System. Further review of the Source Protection Information Atlas, however, confirms that the property lies well outside of all of the Caledon East WHPAs.

3.0 Geology

3.1 Regional

The surficial geology in the area around Caledon East in Peel Region predominantly consists of glaciolacustrine clay to silty textured till to the south with glaciofluvial river deposits running through Caledon East along surface water features. Ice contact stratified deposits of sand and gravel with minor silt and clay till are found to the north. There is a small area of modern alluvial clay, silt, sand, gravel with organics along the surface water feature to the east of the village.

The bedrock in the area is comprised of predominantly shale deposits of the Queenston Formation around Caledon East with shales of the Georgian Bay Formation to the east and sandstone/shale/dolostone of the Clinton and Cataract Groups to the west of Caledon East.

3.2 Local

Surficial geology mapping for the area indicates that the soils at the site are clay to silt glaciolacustrine tills. These soils are characterized as poorly drained soils. There are a large number of pits and quarries in the area, located to the north and west of Caledon East in the areas where the ice contact materials are located.

Grounded Engineering installed eight boreholes on the site on March 5 and 6, 2020. The locations of these boreholes can be found on Figure 2. The boreholes generally encountered earth fill and topsoil overlaying an "upper glacial till" consisting of sand and silt to sandy silt with trace to some clay and trace gravel extending up to 3.0 m in depth, overlying a sand deposit. The sand deposit consists of sand with some silt, trace clay and gravel and extends to 7.6 m below grade, or past the vertical extend of the borehole. A lower glacial till layer comprising sandy silt with some clay and trace gravel was encountered below the sand deposit at 7.6 m below grade to the full depth of the subsurface investigation of 8.1 m below grade in Boreholes 101, 103 & 104. Borehole logs are contained in Appendix A.

The bedrock in the area of the site is the shale bedrock of the Queenston Formation which are predominantly soft red shales but also have narrow grey green interbedded layers.

4.0 Field Work

4.1 Monitoring Well Construction

Eight geotechnical boreholes were installed under the supervision of the geotechnical consultant (Grounded Engineering). Five of the eight boreholes were equipped with a groundwater monitoring well. Details of the borehole construction can be found in their Geotechnical Report (September 2020).

4.2 Groundwater Monitoring

Following the installation and development of the wells completed under the supervision of Grounded Engineering, Crozier installed data loggers into each of the five monitoring wells to assess the seasonally high groundwater level through the spring months. The data loggers were programmed to collect water levels on an hourly basis. Manual water level readings were also obtained on several occasions to confirm the accuracy of the values recorded by the data loggers.

4.3 Hydraulic Conductivity Testing

Crozier completed hydraulic conductivity testing at three of the monitoring well locations. Due to the low water levels observed in the wells, slug testing was not considered a viable method. Therefore, residual recovery testing was completed during which the water level was quickly lowered, and recovery water levels were measured over time. The water level was lowered via rapid manual purging of the well with a Waterra tube. Data loggers programmed to collect water levels at 1-minute intervals were installed immediately after purging and remained in place for over 6 hours. Manual water level readings were recorded immediately after purging, during the recovery phase, and when the data loggers were retrieved to confirm the accuracy of data logger values.

5.0 Results

5.1 Groundwater Levels

Grounded Engineering manually measured water levels on March 9 and 23, 2020. Crozier staff also took manual water level measurements on March 26, April 22, and April 28. The results of the water level monitoring are included in Table 1.

Table 1: Groundwater Levels

Borehole	March 9, 2020	March 23, 2020	March 26, 2020	April 22, 2020	April 28, 2020
101	7.10	7.10	5.21	5.07	5.20
102	6.40	6.40	6.86	N/A[1]	6.80
103	DRY	DRY	DRY	DRY	DRY
104	5.70	5.70	5.83	5.62	5.66
105	6.30	6.00	6.15	5.93	6.06

Notes: [1] Water level not recorded.

Manual water level readings were recorded in the wells by the Geotechnical Engineer and Crozier staff on the dates presented in Table 1. In addition, data loggers were installed in each of the monitoring wells on March 26 and remained installed until April 22. The logger recorded water levels on an hourly basis to capture fluctuations in water levels that may occur during spring melt events and storm events. The results of the continuous water level monitoring are presented as hydrographs as the attached Figures 3 through 7.

The hydrographs indicated some water level fluctuations throughout the day, but overall the water levels remained reasonably stable during the monitoring period. There were minor fluctuations in all water level hydrographs. These fluctuations were consistent for each hydrograph and are likely due to daily barometric pressure fluctuations rather than the result of melt or rain events.

The water levels ranged from approximately 5.0 to nearly 7.0 m below grade. As the overburden material is primarily finer grained sediments, we would not expect water levels in the shallow overburden to fluctuate dramatically in response to such events.

5.2 Hydraulic Conductivity Testing

Testing was conducted on three of the boreholes to determine an approximate value for hydraulic conductivity of the native soils. As the water levels in the wells were within the screened interval of the well, traditional slug testing was not considered an appropriate testing method. As a result, residual recovery testing was completed and an analysis using the Hvorslev method for leaky confined aquifers was used, which was consistent with the materials logged during the well construction. Calculated approximate values for hydraulic conductivity are presented in Table 2.

Table 2: Hydraulic Conductivity Values

Borehole	101	102	105
Hydraulic Conductivity (m/s)	8.41×10^{-7}	9.60×10^{-8}	9.19×10^{-7}

The calculated approximate values for hydraulic conductivity fall within the range of fine sands to silty sands, which is consistent with the log of materials completed during well construction supervised by Grounded Engineering. Therefore, it is reasonable to assume that the range of hydraulic conductivities encountered anywhere on the site will be within the range presented in Table 2.

6.0 Conclusions & Recommendations

Based on the field work and analysis completed, we can make the following conclusions:

- The seasonally high ground water elevation at the site is expected to be lower than 5.0m below existing current grade.
- Large scale dewatering during construction will likely not be required. Low-rate sump pumping from open excavations to remove accumulated rainfall following rain events may be required.
- The hydraulic conductivity of the native soils is consistent with that of fine sand to silty sand materials.

7.0 References

Chapman, L.J. and D.F. Putnam. 1984. The Physiography of Southern Ontario, 3rd Edition. Ontario Geological Survey, Special Volume 2.

Grounded Engineering Inc. September 2020. Geotechnical Engineering Report.

Ontario Ministry of Environment, Conservation and Parks. May 2020. Source Protection Information Atlas, Retrieved from: https://www.gisapplication.lrc.gov.on.ca/SourceWaterProtection/Index.html?viewer=SourceWaterProtection.SWPViewer&locale=en-US,

Ontario Ministry of Environment, Conservation and Parks. May 2020. Map: Well Records. Retrieved from: https://www.ontario.ca/environment-and-energy/map-well-records

Respectfully submitted,

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APPENDIX A

Borehole Logs

BOREHOLE LOG TERMINOLOGY

GROUNDED ENGINEERING

SAMPLING/TESTING METHODS

SS: split spoon sample

AS: auger sample

GS: grab sample

FV: shear vane

DP: direct push

PMT: pressuremeter test

ST: shelby tube

CORE: soil coring

RUN: rock coring

SYMBOLS & ABBREVIATIONS

MC: moisture content

LL: liquid limit

PL: plastic limit

PI: plasticity index

γ: soil unit weight (bulk)

G_s: specific gravity

S_u: undrained shear strength

▽ unstabilized water level

▼ 1st water level measurement

▼ 2nd water level measurement most recent

▼ water level measurement

ENVIRONMENTAL SAMPLES

M&I: metals and inorganic parameters

PAH: polycyclic aromatic hydrocarbon

PCB: polychlorinated biphenyl

VOC: volatile organic compound

PHC: petroleum hydrocarbon

BTEX: benzene, toluene, ethylbenzene and xylene

PPM: parts per million

FIELD MOISTURE (based on tactile inspection)

DRY: no observable pore water

MOIST: inferred pore water, not observable (i.e. grey, cool, etc.)

WET: visible pore water

COHESIONLESS

Relative Density	N-Value
Very Loose	<4
Loose	4 - 10
Compact	10 - 30
Dense	30 - 50
Very Dense	>50

COHESIVE

Consistency	N-Value	Su (kPa)
Very Soft	<2	<12
Soft	2 - 4	12 - 25
Firm	4 - 8	25 - 50
Stiff	8 - 15	50 - 100
Very Stiff	15 - 30	100 - 200
Hard	>30	>200

COMPOSITION

Term	% by weight
trace silt	<10
some silt	10 - 20
silt***y***	20 - 35
sand ***and*** silt	>35

ASTM STANDARDS

ASTM D1586 Standard Penetration Test (SPT)
Driving a 51 mm O.D. split-barrel sampler ("split spoon") into soil with a 63.5 kg weight free falling 760 mm. The blows required to drive the split spoon 300 mm ("bpf") after an initial penetration of 150 mm is referred to as the N-Value.

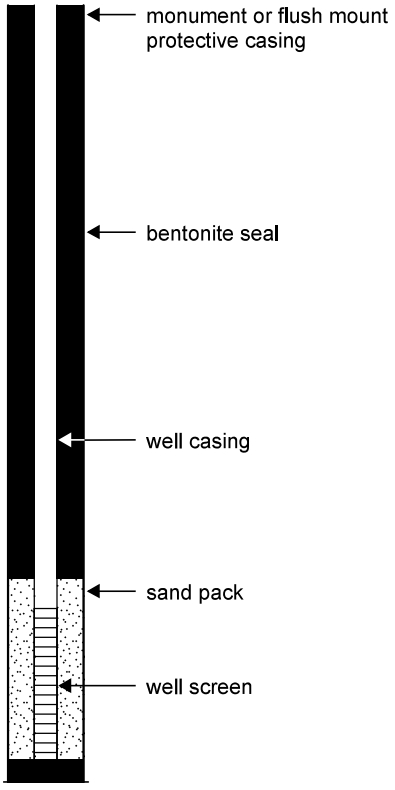
ASTM D3441 Cone Penetration Test (CPT)
Pushing an internal still rod with a outer hollow rod ("sleeve") tipped with a cone with an apex angle of 60° and a cross-sectional area of 1000 mm^2 into soil. The resistance is measured in the sleeve and at the tip to determine the skin friction and the tip resistance.

ASTM D2573 Field Vane Test (FVT)
Pushing a four blade vane into soil and rotating it from the surface to determine the torque required to shear a cylindrical surface with the vane. The torque is converted to the shear strength of the soil using a limit equilibrium analysis.

ASTM D1587 Shelby Tubes (ST)
Pushing a thin-walled metal tube into the in-situ soil at the bottom of a borehole, removing the tube and sealing the ends to prevent soil movement or changes in moisture content for the purposes of extracting a relatively undisturbed sample.

ASTM D4719 Pressuremeter Test (PMT)
Place an inflatable cylindrical probe into a pre-drilled hole and expanding it while measuring the change in volume and pressure in the probe. It is inflated under either equal pressure increments or equal volume increments. This provides the stress-strain response of the soil.

WELL LEGEND



GROUNDED ENGINEERING

Date Started : Mar 5, 2020
Position : E: 591518, N: 4857431 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 101

File No. : 20-042 **Project** : 15728 Airport Road, Caledon **Client** : Wyndham Holdings Inc.

drill method : CME 45

elev depth (m)	description	graphic log	number	type	SPT N-value
308.2	**GROUND SURFACE**				
	100mm **TOPSOIL**				
	FILL, sandy silt, trace clay, trace gravel, trace rootlets, very loose, brown to dark brown, moist		1	SS	3
307.4 / 0.8	**SANDY SILT**, trace clay, trace gravel, loose, brown, moist to wet (GLACIAL TILL)		2	SS	6
			3	SS	8
305.9 / 2.3	**SAND**, some silt, dense to very dense, light brown, moist		4	SS	33
			5	SS	53
			6	SS	30
	...at 6.1 m, compact, wet		7	SS	22
300.6 / 7.6	**SANDY SILT**, some clay, trace gravel, compact, brown, moist (GLACIAL TILL)		8	SS	25
300.1 / 8.1	**END OF BOREHOLE**				

hollow stem augers OD=215 mm

depth scale (m): 0 1 2 3 4 5 6 7 8

elevation (m): 308 307 306 305 304 303 302 301

well details

undrained shear strength (kPa): unconfined, field vane, pocket penetrometer, Lab Vane — 40 80 120 160

SPT N-values (bpf): dynamic cone — 10 20 30 40

headspace vapour (ppm): hexane, isobutylene — 100 200 300

moisture / plasticity: PL MC LL — 10 20 30

unstabilized water level

lab data and comments

grain size distribution (%) (MIT): GR SA SI CL

Dry and open upon completion of drilling.

50 mm dia. monitoring well installed.
No. 10 screen

GROUNDWATER LEVELS

Date	Water Depth (m)	Elevation (m)
Mar 9, 2020	7.1	301.1
Mar 23, 2020	7.1	301.2

file: 20-042 15728 airport rd.gpj

Tech : JN | **PM** : JH | **Rev** : MD

GROUNDED ENGINEERING

Date Started : Mar 5, 2020
Position : E: 591572, N: 4857491 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 102

File No. : 20-042 **Project** : 15728 Airport Road, Caledon **Client** : Wyndham Holdings Inc.

drill method : CME 45

elev / depth (m)	description	graphic log	number	type	SPT N-value
308.4	**GROUND SURFACE**				
	100mm **TOPSOIL**				
	FILL, sandy silt, trace clay, trace gravel, organic odour, very loose, dark brown to brown, moist		1	SS	2
307.6 / 0.8	**SANDY SILT**, trace clay, trace gravel, loose, brown, moist to wet (GLACIAL TILL)		2	SS	5
	...at 1.5 m, moist to wet		3	SS	8
306.1 / 2.3	**SAND**, some silt, loose, brown, moist		4	SS	7
	...at 3.0 m, compact		5	SS	26
	...at 6.1 m, wet		6	SS	20
			7	SS	27
			8	SS	17
300.3 / 8.1	**END OF BOREHOLE**				

hollow stem augers OD=215 mm

depth scale (m) 0 1 2 3 4 5 6 7 8

well details

elevation (m) 308 307 306 305 304 303 302 301

undrained shear strength (kPa)
○ unconfined + field vane
● pocket penetrometer ■ Lab Vane
40 80 120 160

SPT N-values (bpf)
× dynamic cone
10 20 30 40

headspace vapour (ppm)
× hexane □ isobutylene
100 200 300

moisture / plasticity
PL MC LL
10 20 30

unstabilized water level

lab data and comments

grain size distribution (%) (MIT)
GR SA SI CL

Dry and open upon completion of drilling.

50 mm dia. monitoring well installed.
No. 10 screen

GROUNDWATER LEVELS

Date	Water Depth (m)	Elevation (m)
Mar 9, 2020	6.4	302.0
Mar 23, 2020	6.4	302.0

file: 20-042 15728 airport rd.gpj

Tech : JN | **PM** : JH | **Rev** : MD

GROUNDED ENGINEERING

Date Started : Mar 6, 2020
Position : E: 591557, N: 4857431 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 103

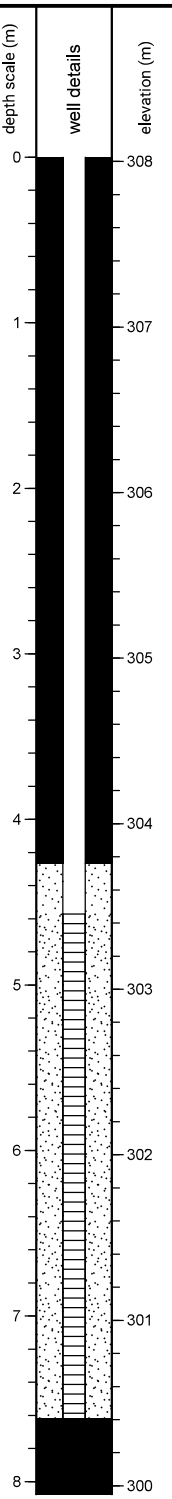
File No. : 20-042 **Project** : 15728 Airport Road, Caledon **Client** : Wyndham Holdings Inc.

drill method : CME 45

elev / depth (m)	description	graphic log	number	type	SPT N-value
308.0	**GROUND SURFACE**				
	100mm **TOPSOIL**				
	FILL, sandy silt, some clay, trace gravel, trace rootlets, organic odour, loose, dark brown to brown, moist		1	SS	6
306.9			2A	SS	7
1.1	**SAND AND SILT**, trace clay, trace gravel, loose, brown, moist to wet (GLACIAL TILL)		2B	SS	
	...at 1.5 m, compact		3A	SS	24
306.2			3B	SS	
1.8	**SAND**, some silt, compact to dense, brown, moist				
	...at 2.3 m, light brown, trace rock fragments (inferred cobble)		4	SS	45
			5	SS	33
			6	SS	32
	...at 6.1 m, sand and silt, trace clay, wet		7	SS	23
300.4					
7.6	**SANDY SILT**, some clay, trace gravel, dense, brown, moist (GLACIAL TILL)		8	SS	35
299.9					
8.1	**END OF BOREHOLE**				

hollow stem augers OD=215 mm

depth scale (m) / well details / elevation (m)

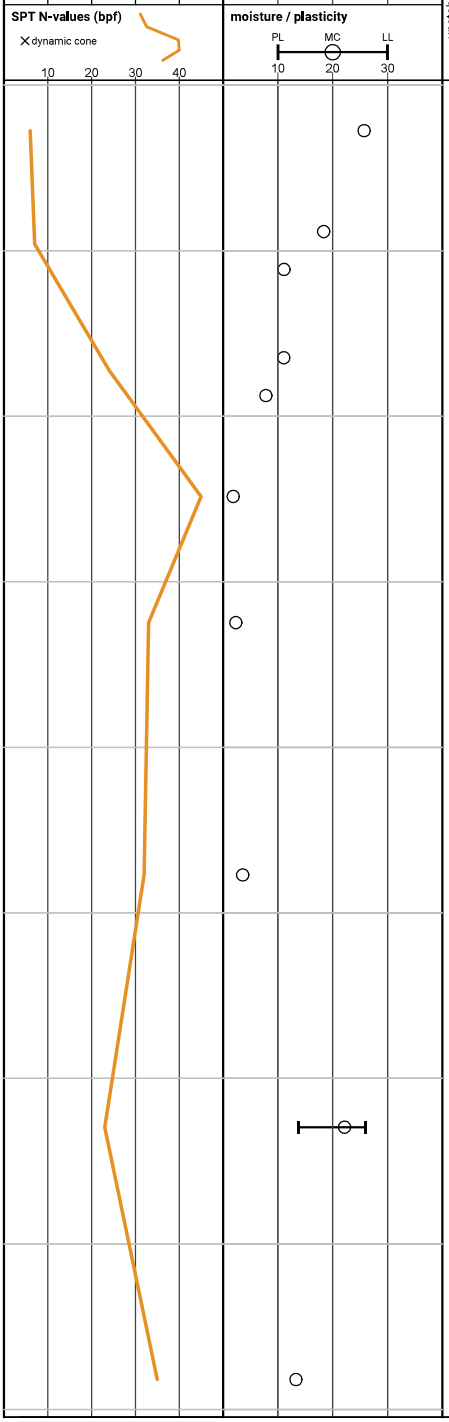


undrained shear strength (kPa)
○ unconfined + field vane
● pocket penetrometer ■ Lab Vane
40 80 120 160

SPT N-values (bpf)
× dynamic cone
10 20 30 40

headspace vapour (ppm)
× hexane □ isobutylene
100 200 300

moisture / plasticity
PL MC LL
10 20 30



unstabilized water level

lab data and comments

grain size distribution (%) (MIT)
GR SA SI CL
0 37 58 5

GROUNDWATER LEVELS

Date	Water Depth (m)	Elevation (m)
Mar 9, 2020	dry	n/a
Mar 23, 2020	dry	n/a

Dry and open upon completion of drilling.

50 mm dia. monitoring well installed.
No. 10 screen

file: 20-042 15728 airport rd.gpj

Tech : MG | **PM** : JH | **Rev** : MD

GROUNDED ENGINEERING

Date Started : Mar 5, 2020
Position : E: 591564, N: 4857383 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 104

File No. : 20-042 **Project** : 15728 Airport Road, Caledon **Client** : Wyndham Holdings Inc.

drill method : CME 45

elev / depth (m)	description	graphic log	sample number	sample type	SPT N-value
306.8	**GROUND SURFACE**				
306.6 / 0.2	200mm **TOPSOIL**				
306.0 / 0.8	**FILL**, sandy silt, trace clay, trace gravel, trace rootlets, organic odour, loose, dark brown to brown, moist		1	SS	4
304.5 / 2.3	**SILT AND SAND**, trace gravel, loose to compact, brown, moist to wet (GLACIAL TILL)		2	SS	9
			3	SS	15
299.2 / 7.6	**SAND**, some silt, trace gravel, very dense to dense, light brown, moist		4	SS	52
			5	SS	42
	...at 4.6 m, compact to dense		6	SS	21
	...at 6.1 m, wet		7	SS	35
298.7 / 8.1	**SANDY SILT**, some clay, trace gravel, compact, brown, moist (GLACIAL TILL)		8	SS	28

hollow stem augers OD=215 mm

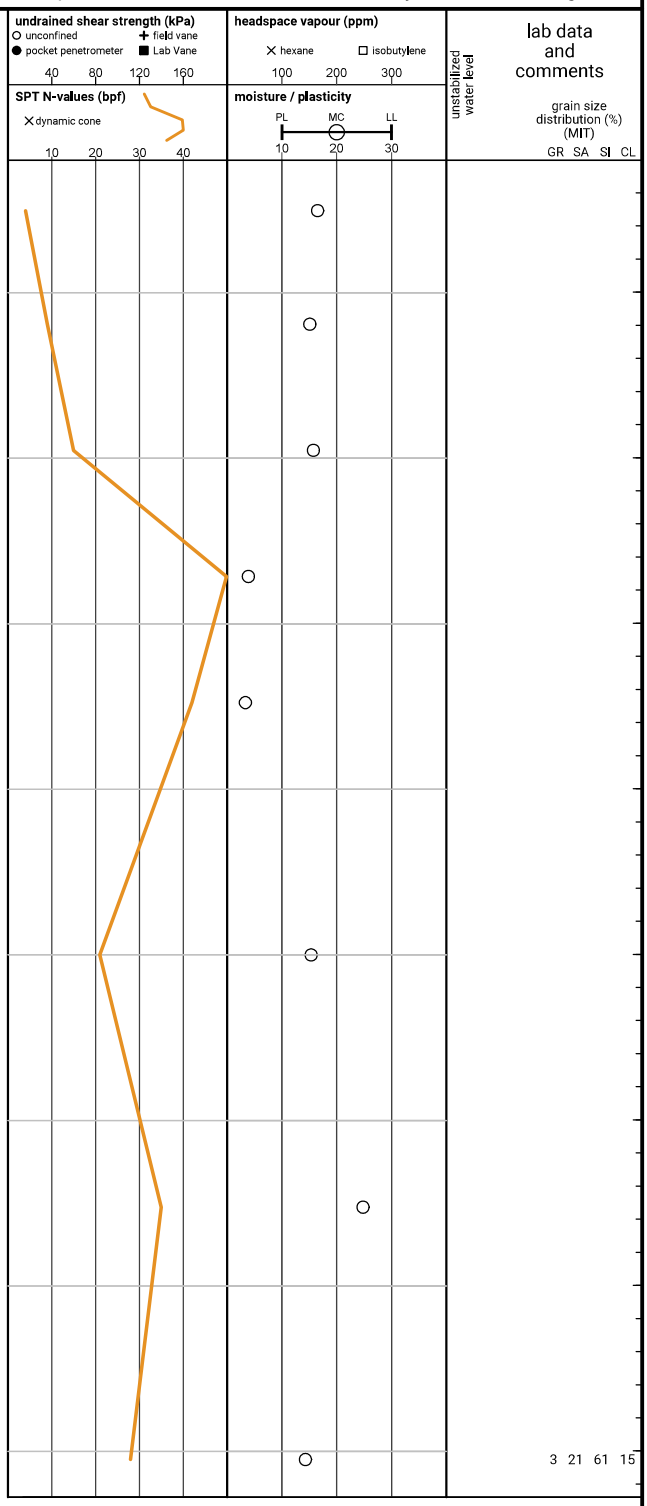
END OF BOREHOLE

Dry and open upon completion of drilling.

50 mm dia. monitoring well installed.
No. 10 screen

GROUNDWATER LEVELS

Date	Water Depth (m)	Elevation (m)
Mar 9, 2020	5.7	301.1
Mar 23, 2020	5.4	301.4



file: 20-042 15728 airport rd.gpj

Tech : JN | **PM** : JH | **Rev** : MD

GROUNDED ENGINEERING

Date Started : Mar 6, 2020
Position : E: 591599, N: 4857450 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 105

File No. : 20-042 **Project** : 15728 Airport Road, Caledon **Client** : Wyndham Holdings Inc.

drill method : CME 45

hollow stem augers OD=215 mm

elev depth (m)	description	graphic log	number	type	SPT N-value
307.7 0	**GROUND SURFACE**				
	500mm **TOPSOIL**		1A	SS	4
307.2 0.5			1B	SS	
	FILL, silt and sand, trace clay, trace gravel, loose, dark brown to brown, moist to wet		2A	SS	
306.6 1.1			2B	SS	4
	SAND AND SILT, trace clay, trace gravel, loose, brown, moist (GLACIAL TILL)		2C	SS	
	...at 1.5 m, compact to dense		3	SS	12
			4	SS	32
304.7 3.0					
	SAND, some gravel, some silt, trace rock fragments, dense, brown, moist		5A	SS	42
			5B	SS	
	...at 4.6 m, trace gravel, no rock fragments		6	SS	42
	...at 6.1 m, wet		7	SS	35
			8	SS	36
299.6 8.1	**END OF BOREHOLE**				

depth scale (m) 0 1 2 3 4 5 6 7 8

well details

elevation (m) 307 306 305 304 303 302 301 300

undrained shear strength (kPa)
○ unconfined + field vane
● pocket penetrometer ■ Lab Vane
40 80 120 160

SPT N-values (bpf)
× dynamic cone
10 20 30 40

headspace vapour (ppm)
× hexane □ isobutylene
100 200 300

moisture / plasticity
PL MC LL
10 20 30

unstabilized water level

lab data and comments

grain size distribution (%) (MIT)
GR SA SI CL

Dry and open upon completion of drilling.

50 mm dia. monitoring well installed.
No. 10 screen

GROUNDWATER LEVELS

Date	Water Depth (m)	Elevation (m)
Mar 9, 2020	6.3	301.4
Mar 23, 2020	6.0	301.7

file: 20-042 15728 airport rd.gpj

Tech : MG | **PM** : JH | **Rev** : MD

GROUNDED ENGINEERING

Date Started : Mar 6, 2020
Position : E: 591572, N: 4857378 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG P1

File No. : 20-042 **Project** : 15728 Airport Road, Caledon **Client** : Wyndham Holdings Inc.

drill method : CME 45

elev / depth (m)	description	graphic log	number	type	SPT N-value
306.3	**GROUND SURFACE**				
	100mm **TOPSOIL**				
	FILL, sandy silt, trace clay, trace gravel, very loose to loose, dark brown to brown, moist		1	SS	2
	...at 0.6 m, moist to wet		2A	SS	6
305.2 / 1.1	**FILL**, silty sand, trace gravel, loose, dark brown, wet		2B	SS	
304.9 / 1.4	...at 1.2 m, moist to wet		3A	SS	6
	SAND, some silt, loose, brown, moist		3B	SS	
304.5 / 1.8	**END OF BOREHOLE**				

MSPT OD=50 mm

depth scale (m): 0, 1

well details

elevation (m): 306, 305

undrained shear strength (kPa): unconfined, field vane, pocket penetrometer, Lab Vane; 40, 80, 120, 160

SPT N-values (bpf): dynamic cone; 10, 20, 30, 40

headspace vapour (ppm): hexane, isobutylene; 100, 200, 300

moisture / plasticity: PL, MC, LL; 10, 20, 30

unstabilized water level

lab data and comments

grain size distribution (%) (MIT): GR SA SI CL

Dry and open upon completion of drilling.

file: 20-042 15728 airport rd.gpj

Tech : MG | **PM** : JH | **Rev** : MD

GROUNDED ENGINEERING

Date Started : Mar 6, 2020
Position : E: 591588, N: 4857414 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG P2

File No. : 20-042 **Project** : 15728 Airport Road, Caledon **Client** : Wyndham Holdings Inc.

drill method : CME 45

MSPT OD=50 mm

elev / depth (m)	description	graphic log	number	type	SPT N-value
306.9	**GROUND SURFACE**				
306.7 / 0.2	150mm **TOPSOIL**		1A	SS	
	FILL, sand, some gravel, some silt, trace rootlets, organic odour, compact, dark brown, moist		1B	SS	13
			1C	SS	
	...at 0.5 m, trace gravel		2A	SS	
306.1 / 0.8	...at 0.6 m, silty sand				
	SAND, some silt, compact to loose, dark orangey brown, moist		2B	SS	16
	...at 1.1 m, silty sand		2C	SS	
			3	SS	7
305.1 / 1.8	**END OF BOREHOLE**				

depth scale (m): 0, 1

well details

elevation (m): 306

undrained shear strength (kPa): unconfined, field vane, pocket penetrometer, Lab Vane; 40, 80, 120, 160

SPT N-values (bpf): dynamic cone; 10, 20, 30, 40

headspace vapour (ppm): hexane, isobutylene; 100, 200, 300

moisture / plasticity: PL, MC, LL; 10, 20, 30

unstabilized water level

lab data and comments

grain size distribution (%) (MIT): GR SA SI CL

Dry and open upon completion of drilling.

file: 20-042 15728 airport rd.gpj

Tech : MG | **PM** : JH | **Rev** : MD

GROUNDED ENGINEERING

Date Started : Mar 6, 2020
Position : E: 591621, N: 4857432 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG P3

File No. : 20-042 **Project** : 15728 Airport Road, Caledon **Client** : Wyndham Holdings Inc.

drill method : CME 45

elev / depth (m)	description	graphic log	number	type	SPT N-value
306.6	**GROUND SURFACE**				
306.4 / 0.2	150mm **TOPSOIL**		1A	SS	
	FILL, sand and silt, trace clay, trace gravel, organic odour, loose to compact, dark brown to brown, moist		1B	SS	4
			1C	SS	
	...at 0.5 m, moist to wet, trace rootlets		2A	SS	10
			2B	SS	
305.2 / 1.4			3A	SS	
	SAND AND SILT, trace clay, trace gravel, compact, brown, moist (GLACIAL TILL)		3B	SS	12
304.8 / 1.8	**END OF BOREHOLE**				

MSPT OD=50 mm

Dry and open upon completion of drilling.

well details

undrained shear strength (kPa): unconfined, field vane, pocket penetrometer, Lab Vane; SPT N-values (bpf): dynamic cone

headspace vapour (ppm): hexane, isobutylene; moisture / plasticity: PL, MC, LL

unstabilized water level

lab data and comments

grain size distribution (%) (MIT): GR SA SI CL

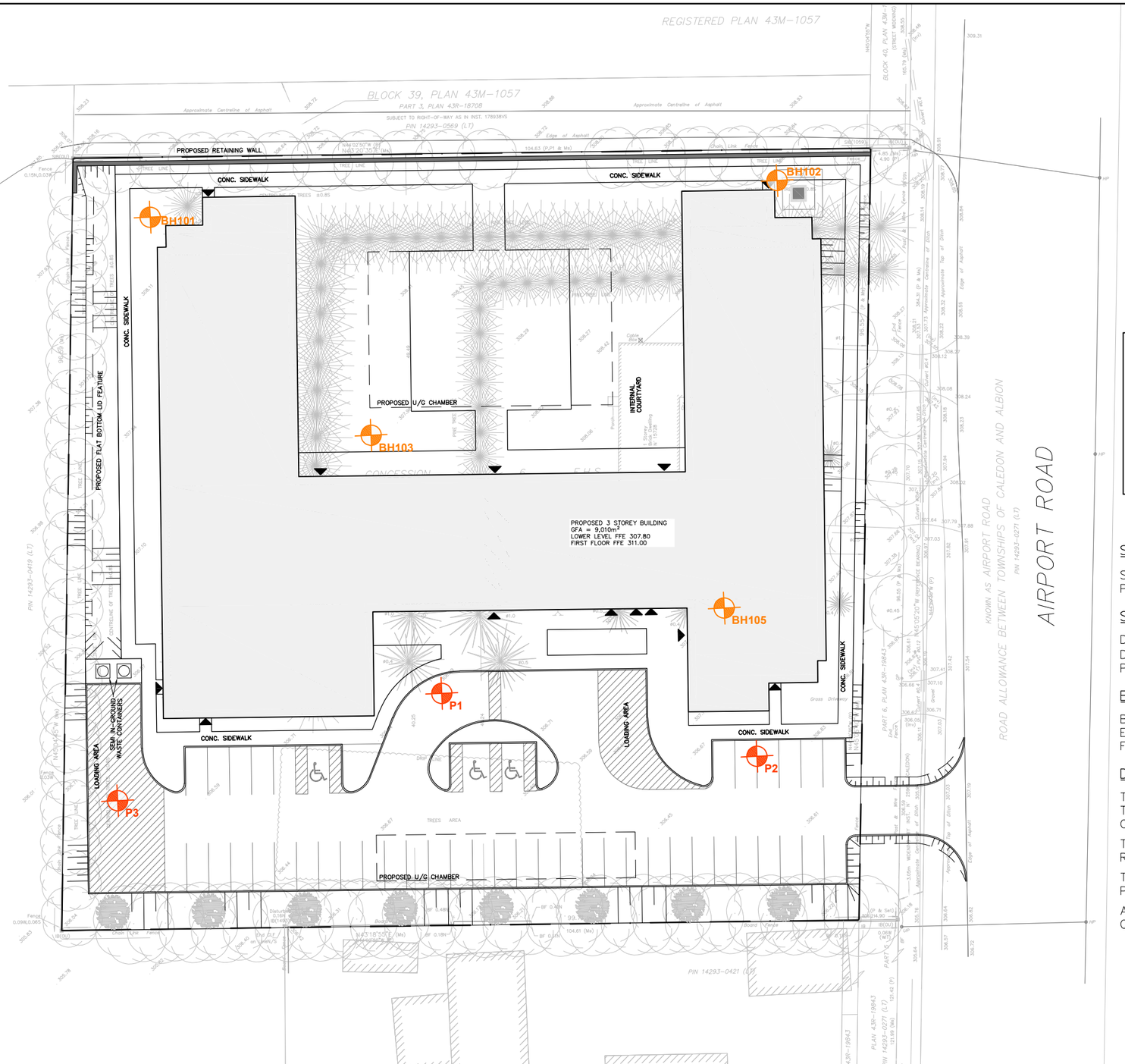
FIGURES

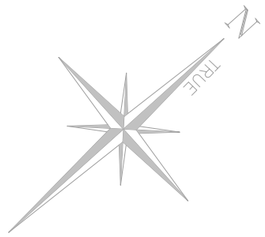
N
TRUE

Project	WYNDHAM RESIDENCE 15728 AIRPORT ROAD TOWN OF CALEDON
Drawing	SITE LOCATION PLAN

CROZIER CONSULTING ENGINEERS
2800 High Point Drive
Suite 100
Milton, ON L9T 6P4
905-875-0026 T
905-875-4915 F
www.cfcrozier.ca

Drawn By	D.D.	Design By		Project	1856-5524
Scale	N.T.S.	Date	OCT 2020	Check By	C.G.
Drawing	FIGURE 1				





LEGEND

PROPERTY LINE

PARKING BOREHOLE

BOREHOLE

SURVEY NOTES:

SURVEY COMPLETED BY YOUNG & YOUNG SURVEYING INC. (MAY 29, 2018)
PROJECT No. 18-B7160

SITE PLAN NOTES:

DESIGN ELEMENTS ARE BASED ON SITE PLAN BY ABA ARCHITECTS INC.
DRAWING: SITE PLAN (2020-05-19)
PROJECT No. 2018-127

BOREHOLE NOTES:

BOREHOLE LOCATION IS BASED ON GEOTECHNICAL REPORT PREPARED BY GROUNDED ENGINEERING.
FILE NO. 20-042, FIGURE 2

DRAWING NOTES:

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO THIS OFFICE PRIOR TO CONSTRUCTION.

THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT. DO NOT SCALE THIS DRAWING.

ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

Project: WYNDHAM RESIDENCE
15728 AIRPORT ROAD
TOWN OF CALEDON

Drawing: BOREHOLE LOCATION PLAN

CROZIER CONSULTING ENGINEERS
2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON L9T 6P4
905-875-0026 T
905-875-4915 F
WWW.CFCROZIER.CA

Drawn By	Design By	Project
D.D.		1856-5524

Scale	Date	Check By	Drawing
N.T.S.	OCT 2020	C.G.	FIGURE 2