Geotechnical Summary

Final Revision 0

Hillside Subdivision
Lake Street, Picton

March 24, 2025
Jp2g Project # 23-3-6593

GREER GALLOWAY
a division of Jp2g Consultants Inc.

Table of Contents

Annexes
Annex A: Lake Street Development, Picton Geotech Report
Annex B: 287 Lake Street, Picton Geotech Report

Author and Review Panel

Prepared by:

Peter Zandbergen, P.Eng.
Project Manager

1 Summary

Greer Galloway completed geotechnical studies for the properties forming the Hillside development (Lot 23, Concession 3, Military Tract, and Lot 23, Concession 2, Military Tract).

The properties are adjacent and have similar layers of topsoil, silt and clay, fractured limestone, and flat limestone bedrock. Generally, bedrock is found deeper on the south portion of the development. Soils across the development can be classified as Type 3 soils. Soil corrosivity is generally rated as 'low'.

Dewatering during construction is expected to displace less than 50,000L/day except in localized regions. Where higher volumes are expected to be removed, EASRs for the removal of water will be required.

Seismic Parameters vary across the development based on the local conditions. Detailed discussion is found the reports at Annexes A and B.

Frost penetration depth across the site is 1.5m. This shall be accounted when selecting concrete cement for the structures.

Excavated soils may be re-used on site except as fill beneath structures. Depending on the soil types they may be reused for landscaping or as general subgrade for roadways.

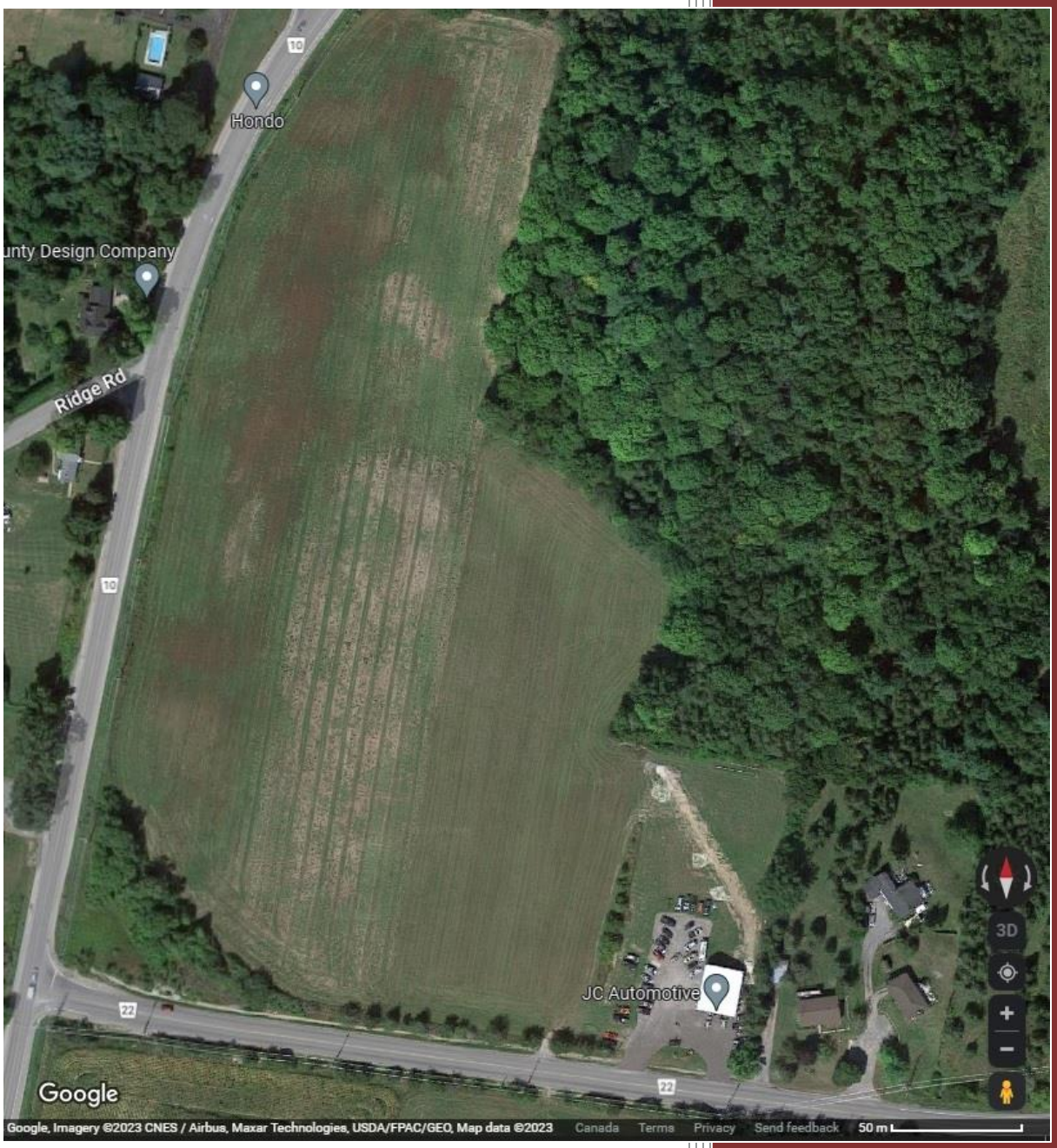
Detailed reports are included as Annex A and Annex B to this cover.

End of report.

Annex A: Lake Street Development, Picton
Geotech Report

Project No. 22-3-6559

Lake Street Development, Picton
Geotech Report



Terraspec Engineering Inc.
Geotechnical Engineers
973 Crawford Drive
Peterborough, Ontario
K9J 3X1

TABLE OF CONTENTS

APPENDICES

terraspec engineering inc.
geotechnical engineers and materials testing

973 Crawford Drive
Peterborough, Ontario **Phone: (705) 743-7880**
K9J 3X1 **Fax: (705) 743-9592**

June 27, 2023

The Greer Galloway Group Inc.
1620 Wallbridge Loyalist Road
Belleville, Ontario
K8N 4Z5

Re: Geotechnical Report for 318 Lake Street, Picton
Project No. 22-3-6559

General Site Data
The project site is located at 318 Lake Street, in the town of Picton, Ontario. Development of a new residential subdivision is contemplated for the site. A schematic site plan indicating the extent of the property has been appended to this report.

Investigation
A soils investigation was conducted for the property on March 20, 2023. Ten exploratory boreholes were placed on site using a track-mounted drill rig with solid stem augers. Soil laboratory testing consisted of moisture content determination and grain size analysis. Additional test pits were placed on May 3 to get a better look at the subsoil conditions. The test hole logs and laboratory testing data have been appended to this report. The test hole locations have been indicated on the appended site plan.

Soil Conditions
There are clay plains and an esker to the west of the site and beveled till plains to the east. The airport on the east side is located on the limestone plain. The project site is located on beveled till plains. The subsoils in the beveled till plain are typically silt or clay, overlying limestone bedrock of the Trenton Group. The project location contains clay or silt subsoils. There were two typical soil types encountered on site, as follows:

clayey topsoil
silty clay
silty clay some gravel
silty clay with gravel till
silty clay sand with gravel till
bedrock

silty topsoil
silt
silt some gravel till
bedrock

The project site is currently undeveloped and is used for growing crops such as corn.
There is a forested area on the high ground which generally covers the east side of the property.
The topsoil depths were generally 100 to 150mm thick.
The underlying clay subsoils were generally in a moist and very stiff condition.
The silt subsoils were relatively dry and typically in a loose to compact condition. The silt was generally non-plastic. There was occasional perched water within the sandy clay subsoils, hence, these soils can readily become spongey when disturbed, even when recompacted.
The susceptibility to frost action for all subsoils was generally rated as medium to high.
Refusal was encountered at various locations on site, due to underlying limestone bedrock, and also due to very dense till materials. Bedrock was encountered in boreholes 1, 2, 4, 5, 9, 10, 11.
The limestone bedrock condition is typically 'broken' on the initial contact surface.

Groundwater was scarcely encountered on the site, except within the natural low area located at borehole 10. Groundwater was encountered at a depth of 2.13m below surface at borehole 10. A monitoring well was installed at Borehole 10. The well construction consisted of 1.5m of 10slot screen with clean sand fill, and 3.95m of pipe casing, sealed with bentonite fill, and fitted with a lockable steel monument cap. The well pipe material consisted of 50mm diameter flush-threaded schedule 40 PVC pipe, with rubber O-ring seals to prevent leakage. The water level was measured later in the day and found to have risen in the well to 0.305m below ground surface. On May 3, the water level remained at 0.305m below ground surface.

Permeability
The percolation rates of the subsoil types have been estimated as follows:

silty clay	T=50 min/cm	silt	T=40 min/cm
silty clay some gravel	T=50 min/cm	silt some gravel till	T=50 min/cm
silty clay with gravel till	T=50 min/cm		

OHSA Soil Types
The subsoils present on site can be classified as Type 3 soils. The Type 3 soils can behave as Type 4 collapsing soils, even with small amounts of perched water seepage, or where the groundwater elevation is contacted. The subsoils should be treated as Type 4 soils for any construction work that will take place under these conditions.

Chemical Testing
Standard chemical testing was conducted on 4 soil samples (S1, S3, S4, S5), and soil corrosivity testing was conducted on 2 soil samples (S4, S5). There were no issues with the test results with respect to the allowable limits. Metals appeared to be slightly elevated in soil sample S1.
The soil corrosivity was generally rated as 'low'.

Recommendations

Review of Foundation Soils
The forested high ground on the east side of the site was not readily accessible, due to the density of tree coverage. This high ground area is believed to have bedrock close to surface. Groundwater is not readily available on the east high ground nor on the west low ground. It is understood that groundwater is more readily available just beyond the northeast corner of project site. There was a drilled well in the bedrock on the northwest corner of the AP Automotive property. The bedrock wells on this site are typically 24 to 46m deep.

Further excavation of test pits was recommended to better understand the condition of the bedrock and till surfaces for the proposed apartment building and the proposed stormwater pond. It will be preferable to shift the location of the apartment building onto the dense soil or bedrock as opposed to the loose silt subsoil. Similarly, the proposed storm water pond could be relocated to reduce the need for bedrock excavation.
Additional test pits were placed on May 3.
The stormwater pond could be moved slightly north towards test hole 6.
The apartment buildings could be placed at alternate locations, such as south of test hole 18 (on the low ground), or south of test hole 8a (on the high ground).

Foundations
Recommendations for placement of shallow foundations for small buildings such as houses onto the clay subsoils are as follows. Footings must be placed such that they will be a minimum 1.5m below the finished ground elevation, for frost protection. It is suggested that spread or strip footings may be placed onto the undisturbed subsoils, beginning at a typical depth of 1.2m below existing ground surface for the clay subsoils. The following natural soil bearing capacities will typically be available at the base of the new footings:

Clay subsoils:
Factored ULS bearing capacity: 180 kPa
SLS allowable bearing capacity: 120 kPa

These capacities are based on standard settlement values of 25mm maximum total settlement, and 19mm maximum differential settlement.

Under the supervision of a geotechnical firm, encountered soft areas can typically be removed by over-excavation where necessary, then back-filled and compacted using 3inch minus crushed rock material. Note that there is high groundwater in the clay subsoil at borehole 10; this wet area is generally not ideal for new houses.

The following bearing capacities may be used for the sound bedrock subgrade.

Sound bedrock subgrade:
Factored ULS bearing capacity: 706 kPa
SLS allowable bearing capacity: 600 kPa

Tall Buildings:
Caissons and at least one caisson test will be required for tall structures (such as the apartment buildings), if placed in the silt or clay subsoils. A standard caisson diameter is 1180mm, with a typical estimated capacity of 1000 kN SLS. Caissons require socketing into the sound bedrock. Micro piles may also be an option. A caisson or micro pile test on site must be conducted to determine the maximum load capacity to be used for caissons / micro piles. These tests can be done just before or at the onset of construction. Note that there is an active seismic zone in Picton. Design consideration should be given to the use of a structural main floor slab in the apartment buildings, due to the condition of the silt and clay subgrades.

Subgrade Inspection
Once exposed during construction, it would be advisable to have all intended bearing surfaces examined by a geotechnical firm in order to ensure that the intended bearing surface area is consistent with the conditions encountered at the borehole locations, and that the bearing capacity will be sufficient for the proposed new buildings and structures.

Reinforcing Steel
Placement of longitudinal reinforcing steel within the footings is desirable for this site.

Dewatering – Low Volume
Based on the borehole data, excavations within the subsoils are not expected to require extensive dewatering, except for the area near borehole 10. A continuous pumping operation with sump equipment is anticipated to be sufficient for routine dewatering, which is expected to displace less than 50,000 L/day.

Where more extensive dewatering is anticipated/proposed, a permit should be obtained for construction dewatering works under the Ministry of the Environment, Conservation and Parks (MECP) Environmental Activity and Sector Registry (EASR), which applies for taking of groundwater and stormwater for construction dewatering purposes that total less than 400,000 L/day. This approach would accommodate groundwater inflows from sand lenses which can be encountered in this area. An EASR will also provide the contractor with greater flexibility in managing groundwater seepage and stormwater flows since it replaces the need for an ECA for discharge under most circumstances.

Dewatering – General Requirements
Care should be taken to prevent ponding or inundation due to rain, and to control excess run-off that could cause erosion. The construction contract should stipulate that the integrity of all natural soil surfaces and soil bearing surfaces must be preserved at all times. Therefore, all excavations on site must be protected from high moisture levels due to rainfall or accumulating groundwater, using appropriate dewatering techniques.

Seismic Parameters
The following seismic design parameters may be utilized:

Foundation on natural subsoils:
Site Class D Soil Shear Wave Average Velocity (m/s) = 180 < Vs < 360

Foundation on sound bedrock:
Site Class C Soil Shear Wave Average Velocity (m/s) = 360 < Vs < 760

The peak ground acceleration value for the Picton area, as given by the OBC, is 0.140.

Geotechnical Parameters
For calculating vertical and lateral earth pressures and other geotechnical parameters, the following unfactored coefficients may be utilized:

Parameter	Existing silt	Existing silty clay
internal friction angle	30°	31°
Ka	0.33	0.32
Ko	0.50	0.48
Kp	3.00	3.12
Moist unit weight	19.0 kN/m3	19.5 kN/m3
Coefficient of friction for the concrete/subsoil interface	0.35	0.40

typical imported sandy Granular B Type 1 backfill
internal friction angle = 32°
Ka = 0.31, Ko = 0.47, Kp = 3.25
Moist unit weight = 22.3 kN/m3

typical imported gravelly Granular B Type 1 backfill
internal friction angle = 35°
Ka = 0.27, Ko = 0.43, Kp = 3.69
Moist unit weight = 23.0 kN/m3

Subdrains
Subdrain installations should consist of a perforated geotextile-wrapped pipe, placed at the footing depth along the outside perimeter of the footings. The subdrain pipe should have a minimum diameter of 150mm and must be graded to a positive outlet away from the foundation. Backfill to the subdrain trenches should consist of OPSS 1004 Clear Stone. The type of back fill placed against the building over the subdrains should be a free-draining Granular B Type 1 material, placed full-depth to prevent the build-up of water pressure against the exterior walls of the building. Careful finished grading of the site should be applied to prevent the influx of storm water and surface runoff towards the foundation walls of the building.

Subdrains are required for below-grade building levels such as basements. If basement levels are contemplated, individual assessments on a per lot basis will be required to determine acceptable basement floor elevations with respect to the varying water table, as well as perched

water seepage above the water table.

Floor Slabs on Grade
The following minimum requirements are recommended for standard slab-on-grade floors, for short buildings such as houses:

Concrete Slab	127mm
OPSS 1010 Granular A or Clear Stone base	150mm
OPSS 1010 Granular B Type 1 subbase	200mm
Over compact native subgrade soil	

The subgrade soil surface to remain should undergo proof-rolling to ensure that it is acceptable for placement of the base and subbase materials. Remove all deleterious soil such as topsoil and organics, from beneath the new floor area. It is recommended that a concrete compressive strength of 20 to 25MPa be utilized for interior floor slabs.

Concrete
The frost penetration treatment depth for this site is 1.5m. Use CSA concrete classes C1 or C2, and F1 or F2, as appropriate to the various structure elements in the buildings.
Standard Type 10 concrete cement will be suitable for this project.

Pipe Installation
For new underground piping, utilize the following OPSD Standards for pipe installation:

For soil subgrade:

OPSD 802.010	Flexible Pipe	-	Type 3 Earth Excavation
OPSD 802.031	Rigid Pipe	-	Type 3 Earth Excavation, Class B

For bedrock subgrade:

OPSD 802.013	Flexible Pipe	-	Rock Excavation
OPSD 802.033	Rigid Pipe	-	Rock Excavation, Class B

Utilize the granular bedding and cover depths as specified in the applicable OPSD standards listed above. For normal subgrade conditions, OPSS Granular A may be utilized for pipe embedment and pipe cover material for new piping.

For wet subgrade conditions, a crushed rock or gravel should be utilized for pipe embedment and pipe cover material for new piping. A suitable material would be OPSS 1010 Granular B Type 2 with 100% passing the 50mm sieve, or clear stone such as OPSS 1004 19mm Clear Stone.

Frost protection for underground piping should be utilized as per the following OPSD standards, with a frost treatment depth of k = 1.5m:

OPSD 803.030	Frost Penetration Line Below Bedding Grade

OPSD 803.031 Frost Penetration Line Above Bedding Grade

Reuse of Subsoils

The natural subsoils found on site cannot be used as fill beneath structures. Any fill required beneath new structures must consist of an engineered granular fill. The minimum requirement for an engineered fill is OPSS 1010 Granular B Type 1, however, there are other options available, such as 3inch minus rock fill. Any existing topsoil materials must be stripped from the site prior to placing new fill material.

Given the size of the development, it is possible that excess soils generated from excavation could probably be re-used at other locations on the project site, such as for landscaping.

The **silty** subsoils on site are acceptable as general subgrade fill for the roadway and landscaping areas. Note in the contract that for the **clayey** subsoil types, these soils can readily become spongey when disturbed, even when recompacted. Great care is required to maintain both soil types at the proper moisture content to obtain sufficient compaction.

Pavement Design

For the new roadways, remove all organic soil from the subgrade surface. Provide earth grading and cross fall as per OPSD 200.01 to prevent ponding of water on the soil subgrade, and to provide effective drainage of the new pavement structure.

Apply proof-rolling to the subgrade soil to ensure that it is acceptable for placement of the new granular subbase and base materials.

The following minimum pavement design as per OPSS 1150 specifications is recommended for placement of new pavement:

Pavement Structure

40mm	HL3 surface course
50mm	HL8 binder course
150mm	OPSS 1010 Granular A base
400mm	OPSS 1010 Granular B Type 1 subbase

Over compact native subgrade soil or approved fill

It will also be acceptable to substitute SuperPave hot mix as per OPSS 1151, such as SP12.5 over SP19.0.

The asphalt cement should have a minimum rating of PGAC 58 -34.
Tack-coat the hot mix substrate, as per OPSS.PROV 308, prior to placing the surface course lift of hot mix. Stipulate in the contract that all hot mix paving operations shall be carried out in accordance with OPSS 310 specifications.

Compaction Requirements
All natural soil and all granular fill compaction requirements for the project should conform with OPSS 501, Subsection 501.08.02 - Method A, utilizing soil placement in maximum 300mm lifts and a compaction standard of 100% of Standard Proctor Maximum Dry Density.

Statement of Limitations
This report is intended for the guidance of the project design team. From a construction standpoint, contractors are required to make their own assessment of the soil, rock, and groundwater conditions and how these will affect their proposed construction techniques and schedules.

The recommendations in this report are based on information obtained from exploratory test holes. Soils, bedrock, and groundwater conditions may differ from those encountered at the time of investigation and conditions may become apparent during construction that could not be detected or anticipated at the time of the investigation. If this occurs, we recommend that Terraspec be contacted for further consultation and analysis.

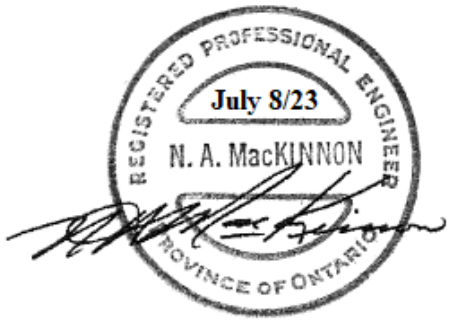
We recommend that Terraspec be retained to ensure that all subgrade preparation requirements are met, and to confirm that the soil and rock conditions encountered during construction are acceptable as per the geotechnical design.

Elevations listed in the document are approximate. Where interaction with bedrock is proposed, a contingency cost item should be included in the contract to allow for possible unforeseen subgrade conditions.

This report is applicable only to this project in accordance with details quoted in the text.
The company retains ownership of the geotechnical design and this report.
The company's responsibility is limited to interpreting information from test hole data and the company's liability is limited to the invoiced value of this report.

~ ~ ~

TERRASPEC ENGINEERING INC.
GEOTECHNICAL ENGINEERS



Shane Galloway, B.A.
Manager

N.A. MacKinnon, P.Eng.
Senior Engineer

Borehole Data
March 20, 2023

Notes

1. Soil types, strata, and groundwater conditions have been established only at test hole locations.
2. Soils are described according to the MTO Soils Classification System and OPSD 100.06.
3. Dimensions are in millimetres up to 1 metre, then in metres thereafter.

Abbreviations

asph	-	asphalt	&	-	and
blds	-	boulders	w	-	with
blk	-	black	so	-	some
br	-	brown	tr	-	trace
BR	-	bedrock			
cl	-	clay(ey)	S	-	soil sample
cob	-	cobbles	Su	-	vane shear strength (kPa)
conc	-	concrete	N	-	estimated blow counts per 0.3m
cr	-	crushed			
f	-	fine			
gr	-	gravel(ly)			
gry	-	grey			
med	-	medium			
NFP	-	no further progress			
org	-	organics			
RF	-	rock fill			
sa	-	sand(y)			
si	-	silt(y)			
tps	-	topsoil			

1

0	-	50	br si tps	
50	-	2.10	br si -moist, loose	S4 at 0.5m
-compact at 910mm				
2.10	-	3.05	br si -moist, compact	Type 3 / Type 4 when wet
3.05			NFP, BR	

2

0	-	180	br cl tps	
180	-	500	br si cl -moist, stiff	
500			NFP, BR	

11

0	-	90	br si tps	
90	-	4.72	br si -moist, loose	
At 1.5m N=5				
-compact at 3m				
At 4.6m N=11				
4.72	-	5.75	gry/br si -moist, compact	
5.75			NFP, BR inferred	
-water not encountered				

4

0	-	60	br si tps	
60	-	4.88	br si -moist, loose	S5 at 1.2m
At 1.2m N=8				
-compact at 1.5m				
At 1.8m N=9				
4.88	-	5.45	br si -moist, compact	
-so gr at 5.18m				
5.45			NFP, BR	
-trace water seepage at 5.32m				

5

0	-	200	br cl tps	
200	-	2.44	br cl si -moist, very stiff	S3 at 0.5m
At 1.2m Su=120 kPa				
At 1.8m Su=150 kPa				
2.44			NFP, BR	

8

0	-	50	br si tps	
50	-	1.37	br si so gr -dry, compact	
At 0.9m N=20				
1.37			NFP, very dense till	

10

0	-	100	br cl tps	
100	-	2.13	br si cl -moist, very stiff	S2 at 1.0m
At 1.5m N=10				
2.13	-	3.86	br si cl so gr -moist, very stiff	
At 3.0m N=7				
3.86	-	5.45	br si cl sa w gr till -wet, dense	
At 4.5m Su=200 kPa				
5.45			NFP, BR	
-water encountered at 2.13m				

Monitoring Well installed:
5.45 - 3.93m 10slot screen
5.45 - 3.35m well sand fill
3.35 - 0m bentonite seal
-water rose to 0.305m below ground surface

7

0	-	50	br si tps
50	-	450	br si so gr -dry, dense
450	-	760	gry si so gr -dry, dense
760			NFP, very dense till

6

0	-	150	br cl tps
150	-	1.50	br si cl -moist, very stiff

At 1.2m Su=150 kPa

1.50	-	1.90	br si cl w gr till -moist, very stiff to hard
1.9			NFP, very dense till

9

0	-	70	br cl tps	
70	-	1.52	br si cl sa w gr till -moist, compact	S1 at 1.2m
1.52			NFP, BR	

Laboratory Test Data

Soil Sample	**S1**	**S2**	**S3**	
Sieve	**% Passing**			
26.5mm	100	100	100	grain size
19.0mm	97.8	100	100	
13.2mm	96.9	100	100	
9.50mm	90.7	100	100	
4.75mm	74.3	99.2	99.5	
2.00mm	62.7	98.7	99.3	
850um	56.9	98.3	99.0	
425um	51.5	97.8	98.6	
250um	46.4	97.1	98.4	
106um	37.1	94.2	97.2	
75um	34.3	92.4	96.5	
ASTM	SC-SM	CL	ML	soil classification
frost rating	Low	Med	High	susceptibility to frost heave
liquid limit	25.7	38.1	24.7	
plastic limit	17.9	21.8	24.7	
plastic index	7.8	16.3	0.0	
% moisture	13.4	25.3	20.2	moisture content

Soil Sample	**S4**	**S5**	
Sieve	**% Passing**		
4.75mm	100	100	grain size
2.36mm	100	100	
1.18mm	100	100	
600um	100	99.9	
300um	99.9	99.7	
150um	96.8	95.0	
75um	61.6	55.1	
ASTM	ML	ML	soil classification
frost rating	High	High	susceptibility to frost heave
% moisture	17.0	15.6	moisture content

Test Pit Data
March 20, 2023

22

0	-	100	br si tps	
100	-	2.80	br si -moist, compact	Type 3
2.80			NFP, flat limestone BR	

21

0	-	130	br si tps	
130	-	3.35	br si -moist, loose to compact	Type 3

19

0	-	110	br si tps	
110	-	3.05	br si -moist, loose	Type 3/Type 4 if disturbed or wet

-not plastic

20

0	-	150	br si tps	
150	-	3.35	br si -moist, loose	Type 3/Type 4 if disturbed or wet

-collapsing at 2m

18

0	-	100	br si tps	
100	-	450	br si -moist, loose	
450			NFP, flat limestone BR	

8a

0	-	150	br si tps	
150	-	1.50	br si -moist, loose	Type 3/Type 4 if disturbed or wet
1.50			NFP, flat limestone BR	

-slight perched water seepage over BR surface

23

0	-	150	br si tps	
150	-	850	br fractured limestone w si sa -moist, compact	
850			NFP, flat limestone BR	

17

0	-	150	br si tps	
150	-	700	br si -moist, loose to compact	
700	-	2.33	lt br si so gr/cob -moist, compact	

-so blds after 1.5m

2.33			NFP, flat limestone BR	

13

0	-	100	br cl tps
100	-	620	br si cl -moist, stiff
620			NFP, flat limestone BR

-some fractures on BR surface

6

0	-	150	br cl tps
150	-	600	br si cl sa -moist, compact
600	-	850	br si cl sa -moist, stiff
850	-	1.60	lt br si cl w fractured limestone -moist, stiff

-some perched water seepage from upper soils at 800mm

7a

0	-	100	br cl tps
100	-	600	br si sa w fractured limestone -moist, compact
600			NFP, flat limestone BR

16

0	-	130	br cl tps
130	-	700	br si sa w fractured limestone -moist, compact
700			NFP, flat limestone BR

14

0	-	120	br cl tps
120	-	720	br si cl -moist, very stiff
720	-	800	fractured limestone BR
800			NFP, flat limestone BR

-slight perched water on top of BR surface

15

0	-	150	br cl tps
150	-	610	br si cl sa -moist, compact
610	-	1.30	br fractured limestone w si sa -moist, compact to dense

-blds up to 610mm diameter

1.30			NFP, dense blds

24

0	-	180	br cl tps
180	-	500	br fractured limestone w si sa -moist, compact
500			NFP, flat limestone BR

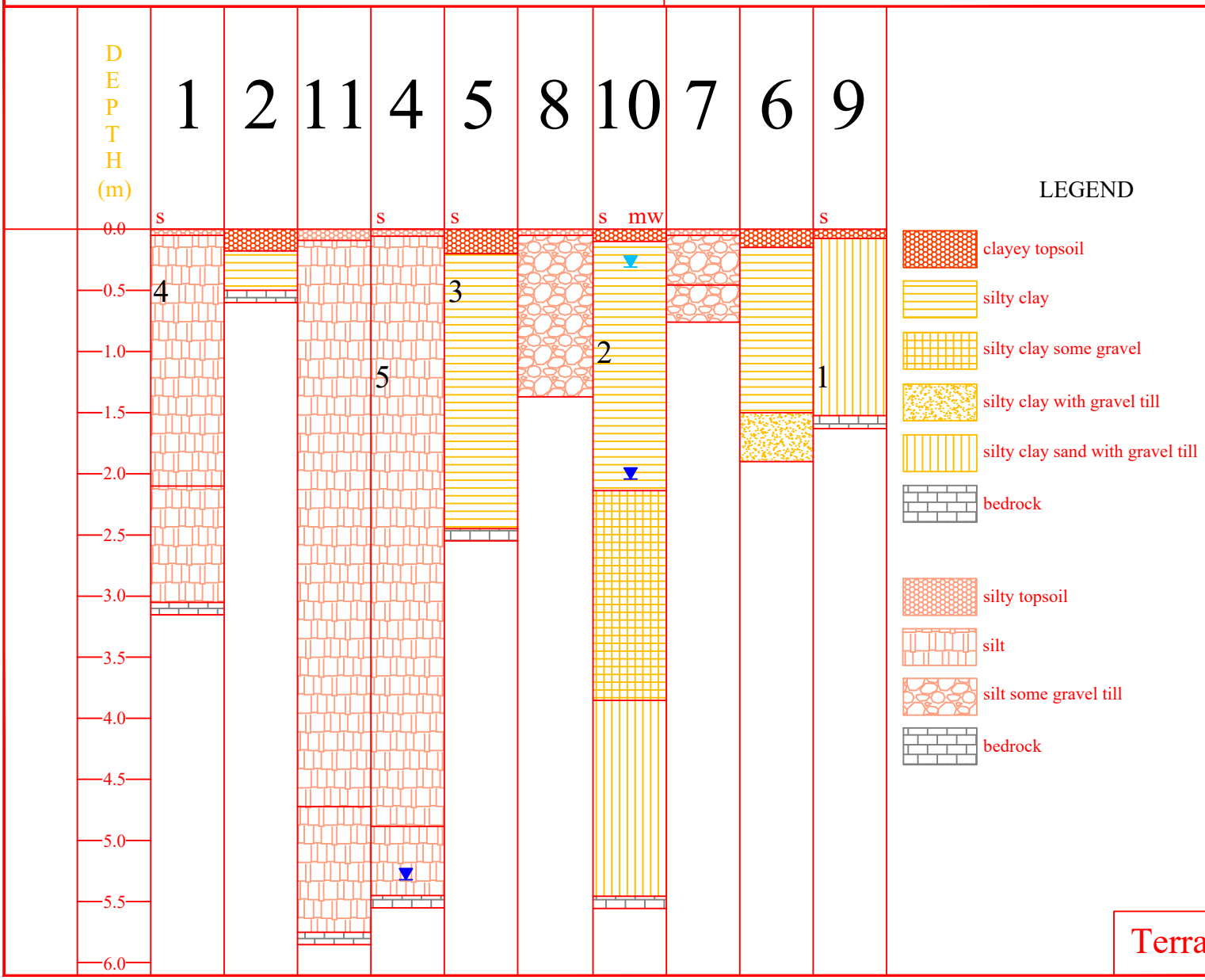
12

0	-	110	br si tps
110	-	400	br si sa -moist, compact
400	-	700	br si cl sa -moist, compact
700			NFP, flat limestone BR

BOREHOLE LOG DATA

PROJECT No.: 22-3-6559
CLIENT: High Street Acquisitions
PROJECT: 318 Lake Street, Picton
DATE: March 20, 2023

SOIL DATA
METHOD: 130mm solid stem auger
s = sample
mw = monitoring well
▼ encountered water elevation



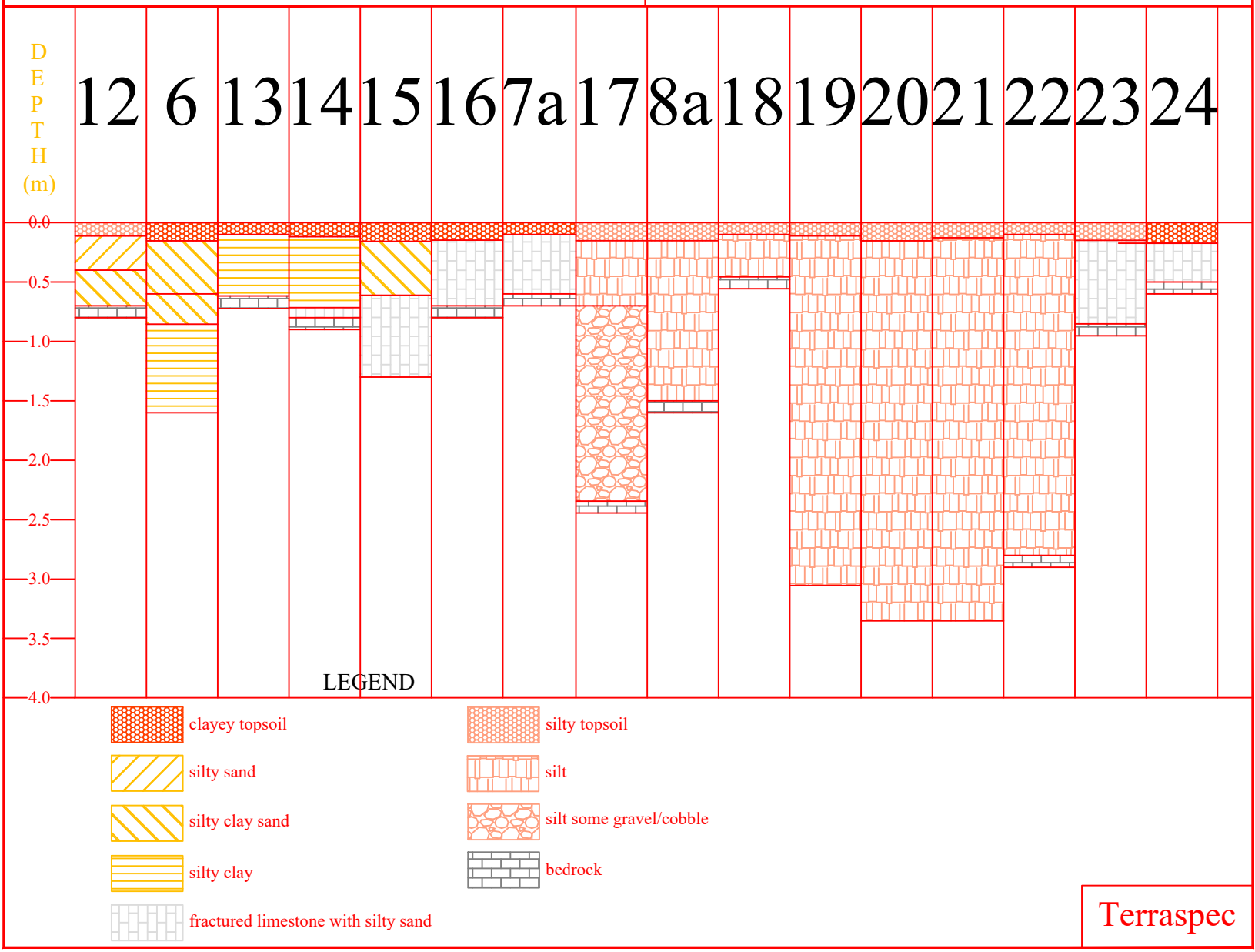
Terraspec

TEST HOLE LOG DATA

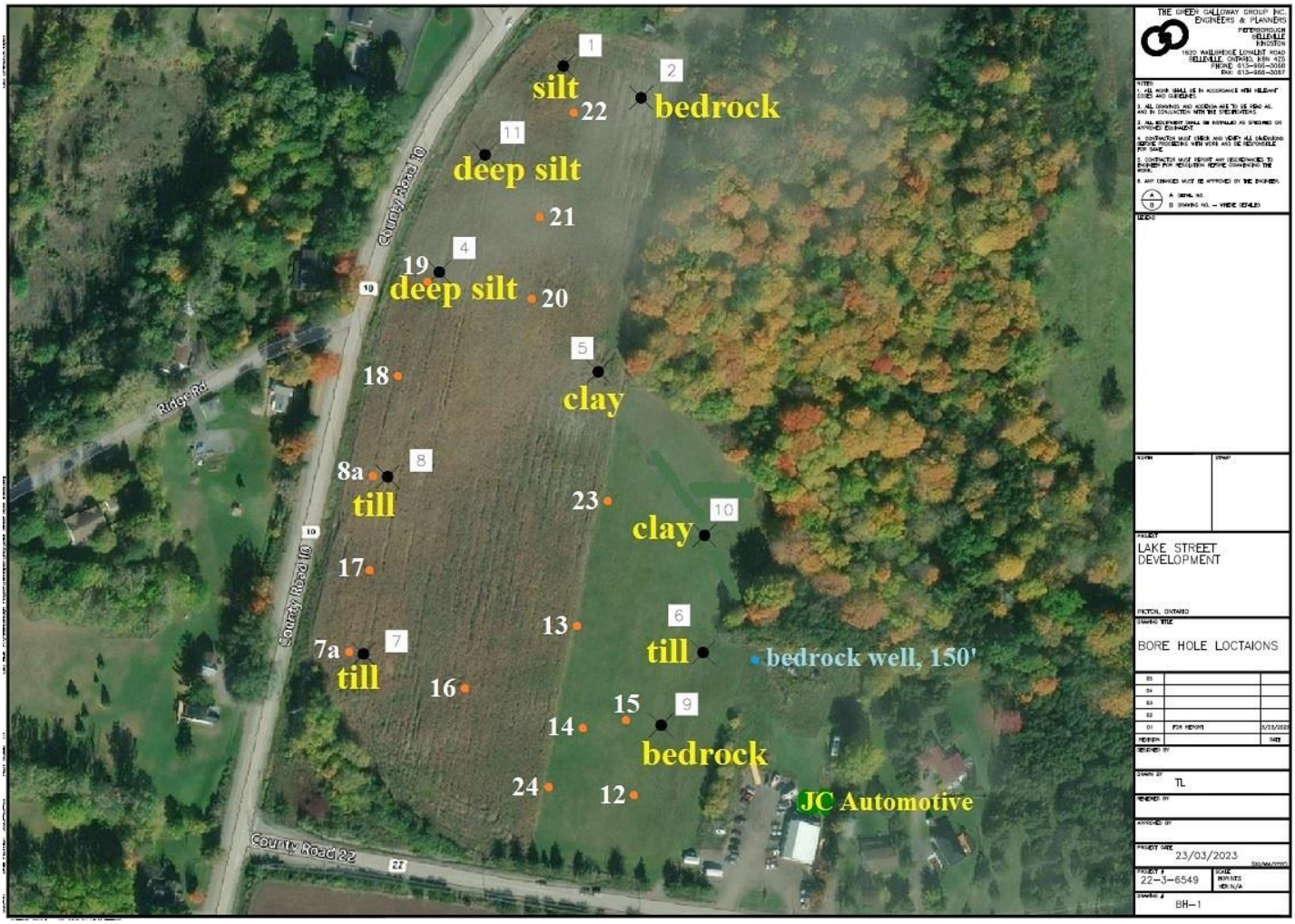
PROJECT No.: 22-3-6559
CLIENT: High Street Acquisitions
PROJECT: 318 Lake Street, Picton
DATE: May 3, 2023

SOIL DATA
METHOD: Excavation

▼ encountered water elevation



Terraspec



Site Plan with Test Hole Locations

Photo of Test Pit 6

Photo of Test Pit 16

Photo of Test Pit 17

CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured. Canadian owned.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: G102343 **REPORT No: 23-005635 - Rev. 0**

Report To:
The Greer Galloway Group
1620 Wallbridge-Loyalist Road, RR #5
Belleville, ON K8N 4Z5

CADUCEON Environmental Laboratories
110 West Beaver Creek Rd
Unit #14
Richmond Hill, ON L4B 1J9

Attention: Shane Galloway

DATE RECEIVED: 2023-Mar-28
DATE REPORTED: 2023-Apr-13
SAMPLE MATRIX: Soil

CUSTOMER PROJECT: Lake Street
P.O. NUMBER:

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Conductivity Meter (Solid)	4	OTTAWA	STAILLON	2023-Apr-03	A-COND-03	MECP E3530
Cyanide WAD (Solid)	4	KINGSTON	KWELCH	2023-Mar-31	CN-001	EPA 9012B
Boron-HWS (Solid)	4	OTTAWA	NHOGAN	2023-Apr-03	D-ICP-01	MECP E3470
Chromium VI (Solid)	4	OTTAWA	STAILLON	2023-Apr-03	D-CRVI-02	EPA 7196A
ICP/MS (Solid)	4	OTTAWA	TPRICE	2023-Apr-04	D-ICPMS-01	EPA 6020B
ICP/OES (Solid)	4	OTTAWA	NHOGAN	2023-Apr-03	D-ICP-02	EPA 6010
Mercury (Solid)	4	OTTAWA	PBURKILL	2023-Mar-31	D-HG-01	EPA 7471A
SAR analysed by ICPOES (Solid)	4	OTTAWA	NHOGAN	2023-Apr-03	D-ICP-02	EPA 6010
Moisture/Solids (Solid)	4	KINGSTON	KPARKER	2023-Mar-30	% Moisture	SM 2540
PHC F1 (Solid)	4	RICHMOND_HILL	JEVANS	2023-Mar-30	C-VPHS-01	CWS Tier 1
PHC F2-4 (Solid)	4	KINGSTON	KPARKER	2023-Apr-01	PHC-S-001	CWS Tier 1
SVOC - Semi-Volatiles (Solid)	4	KINGSTON	EASIEDU	2023-Mar-31	NAB-S-001	EPA 8270D
VOC-Volatiles (Solid)	4	RICHMOND_HILL	JEVANS	2023-Mar-31	C-VOC-02	EPA 8260

µg/g = micrograms per gram (parts per million) and is equal to mg/Kg
F1 C6-C10 hydrocarbons in µg/g, (F1-btex if requested)
F2 C10-C16 hydrocarbons in µg/g, (F2-napth if requested)
F3 C16-C34 hydrocarbons in µg/g, (F3-pah if requested)
F4 C34-C50 hydrocarbons in µg/g
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
Any deviations from the method are noted and reported for any particular sample.
nC6 and nC10 response factor is within 30% of response factor for toluene:
nC10,nC16 and nC34 response factors within 10% of each other:
C50 response factors within 70% of nC10+nC16+nC34 average:
Linearity is within 15%:
All results expressed on a dry weight basis.
Unless otherwise noted all chromatograms returned to baseline by the retention time of nC50.

R.L. = Reporting Limit
NC = Not Calculated
Test methods may be modified from specified reference method unless indicated by an *

Unless otherwise noted all extraction, analysis, QC requirements and limits for holding time were met.
If analyzed for F4 and F4G they are not to be summed but the greater of the two numbers are to be used in application to the CWS PHC
QC will be made available upon request.

Christine Burke
Laboratory Manager

				Client I.D.	1	3	4	5
				Sample I.D.	23-005635-1	23-005635-2	23-005635-3	23-005635-4
				Date Collected	2023-Mar-20	2023-Mar-20	2023-Mar-20	2023-Mar-20
Parameter	Units	R.L.	Limits	Reg 153/406	-	-	-	-
Conductivity @25°C	mS/cm	0.001	0.47, 0.57	T1AG, T1RPI	0.149	0.153	0.102	0.104
Cyanide (WAD)	µg/g	0.05	0.051, 0.051	T1AG, T1RPI	< 0.05	< 0.05	< 0.05	< 0.05
Barium	µg/g	1	210, 220	T1AG, T1RPI	46	78	16	16
Beryllium	µg/g	0.2	2.5, 2.5	T1AG, T1RPI	<2.0	<2.0	<2.0	<2.0
Boron	µg/g	0.5	36, 36	T1AG, T1RPI	6.9	6.4	3.3	3.2
Cadmium	µg/g	0.5	1, 1.2	T1AG, T1RPI	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	1	67, 70	T1AG, T1RPI	16	18	9	8
Cobalt	µg/g	1	19, 21	T1AG, T1RPI	6	6	3	3
Copper	µg/g	1	62, 92	T1AG, T1RPI	7	12	7	7
Lead	µg/g	5	45, 120	T1AG, T1RPI	7	<5	<5	<5
Molybdenum	µg/g	1	2, 2	T1AG, T1RPI	<1	<1	<1	<1
Nickel	µg/g	1	37, 82	T1AG, T1RPI	11	12	5	5
Vanadium	µg/g	1	86, 86	T1AG, T1RPI	19	29	18	16
Zinc	µg/g	3	290, 290	T1AG, T1RPI	29	25	11	10
Antimony	µg/g	0.5	1, 1.3	T1AG, T1RPI	<0.5	<0.5	<0.5	<0.5
Arsenic	µg/g	0.5	11, 18	T1AG, T1RPI	2.9	1.4	0.9	0.9
Selenium	µg/g	0.5	1.2, 1.5	T1AG, T1RPI	<0.5	<0.5	<0.5	<0.5
Silver	µg/g	0.2	0.5, 0.5	T1AG, T1RPI	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	0.1	1, 1	T1AG, T1RPI	0.1	0.1	<0.1	<0.1
Uranium	µg/g	0.1	1.9, 2.5	T1AG, T1RPI	0.4	0.5	0.4	0.4
Boron (HWS)	µg/g	0.02			0.06	<0.02	<0.02	<0.02

Christine Burke
Laboratory Manager

Parameter	Units	R.L.	Limits	Reg 153/406	Client I.D.	1	3	4	5
					Sample I.D.	23-005635-1	23-005635-2	23-005635-3	23-005635-4
					Date Collected	2023-Mar-20	2023-Mar-20	2023-Mar-20	2023-Mar-20
						-	-	-	-
Chromium (VI)	µg/g	0.2	0.66, 0.66	T1AG, T1RPI		<0.2	<0.2	<0.2	<0.2
Mercury	µg/g	0.01	0.16, 0.27	T1AG, T1RPI		0.02	<0.01	<0.01	<0.01
Sodium Adsorption Ratio	-	-	1, 2.4	T1AG, T1RPI		0.2	0.15	0.1	0.1

Parameter	Units	R.L.	Limits	Reg 153/406	Client I.D.	1	3	4	5
					Sample I.D.	23-005635-1	23-005635-2	23-005635-3	23-005635-4
					Date Collected	2023-Mar-20	2023-Mar-20	2023-Mar-20	2023-Mar-20
						-	-	-	-
Benzene	µg/g	0.02	0.02, 0.02	T1AG, T1RPI		<0.02	<0.02	<0.02	<0.02
Ethylbenzene	µg/g	0.05	0.05, 0.05	T1AG, T1RPI		<0.05	<0.05	<0.05	<0.05
Toluene	µg/g	0.2	0.2, 0.2	T1AG, T1RPI		<0.2	<0.2	<0.2	<0.2
Xylene, m,p-	µg/g	0.03				<0.03	<0.03	<0.03	<0.03
Xylene, m,p,o-	µg/g	0.03	0.05, 0.05	T1AG, T1RPI		<0.03	<0.03	<0.03	<0.03
Xylene, o-	µg/g	0.03				<0.03	<0.03	<0.03	<0.03
PHC F1 (C6-C10)	µg/g	10	17, 25	T1AG, T1RPI		<10	<10	<10	<10
PHC (F1) - BTEX	µg/g	10				<10	<10	<10	<10
PHC F2 (>C10-C16)	µg/g	5	10, 10	T1AG, T1RPI		<5	<5	<5	<5
PHC F3 (>C16-C34)	µg/g	10	240, 240	T1AG, T1RPI		<10	<10	<10	<10
PHC F4 (>C34-C50)	µg/g	10	120, 120	T1AG, T1RPI		<10	<10	<10	<10
Moisture	%	-				10.9	16.2	15.3	13.0

Christine Burke
Laboratory Manager

Final Report

REPORT No: 23-005635 - Rev. 0

				Client I.D.	1	3	4	5
				Sample I.D.	23-005635-1	23-005635-2	23-005635-3	23-005635-4
				Date Collected	2023-Mar-20	2023-Mar-20	2023-Mar-20	2023-Mar-20
Parameter	**Units**	**R.L.**	**Limits**	**Reg 153/406**	-	-	-	-
Acenaphthene	µg/g	0.05	0.05, 0.072	T1AG, T1RPI	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.05	0.093, 0.093	T1AG, T1RPI	<0.05	<0.05	<0.05	<0.05
Anthracene	µg/g	0.05	0.05, 0.16	T1AG, T1RPI	<0.05	<0.05	<0.05	<0.05
Benzo[a]anthracene	µg/g	0.05	0.095, 0.36	T1AG, T1RPI	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.05	0.05, 0.3	T1AG, T1RPI	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.05	0.3, 0.47	T1AG, T1RPI	<0.05	<0.05	<0.05	<0.05
Benzo(b+k)fluoranthene	µg/g	0.05			<0.10	<0.10	<0.10	<0.10
Benzo(g,h,i)perylene	µg/g	0.05	0.2, 0.68	T1AG, T1RPI	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/g	0.05	0.05, 0.48	T1AG, T1RPI	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/g	0.05	0.18, 2.8	T1AG, T1RPI	<0.05	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	µg/g	0.05	0.1, 0.1	T1AG, T1RPI	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.05	0.24, 0.56	T1AG, T1RPI	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	0.05	0.05, 0.12	T1AG, T1RPI	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3,-cd)Pyrene	µg/g	0.05	0.11, 0.23	T1AG, T1RPI	<0.05	<0.05	<0.05	<0.05
Methylnaphthalene,1-	µg/g	0.05			<0.05	<0.05	<0.05	<0.05
Methylnaphthalene,2-	µg/g	0.05			<0.05	<0.05	<0.05	<0.05
Methylnaphthalene,2-(1-)	µg/g	0.05	0.05, 0.59	T1AG, T1RPI	<0.05	<0.05	<0.05	<0.05
Naphthalene	µg/g	0.05	0.05, 0.09	T1AG, T1RPI	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	0.05	0.19, 0.69	T1AG, T1RPI	<0.05	<0.05	<0.05	<0.05
Pyrene	µg/g	0.05	0.19, 1	T1AG, T1RPI	<0.05	<0.05	<0.05	<0.05

Reg 153/406: Reg 153/406
T1AG: R406 Tbl. 1 - Agricultural
T1RPI: R406 Tbl. 1 - RPI

Christine Burke
Laboratory Manager

CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured. Canadian owned.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: G102343 **REPORT No: 23-005637 - Rev. 0**

Report To:
The Greer Galloway Group
1620 Wallbridge-Loyalist Road, RR #5
Belleville, ON K8N 4Z5

CADUCEON Environmental Laboratories
110 West Beaver Creek Rd
Unit #14
Richmond Hill, ON L4B 1J9

Attention: Shane Galloway

DATE RECEIVED: 2023-Mar-28
DATE REPORTED: 2023-Apr-13
SAMPLE MATRIX: Soil

CUSTOMER PROJECT: Lake Street
P.O. NUMBER:

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Solid)	2	OTTAWA	PCURIEL	2023-Apr-11	A-IC-01	SM 4110B
pH Meter (Solid)	2	RICHMOND_HILL	JEVANS	2023-Apr-04	pH-03	MECP E3530
Redox Potential (Solid)	2	RICHMOND_HILL	FLENA	2023-Apr-06	In House	SM 2580
Resistivity (Solid)	2	OTTAWA	CBURKE	2023-Apr-03	COND-01	SM 2510B
Sulphide Solid (Subcontracted)	2	TESTMARK	CBURKE	2023-Mar-31		Subcontracted

R.L. = Reporting Limit
NC = Not Calculated
Test methods may be modified from specified reference method unless indicated by an *

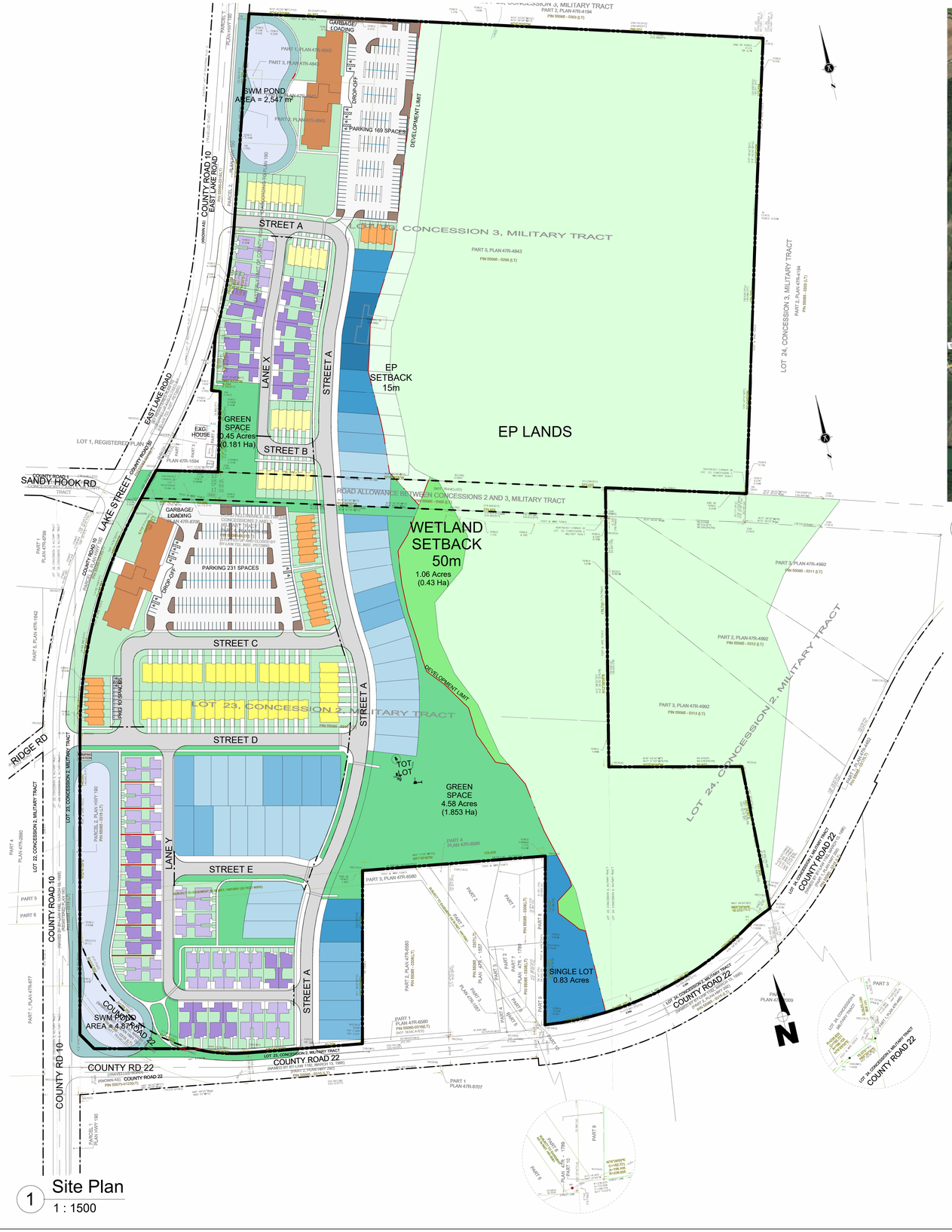
			Client I.D.	4	5
			Sample I.D.	23-005637-1	23-005637-2
			Date Collected	2023-03-28	2023-03-28
Parameter	**Units**	**R.L.**		-	-
pH @25°C	-	-		7.75	7.83
Redox Potential	mV	-		248	281
Resistivity (calculated)	O·cm	-		9810	9620
Chloride	µg/g	5		9	7
Sulphate	µg/g	10		<15	<15

Christine Burke
Laboratory Manager

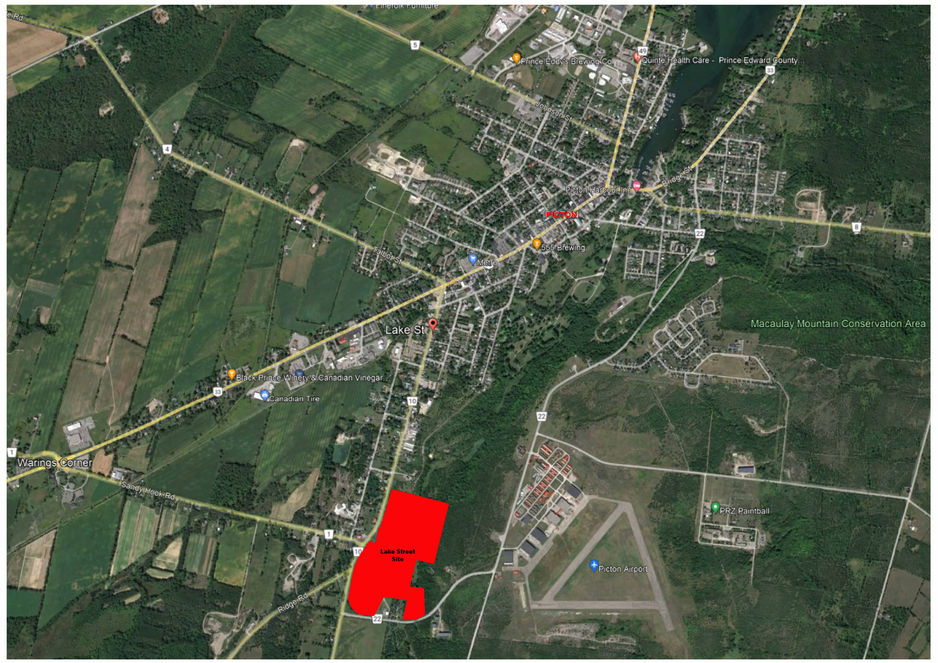
Subcontracted Analyses

Parameter	Units	R.L.	Client I.D.	4	5
			Sample I.D.	23-005637-1	23-005637-2
			Date Collected	2023-03-28	2023-03-28
			-	-	-
Sulphide	µg/g	4		1.0	0.6

Christine Burke
Laboratory Manager



1 Site Plan
1 : 1500



2 Context Plan
1 : 2500

LEGEND

RENTAL UNITS	
APARTMENT BUILDING B	290 UNITS
TOWNHOMES	23 UNITS
TOTAL	**313 UNITS**
MARKET UNITS	
TOWNHOMES 18'	24 UNITS
TOWNHOMES 23'	38 UNITS
30' LINK UNIT LOTS	26 UNITS
35' LINK UNIT LOTS	28 UNITS
40' SINGLE LOTS	22 UNITS
45' SINGLE LOTS	20 UNITS
50' SINGLE LOTS	7 UNITS
60' SINGLE LOTS	3 UNITS
SINGLE LOT	1 UNITS
TOTAL	**169 UNITS**
SITE TOTAL	**482 UNITS**

Revisions

No.	Description	Date
1	REVISED PER STAFF COMMENTS	3/7/2023
2	REVISED PER ENVIRONMENTAL STUDIES	7/12/2023
3	REVISED PER DRAFT PLAN	26/2/2025

HSPM
HOLDINGS INC.
51 OAK AVENUE RICHMOND HILL ON L4C 6R5
BETH@ HSPMHOLDINGS.COM

Homes First Development Corporation

Lake Street

SITE PLAN

Project number	22-3
Date	Issue Date
Drawn by	HSPM
Checked by	HSPM
Scale	As indicated

A101

2025-02-26 3:06:54 PM

Annex B: 287 Lake Street, Picton Geotech Report

Project No. 23-3-6593

287 Lake Street, Picton
Geotech Report

Terraspec Engineering Inc.
Geotechnical Engineers
973 Crawford Drive
Peterborough, Ontario
K9J 3X1

TABLE OF CONTENTS

APPENDICES

terraspec engineering inc.
geotechnical engineers and materials testing

973 Crawford Drive
Peterborough, Ontario **Phone: (705) 743-7880**
K9J 3X1 **Fax: (705) 743-9592**

July 2, 2024

The Greer Galloway Group Inc.
1620 Wallbridge Loyalist Road
Belleville, Ontario
K8N 4Z5

Re: Geotechnical Report for 287 Lake Street, Picton
Project No. 23-3-6593

General Site Data
The project site is located at 287 Lake Street, in the Town of Picton, Ontario. Development of a new residential subdivision is contemplated for the site. A schematic site plan indicating the extent of the property has been appended to this report.

Investigation
A soils investigation was conducted for the property on May 29, 2024. Nine exploratory test holes were placed on site using a backhoe. Soil laboratory testing consisted of moisture content determination and grain size analysis. The test hole logs and laboratory testing data have been appended to this report. The test hole locations have been indicated on the appended site plan.

Soil Conditions
The project site is located on a shallow esker overlying limestone plains. The subsoils in the overburden are typically silty sand, over limestone bedrock of the Trenton Group. The typical soil layers encountered on site were as follows:

brown silty topsoil
The typical topsoil thickness was 180mm.

brown silty sand
brown silty sand some gravel
The typical silty sand layer thickness was 420mm.

brown silty sand with fractured limestone fragments
brown silty sand and fractured limestone fragments

The typical fractured limestone layer thickness was 360mm.

limestone bedrock
Bedrock was encountered in less than 1m below ground surface, except at hole 4, where bedrock was at 1.4m.

The project site is currently undeveloped and is not used for growing crops.
There is a forested area which generally covers the west side of the property.
The underlying silty sand subsoils were generally in a moist and compact condition.
The susceptibility to frost action for all subsoils was rated as medium to low.
Refusal was encountered at all locations on site, due to the underlying limestone bedrock.
The limestone bedrock condition is typically 'broken' on the initial contact surface.

Groundwater was not encountered on the site.

OHSA Soil Types
The subsoils present on site can be classified as Type 3 soils. The Type 3 soils can behave as Type 4 collapsing soils, with small amounts of perched water seepage, or if the groundwater elevation is contacted. The subsoils should be treated as Type 4 soils for any construction work that will take place under these conditions.

Chemical Testing
Standard Regulation 406 chemical testing was conducted on 4 soil samples (S1, S3, S4, S5), as well as soil corrosivity testing. There were no issues with the test results with respect to the MECC allowable limits. Based on the corrosivity testing, the overburden soils are not corrosive. Also, the sulphate content was very low and as such new concrete is not expected to be subjected to sulphate attack.

Recommendations

Bedrock Removal
The rock grade category was estimated as R3 to R4 (Strong).
The typical density of intact limestone bedrock is 2733 kg/m3.

It is anticipated that the top 1.2m of limestone bedrock can be broken with hoe ram equipment. Alternatively, it may be possible to conduct rock coring on a 300mm by 300mm grid throughout the bedrock surface, to weaken the bedrock sufficiently such that it can be broken by hoe ram equipment. This process would be repeated as necessary until the desired bedrock excavation depth is reached.

Bedrock Foundations
Any loose bedrock surfaces must be removed to expose the underlying sound bedrock. The following bearing capacities may be used for the sound bedrock:

Factored ULS bearing capacity	588 kPa
SLS allowable bearing capacity	500 kPa

Total and differential settlement is expected to be negligible where footings are placed onto the sound bedrock. For heavy loadings, it may be prudent to key or dowel footings into the bedrock surface.

As bedrock coring and testing has not been completed at the proposed footing elevation, the bedrock bearing surfaces should be approved by a geotechnical firm once exposed during construction.

Tall Buildings:
Note that there is an active seismic zone in Picton.
Caissons may be placed if necessary for tall structures (such as apartment buildings). A standard caisson diameter is 1180mm, with a typical estimated capacity of 1000 kN SLS. Caissons require socketing into the sound bedrock. A caisson test on site must be conducted to determine the maximum load capacity to be used for caissons. These tests can be done just before or at the onset of construction.

Subgrade Inspection
Once exposed during construction, it would be advisable to have all intended bearing surfaces examined by a geotechnical firm in order to ensure that the intended bearing surface area is consistent with the conditions encountered at the test hole locations, and that the bearing capacity will be sufficient for the proposed new buildings and structures.

Reinforcing Steel
Placement of longitudinal reinforcing steel within the footings is desirable for this site.

Dewatering – Low Volume
Based on the test hole data, excavations within the subsoils are not expected to require extensive dewatering. A continuous pumping operation with sump equipment is anticipated to be sufficient for routine dewatering, which is expected to displace less than 50,000 L/day.

Where more extensive dewatering is anticipated/proposed, a permit should be obtained for construction dewatering works under the Ministry of the Environment, Conservation and Parks (MECP) Environmental Activity and Sector Registry (EASR), which applies for taking of groundwater and stormwater for construction dewatering purposes that total less than 400,000 L/day. An EASR will also provide the contractor with greater flexibility in managing groundwater seepage and stormwater flows since it replaces the need for an ECA for discharge under most circumstances.

Dewatering – General Requirements
Care should be taken to prevent ponding or inundation due to rain, and to control excess run-off

that could cause erosion. The construction contract should stipulate that the integrity of all natural soil surfaces and soil bearing surfaces must be preserved at all times. Therefore, all excavations on site must be protected from high moisture levels due to rainfall or accumulating groundwater, using appropriate dewatering techniques.

Seismic Parameters
The following seismic design parameters may be utilized:

Foundation on sound bedrock:
The peak ground acceleration value for Picton, as given by the OBC, is 0.140.

Site Class B Soil Shear Wave Average Velocity (m/s) = 760 < Vs < 1500

The peak ground acceleration value for the Picton area, as given by the OBC, is 0.140.

Geotechnical Parameters
For calculating vertical and lateral earth pressures and other geotechnical parameters, the following unfactored coefficients may be utilized:

Parameter	Existing silty sand
internal friction angle	31°
Ka	0.32
Ko	0.48
Kp	3.12
Moist unit weight	19.0 kN/m3

Bedrock Material	Angle of Friction	Ka	Kp
sound limestone	35°	0.20	7.14

The coefficient of friction for the concrete/bedrock interface can be estimated as follows:

Interface	Tan(delta)
concrete / limestone	0.70

Parameters for imported granular materials:

typical imported sandy Granular B Type 1 backfill
internal friction angle = 32°
Ka = 0.31, Ko = 0.47, Kp = 3.25
Moist unit weight = 22.3 kN/m3

typical imported gravelly Granular B Type 1 backfill
internal friction angle = 35°
Ka = 0.27, Ko = 0.43, Kp = 3.69

Moist unit weight = 23.0 kN/m3

Subdrains
Subdrain installations should consist of a perforated geotextile-wrapped pipe, placed at the footing depth along the outside perimeter of the footings. The subdrain pipe should have a minimum diameter of 150mm and must be graded to a positive outlet away from the foundation. Backfill to the subdrain trenches should consist of OPSS 1004 Clear Stone. The type of back fill placed against the building over the subdrains should be a free-draining Granular B Type 1 material, placed full-depth to prevent the build-up of water pressure against the exterior walls of the building. Careful finished grading of the site should be applied to prevent the influx of storm water and surface runoff towards the foundation walls of the building.

Subdrains are required for below-grade building levels such as basements. If basement levels are contemplated, individual assessments on a per lot basis will be required to determine acceptable basement floor elevations with respect to the water table within the bedrock subgrade.

Floor Slabs on Grade
The following minimum requirements are recommended for standard slab-on-grade floors, for short buildings such as houses:

Concrete Slab	127mm
OPSS 1010 Granular A or Clear Stone base	150mm
OPSS 1010 Granular B Type 1 subbase	200mm
Over compact native subgrade soil	

The floor slab thickness can be adjusted by the structural designer to suit the anticipated traffic and equipment loadings. The subgrade soil surface to remain should undergo proof-rolling to ensure that it is acceptable for placement of the base and subbase materials. Remove all deleterious soil such as topsoil and organics, from beneath the new floor area. It is recommended that a concrete compressive strength of 20 to 25MPa be utilized for interior floor slabs. Use of standard reinforcement such as steel rebar or wire mesh in the concrete slab are recommended.

Concrete
The frost penetration treatment depth for this site is 1.5m. Use CSA concrete classes C1 or C2, and F1 or F2, as appropriate to the various structure elements in the buildings.
Standard concrete cement will be suitable for this project.

Pipe Installation
For new underground piping, utilize the following OPSD Standards for pipe installation:

For soil subgrade:

OPSD 802.010	Flexible Pipe	-	Type 3 Earth Excavation
OPSD 802.031	Rigid Pipe	-	Type 3 Earth Excavation, Class B

For bedrock subgrade:

OPSD 802.013	Flexible Pipe	-	Rock Excavation
OPSD 802.033	Rigid Pipe	-	Rock Excavation, Class B

Utilize the granular bedding and cover depths as specified in the applicable OPSD standards listed above. For normal subgrade conditions, OPSS Granular A may be utilized for pipe embedment and pipe cover material for new piping.

For wet subgrade conditions, a crushed rock or gravel should be utilized for pipe embedment and pipe cover material for new piping. A suitable material would be clear stone such as OPSS 1004 19mm Clear Stone, 2inch minus crushed rock fill, or OPSS 1010 Granular B Type 2 with 100% passing the 50mm sieve.

Frost protection for underground piping should be utilized as per the following OPSD standards, with a frost treatment depth of k = 1.5m:

OPSD 803.030	Frost Penetration Line Below Bedding Grade
OPSD 803.031	Frost Penetration Line Above Bedding Grade

Reuse of Subsoils

The natural subsoils found on site cannot be used as fill beneath structures. Any fill required beneath new structures must consist of an engineered granular fill. The minimum requirement for an engineered fill is OPSS 1010 Granular B Type 1, however, there are other options available, such as 3inch minus rock fill. Any existing topsoil materials must be stripped from the site prior to placing new fill material.

Given the size of the development, it is possible that excess soils generated from excavation could probably be re-used at other locations on the project site, such as for landscaping.

The **silty sand** subsoils on site are acceptable as general subgrade fill for the roadway and landscaping areas.

Pavement Design

For the new roadways, remove all organic soil from the subgrade surface. Provide earth grading and cross fall as per OPSD 200.01 to prevent ponding of water on the soil subgrade, and to provide effective drainage of the new pavement structure.

Apply proof-rolling to the subgrade soil to ensure that it is acceptable for placement of the new granular subbase and base materials.

The following minimum pavement design as per OPSS 1150 specifications is recommended for placement of new pavement:

Pavement Structure

40mm	HL3 surface course
50mm	HL8 binder course
150mm	OPSS 1010 Granular A base
400mm	OPSS 1010 Granular B Type 1 subbase

Over compact native subgrade soil or approved fill

It will also be acceptable to substitute SuperPave hot mix as per OPSS 1151, such as SP12.5 over SP19.0.

The asphalt cement should have a minimum rating of PGAC 58 -34.
Tack-coat the hot mix substrate, as per OPSS.PROV 308, prior to placing the surface course lift of hot mix. Stipulate in the contract that all hot mix paving operations shall be carried out in accordance with OPSS 310 specifications.

Compaction Requirements

All natural soil and all granular fill compaction requirements for the project should conform with OPSS 501, Subsection 501.08.02 - Method A, utilizing soil placement in maximum 300mm lifts and a compaction standard of 100% of Standard Proctor Maximum Dry Density.

Statement of Limitations

This report is intended for the guidance of the project design team. From a construction standpoint, contractors are required to make their own assessment of the soil, rock, and groundwater conditions and how these will affect their proposed construction techniques and schedules.

The recommendations in this report are based on information obtained from exploratory test holes. Soils, bedrock, and groundwater conditions may differ from those encountered at the time of investigation and conditions may become apparent during construction that could not be detected or anticipated at the time of the investigation. If this occurs, we recommend that Terraspec be contacted for further consultation and analysis.

We recommend that Terraspec be retained to ensure that all subgrade preparation requirements are met, and to confirm that the soil and rock conditions encountered during construction are acceptable as per the geotechnical design.

Elevations listed in the document are approximate. Where interaction with bedrock is proposed, a contingency cost item should be included in the contract to allow for possible unforeseen subgrade conditions.

This report is applicable only to this project in accordance with details quoted in the text.
The company retains ownership of the geotechnical design and this report.
The company's responsibility is limited to interpreting information from test hole data and the company's liability is limited to the invoiced value of this report.

~ ~ ~

TERRASPEC ENGINEERING INC.
GEOTECHNICAL ENGINEERS

Shane Galloway, B.A.
Manager

N.A. MacKinnon, P.Eng.
Senior Engineer

Test Hole Data
287 Lake Street, Picton
May 29, 2024

Notes
1. Soil types, strata, and groundwater conditions have been established only at test hole locations.
2. Soils are described according to the MTO Soils Classification System and OPSD 100.06.
3. Dimensions are in millimetres up to 1 metre, then in metres thereafter.

Abbreviations
NFP - no further progress

1

0	-	150	brown silty topsoil
150	-	450	brown silty sand with fractured limestone fragments -moist, compact
450			NFP, fractured limestone bedrock

2

0	-	200	brown silty topsoil
200	-	800	brown silty sand and fractured limestone fragments -moist, dense
800			NFP, flat limestone bedrock

3

0	-	180	brown silty topsoil
180	-	500	brown silty sand/silty clay sand -moist, compact S2 at 0.3m
500	-	870	brown silty sand and fractured limestone fragments -moist, dense
870			NFP, limestone bedrock

4

0	-	230	brown silty topsoil
230	-	670	brown silty sand -moist, compact
670	-	1.06	light brown silty sand -moist, compact
1.06	-	1.40	grey/brown silty sand and fractured limestone fragments -moist, dense
			-some clay deposits between the fragments, boulder at 1m
1.4			NFP, flat limestone bedrock

-photo 4

5

0	-	150	brown silty topsoil
150	-	610	brown silty sand some gravel -moist, compact S4 at 0.5m
610	-	800	brown silty sand and fractured limestone fragments -moist, dense
800			NFP, limestone bedrock

6

0	-	220	brown silty topsoil
220	-	670	brown silty sand some gravel some roots -moist, compact S3 at 0.5m
670	-	950	brown silty sand with fractured limestone fragments -moist, compact
950			NFP, fractured limestone bedrock

7

0	-	140	brown silty topsoil
140	-	390	brown silty sand with fractured limestone fragments -dry, compact
390	-	940	brown sandy silt -moist, loose S1 at 0.61m
940			NFP, limestone (some shale) bedrock

8

0	-	150	brown silty topsoil
150	-	530	brown silty sand with fractured limestone fragments -moist, compact
530			NFP, limestone (some shale) bedrock

9

0	-	300	brown silty topsoil with roots
300	-	760	brown silty sand and fractured limestone fragments -moist, compact
760			NFP, flat limestone bedrock

-photo 9

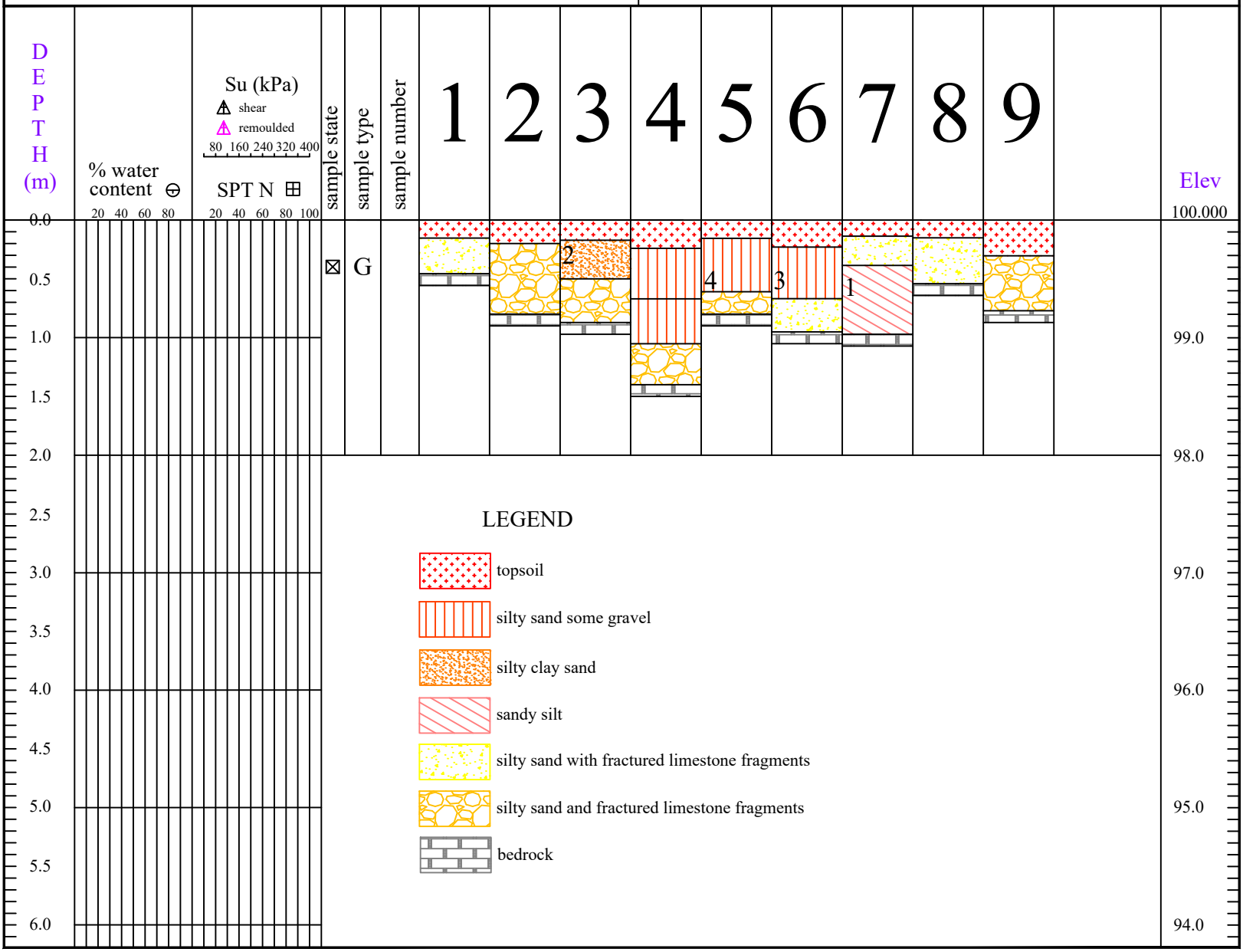
Laboratory Test Data

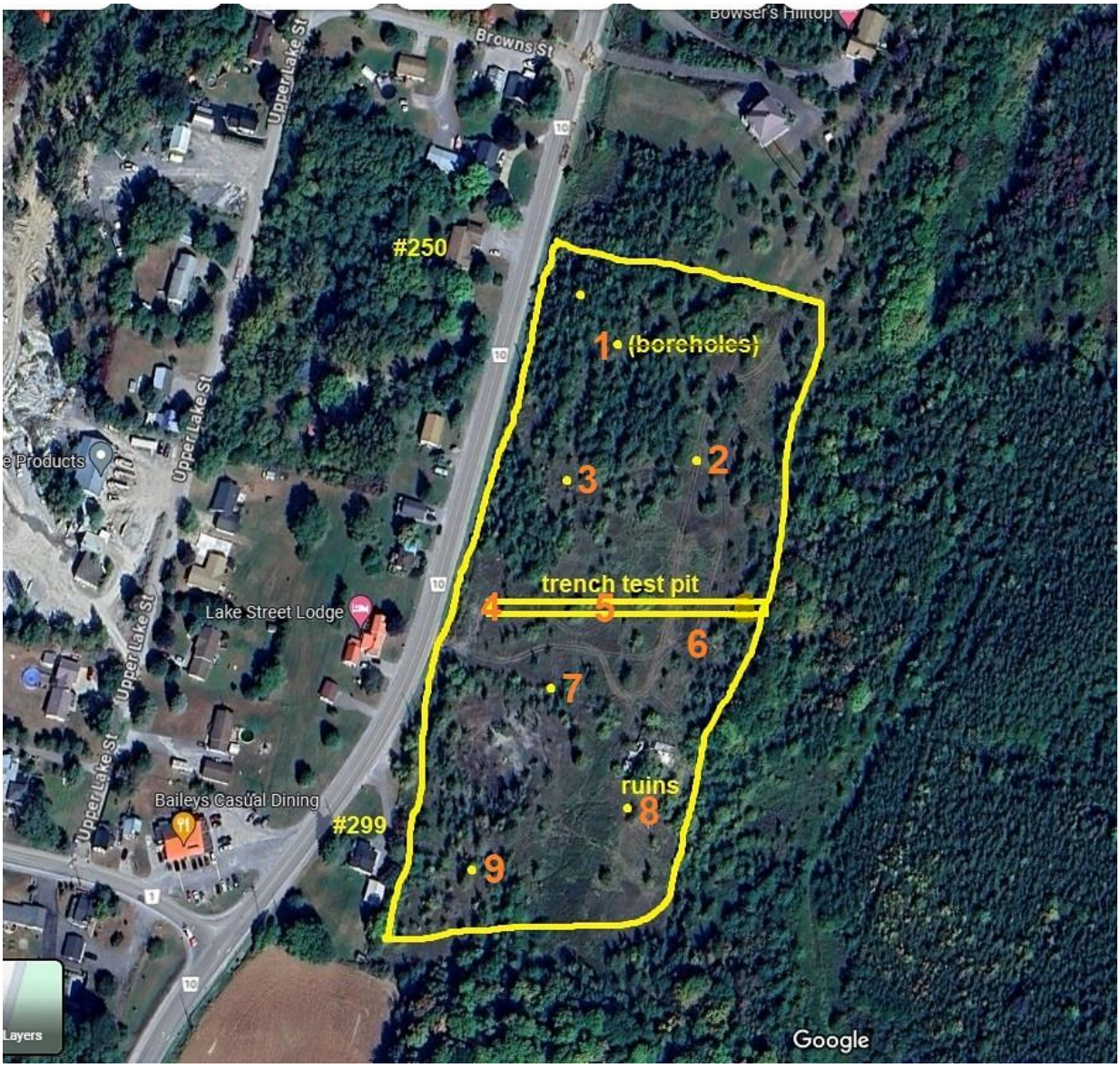
Soil Sample	**S1**	**S2**	**S3**	**S4**	
Sieve	**% Passing**				
19.0mm	100	100	100	100	grain size
13.2mm	100	100	97.4	96.6	
9.50mm	100	100	92.5	96.6	
4.75mm	99.1	100	85.3	95.8	
2.36mm	98.7	99.4	80.8	94.8	
1.18mm	98.2	97.6	75.2	92.2	
600um	96.9	93.3	68.4	86.8	
300um	91.7	85.6	56.6	77.1	
150um	75.2	68.4	36.7	55.6	
75um	51.9	48.6	19.5	31.9	
ASTM	ML	SM	SM	SM	soil classification
frost rating	Med	Med	Low	Low	susceptibility to frost heave
% moisture	22.7	23.0	12.4	16.2	moisture content
T (min/cm)	26	24	16	18	estimated T time

Soil Log

PROJECT: 287 Lake Street, Picton
Project No. 23-3-6593
DATE: May 29, 2024
Sample Type A: auger S: spoon
Sample State ⊠ remoulded ■ intact

Test Hole Data
METHOD: Excavation
▼ encountered water elevation





Google Overhead Photo of Site

Photo of Test Hole 4

Photo of Test Hole 9

CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured. Canadian owned.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: Q3594 **REPORT No: 24-016857 - Rev. 0**

Report To:
The Greer Galloway Group
1620 Wallbridge-Loyalist Road, RR #5
Belleville, ON K8N 4Z5

CADUCEON Environmental Laboratories
285 Dalton Ave
Kingston, ON K7K 6Z1

Attention: Shane Galloway

DATE RECEIVED: 2024-Jun-10
DATE REPORTED: 2024-Jun-18
SAMPLE MATRIX: Soil

CUSTOMER PROJECT: 287 Lake Street
P.O. NUMBER:

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Solid)	4	OTTAWA	PCURIEL	2024-Jun-13	A-IC-01	SM 4110B
Conductivity Meter (Solid)	4	OTTAWA	PLUSSIER	2024-Jun-13	A-COND-03	MECP E3530
Cyanide WAD (Solid)	4	KINGSTON	JMACINNES	2024-Jun-12	CN-001	EPA 9012B
Boron-HWS (Solid)	4	OTTAWA	APRUDYVUS	2024-Jun-12	D-ICP-01	MECP E3470
Chromium VI (Solid)	4	OTTAWA	STAILLON	2024-Jun-12	D-CRVI-02	EPA 7196A
ICP/MS (Solid)	4	OTTAWA	TPRICE	2024-Jun-12	D-ICPMS-01	EPA 6020B
ICP/OES (Solid)	4	OTTAWA	NHOGAN	2024-Jun-12	D-ICP-02	EPA 6010
Mercury (Solid)	4	OTTAWA	TBENNETT	2024-Jun-12	D-HG-01	EPA 7471A
SAR analysed by ICPOES (Solid)	4	OTTAWA	APRUDYVUS	2024-Jun-12	D-ICP-02	EPA 6010
Moisture	4	KINGSTON	KYUILL	2024-Jun-11	% Moisture	SM 2540
pH Meter (Solid)	4	OTTAWA	PLUSSIER	2024-Jun-11	pH-03	MECP E3530
PHC F1 (Solid)	4	RICHMOND_HILL	JEVANS	2024-Jun-12	C-VPHS-01	CWS Tier 1
PHC F2-4 (Solid)	4	KINGSTON	STHOMPSON	2024-Jun-12	PHC-S-001	CWS Tier 1
Redox Potential (Solid)	4	RICHMOND_HILL	JEVANS	2024-Jun-11	In House	SM 2580
Sulphide Solid (Subcontracted)	4	TESTMARK	SWOOD	2024-Jun-13		Subcontracted
SVOC - Semi-Volatiles (Solid)	4	KINGSTON	EASIEDU	2024-Jun-12	NAB-S-001	EPA 8270D
VOC-Volatiles (Solid)	4	RICHMOND_HILL	JEVANS	2024-Jun-12	C-VOC-02	EPA 8260

µg/g = micrograms per gram (parts per million) and is equal to mg/Kg
F1 C6-C10 hydrocarbons in µg/g, (F1-btex if requested)
F2 C10-C16 hydrocarbons in µg/g, (F2-napth if requested)
F3 C16-C34 hydrocarbons in µg/g, (F3-pah if requested)
F4 C34-C50 hydrocarbons in µg/g
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
Any deviations from the method are noted and reported for any particular sample.
nC6 and nC10 response factor is within 30% of response factor for toluene:
nC10,nC16 and nC34 response factors within 10% of each other:
C50 response factors within 70% of nC10+nC16+nC34 average:
Linearity is within 15%:
All results expressed on a dry weight basis.
Unless otherwise noted all chromatograms returned to baseline by the retention time of nC50.

R.L. = Reporting Limit
NC = Not Calculated
Test methods may be modified from specified reference method unless indicated by an *

Unless otherwise noted all extraction, analysis, QC requirements and limits for holding time were met.
If analyzed for F4 and F4G they are not to be summed but the greater of the two numbers are to be used in application to the CWS PHC
QC will be made available upon request.

Michelle Dubien
Data Specialist

				Client I.D.	1	2	3	4
				Sample I.D.	24-016857-1	24-016857-2	24-016857-3	24-016857-4
				Date Collected	2024-May-29	2024-May-29	2024-May-29	2024-May-29
Parameter	Units	R.L.	Limits	Reg 153/406	-	-	-	-
Conductivity @25°C	mS/cm	0.001	0.7	T2.1RPI	0.082	0.081	0.145	0.109
Resistivity (calculated)	Ohms*cm	-			12200	12300	6880	9190
pH @25°C	-	-			7.37	7.12	7.40	7.05
Redox Potential	mV	-			365	395	369	386
Cyanide (WAD)	µg/g	0.05	0.051	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Sodium Adsorption Ratio	-	-	5	T2.1RPI	0.06	0.07	0.06	0.06
Chloride	µg/g	5			<5	<5	<5	<5
Sulphate	µg/g	10			<15	<15	<15	<15
Barium	µg/g	1	390	T2.1RPI	85	56	55	75
Beryllium	µg/g	0.2	4	T2.1RPI	0.8	0.6	0.6	0.8
Boron	µg/g	0.5	120	T2.1RPI	4.3	2.7	3.7	4.2
Cadmium	µg/g	0.5	1.2	T2.1RPI	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	1	160	T2.1RPI	28	20	18	25
Cobalt	µg/g	1	22	T2.1RPI	7	7	8	7
Copper	µg/g	1	140	T2.1RPI	15	7	11	10
Lead	µg/g	5	120	T2.1RPI	10	8	10	9
Molybdenum	µg/g	1	6.9	T2.1RPI	<1	<1	<1	<1
Nickel	µg/g	1	100	T2.1RPI	19	12	12	15
Vanadium	µg/g	1	86	T2.1RPI	36	29	31	34
Zinc	µg/g	3	340	T2.1RPI	58	45	39	58
Antimony	µg/g	0.5	7.5	T2.1RPI	<0.5	<0.5	<0.5	<0.5

Michelle Dubien
Data Specialist

				Client I.D.	1	2	3	4
				Sample I.D.	24-016857-1	24-016857-2	24-016857-3	24-016857-4
				Date Collected	2024-May-29	2024-May-29	2024-May-29	2024-May-29
Parameter	Units	R.L.	Limits	Reg 153/406	-	-	-	-
Arsenic	µg/g	0.5	18	T2.1RPI	3.4	2.2	2.9	3.3
Selenium	µg/g	0.5	2.4	T2.1RPI	1.0	0.6	0.7	0.8
Silver	µg/g	0.2	20	T2.1RPI	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	0.1	1	T2.1RPI	0.1	<0.1	0.1	0.1
Uranium	µg/g	0.1	23	T2.1RPI	0.5	0.3	0.4	0.5
Boron (HWS)	µg/g	0.02	1.5	T2.1RPI	0.03	0.04	0.05	0.04
Chromium (VI)	µg/g	0.2	8	T2.1RPI	<0.2	<0.2	<0.2	<0.2
Mercury	µg/g	0.01	0.27	T2.1RPI	0.04	0.02	0.03	0.04

Michelle Dubien
Data Specialist

				Client I.D.	1	2	3	4
				Sample I.D.	24-016857-1	24-016857-2	24-016857-3	24-016857-4
				Date Collected	2024-May-29	2024-May-29	2024-May-29	2024-May-29
Parameter	Units	R.L.	Limits	Reg 153/406	-	-	-	-
Acetone	µg/g	0.5	0.5	T2.1RPI	<0.5	<0.5	<0.5	<0.5
Benzene	µg/g	0.02	0.02	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	µg/g	0.02	0.05	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Bromoform	µg/g	0.02	0.05	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Bromomethane	µg/g	0.05	0.05	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	µg/g	0.05	0.05	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	µg/g	0.02	0.083	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Chloroform	µg/g	0.02	0.05	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Dibromochloromethane	µg/g	0.02	0.05	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Ethylene Dibromide	µg/g	0.02	0.05	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Dichlorobenzene,1,2-	µg/g	0.05	3.4	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene,1,3-	µg/g	0.05	0.26	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene,1,4-	µg/g	0.05	0.05	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane (Freon 12)	µg/g	0.05	1.5	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Dichloroethane,1,1-	µg/g	0.02	0.05	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Dichloroethane,1,2-	µg/g	0.02	0.05	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Dichloroethylene,1,1-	µg/g	0.02	0.05	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Dichloroethylene,1,2-cis-	µg/g	0.02	0.05	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Dichloroethylene,1,2-trans-	µg/g	0.02	0.05	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Dichloropropane,1,2-	µg/g	0.02	0.05	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Dichloropropene,1,3-cis-	µg/g	0.02			<0.02	<0.02	<0.02	<0.02

Michelle Dubien
Data Specialist

				Client I.D.	1	2	3	4
				Sample I.D.	24-016857-1	24-016857-2	24-016857-3	24-016857-4
				Date Collected	2024-May-29	2024-May-29	2024-May-29	2024-May-29
Parameter	Units	R.L.	Limits	Reg 153/406	-	-	-	-
Dichloropropene,1,3-cis+trans-(Calculated)	µg/g	0.02	0.05	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Dichloropropene,1,3-trans-	µg/g	0.02			<0.02	<0.02	<0.02	<0.02
Ethylbenzene	µg/g	0.05	0.05	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Hexane	µg/g	0.02	2.5	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Dichloromethane (Methylene Chloride)	µg/g	0.05	0.05	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	µg/g	0.5	0.5	T2.1RPI	<0.5	<0.5	<0.5	<0.5
Methyl Isobutyl Ketone	µg/g	0.5	0.5	T2.1RPI	<0.5	<0.5	<0.5	<0.5
Methyl tert-Butyl Ether (MTBE)	µg/g	0.05	0.05	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Styrene	µg/g	0.05	0.05	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane,1,1,1,2-	µg/g	0.02	0.05	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Tetrachloroethane,1,1,2,2-	µg/g	0.05	0.05	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	µg/g	0.05	0.05	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Toluene	µg/g	0.2	0.2	T2.1RPI	<0.2	<0.2	<0.2	<0.2
Trichloroethane,1,1,1-	µg/g	0.02	0.11	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Trichloroethane,1,1,2-	µg/g	0.02	0.05	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Trichloroethylene	µg/g	0.05	0.05	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane (Freon 11)	µg/g	0.02	0.25	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Vinyl Chloride	µg/g	0.02	0.02	T2.1RPI	<0.02	<0.02	<0.02	<0.02
Xylene, m,p-	µg/g	0.03			<0.03	<0.03	<0.03	<0.03
Xylene, m,p,o-	µg/g	0.03	0.091	T2.1RPI	<0.03	<0.04	<0.03	<0.03
Xylene, o-	µg/g	0.03			<0.03	<0.03	<0.03	<0.03

Michelle Dubien
Data Specialist

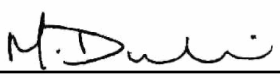
Final Report

REPORT No: 24-016857 - Rev. 0

				Client I.D.	1	2	3	4
				Sample I.D.	24-016857-1	24-016857-2	24-016857-3	24-016857-4
				Date Collected	2024-May-29	2024-May-29	2024-May-29	2024-May-29
Parameter	**Units**	**R.L.**	**Limits**	**Reg 153/406**	-	-	-	-
PHC F1 (C6-C10)	µg/g	10	25	T2.1RPI	<10	<10	<10	<10
PHC F2 (>C10-C16)	µg/g	5	10	T2.1RPI	<5	<5	<5	<5
PHC F3 (>C16-C34)	µg/g	10	240	T2.1RPI	<10	<10	<10	11
PHC F4 (>C34-C50)	µg/g	10	2800	T2.1RPI	<10	<10	<10	<10
Moisture	%	-			17.6	14.8	13.4	16.8

Michelle Dubien
Data Specialist

				Client I.D.	1	2	3	4
				Sample I.D.	24-016857-1	24-016857-2	24-016857-3	24-016857-4
				Date Collected	2024-May-29	2024-May-29	2024-May-29	2024-May-29
Parameter	Units	R.L.	Limits	Reg 153/406	-	-	-	-
Acenaphthene	µg/g	0.05	2.5	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.05	0.093	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Anthracene	µg/g	0.05	0.16	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Benzo[a]anthracene	µg/g	0.05	0.5	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.05	0.31	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.05	3.2	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.05	6.6	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/g	0.05	3.1	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/g	0.05	7	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	µg/g	0.05	0.57	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.05	0.69	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	0.05	6.8	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3,-cd)Pyrene	µg/g	0.05	0.38	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Methylnaphthalene,1-	µg/g	0.05			<0.05	<0.05	<0.05	<0.05
Methylnaphthalene,2-	µg/g	0.05			<0.05	<0.05	<0.05	<0.05
Methylnaphthalene,2-(1-)	µg/g	0.05	0.59	T2.1RPI	<0.05	<0.05	<0.05	<0.05
Naphthalene	µg/g	0.01	0.2	T2.1RPI	<0.01	<0.01	<0.01	<0.01
Phenanthrene	µg/g	0.01	6.2	T2.1RPI	<0.01	<0.01	<0.01	<0.01
Pyrene	µg/g	0.05	28	T2.1RPI	<0.05	<0.05	<0.05	<0.05



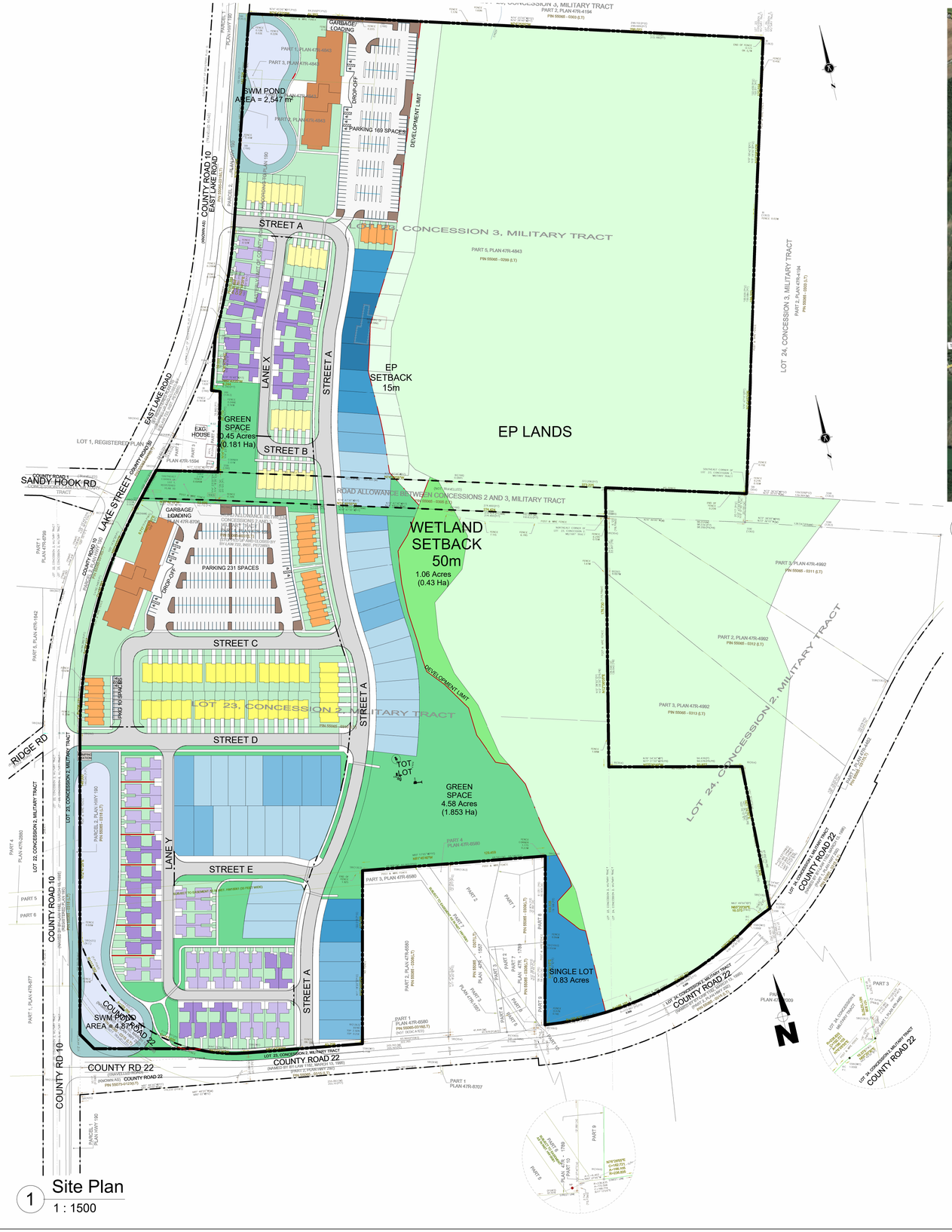
Michelle Dubien
Data Specialist

Subcontracted Analyses

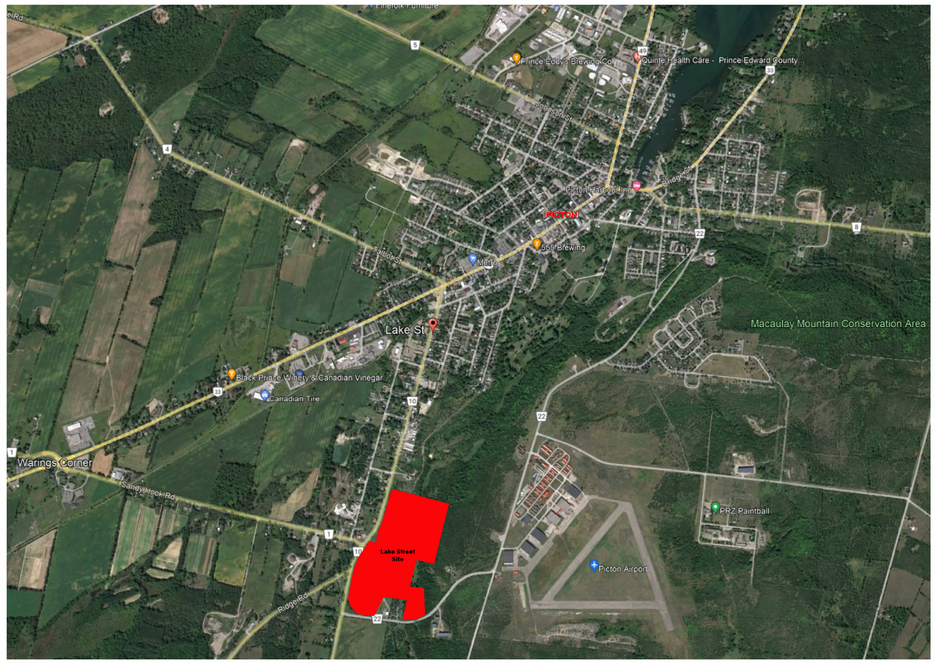
Parameter	Units	R.L.	Limits	Client I.D.	1	2	3	4
				Sample I.D.	24-016857-1	24-016857-2	24-016857-3	24-016857-4
				Date Collected	2024-May-29	2024-May-29	2024-May-29	2024-May-29
				Reg 153/406	-	-	-	-
Sulphide	µg/g	-			<0.3	<0.3	<0.3	<0.3

Reg 153/406: Reg 153/406
T2.1RPI: R406 Tbl. 2.1 - RPI

Michelle Dubien
Data Specialist



1 Site Plan
1 : 1500



2 Context Plan
1 : 2500

LEGEND

RENTAL UNITS	
APARTMENT BUILDING B	290 UNITS
TOWNHOMES	23 UNITS
TOTAL	**313 UNITS**
MARKET UNITS	
TOWNHOMES 18'	24 UNITS
TOWNHOMES 23'	38 UNITS
30' LINK UNIT LOTS	26 UNITS
35' LINK UNIT LOTS	28 UNITS
40' SINGLE LOTS	22 UNITS
45' SINGLE LOTS	20 UNITS
50' SINGLE LOTS	7 UNITS
60' SINGLE LOTS	3 UNITS
SINGLE LOT	1 UNITS
TOTAL	**169 UNITS**
SITE TOTAL	**482 UNITS**

Revisions

No.	Description	Date
1	REVISED PER STAFF COMMENTS	3/7/2023
2	REVISED PER ENVIRONMENTAL STUDIES	7/12/2023
3	REVISED PER DRAFT PLAN	26/2/2025

HSPM
HOLDINGS INC.
51 OAK AVENUE RICHMOND HILL ON L4C 6R5
BETH@ HSPMHOLDINGS.COM

Homes First Development Corporation

Lake Street

SITE PLAN

Project number	22-3
Date	Issue Date
Drawn by	HSPM
Checked by	HSPM
Scale	As indicated

A101

2025-02-26 3:06:54 PM