June 6, 2022



GEOTECHNICAL • ENVIRONMENTAL • HYDROGEOLOGICAL • BUILDING SCIENCE

90 WEST BEAVER CREEK ROAD, SUITE 100, RICHMOND HILL, ONTARIO L4B 1E7 · TEL: (416) 754-8515 · FAX: (905) 881-8335

BARRIE MISSISSAUGA **OSHAWA** NEWMARKET **GRAVENHURST HAMILTON** TEL: (705) 721-7863 TEL: (905) 542-7605 TEL: (905) 440-2040 TEL: (905) 853-0647 TEL: (705) 684-4242 TEL: (905) 777-7956 FAX: (705) 721-7864 FAX: (905) 542-2769 FAX: (905) 725-1315 FAX: (905) 881-8335 FAX: (705) 684-8522 FAX: (905) 542-2769

April 19, 2022 Reference No. 2204-S056
Page 1 of 3

Bolton North Hill Landowners Group c/o PGC Land Management Ltd. 8800 Dufferin Street, Suite 200 Vaughan, ON L4K 0C5

Attention: Mr. Peter Campbell

Re: Secondary Plan Level Geological Review for Proposed Residential Development Bolton North Hill Town of Caledon

Dear Sir,

As requested, Soil Engineers Ltd. was retained to review the following provided information and provide our comments for the design and construction of the captioned project:

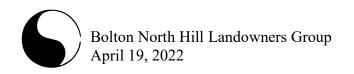
- "Monitoring Well Layout", by Crozier Consulting Engineers (Crozier). dated November 11, 2021,
- "Monitoring Well Logs for MW1-21 to MW20-21", by Crozier dated November 1 to 11, 2021,
- "Monitoring Well Levels Bolton North Hill", by Crozier dated February 24, 2022.

#### **SITE DESCRIPTION**

The captioned project includes the following land parcels:

- 14289, 14337, 14475, 14684, 14685, 14700, 14766, 14776, and 14800 Highway 50
- Northwest of Emil Kolb Parkway and Highway 50
- 14601 and 14691 Duffy's Lane
- Northeast of Mount Hope Road and Columbia Way

The parcels are generally vacant fields with multiple residential dwellings and farm structures at various locations. It is understood that the proposed development will consist of new residential subdivisions serviced with municipal roadways and services meeting town standards.



#### **SUBSURFACE CONDITIONS**

A total of twenty (20) boreholes were supervised by Crozier Consulting Engineers between November 1 and 11, 2021. The boreholes were terminated at 6.1 m below prevailing ground surface and monitoring wells were installed in each of the borehole to the termination depth. The locations of the boreholes and monitoring wells were illustrated on the Monitoring Well Layout, Figure 3, enclosed.

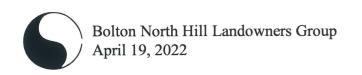
The bore logs, MW1-21 to MW20-21, revealed that beneath a veneer of topsoil of variable thickness, the site is generally underlain by a stratum of silty clay interbedded with a layer of silty sand, silt or sandy silt. A localized layer of clayey silt till was also identified in MW1-21 and MW2-21. Details of the soil stratigraphy are illustrated in the enclosed bore logs.

Stabilized groundwater level was recorded for all monitoring wells on February 8 and 24, 2022 by Crozier. The groundwater level was recorded at depths ranging from 1.06 to 3.33 m below the prevailing ground surface, or between El. 258.6 m and El. 269.7 m.

#### **COMMENTS**

Based on the field record of the borehole investigation, Soil Engineers Ltd. herein provides the following comments for the proposed residential development:

- Topsoil must be stripped prior to the development. It can only be re-used for landscaping purpose. Any surplus should be removed off site.
- Where additional fill is required for site grading, it is economical to place and compact the earth fill in an engineered manner to support the houses, pavement and underground services. Prior to the placement of engineered fill, the subgrade must be inspected and proof-rolled. Any soft/weak soil identified must be subexcavated and replaced with compacted inorganic soil.
- For conventional design, the basement or lowest floor level of the dwelling must be maintained at least 1.0 m above the highest recorded groundwater level and the underground structure must be provided with perimeter subdrains, connected to positive outlet.
- Where the basement or lowest floor level are constructed less than 1.0 m, but more than 0.5 m above the highest recorded groundwater level, underfloor subdrain should be provided. In addition, a vapor barrier must also be provided between the concrete slab and the granular bedding to prevent upfiltration of moisture/vapor.
- Should the basement or lowest floor level are constructed less than 0.5 m above the highest recorded groundwater level or submerged, the underground structure should be water-proofed and properly designed to resist the hydrostatic uplift pressure with a raft foundation.



- Due to the lack of geotechnical data, design bearing pressure for the proposed building cannot be provided. A comprehensive geotechnical investigation must be performed to properly evaluate the strength of the subsoil.
- Typically, Class 'B' pipe bedding, consisting of 19-mm Crusher-Run Limestone, can be used for underground services construction. Where soft/weak soil is encountered at the subgrade level, it must be subexcavated and properly backfilled and compacted with inorganic soil to 98% Standard Proctor Dry Density (SPDD). Where the subgrade is wet or where dewatering is required for the underground service construction, Class 'A' concrete bedding can be used instead.
- Excavation should be carried out in accordance with O. Reg. 213/91.

It should be noted that the above comments or recommendations are preliminary in nature. Further investigation with geotechnical boreholes must be performed in order to provide relevant or site-specific geotechnical recommendations for the design and construction of the captioned project.

We trust this letter satisfies your current requirement. Should you have any query, please feel free to contact our office.

100169280

HOWINCE OF ON

Yours truly,

SOIL ENGINEERS LTD.

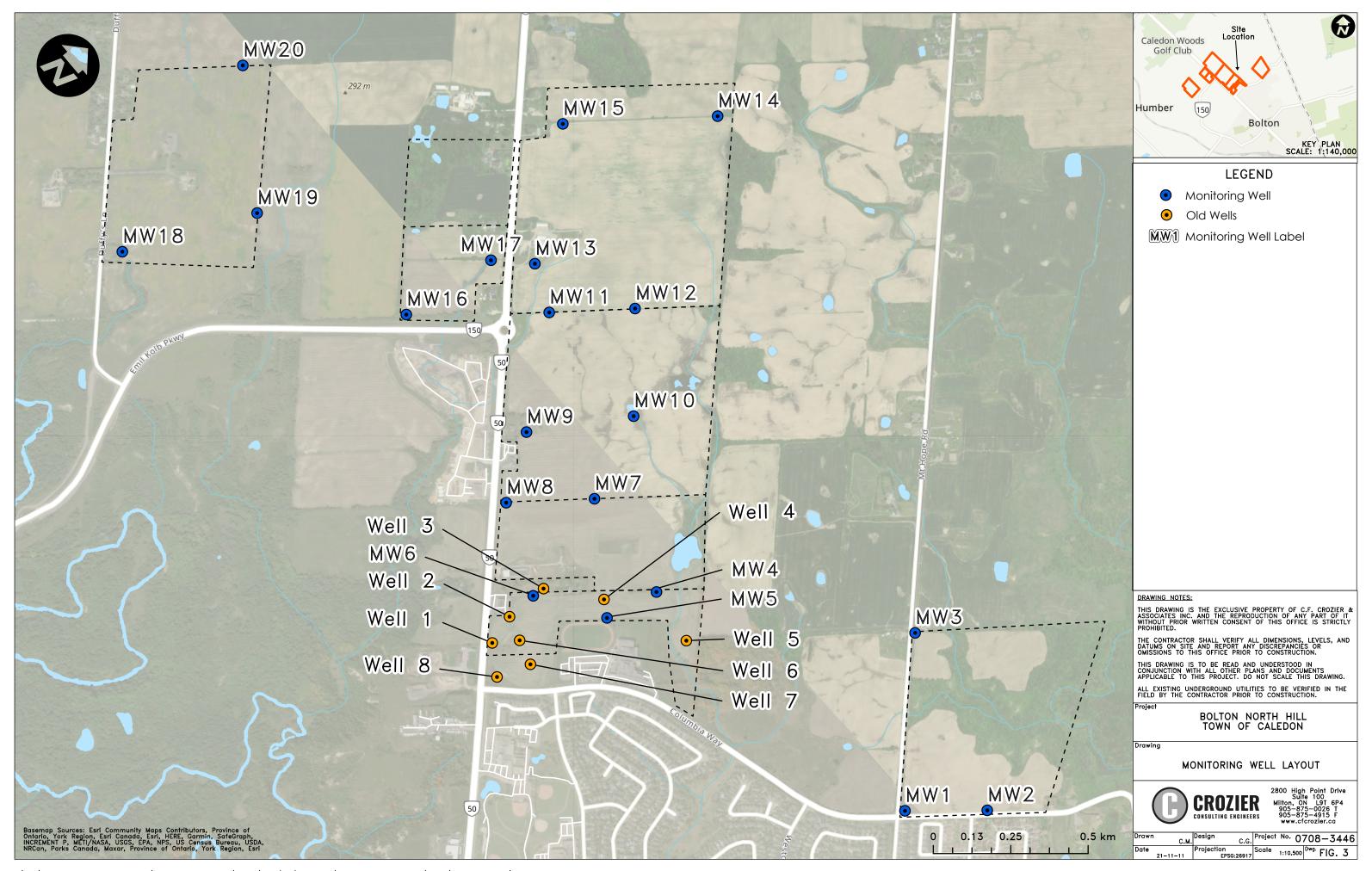
Jonathan Fung, B.A.Sc.

Kin Fung Li, P.Eng.

JF/KFL

cc. Mr. Travis Gibson (C.F. Crozier & Associates Inc.)

This letter/report/certification was prepared by Soil Engineers Ltd. for the account of the captioned clients and may be relied upon by regulatory agencies. The material in it reflects the writer's best judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this letter/report/certification, or any reliance on or decisions to be made based upon it, are the responsibility of such third parties. Soil Engineers Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this letter/report/certification.





#### **MONITORING WELL MW1-21**

PROJECT NUMBER 0708 - 3446
PROJECT NAME Bolton North Hill
CLIENT Bolton North Hill Landowner Group
ADDRESS 9948 Columbia Way, Bolton

DRILLING DATE 21/11/01 LICENCE NO. 7725

DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0601388 4861570

DRILLER John/Nick COORD SYS UTM

DRILL RIG GT3126 Geoprobe SURFACE ELEVATION 265 masl

DRILLING METHOD Augering Hollow Flight WELL TOC 0.81 m

TOTAL DEPTH 6.1 m LOGGED BY CM
DIAMETER 51 mm CHECKED BY CG

COMPLETION21/11/01 CASING PVC SCREEN PVC

COMMENTS Columbia Way parcel, near 'Columbia Way' Sign

Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
- - - - 0.5							TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets SILTY CLAY: Brown, silty clay, moist, dense, interbedded grey silt seams,	Moist	Loose Very Stiff	
- - - 1 - 1		SS 2.5 - 4.5ft	SS				minor gravel			- - - 264 -
- - - 1.5 - -		SS 5.0 - 7.0ft	SS							- - 263.5 - -
- 2										263 
_ _ _ 2.5 _ _		SS 7.5 - 9.5ft	SS				CLAYEY SILT TILL: Brown, clayey silt till to silty clay till, minor gravel, dense, moist		Hard	_ _ _ 262.5 _
3		SS 10.0 -12.0ft	SS							_ 262  
- - 3.5 - -										- 261.5 
- - 4 - -										- 261 - - -
- 4.5 - -		SS 15.0 - 17.0ft	SS							- 260.5 - -
_ _ 5 _										260
- - - 5.5 -							SILTY CLAY: Grey, silty clay, moist, dense, minor gravel, seam		Very Stiff	- 259.5 
- - - 6										_ _ 259
- - - - 6.5 -		SS 20.0 - 22.0ft	SS				Termination Depth at:6.10 m			- - - 258.5
- - - 7 -	AU									_ - 258 -
- - 7.5 - -										- 257.5 -
-			L		vironmental not ge					Page 1 of 1



#### **MONITORING WELL MW2-21**

PROJECT NUMBER 0708 - 3446
PROJECT NAME Bolton North Hill
CLIENT Bolton North Hill Landowner Group
ADDRESS 9948 Columbia Way, Bolton

DRILLING DATE 21/11/01 LICENCE NO. 7725

DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0601218 4861366

DRILLER John/Nick COORD SYS UTM

DRILL RIG GT3126 Geoprobe SURFACE ELEVATION 263 masl

DRILLING METHODAugering Hollow FlightWELL TOC 0.89 mTOTAL DEPTH 6.1 mLOGGED BY CMDIAMETER 51 mmCHECKED BY CG

COMPLETION21/11/01 CASING PVC SCREEN PVC

**COMMENTS** Corner of Columbia Way and Mount Hope Road

	ı	<u> </u>			Ι			I		
Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
L							TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets	Moist	Loose	- 1
- - 0.5							SILTY CLAY: Brown, silty clay, moist, dense, interbedded grey silt seams, minor gravel, @3.05m grey silty clay		Very Stiff	- - - 262.5 -
- - 1 -		SS 2.5 - 4.5ft	SS							- 262 
- - 1.5		SS 5.0 - 7.0ft	SS							_ 261.5 
_ 2										_ 261
- - - 2.5 - -		SS 7.5 - 9.5ft	SS							_ _ _ 260.5 _ _
_ _ 3			+							_ _ 260
		SS 10.0 -12.0ft	SS							_
- 3.5 -										_ 259.5 
- - 4 -						/ X /:	CLAYEY SILT TILL: Grey, clayey silt till to silty clay till, minor gravel, dense,			_ 259 
- - 4.5							moist			_ _ 258.5
		SS 15.0 - 17.0ft	SS			1. 1.				-
_ _ 5										_ _ 258
_							SILTY CLAY: Grey, silty clay, moist, dense, grey clay seam @6.10m		Stiff	-
- - 5.5										_ _ 257.5 _
- - - 6										- - 257
		SS 20.0 - 22.0ft	SS				Termination Depth at:6.10 m			-
- - 6.5										_ 256.5 
- - - 7	AU									- - - 256
_										<u> </u>
- 7.5 -										_ 255.5
_										_ _



## **MONITORING WELL MW3-21**

PROJECT NUMBER 0708 - 3446
PROJECT NAME Bolton North Hill
CLIENT Bolton North Hill Landowner Group
ADDRESS Mount Hope Road, Bolton

DRILLING DATE 21/11/02 LICENCE NO. 7725 DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0600800 4861761

DRILLER John/Nick COORD SYS UTM

DRILL RIG GT3126 Geoprobe SURFACE ELEVATION 265 masl

DRILLING METHOD Augering Hollow Flight

TOTAL DEPTH 6.1 m

DIAMETER 51 mm

WELL TOC 0.91 m

LOGGED BY CM

CHECKED BY CG

COMPLETION21/11/02 CASING PVC SCREEN PVC

**COMMENTS** Behind "No Trespassing" Sign

			I	<u> </u>	<u> </u>					Ī
Depth (m)	<b>Drilling Method</b>	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
_						3 3 3 3 3 3	TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets	Moist	Loose	_
- - - 0.5 -							SILTY CLAY: Brown, silty clay, moist, dense, interbedded grey silt seams, minor gravel		Very Stiff	- 264.5 -
- - 1 -		SS 2.5 - 4.5ft	SS							_ 264 
_ _ 1.5 _ _		SS 5.0 - 7.0ft	SS							_ _ 263.5 _ _
_ _ 2										_ _ 263
- - - 2.5 -		SS 7.5 - 9.5ft	SS							_ _ _ 262.5 _
_ _ 3	AU	SS 10.0 -12.0ft	SS							_ _ 262
- - - - 3.5		00 10.0 -12.011								- - - - 261.5
- - - 4 -							SILTY CLAY: Grey, silty clay, moist, dense, grey clay seams			- 261 
_ _ _ 4.5				Į ⊈						
- -		SS 15.0 - 17.0ft	SS	<u> </u>				Wet	Stiff	<u>-</u> -
5 5										_ _ 260 _
- 5.5 										_ _ 259.5 _
- - - 6										_ _ 259
_		SS 20.0 - 22.0ft	SS				Termination Depth at:6.10 m			<u>-</u>
6.5 				-						258.5  
- - 7 -										_ _ 258
- - - 7.5 -										_ 257.5
_		This boro log is int								_



### **MONITORING WELL MW4-21**

PROJECT NUMBER 0708 - 3446
PROJECT NAME Bolton North Hill
CLIENT Bolton North Hill Landowner Group
ADDRESS Lot 12, Concession 7, Albion

DRILLING DATE 21/11/11 LICENCE NO. 7725

DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0600161 4861208

DRILLER John/Nick COORD SYS UTM

DRILL RIG GT3126 Geoprobe SURFACE ELEVATION 261 masl

DRILLING METHODAugering Hollow FlightWELL TOC 0.99 mTOTAL DEPTH 6.1 mLOGGED BY CMDIAMETER 51 mmCHECKED BY CG

COMPLETION21/11/10 CASING PVC SCREEN PVC

**COMMENTS** Near tree line, mid field near stream

Material Description   Page										
Section   Sect	Depth (m)	<b>Drilling Method</b>	Samples	Sample Type	Water	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
1.5   SS 5.0 - 7.0ft   SS   SS 7.5 - 9.5ft   SS 7.5 -	- - - - - 0.5						\silt, organic, abundant rootlets  SILTY CLAY: Brown, silty clay, grey silty clay seams, moist, medium	Moist		- - - - - 260.5
SS 5.0 - 7.0ft SS  259  SS 7.5 - 9.5ft SS  SS 7.5 - 9.5ft SS  AU  SS 10.0 -12.0ft SS   SILTY CLAY: Brown, silty clay, grey silty clay seams, medium dense, moist, trace gravel  SILTY SAND: Brown, silty clay, grey silty clay, trace gravel  SILTY SAND: Brown, silty sand, wet saturated  258.5  258.5  SS 15.0 - 17.0ft SS  SS 15.0 - 17.0ft SS  SS 20.0 - 22.0ft SS  Termination Depth at 6.10 m  Termination Depth at 6.10 m	- - 1 -		SS 2.5 - 4.5ft	SS						260 
SS 7.5 - 9.5ft SS  AU  SS 10.0 -12.0ft SS  AU  SS 15.0 - 17.0ft SS  SS 15.0 - 2.0ft SS  SS 20.0 - 22.0ft SS  SS 20.0 - 22.0ft SS  SILTY CLAY: Brown, silty clay, grey silty clay, grey silty clay seams, medium dense, moist, trace gravel  SILTY SAND: Brown, silty sand, saturated  SILTY CLAY: Grey, silty clay, trace gravel  SILTY CLAY: Grey, silty clay, trace gravel  -257.5  SS 25.5  -256.5  -256.5  -256.5  -255.5  -255.5  -254.5	- - -		SS 5.0 - 7.0ft	SS				Wet		- - -
SS 10.0 -12.0ft SS	- - -		SS 7.5 - 9.5ft	SS			silty clay seams, medium dense,	Moist		- - -
- 4.5	- - -		SS 10.0 -12.0ft	SS	₹			Wet		-  -  -
SS 15.0 - 17.0ft SS	_ _ _							Moist		-
- 6 SS 20.0 - 22.0ft SS Termination Depth at:6.10 m - 254.5 - 254	- - -		SS 15.0 - 17.0ft	SS						<u>-</u>
SS 20.0 - 22.0ft SS	- - -				•					<u>-</u>
	_		SS 20.0 - 22.0ft	SS			Termination Depth at:6.10 m			_
- 7.5 - 253.5	- - - 7 -									- - 254 - -
	- - 7.5 - - -									_ 253.5 - - - -



# **MONITORING WELL MW5-21**

PROJECT NUMBER 0708 - 3446
PROJECT NAME Bolton North Hill
CLIENT Bolton North Hill Landowner Group
ADDRESS Lot 12, Concession 7, Albion

DRILLING DATE 21/11/02 LICENCE NO. 7725 DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0600122 4861032

**CHECKED BY** CG

DRILLER John/Nick COORD SYS UTM

DRILL RIG GT3126 Geoprobe SURFACE ELEVATION 264 masl

**DRILLING METHOD** Augering Hollow Flight WELL TOC 0.97 m

TOTAL DEPTH 6.1 m LOGGED BY CM

COMPLETION21/11/02 CASING PVC SCREEN PVC

**DIAMETER** 51 mm

**COMMENTS** Near High School scoreboard, North of fence

Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
- - - - - 0.5							TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets  SILTY CLAY: Brown, silty clay, moist, dense, interbedded grey silt seams, minor gravel	Moist	Loose Very Stiff	
- - - 1 -		SS 2.5 - 4.5ft	SS	-						- 263 
- - - 1.5 -		SS 5.0 - 7.0ft	SS							- 262.5 
- - 2 -										_ 262 
- 2.5 - -		SS 7.5 - 9.5ft	SS							_ 261.5  
- -3 - -	AU	SS 10.0 -12.0ft	SS	-						- 261  
- - 3.5 - -				₹				10/	N. II	260.5 
- 4  -							SILT: Grey, silt, minor sand, saturated, 1.2 m seam	Wet	Medium	260 
- 4.5 - - -		SS 15.0 - 17.0ft	SS	-			SILTY CLAY: Grey, silty clay, stone	Moist	Stiff	259.5  
5   				-			poor, moist			259   
5.5   										258.5   
- 6 - -		SS 20.0 - 22.0ft	SS				Termination Depth at:6.10 m			- 258 - - - - 257.5
6.5    7				-						257.5    257
7   7.5										257   256.5
- - - -										



# **MONITORING WELL MW6-21**

**PROJECT NUMBER** 0708 - 3446 PROJECT NAME Bolton North Hill **CLIENT** Bolton North Hill Landowner Group ADDRESS Lot 12, Concession 7, Albion

DRILLING DATE 21/11/02 LICENCE NO. 7725

DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0599914 4860896

DRILLER John/Nick COORD SYS UTM

DRILL RIG GT3126 Geoprobe SURFACE ELEVATION 264 masl

**DRILLING METHOD** Augering Hollow Flight WELL TOC 0.98 m LOGGED BY CM **CHECKED BY** CG

COMPLETION21/11/02 **CASING** PVC SCREEN PVC

TOTAL DEPTH 6.1 m

**DIAMETER** 51 mm

**COMMENTS** North edge of field behind autoshop

Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
- - - - - 0.5							TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets  SILTY CLAY: Brown, silty clay, moist, dense, interbedded grey silt seams, minor gravel	Moist	Loose Very Stiff	_ _ _ _ 263.5
- - - 1 -		SS 2.5 - 4.5ft	SS							_ _ 263 _
_ _ 1.5 _ _		SS 5.0 - 7.0ft	SS							_ 262.5  
- - 2 -		00.75 0.5%	00							- 262  
- - 2.5 - -		SS 7.5 - 9.5ft	SS							- 261.5 - -
3	AU	SS 10.0 -12.0ft	SS				CILT. Crops with uniners count activated	Wet	Madium	– 261 –
- 3.5 - - - -							SILT: Grey, silt, minor sand, saturated, approximately 0.60 m seam	vvei	Medium	- 260.5 - - -
4   4.5							SILTY CLAY: Grey, silty clay, stone poor, moist	Moist	Very Stiff	260    259.5
- 4.5 - - - - 5		SS 15.0 - 17.0ft	SS	<u>⊽</u>						259.5    259
- - - - - 5.5										- - - - - 258.5
_ _ _ 6										_ _ _ _ 258
- - - - 6.5		SS 20.0 - 22.0ft	SS				Termination Depth at:6.10 m			_ _ _ _ 257.5
- - - 7										_ _ _ 257 _
- - - 7.5 -										_ _ _ 256.5 _ _
-										-



### **MONITORING WELL MW7-21**

PROJECT NUMBER 0708 - 3446
PROJECT NAME Bolton North Hill
CLIENT Bolton North Hill Landowner Group
ADDRESS 14337 Highway 50, Bolton

DRILLING DATE 21/11/03 LICENCE NO. 7725 DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0599802 4861249

DRILLER John/Nick COORD SYS UTM

DRILL RIG GT3126 Geoprobe SURFACE ELEVATION 268 masl

DRILLING METHOD Augering Hollow Flight
TOTAL DEPTH 6.1 m
DIAMETER 51 mm
WELL TOC
LOGGED BY CM
CHECKED BY CG

COMPLETION21/11/03 CASING PVC SCREEN PVC

**COMMENTS** Garden centre field along fence line

Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
- - - - - 0.5							TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets SILTY CLAY: Brown, silty clay, moist, dense, interbedded grey silt, minor clay seams, minor gravel	Moist	Loose Very Stiff	
- - - 1 -		SS 2.5 - 4.5ft	SS							- 267 - -
_ _ 1.5 _		SS 5.0 - 7.0ft	SS							- 266.5 -
_ 2 -							SANDY SILT: Grey, sandy silt, saturated, approximately 0.60 m seam	Wet	Medium	_ 266 
_ 2.5 		SS 7.5 - 9.5ft	SS				SILTY CLAY: Grey, silty clay, stone poor, moist	Moist	Stiff	_ 265.5 
- 3 -	AU	SS 10.0 -12.0ft	SS							_ 265  
- - 3.5 -							SILT: Grey, silt minor sand, saturated	Wet	Medium	_ 264.5 
- 4 - -										- 264  
- 4.5 - -		SS 15.0 - 17.0ft	SS							_ _ 263.5 _ _
- 5 									0	_ _ 263 _
- - - 5.5 - -							SILTY CLAY: Grey, silty clay, dense, moist	Moist	Stiff	_ _ 262.5 _
- - - 6										_ _ 262
- - - - 6.5		SS 20.0 - 22.0ft	SS				Termination Depth at:6.10 m			_ _ _ _ 261.5
- - - - 7 -										- - - - 261
- - - 7.5										_ _ _ _ 260.5
<u>-</u> -										_ _ _



# **MONITORING WELL MW8-21**

PROJECT NUMBER 0708 - 3446
PROJECT NAME Bolton North Hill
CLIENT Bolton North Hill Landowner Group
ADDRESS 14337 Highway 50, Bolton

DRILLING DATE 21/11/03 LICENCE NO. 7725 DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0599628 4861023

DRILLER John/Nick COORD SYS UTM

DRILL RIG GT3126 Geoprobe

SURFACE ELEVATION 266 masl
DRILLING METHOD Augering Hollow Flight

WELL TOC

TOTAL DEPTH 6.1 m LOGGED BY CM
DIAMETER 51 mm CHECKED BY CG

COMPLETION21/11/03 CASING PVC SCREEN PVC

COMMENTS Northwest corner of field near garden centre

Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
- - - - - 0.5							TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets  SILTY CLAY: Brown, silty clay, moist, dense, interbedded grey silt, minor gravel	Moist	Loose Very Stiff	
- - - 1 -		SS 2.5 - 4.5ft	SS				gravei			- - 265 -
- 1.5 		SS 5.0 - 7.0ft	SS							_ _ 264.5 _ _
- - 2							SANDY SILT: Grey, sandy silt, saturated, approximately 0.40 m seam	Wet	Soft - Medium	_ _ 264 _
_ - 2.5 - -		SS 7.5 - 9.5ft	SS				SILTY CLAY: Grey, silty clay, stone poor, moist	Moist	Very Stiff	- 263.5 - -
_ _ 3	AU	SS 10.0 -12.0ft	SS							_ _ 263
- - - 3.5 -										- 262.5 -
- - 4 -				∑						- 262 
- 4.5 		SS 15.0 - 17.0ft	SS				SILT: Grey, silt minor sand, saturated, approximately 0.30 m seam SILTY CLAY: Grey, silty clay, dense,	Wet Moist	Medium Very Stiff	_ 261.5
- - - 5 -							moist			_ _ 261 _
- - - 5.5 - -										_ _ 260.5 _ _
_ _ 6		SS 20.0 - 22.0ft	SS				Termination Depth at:6.10 m			_ 260
- - - 6.5 -		2000 22.01					200.1011			- - 259.5 -
- - - 7 -										_ 259 
- - - 7.5 - -										- - 258.5 -
		This hore log is int	<u> </u>							Page 1 of



#### **MONITORING WELL MW9-21**

PROJECT NUMBER 0708 - 3446
PROJECT NAME Bolton North Hill
CLIENT Bolton North Hill Landowner Group
ADDRESS 14475 Highway 50, Bolton

DRILLING DATE 21/11/04 LICENCE NO. 7725 DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0599496 4861220

DRILLER John/Nick COORD SYS UTM

DRILL RIG GT3126 Geoprobe SURFACE ELEVATION 270 masl

DRILLING METHODAugering Hollow FlightWELL TOCTOTAL DEPTH6.1 mLOGGED BY CMDIAMETER51 mmCHECKED BY CG

COMPLETION21/11/04 CASING PVC SCREEN PVC

COMMENTS By existing barn, north edge of field

	ı	I	1	1	ı		T			
Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
-							TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets SILTY CLAY: Brown, silty clay, moist,	Moist	Loose Very Stiff	
- 0.5 - -							dense, interbedded grey silt, minor gravel			- 269.5 - -
- - - 1 -		SS 2.5 - 4.5ft	SS							_ _ _ 269 _ _
_ 1.5 		SS 5.0 - 7.0ft	SS							_ 268.5 - - -
- - 2 -										_ _ 268
- - - 2.5 -		SS 7.5 - 9.5ft	SS							- - - 267.5
- 3	AU	00.40.0.40.05					OUTVOLAY O			_ _ 267
- - - - 3.5		SS 10.0 -12.0ft	SS				SILTY CLAY: Grey, silty clay, dense, moist			- - - 266.5
- - 4 -										- 266 - -
- - 4.5		SS 15.0 - 17.0ft	SS							- 265.5 
- - - 5 -				⊻			SILT: Grey, silt minor sand, saturated, approximately 0.30 m seam	Wet	Soft - Medium	_ 265
- - - 5.5							SILTY CLAY: Grey, silty clay, dense, moist	Moist	Very Stiff	_ _ _ 264.5
- - - 6										_ _ _ _ 264
-		SS 20.0 - 22.0ft	SS				Termination Depth at:6.10 m			
- 6.5										_ 263.5
- - 7										_ _ 263
-										-  -  -
- 7.5 - -										- 262.5 - -
										<u> </u>



#### **MONITORING WELL MW10-21**

**PROJECT NUMBER** 0708 - 3446 PROJECT NAME Bolton North Hill **CLIENT** Bolton North Hill Landowner Group ADDRESS 14475 Highway 50, Bolton

DRILLING DATE 21/11/04 LICENCE NO. 7725

DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0599679 4861517

DRILLER John/Nick COORD SYS UTM

DRILL RIG GT3126 Geoprobe **SURFACE ELEVATION** 263 masl

**DRILLING METHOD** Augering Hollow Flight **WELL TOC** LOGGED BY CM **CHECKED BY** CG

COMPLETION21/11/04 **CASING** PVC SCREEN PVC

TOTAL DEPTH 6.1 m

**DIAMETER** 51 mm

**COMMENTS** South bank of pond in middle of property

		<u> </u>	Г		T					
Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
_ _ _							TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets SILTY CLAY: Brown, silty clay, moist,	Moist	Loose Very Stiff	-
0.5							dense, interbedded grey silt, minor gravel			- 262.5 -
- - - 1		SS 2.5 - 4.5ft	SS							- 262
_ _ _ 1.5		SS 5.0 - 7.0ft	SS	  - 						_ 261.5
- - - - 2		00 0.0 7.010								- - - - 261
_		SS 7.5 - 9.5ft	SS							-  -  -
2.5  										260.5  
- - 3 -	AU	SS 10.0 -12.0ft	SS							_ _ 260 _
- - 3.5										- 259.5 
_ _ _ 4										_ 259
_ - - - 4.5							SILT: Grey, silt minor sand, saturated, approximately 0.30 m seam	Wet	Soft - Medium	_ _ _ _ 258.5
1.0  -  -		SS 15.0 - 17.0ft	SS	Σ			SILTY CLAY: Grey, silty clay, dense, moist	Moist	Very Stiff	
- 5 - -										258  
- 5.5 -										_ 257.5 
- - - 6										- - - 257
- - - 6.5		SS 20.0 - 22.0ft	SS				Termination Depth at:6.10 m			- - - 256.5
-										- - -
7  										256   
- 7.5 -										- - 255.5 -
_										_



#### **MONITORING WELL MW11-21**

**PROJECT NUMBER** 0708 - 3446 PROJECT NAME Bolton North Hill **CLIENT** Bolton North Hill Landowner Group ADDRESS 14475 Highway 50, Bolton

DRILLING DATE 21/11/04 LICENCE NO. 7725

DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0599248 4861525

DRILLER John/Nick COORD SYS UTM

DRILL RIG GT3126 Geoprobe **SURFACE ELEVATION** 270 masl **DRILLING METHOD** Augering Hollow Flight

**WELL TOC** LOGGED BY CM **CHECKED BY** CG

COMPLETION21/11/04 **CASING** PVC SCREEN PVC

TOTAL DEPTH 6.1 m

**DIAMETER** 51 mm

**COMMENTS** Northwest corner of property along fence line

				Ι					1	
Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
_						3 3 3 3 3 3	TOPSOIL: Dark brown, silty to clay	Moist	Loose	L
- - 0.5 - -							\silt, organic, abundant rootlets  SILTY CLAY: Brown, silty clay, grey silty clay seams, moist, dense, minor gravel, trace sand		Very Stiff	_ _ 267.5 _
- 1 		SS 2.5 - 4.5ft	SS							_ 267 
- 1.5 - - -		SS 5.0 - 7.0ft	SS							_ _ 266.5 _ _
- - 2 -										- 266 
- 2.5 		SS 7.5 - 9.5ft	SS							- - - 265.5 - -
- 3	AU	SS 10.0 -12.0ft	SS							_ 265 
- - 3.5 -										_ 264.5
- - - 4 - -				∑			SILTY CLAY: Grey, silty clay, dense, moist, trace gravel			_ _ 264 _
- 4.5 -		SS 15.0 - 17.0ft	SS							_ _ 263.5
- - - - 5 -										263
- - 5.5 - -							SANDY SILT: Grey, silt minor sand, saturated, approximately 0.80 m seam	Wet	Soft - Medium	- - 262.5 -
- 6										- 262
- - - - 6.5		SS 20.0 - 22.0ft	SS				Termination Depth at:6.10 m			- - - - 261.5
- 0.5 - - -										- 201.5 - -
- 7 										_ _ 261
- - 7.5 -										- 260.5 
-			andad							-



#### **MONITORING WELL MW12-21**

**PROJECT NUMBER** 0708 - 3446 PROJECT NAME Bolton North Hill **CLIENT** Bolton North Hill Landowner Group ADDRESS 14475 Highway 50, Bolton

DRILLING DATE 21/11/04 LICENCE NO. 7725

DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0599417 4861745

DRILLER John/Nick COORD SYS UTM

DRILL RIG GT3126 Geoprobe **SURFACE ELEVATION** 268 masl

**DRILLING METHOD** Augering Hollow Flight **WELL TOC** LOGGED BY CM **CHECKED BY** CG

COMPLETION21/11/04 **CASING** PVC SCREEN PVC

TOTAL DEPTH 6.1 m

**DIAMETER** 51 mm

COMMENTS Edge of field, NE parcel, along fence line

		I	T		I	1		I	Ī	
Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
							TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets	Moist	Loose Very Stiff	_
- - 0.5							SILTY CLAY: Brown, silty clay, moist, dense, minor gravel, trace sand			- 267.5
-		SS 2.5 - 4.5ft	SS							_ _ _ 267
- 1 - -										- 20 <i>1</i> - -
- 1.5		SS 5.0 - 7.0ft	SS							- 266.5 -
- - - 2										- - - 266
										- 200 - - -
- 2.5		SS 7.5 - 9.5ft	SS							_ 265.5 -
- - - 3			-							_ _ _ _ 265
	AU	SS 10.0 -12.0ft	SS	Σ			SANDY SILT: Grey, silt minor sand, saturated, approximately 0.80 m seam	Wet	Soft - Medium	
- - 3.5				-						- 264.5 
- - - 4							SILTY CLAY: Grey, silty clay, dense,	Moist	Very Stiff	_ _ _ _ 264
- - -							moist, trace gravel			- - -
- - 4.5		SS 15.0 - 17.0ft	SS				SILT: Brown to grey, silt, saturated	Wet	Medium	_ _ 263.5 _
- - - 5		00 10.0 17.01					Olen Brown to groy, one, outdrated	1101	Wodiam	_ - - 263
- - -				-						-
- - 5.5							SILTY CLAY: Grey, silty clay, dense, moist, stone poor	Moist	Stiff	_ _ 262.5
_ _ _ 6										_ _ _ 262
-		SS 20.0 - 22.0ft	SS				Termination Depth at:6.10 m			-
6.5										261.5
_ _ 7										_ _ _ 261
-  -  -										-  -
- - 7.5										260.5
_ _										-



## **MONITORING WELL MW13-21**

**DRILLING METHOD** Augering Hollow Flight

PROJECT NUMBER 0708 - 3446
PROJECT NAME Bolton North Hill
CLIENT Bolton North Hill Landowner Group
ADDRESS 14685 Highway 50, Bolton

DRILLING DATE 21/11/08 LICENCE NO. 7725

DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0599098 4861591

DRILLER John/Nick COORD SYS UTM

DRILL RIG GT3126 Geoprobe SURFACE ELEVATION 270 masl

WELL TOC LOGGED BY CM CHECKED BY CG

COMPLETION21/11/08 CASING PVC SCREEN PVC

TOTAL DEPTH 6.1 m

**DIAMETER** 51 mm

**COMMENTS** Near farm silos

Depth (m)	<b>Drilling Method</b>	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
-						{	TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets	Moist	Loose	-
0.5							SILTY CLAY: Brown, silty clay, grey silty clay seams, moist, dense, minor		Very Stiff	_ _ 269.5
		SS 2.5 - 4.5ft	SS				gravel, trace sand			-
- 1 -										269 
- - - 1.5										- - 268.5
		SS 5.0 - 7.0ft	SS							- - -
2										- 268 
- - - 2.5		SS 7.5 - 9.5ft	SS							_ _ _ 267.5
Z.5										207.5
3	AU	SS 10.0 -12.0ft	SS	⊻						- 267 
		00 10.0 - 12.010					SILTY CLAY: Grey, silty clay, grey silty			-
- 3.5 - -			-	-			clay seams, dense, moist, trace gravel			266.5  
- 4										_ _ 266
[  -  -										- - -
- 4.5 - -		SS 15.0 - 17.0ft	SS	-						265.5  
_ _ 5							SANDY SILT: Grey, silty sand to sandy silt, saturated, approximately 0.60 m	Wet	Medium	_ _ 265
				-			seam			- - -
- 5.5 -							SILTY CLAY: Grey, silty clay to clay, dense, moist, trace gravel	Moist	Stiff	— 264.5 —
- - 6										- 264
-		SS 20.0 - 22.0ft	SS			<del></del>	Termination Depth at:6.10 m			-
6.5										_ 263.5 _
- - 7										- - - 263
										-  -  -
7.5										- - 262.5
-										_



#### **MONITORING WELL MW14-21**

**PROJECT NUMBER** 0708 - 3446 PROJECT NAME Bolton North Hill **CLIENT** Bolton North Hill Landowner Group ADDRESS 14685 Highway 50, Bolton

DRILLING DATE 21/11/05 LICENCE NO. 7725

DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0599114 4862349

DRILLER John/Nick COORD SYS UTM

DRILL RIG GT3126 Geoprobe **SURFACE ELEVATION** 269 masl

**DRILLING METHOD** Augering Hollow Flight **WELL TOC** TOTAL DEPTH 6.1 m LOGGED BY CM **CHECKED BY** CG

COMPLETION21/11/05 CASING PVC SCREEN PVC

**DIAMETER** 51 mm

COMMENTS Northeast corner of parcel along fence by woodlot and east cornfield

Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
-							TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets	Moist	Loose	-
0.5							SILTY CLAY: Brown, silty clay, grey silty clay seams, moist, dense, minor		Very Stiff	_ 268.5
_		SS 2.5 - 4.5ft	SS				gravel, trace sand			-
- 1 - -										268  
- - - 1.5										- - 267.5
<u>-</u> -		SS 5.0 - 7.0ft	SS							- -
_ 2			_							_ _ 267
_ _ _ 2.5		SS 7.5 - 9.5ft	SS	⊻			SANDY SILT: Brown, silty sand to sandy silt, saturated, approximately	Wet	Medium	_ _ _ 266.5
-							0.50 m seam  SILTY CLAY: Brown, silty clay, dense,	Moist	Stiff	-  -  -
- - 3	AU	SS 10.0 -12.0ft	ss				moist, trace gravel	Wolst	Oun	- 266 
-		00 10.0 12.01								-
- 3.5 -							SANDY SILT: Brown, sandy silt,	Wet	Medium	_ 265.5 _ _
<u> </u>							saturated, approximately 1 m			- 265
- - -										- - -
- 4.5 - -		SS 15.0 - 17.0ft	SS				SILTY CLAY: Grey, silty clay to clay,	Moist	Stiff	- 264.5 - -
_ _ 5							dense, moist, trace gravel			_ _ 264
										_
- 5.5 -										- 263.5 -
- - - 6										- 263
_		SS 20.0 - 22.0ft	SS			<u> </u>	Termination Depth at:6.10 m			-
6.5										262.5
- - 7										_ _ _ 262
-  -  -										-  -  -
- - 7.5										- 261.5
_										-  -



#### **MONITORING WELL MW15-21**

**PROJECT NUMBER** 0708 - 3446 PROJECT NAME Bolton North Hill **CLIENT** Bolton North Hill Landowner Group ADDRESS 14685 Highway 50, Bolton

DRILLING DATE 21/11/05 LICENCE NO. 7725

DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0598811 4861951

DRILLER John/Nick COORD SYS UTM

DRILL RIG GT3126 Geoprobe **SURFACE ELEVATION 271 masl** 

**DRILLING METHOD** Augering Hollow Flight **WELL TOC** LOGGED BY CM

**CHECKED BY** CG

COMPLETION21/11/05 CASING PVC SCREEN PVC

TOTAL DEPTH 6.1 m

**DIAMETER** 51 mm

COMMENTS Northwest corner of the property, behind red brick

Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
- - - - - 0.5							TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets  SILTY CLAY: Brown, silty clay, grey silty clay seams, moist, dense, minor gravel, trace sand	Moist	Loose Very Stiff	
- - - 1 -		SS 2.5 - 4.5ft	SS				gravor, naso sama			- - 270 -
- - 1.5 - - - - - 2		SS 5.0 - 7.0ft	SS							- 269.5 - - - - 269
- - - - 2.5 -		SS 7.5 - 9.5ft	SS							_ _ _ _ 268.5 _
- - 3 - - - - - 3.5	AU	SS 10.0 -12.0ft	SS	⊻			SANDY SILT: Brown, silty sand to sandy silt, saturated, approximately 0.50 m seam	Wet	Medium	_ 268 _ _ _ _ _ _ _ 267.5
- - - - 4 -							SILTY CLAY: Brown, silty clay, grey silty clay seams, dense, moist, trace gravel	Moist	Stiff	
4.5			ļ				SANDY SILT: Brown, sandy silt,			_ _ 266.5
- - - - 5 -		SS 15.0 - 17.0ft	SS				saturated, approximately 0.2 m  SILTY CLAY: Grey, silty clay to clay, dense, moist, trace gravel	Wet Moist	Medium Stiff	- - - 266 -
_ 5.5 - -										_ 265.5 - -
<del>-</del> 6		SS 20.0 - 22.0ft	ss				Termination Depth at:6.10 m			- 265 -
- - - 6.5 -							·			_ _ _ 264.5 _ _
- - 7 - -										_ 264 
- 7.5 - - -										_ 263.5 - - -
- - -	laimar				vironmental net de					- 2 - 2



## **MONITORING WELL MW16-21**

PROJECT NUMBER 0708 - 3446
PROJECT NAME Bolton North Hill
CLIENT Bolton North Hill Landowner Group
ADDRESS Hwy 50 and Hwy 150 Parcel

DRILLING DATE 21/11/08 LICENCE NO. 7725 DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0598956 4861168

DRILLER John/Nick COORD SYS UTM

DRILL RIG GT3126 Geoprobe SURFACE ELEVATION 268 masl

DRILLING METHOD Augering Hollow Flight
TOTAL DEPTH 6.1 m
DIAMETER 51 mm
WELL TOC
LOGGED BY CM
CHECKED BY CG

COMPLETION21/11/08 CASING PVC SCREEN PVC

**COMMENTS** Southwest corner of field by treeline

SS 2.5 - 4.5ft   SS   SS 7.5 - 9.5ft   SS   SS 15.0 - 17.0ft   SS 15.0 -	
SS 2.5 - 4.5ft SS  1.5  - 1.5  - 2.5  - 3.5  AU  SS 15.0 - 17.0ft SS	Elevation (m)
SS 2.5 - 4.5ft SS  SS 2.5 - 4.5ft SS  SS 5.0 - 7.0ft SS  AU  SS 10.0 - 12.0ft SS  SS 15.0 - 17.0ft SS  SS 15.0 - 17.0ft SS  SILTY CLAY: Grey, silty clay, grey silty clay seams, moist, dense, minor gravel  SS 15.0 - 17.0ft SS  SILTY CLAY: Grey, silty clay, grey silty clay seams, dense, moist, trace gravel	-
1	- - 267.5 - -
SS 5.0 - 7.0ft SS  SS 7.5 - 9.5ft SS  AU  SS 10.0 -12.0ft SS  SS 15.0 - 17.0ft SS  SS 15.0 - 17.0ft SS  SILTY CLAY: Grey, silty clay, grey silty clay seams, dense, moist, trace gravel	- - 267 - -
SS 7.5 - 9.5ft SS  SS 10.0 -12.0ft SS  SS 15.0 - 17.0ft SS  SILTY CLAY: Grey, silty clay, grey silty clay seams, dense, moist, trace gravel	- 266.5 - -
2.5 3 AU SS 10.0 -12.0ft SS  SS 15.0 - 17.0ft SS  SILTY CLAY: Grey, silty clay, grey silty clay seams, dense, moist, trace gravel	- 266 
SS 10.0 -12.0ft SS  4.5  SS 15.0 - 17.0ft SS  SILTY CLAY: Grey, silty clay, grey silty clay seams, dense, moist, trace gravel	- - 265.5 - -
SS 10.0 -12.0ft SS  -4.5  SS 15.0 - 17.0ft SS  SILTY CLAY: Grey, silty clay, grey silty clay seams, dense, moist, trace gravel	- - - 265
SS 15.0 - 17.0ft SS  SILTY CLAY: Grey, silty clay, grey silty clay seams, dense, moist, trace gravel	- - -
SS 15.0 - 17.0ft SS  SILTY CLAY: Grey, silty clay, grey silty clay seams, dense, moist, trace gravel	- 264.5 - -
SS 15.0 - 17.0ft SS SILTY CLAY: Grey, silty clay, grey silty clay seams, dense, moist, trace gravel	- 264 
clay seams, dense, moist, trace gravel	- - - 263.5
5	- - -
5.5	- 263  
	- 262.5 
	- 262
SS 20.0 - 22.0ft SS Termination Depth at:6.10 m	-
6.5	- 261.5 
	- 261 
7.5	- - 260.5 - -
	_



#### **MONITORING WELL MW17-21**

PROJECT NUMBER 0708 - 3446
PROJECT NAME Bolton North Hill
CLIENT Bolton North Hill Landowner Group
ADDRESS Hwy 50 and Hwy 150 Parcel

DRILLING DATE 21/11/09 LICENCE NO. 7725 DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0598998 4861490

**CHECKED BY** CG

DRILLER John/Nick COORD SYS UTM

DRILL RIG GT3126 Geoprobe SURFACE ELEVATION 269 masl

**DRILLING METHOD** Augering Hollow Flight **WELL TOC** 1.03 m **TOTAL DEPTH** 6.1 m **LOGGED BY** CM

COMPLETION21/11/09 CASING PVC SCREEN PVC

**DIAMETER** 51 mm

COMMENTS North of roundabout, northeast corner of property

Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
- - - - - 0.5							TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets  SILTY CLAY: Brown, silty clay, grey silty clay seams, moist, dense, minor gravel	Moist	Loose Very Stiff	
- - - 1 - -		SS 2.5 - 4.5ft	SS				graver			- - 268 - -
- 1.5 - - -		SS 5.0 - 7.0ft	SS							_ _ 267.5 _ _ -
2							SANDY SILT: Brown, sandy silt to silt, minor clay, saturated	Wet	Medium	267
- - - 2.5 -		SS 7.5 - 9.5ft	SS				SILTY CLAY: Brown, silty clay, grey silty clay to silt seams, moist, dense, minor gravel	Moist	Stiff	- - - - 266.5 -
- - - 3	AU						SILTY CLAY: Grey, silty clay, grey silty clay seams, dense, moist, trace gravel			- 266
- - - - 3.5	AU	SS 10.0 -12.0ft	SS							- - - - 265.5
- - - 4 -										- - 265 - -
- 4.5 - -		SS 15.0 - 17.0ft	SS							- 264.5 - - -
- - 5 -										264
_ _ 5.5 _										263.5 
_ _ 6										_ 263
- - - - 6.5		SS 20.0 - 22.0ft	SS				Termination Depth at:6.10 m			_ _ _ _ 262.5
- - - 7 -										_ _ _ 262 _
- - - 7.5 -										- 261.5 -
		This bore log is int		f	vine a manufal met me	ata abaical access				Page 1 of 1



LICENCE NO. 7725

#### **MONITORING WELL MW18-21**

**PROJECT NUMBER** 0708 - 3446 PROJECT NAME Bolton North Hill **CLIENT** Bolton North Hill Landowner Group ADDRESS 14601 Duffy's Lane DRILLING DATE 21/11/09

DRILLER John/Nick DRILL RIG GT3126 Geoprobe **DRILLING METHOD** Augering Hollow Flight TOTAL DEPTH 6.1 m **DIAMETER** 51 mm

DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0598210 4860598 COORD SYS UTM SURFACE ELEVATION 261 masl WELL TOC 1.03 m LOGGED BY CM **CHECKED BY** CG

COMPLETION21/11/09 **CASING** PVC SCREEN PVC

**COMMENTS** Behind gravel area, willow farm

Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
-						·	TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets	Moist	Loose	_
- 0.5 							SILTY CLAY: Brown, silty clay, grey silty clay seams, moist, medium dense, minor gravel		Medium	- 260.5 -
- 1 		SS 2.5 - 4.5ft	SS							260 
- 1.5 - - -		SS 5.0 - 7.0ft	SS							- 259.5 - -
- 2 										- - 259
- - - 2.5 -		SS 7.5 - 9.5ft	SS				CLAY: Grey clay, trace gravel, iron staining, moist, medium dense			- - - - 258.5
- - - 3										- - - 258
- - -	AU	SS 10.0 -12.0ft	SS				SILTY CLAY: Grey, silty clay, grey silty clay seams, dense, moist, trace gravel		Stiff	
3.5 			-							- 257.5 -
- 4  										_ 257 
- 4.5			ļ							_ _ 256.5
- - -		SS 15.0 - 17.0ft	SS							-
5 										- 256 - -
- - 5.5 - -										_ _ 255.5 _
- - - 6										_ _ 255
-		SS 20.0 - 22.0ft	SS		-		Termination Depth at:6.10 m			-
6.5 										- 254.5 -
- - 7 										- 254 
- - 7.5 - -										- - 253.5 -
-										-



#### **MONITORING WELL MW19-21**

**PROJECT NUMBER** 0708 - 3446 PROJECT NAME Bolton North Hill **CLIENT** Bolton North Hill Landowner Group ADDRESS 14601 Duffy's Lane

DRILLING DATE 21/11/10 LICENCE NO. 7725

DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0598395 4861011

DRILLER John/Nick COORD SYS UTM

DRILL RIG GT3126 Geoprobe SURFACE ELEVATION 262 masl

**DRILLING METHOD** Augering Hollow Flight WELL TOC  $0.95\ m$ 

TOTAL DEPTH 6.1 m LOGGED BY CM **DIAMETER** 51 mm **CHECKED BY** CG

COMPLETION21/11/10 CASING PVC SCREEN PVC

**COMMENTS** South field, east fence at the start of south treeline

	7									
Depth (m)	<b>Drilling Method</b>	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
_							TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets	Moist	Loose	-
- - - 0.5 -							SILTY CLAY: Brown, silty clay, grey silty clay seams, moist, medium dense, minor gravel		Medium	_ _ 261.5 _
- - - 1 -		SS 2.5 - 4.5ft	SS							_ _ 261 _
- - - 1.5 -		SS 5.0 - 7.0ft	SS							_ 260.5 
_ _ 2 _										_ 260 
_ 2.5 		SS 7.5 - 9.5ft	SS							_ 259.5 
_ _ 3	AU									_ _ 259
_ _ _ 3.5		SS 10.0 -12.0ft	SS				SILTY CLAY: Grey, silty clay, grey silty clay seams, medium dense, moist, trace gravel			_ _ _ _ 258.5
- - - 4 -										_ _ 258 _
_ 4.5										_ _ 257.5
- - -		SS 15.0 - 17.0ft	SS							-  -  -
- 5 - -										257  
- - - 5.5 -										_ _ 256.5 _
_ _ 6										_ 256
_		SS 20.0 - 22.0ft	SS				Termination Depth at:6.10 m			-
6.5  										255.5 
- - - 7 -										- 255 
- - - 7.5 -										- 254.5 -
-						otochnical nurne				-



#### **MONITORING WELL MW20-21**

**PROJECT NUMBER** 0708 - 3446 PROJECT NAME Bolton North Hill **CLIENT** Bolton North Hill Landowner Group ADDRESS 14601 Duffy's Lane

DRILLING DATE 21/11/10 LICENCE NO. 7725

DRILLING COMPANY ACE Environmental Drilling COORDINATES 17T 0598001 4861283

DRILLER John/Nick COORD SYS UTM

SURFACE ELEVATION 265 masl DRILL RIG GT3126 Geoprobe

**DRILLING METHOD** Augering Hollow Flight WELL TOC 1.01 m

TOTAL DEPTH 6.1 m LOGGED BY CM **DIAMETER** 51 mm **CHECKED BY** CG

COMPLETION21/11/10 CASING PVC SCREEN PVC

**COMMENTS** In between two iron posts northeast corner of the property

Depth (m)	Drilling Method	Samples	Sample Type	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Elevation (m)
- - -							TOPSOIL: Dark brown, silty to clay silt, organic, abundant rootlets SILTY CLAY: Brown, silty clay, grey	Moist	Loose Medium	-  -  -
0.5							silty clay seams, moist, medium dense, minor gravel			264.5
- - 1 -		SS 2.5 - 4.5ft	SS							- 264 
_ 1.5 - - -		SS 5.0 - 7.0ft	SS							_ _ 263.5 _ _ _
- 2 -										263 
- - - 2.5 - -		SS 7.5 - 9.5ft	SS							- 262.5 
- 3 	AU	SS 10.0 -12.0ft	SS							- 262
- - - - 3.5		00 10.0 -12.010					SILTY CLAY: Grey, silty clay, grey silty clay seams, medium dense, moist, trace gravel			_ _ _ 261.5
- - - 4 -							nace graver			_ _ _ 261 _
4.5										_ _ 260.5
- - -		SS 15.0 - 17.0ft	SS							- - -
- 5 - -										- 260 - -
_ _ 5.5 _										_ 259.5 
_ _ 6		00.00.0.00.00	00				Towning the Double 40 40 mg			_ _ 259
- - - 6.5 -		SS 20.0 - 22.0ft	SS				Termination Depth at:6.10 m			_ _ _ 258.5 _
- - - 7 -										- - 258 - -
- 7.5 - -										
<u> </u>		This have law is in		<b>.</b>	vironmental not de	-4				Page 1 of 1

			Monitoring	Well Levels - Bolton	North Hill				
Project Number:	708-3446		Address:		Bolton North Hill Lands				
Prepared by:	MD		Date completed:		2022-02-24				
					February 8 to February 24, 2022				
Monitoring Well	Elevation (masl) <sup>1</sup>	Depth (m)	Stick-Up (m)	Date	Measured Level (m)	Corrected Water Level (mbgs)	Corrected Water Level (masl)		
MW1-21	265	6.10	0.81	Feb 8 2022	2.16	1.35	263.65		
MW2-21	263	6.10	0.89	Feb 8 2022	2.23	1.34	261.66		
MW3-21	265	6.10	0.91	Feb 8 2022	3.17	2.26	262.74		
MW4-21	261	6.10	0.99	Feb 8 2022	3.39	2.40	258.60		
MW5-21	264	6.10	0.97	Feb 8 2022	3.24	2.27	261.73		
MW6-21	264	6.10	0.98	Feb 8 2022	3.16	2.18	261.82		
MW7-21	268	6.10	1.09	Feb 24 2022	2.88	1.79	266.21		
MW8-21	266	6.10	1.08	Feb 24 2022	2.14	1.06	264.94		
MW9-21	270	6.10	1.07	Feb 24 2022	3.22	2.15	267.85		
MW10-21	263	6.10	1.08	Feb 24 2022	2.46	1.38	261.62		
MW11-21	270	6.10	1.06	Feb 24 2022	4.39	3.33	266.67		
MW12-21	268	6.10	1.10	Feb 24 2022	4.12	3.02	264.98		
MW13-21	270	6.10	1.09	Feb 24 2022	2.61	1.52	268.48		
MW14-21	269	6.10	1.01	Feb 24 2022	2.54	1.53	267.47		
MW15-21	271	6.10	1.02	Feb 24 2022	2.32	1.30	269.70		
MW16-21	268	6.10	1.09	Feb 8 2022	3.87	2.78	265.22		
MW17-21	269	6.10	0.87	Feb 8 2022	2.10	1.23	267.77		
MW18-21	261	6.10	1.03	Feb 8 2022	2.94	1.91	259.09		
MW19-21	262	6.10	0.95	Feb 8 2022	2.70	1.75	260.25		
MW20-21	265	6.10	1.01	Feb 8 2022	2.92	1.91	263.09		

<sup>1.</sup> Measured in the field using a Garmin ETREX 10 Handheld GPS.