

110 KONRAD CRES.

TEL.: 905-940-8509 FAX: 905-940-8192

February 12, 2024 Project No.: 5555-21-HC

Man Holdings Ltd. 174 Dinnick Crescent Toronto. Ontario M4N 1M3

Attention: Mr. Sam Arabi

Re: **Groundwater Mounding Study**

Proposed Development - 181 Toronto Street South, Uxbridge, Ontario

Toronto Inspection Ltd. was authorized by Man Holdings Ltd. (the Client) to conduct a Groundwater Mounding Assessment at 181 Toronto Street South in Uxbridge, Ontario (hereinafter refereed to as "the Site").

1.1 **Site Condition**

The Site, approximately 0.52 ha in area and approximately parallelogram in shape, is located immediately east of Toronto Street South, west of Fred Barnaud Way, and approximately 50 m south of the intersection of these two roads.

The Site is currently vacant and covered by shrubs, trees, and vegetation. The Site gradually slopes upwards towards the northeast from 277 to 279 meters above sea level (masl).

The location of the Site is presented in **Figure 1**.

2.1 Infiltration Rate

A Low Impact Development (LID) consisting of an infiltration trench along the southern boundary is proposed at the Site. An unfactored infiltration rate of 61 mm/hr was recommended for the bottom of the LID as noted in the Infiltration Testing Program Report issued by Toronto Inspection Ltd. on August 25, 2023.

3.1 **Groundwater Mounding**

Groundwater mounding at the proposed LID location is of concern to nearby residents. As such a simulation of groundwater mounding beneath test pits 23TP-1 and 23TP-2 using the dimensions of the proposed LID, was conducted. The Hantush USGS spreadsheet as per the guidelines set out in the specific investigations report prepared by the USGS and altered by the Toronto and Region Conservation Authority in 2017 was used to evaluate the groundwater



mounding at the simulated LID for 24 hours using the 2-year and 100-year rainfall Storm Intensity Curves from Uxbridge, ON.

Based on the Site conditions the following assumptions were made for the Hantush analysis for groundwater mounding:

- The scenario considers the 2-year and 100-year storm event, which is approximately 58 mm and 128 mm of precipitation in 24 hours, respectively, based on the Intensity-Duration-Frequency (IDF) curves for Uxbridge (Ministry of Transportation, 2010). These values translate to a recharge rate of 0.058 m/day and 0.128 m/day for the 2-year and 100-year scenario, respectively.
- The specific yield was determined using values for predominantly sand and silty sand from analysis by Morris and Johnson in their 1967 paper.
- Estimates of hydraulic conductivity from each monitoring well were calculated using the Hvorslev (1951) method. A geomean of 7.7 x 10⁻⁷ m/s was used as the hydraulic conductivity as the screened soil type was representative of the soil at the proposed depth of the infiltration trench. The hydraulic conductivity analyses are attached in **Appendix A**.
- The duration of infiltration was based on the 24-hour precipitation from the IDF curves for Uxbridge, ON. An infiltration duration of 1 day was used.
- A groundwater level of 2.72 meters below ground surface (mbgs) was inferred based on hydrological data collected at 21BH-1 (MW) as the well is in close proximity to the proposed LID.
- The saturated thickness of the aquifer used was assumed to be 5 m based on mapping from the ORMGP at the location of the proposed LID, as well as borehole logs for the Site (**Appendix B**) and previous MECP Water Well Records near the Site.
- The groundwater mounding from the center of the infiltration trench for the 2-year and 100-year storm events are attached in **Appendix C**.

The following parameters were used in the mounding simulation for a 2-year storm event:

Parameter	Input Value
Recharge Rate	0.058 m/day
Specific Yield	0.250 (dimensionless)
Horizontal Hydraulic Conductivity	0.066 m/day
1/2 Length of Basin	9.9 m
1/2 Width of Basin	0.9 m
Duration of Infiltration	1 day
Initial Thickness of Saturated Zone	5.0 m



The result of the analysis for the 2-year storm event provided the following output:

Distance from Center of	Groundwater Mounding
Infiltration Trench (m)	(m)
0	0.15
1	0.15
2.5	0.15
5	0.15
7.5	0.14
10	0.07
12.5	0.00
15	0.00
17.5	0.00
20	0.00

The lowest finished grade of the LID is proposed to be 278.31 masl. Based on an inferred groundwater depth of 2.72 mbgs, the groundwater is simulated to mound to a depth of 2.57 mbgs, or 275.74 masl within the footprint of the simulated LID. The lowest elevation of the LID is proposed to be 277.05 masl which leaves a 1 m separation between the highest groundwater mound and the lowest infiltration trench invert.

The following parameters were used in the mounding simulation for a 100-year storm event:

Parameter	Input Value
Recharge Rate	0.128 m/day
Specific Yield	0.250 (dimensionless)
Horizontal Hydraulic Conductivity	0.066 m/day
1/2 Length of Basin	9.9 m
1/2 Width of Basin	0.9 m
Duration of Infiltration	1 day
Initial Thickness of Saturated Zone	5.0 m



The result of the analysis for the 100-year storm event provided the following output:

Distance from Center of Infiltration Trench (m)	Groundwater Mounding (m)	
0	0.32	
1	0.32	
2.5	0.32	
5	0.32	
7.5	0.32	
10	0.15	
12.5	0.00	
15	0.00	
17.5	0.00	
20	0.00	

Based on an inferred groundwater depth of 2.72 mbgs, the groundwater is simulated to mound to a depth of 2.40 mbgs, or 275.91 masl within the footprint of the simulated LID. The lowest elevation of the LID is proposed to be 277.05 masl which leaves a 1 m separation between the highest groundwater mound and the lowest infiltration trench invert.

We trust this report meets your requirements, should you have any questions please do not hesitate to contact the undersigned.

Sincerely,

TORONTO INSPECTION LTD.

Sanjay Goel, B.E.S. Environmental Scientist

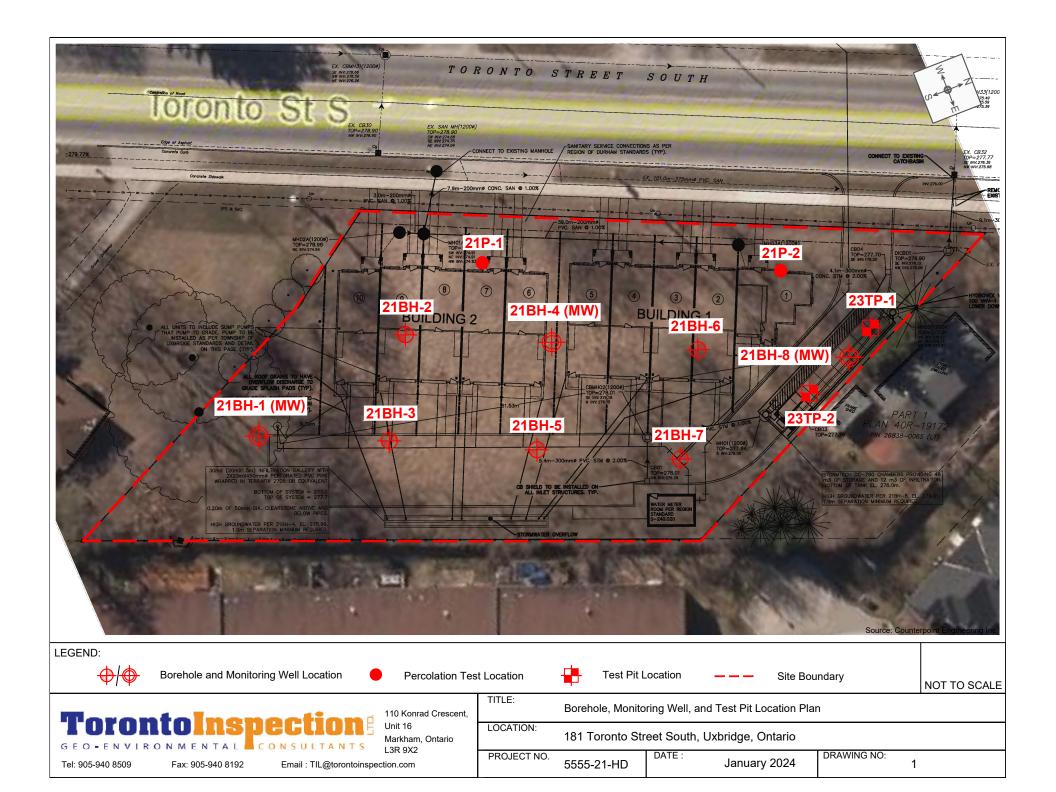
Vice-President

February 12, 2024

Victor Wood, P.Eng. Principal Engineer



FIGURES

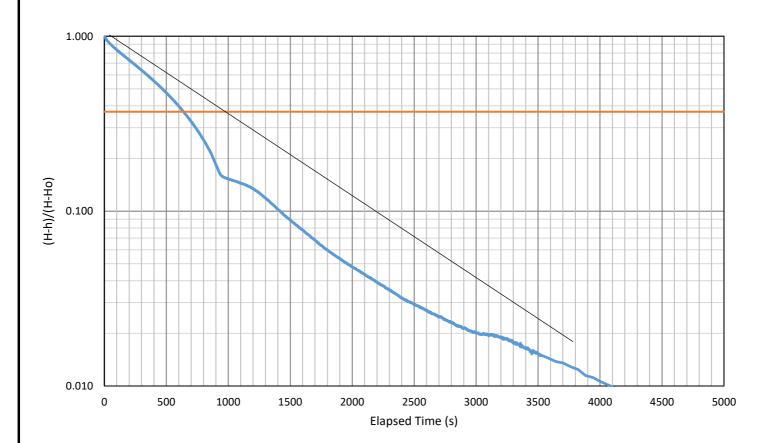




APPENDIX A

Hydraulic Conductivity Analysis

In-Situ Hydraulic Conductivity Analyses: 21BH-1(MW) Company: TIL Client: Man Holdings Ltd Project: 5555 Location: 181 Toronto Street South, Uxbridge Test Well: 21BH-1(MW) Test Date: October 29, 2021 Test Conducted By: PG Test Analyzed By: YL



Effective Well Depth (mbgs):	6.10		Screened Unit:	Silty Sand
Initial Water Level (mb	ogs) (H):	2.92		Screen Length (m) (L _e):	1.524
Available Drawdown (m):	3.18		Head at Time = $0 (m) (H_o)$:	2.73
Borehole Radius (m) ((R _b):	0.0762		Monitoring Well Radius (m) (R _c):	0.026
Solution Method:	Hvorslev (195	1)	•	Recovery (%):	66%
Early K (m/s)		NA		Early To (s):	NA
Mid K (m/s)		6.7E-07		Mid To (s):	950
Late K (m/s)		NA		Late To (s):	NA

In-Situ Hydraulic Conductivity Analyses: 21BH-4(MW) Company: Client: Man Holdings Ltd Project: 5555 Location: 181 Toronto Street South, Uxbridge 21BH-4(MW) October 29, 2021 Test Well: Test Date: Test Conducted By: PG YL Test Analyzed By: 1.000 (H-H)/(H-Ho) 0.100 0.010 0 200 400 600 800 1000 1200 1400 Elapsed Time (s) 6.10 **Effective Well Depth (mbgs): Screened Unit:** Sand Initial Water Level (mbgs) (H): 2.82 Screen Length (m) (L_e): 3.048 Available Drawdown (m): 3.28 Head at Time = $0 \text{ (m) (H}_{o})$: 2.77 Borehole Radius (m) (R_b): 0.0762 Monitoring Well Radius (m) (R_c): 0.026 **Solution Method:** Hvorslev (1951) Recovery (%): 66% NA Early K (m/s) NA Early To (s): 9.4E-07 420 Mid K (m/s) Mid To (s): Late K (m/s) Late To (s): NΑ NΑ

| In-Situ Hydraulic Conductivity Analyses: 21BH-8(MW) | Company: TIL | Client: Man Holdings Ltd | Project: 5555 | Ecation: 181 Toronto Street South, Uxbridge | Test Well: 21BH-8(MW) | Test Date: October 29, 2021 | Test Conducted By: PG | Test Analyzed By: YL | | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |

Effective Well Depth ((mbgs): 6.10		Screened Unit:	Silty Sand
Initial Water Level (ml	bgs) (H): 2.54		Screen Length (m) (L _e):	3.048
Available Drawdown ((m): 3.56	i	Head at Time = 0 (m) (H _o):	3.26
Borehole Radius (m)	$(R_b):$ 0.07	62	Monitoring Well Radius (m) (R _c):	0.026
Solution Method:	Hvorslev (1951)	▼	Recovery (%):	71%
Early K (m/s)	NA		Early To (s):	NA
Mid K (m/s)	7.2E	-07	Mid To (s):	550
Late K (m/s)	NA		Late To (s):	NA

Elapsed Time (s)

0.010



APPENDIX B

Borehole Logs

Log of Borehole 21BH-1 (MW) 5555-21-GC Project No. Dwg No. 2 Geotechnical Investigation Sheet No. 1 of 1 Project: 181 Toronto Street South, Uxbridge, Ontario Location: Headspace Reading (ppm) Auger Sample 4/8/21 × Date Drilled: Natural Moisture $O \square$ SPT (N) Value Plastic and Liquid Limit Track Mounted Drill Rig Drill Type: Dynamic Cone Test **Unconfined Compression** Shelby Tube % Strain at Failure Geodetic Datum: Field Vane Test Penetrometer Headspace Reading (ppm) Natural Unit 100 200 300 G W L ELEV. Natural Moisture Content % Atterberg Limits (% Dry Weight) Soil Description Shear Strength _____100 Weight kPa kN/m3 **Ground Surface** 278.99 TOPSOIL 278.79 φ̈́ FILL brown sand - trace rootlets, trace topsoil - some sandy silt, trace gravel very moist 276.86 **SILTY SAND** - compact, brown - some gravel, trace clayey silt - gravelly sand from 3.3m to 5.2m 276.20 - very moist, wet below 3.0m 8 **END OF BOREHOLE** NOTE: Upon completion of drilling: - water level at 4.0m - cave-in at 4.6m 5555-21-GC.GPJ 4/28/21

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

Toronto Inspection Ltd.

-GBE3

Time	Water Level (m)	Depth to Cave (m)
April 16, 2021	2.8m	

Project No. 5555-21-GC

Log of Borehole 21BH-2

Dwg No. 3 Geotechnical Investigation Sheet No. 1 of 1 Project: 181 Toronto Street South, Uxbridge, Ontario Location: Headspace Reading (ppm) Auger Sample 4/8/21 × Date Drilled: Natural Moisture $O \square$ SPT (N) Value Plastic and Liquid Limit Track Mounted Drill Rig Drill Type: Dynamic Cone Test **Unconfined Compression** Shelby Tube % Strain at Failure Geodetic Datum: Field Vane Test Penetrometer Headspace Reading (ppm) Natural Unit 100 200 300 G W L ELEV. Natural Moisture Content % Atterberg Limits (% Dry Weight) Soil Description Shear Strength _____100 Weight kPa kN/m3 **Ground Surface** 278.75 11, TOPSOIL 278.55 FILL - brown sandy silt - trace rootlets, pockets of topsoil - trace clayey silt, trace gravel very moist 277.68 SAND - loose to dense, brown fine to medium grained - some silt, trace gravel - moist to very moist, wet below 2.3m 276.05 **END OF BOREHOLE** NOTE: Upon completion of drilling: - water level at 2.7m - cave-in at 3.7m 5555-21-GC.GPJ 4/28/21 -GBE3

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

Time	Water Level (m)	Depth to Cave (m)
	, ,	, ,

Log of Borehole 21BH-3

Dwg No. 4 Geotechnical Investigation Sheet No. 1 of 1 Project: 181 Toronto Street South, Uxbridge, Ontario Location: Headspace Reading (ppm) Auger Sample 4/8/21 × Date Drilled: Natural Moisture $O \square$ SPT (N) Value Plastic and Liquid Limit Track Mounted Drill Rig Drill Type: Dynamic Cone Test **Unconfined Compression** Shelby Tube % Strain at Failure Geodetic Datum: Field Vane Test Penetrometer Headspace Reading (ppm) Natural Unit 100 200 300 G W L ELEV. Natural Moisture Content % Atterberg Limits (% Dry Weight) Soil Description Shear Strength _____100 Weight kN/m3 kPa **Ground Surface** 279.01 11, TOPSOIL 278.81 FILL brown sandy silttrace rootlets, pockets of topsoil - very moist 277.33 SAND - loose to dense, brown - fine to medium grained - some silt, trace gravel - very moist, wet between 2.3m to 5.0m 275.31 **END OF BOREHOLE** NOTE: Upon completion of drilling: - water level at 3.7m - cave-in at 4.0m 5555-21-GC.GPJ 4/28/21 -GBE3

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

Time	Water Level (m)	Depth to Cave (m)
	, ,	, ,

Log of Borehole 21BH-4 (MW)

Dwg No. 5 Geotechnical Investigation Sheet No. 1 of 1 Project: 181 Toronto Street South, Uxbridge, Ontario Location: Headspace Reading (ppm) Auger Sample 4/9/21 × Date Drilled: Natural Moisture $O \square$ SPT (N) Value Plastic and Liquid Limit Track Mounted Drill Rig Drill Type: Dynamic Cone Test **Unconfined Compression** Shelby Tube % Strain at Failure Geodetic Datum: Field Vane Test Penetrometer Headspace Reading (ppm) Natural Unit 100 200 300 G W L ELEV. Natural Moisture Content % Atterberg Limits (% Dry Weight) Soil Description Shear Strength _____100 Weight kPa kN/m3 **Ground Surface** 278.71 **TOPSOIL** 278.56 ô FILL brown sandy silt - trace rootlets, pockets of topsoil and - trace clayey silt, trace gravel 277.64 very moist SAND - compact, brown - fine to medium grained - some silt, trace gravel - gravelly sand from 2.4m to 3.7m 15 very moist, wet below 2.3m 275.98 272.00 **END OF BOREHOLE** NOTE: Upon completion of drilling: - water level at 3.0m - cave-in at 4.0m 5555-21-GC.GPJ 4/28/21

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

Toronto Inspection Ltd.

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Time	Water Level (m)	Depth to Cave (m)
April 16, 2021	2.7m	, ,

Log of Borehole 21BH-5

Dwg No. 6 Geotechnical Investigation Sheet No. 1 of 1 Project: 181 Toronto Street South, Uxbridge, Ontario Location: Headspace Reading (ppm) Auger Sample 4/8/21 × Date Drilled: Natural Moisture $O \square$ SPT (N) Value Plastic and Liquid Limit Track Mounted Drill Rig Drill Type: Dynamic Cone Test Unconfined Compression Shelby Tube % Strain at Failure Geodetic Datum: Field Vane Test Penetrometer Headspace Reading (ppm) Natural Unit 100 200 300 G W L ELEV. Natural Moisture Content % Atterberg Limits (% Dry Weight) Soil Description Shear Strength 100 Weight kPa kN/m3 **Ground Surface** 278.87 TOPSOIL 278.74 FILL - brown sandy silt - trace rootlets and topsoil - some clayey silt, trace gravel - asphalt pieces at 0.6m - a layer of dark sandy silt with topsoil from 2.3m to 2.5m - moist to very moist, wet pockets ď 276.28 **SILTY SAND** - compact, brown trace gravel - moist to wet 275.47 272.17 **END OF BOREHOLE** NOTE: Upon completion of drilling: - water level at 3.4m - cave-in at 3.7m 5555-21-GC.GPJ 4/28/21

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

Time	Water Level (m)	Depth to Cave (m)
	, ,	, ,

Log of Borehole 21BH-6

Dwg No. 7 Geotechnical Investigation Sheet No. 1 of 1 Project: 181 Toronto Street South, Uxbridge, Ontario Location: Headspace Reading (ppm) Auger Sample 4/9/21 × Date Drilled: Natural Moisture 0 🛭 SPT (N) Value Plastic and Liquid Limit Track Mounted Drill Rig Drill Type: Dynamic Cone Test Unconfined Compression Shelby Tube % Strain at Failure Geodetic Datum: Field Vane Test Penetrometer Headspace Reading (ppm) Natural Unit 100 200 300 G W L ELEV. Natural Moisture Content % Atterberg Limits (% Dry Weight) Soil Description Shear Strength 100 Weight kPa kN/m3 **Ground Surface** 278.35 **TOPSOIL** 278.20 ô FILL - brown sandy silt - trace rootlets, trace organics - some sand, trace gravel - a layer of dark sandy silt with minor rootlets at 2.0m, 150mm in thickness Φ̈́ - very moist ď 276.06 **SILTY SAND** - loose to compact, brown - fine grained trace gravel - gravelly sand from 2.3m to 3.7m - moist to very moist, wet below 3.0m 274.55 271.64 **END OF BOREHOLE** NOTE: Upon completion of drilling: - water level at 3.8m - cave-in at 4.0m 5555-21-GC.GPJ 4/28/21

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

Time	Water Level (m)	Depth to Cave (m)
	, ,	, ,

Log of Borehole 21BH-7

Dwg No. 8 Geotechnical Investigation Sheet No. 1 of 1 Project: 181 Toronto Street South, Uxbridge, Ontario Location: Headspace Reading (ppm) Auger Sample 4/8/21 × Date Drilled: Natural Moisture $O \square$ SPT (N) Value Plastic and Liquid Limit Track Mounted Drill Rig Drill Type: Dynamic Cone Test **Unconfined Compression** Shelby Tube % Strain at Failure Geodetic Datum: Field Vane Test Penetrometer Headspace Reading (ppm) Natural Unit 100 200 300 G W L ELEV. Natural Moisture Content % Atterberg Limits (% Dry Weight) Soil Description Shear Strength _____100 Weight kN/m3 kPa **Ground Surface** 278.12 **TOPSOIL** 277.97 ô FILL - brown sandy silt - trace rootlets, pockets of topsoil or organics - a thin layer of black sandy silt with Φ minor topsoil at 2.1m - trace clayey silt, trace gravel - very moist 8 275.68 SILTY SAND - compact, brown - trace gravel - wet 274.42 271.42 **END OF BOREHOLE** NOTE: Upon completion of drilling: - water level at 3.7m - cave-in at 4.0m 5555-21-GC.GPJ 4/28/21

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

Time	Water Level (m)	Depth to Cave (m)
	, ,	, ,

Log of Borehole 21BH-8 (MW)

Dwg No. 9 Geotechnical Investigation Sheet No. 1 of 1 Project: 181 Toronto Street South, Uxbridge, Ontario Location: Headspace Reading (ppm) Auger Sample 4/8/21 × Date Drilled: Natural Moisture $O \square$ SPT (N) Value Plastic and Liquid Limit Track Mounted Drill Rig Drill Type: Dynamic Cone Test **Unconfined Compression** Shelby Tube % Strain at Failure Geodetic Datum: Field Vane Test Penetrometer Headspace Reading (ppm) Natural Unit 100 200 300 G W L ELEV. Natural Moisture Content % Atterberg Limits (% Dry Weight) Soil Description Shear Strength _____100 Weight kN/m3 kPa **Ground Surface** 277.39 **TOPSOIL** 277.24 FILL - brown silty sand - trace rootlets - trace gravel - moist to very moist 275.71 6 SILTY SAND - loose to compact, brown - trace to some gravel - moist, wet below 2.3m 274.94 270.68 **END OF BOREHOLE** NOTE: Upon completion of drilling: - water level at 3.7m - cave-in at 4.0m 5555-21-GC.GPJ 4/28/21

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

Toronto Inspection Ltd.

-GBE3

Time	Water Level (m)	Depth to Cave (m)
April 16, 2021	2.4m	

Project No. 5555-21-GC

Log of Borehole 21P-1

Dwg No. 10 Geotechnical Investigation Sheet No. 1 of 1 Project: 181 Toronto Street South, Uxbridge, Ontario Location: Headspace Reading (ppm) Auger Sample 4/9/21 × Date Drilled: Natural Moisture $O \square$ SPT (N) Value Plastic and Liquid Limit Track Mounted Drill Rig Drill Type: Dynamic Cone Test **Unconfined Compression** Shelby Tube % Strain at Failure Geodetic Datum: Field Vane Test Penetrometer Headspace Reading (ppm) Natural Unit 100 200 300 G W L ELEV. Natural Moisture Content % Atterberg Limits (% Dry Weight) Soil Description Shear Strength 100 Weight kN/m3 80 kPa **Ground Surface** 278.54 NO SAMPLING 277.32 SAND ð - loose, brown 276.87 - fine to medium grained gravelly trace silt moist **END OF BOREHOLE** NOTE: Upon completion of drilling: -GBE3 5555-21-GC.GPJ 4/28/21

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

Time	Water Level (m)	Depth to Cave (m)
	, ,	, ,

Project No. 5555-21-GC

Log of Borehole 21P-2

Dwg No. 11 Geotechnical Investigation Sheet No. 1 of 1 Project: 181 Toronto Street South, Uxbridge, Ontario Location: Headspace Reading (ppm) Auger Sample 4/8/21 × Date Drilled: Natural Moisture $O \square$ SPT (N) Value Plastic and Liquid Limit Track Mounted Drill Rig Drill Type: Dynamic Cone Test **Unconfined Compression** Shelby Tube % Strain at Failure Geodetic Datum: Field Vane Test Penetrometer Headspace Reading (ppm) Natural Unit 100 200 300 G W L ELEV. Natural Moisture Content % Atterberg Limits (% Dry Weight) Soil Description Shear Strength _____100 Weight kN/m3 80 kPa **Ground Surface** 277.72 NO SAMPLING 275.89 SAND 34 O - dense, brown 275.43 some gravel, some silt **END OF BOREHOLE** NOTE: Upon completion of drilling: -GBE3 5555-21-GC.GPJ 4/28/21

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

Time	Water Level (m)	Depth to Cave (m)
	, ,	, ,



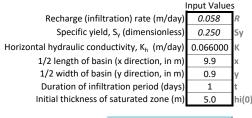
APPENDIX C

Groundwater Mounding Curves

2-year Storm Event

This spreadsheet will calculate the height of a groundwater mound beneath an stormwater infiltration BMP. More information can be found in the U.S. Geological Survey Scientific Investigations Report 2010-5102 "Simulation of groundwater mounding beneath hypothetical stormwater infiltration basins".

Go to the USGS report



CALCULATE



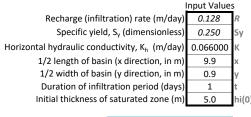
Distance from center of infiltration BMP (m)	Ground-water mounding (m)
0	0.15
1	0.15
2.5	0.15
5	0.15
7.5	0.14
10	0.07
12.5	0.00
15	0.00
17.5	0.00
20	0.00

IF YOU CHANGE THE SCALE OF THE DISTANCE MEASUREMENTS (OR ANY OTHER PARAMETER), YOU MUST RECALCULATE!!

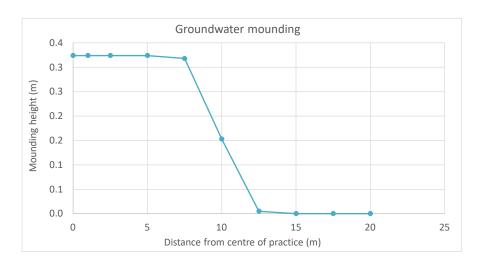
100-year Storm Event

This spreadsheet will calculate the height of a groundwater mound beneath an stormwater infiltration BMP. More information can be found in the U.S. Geological Survey Scientific Investigations Report 2010-5102 "Simulation of groundwater mounding beneath hypothetical stormwater infiltration basins".

Go to the USGS report







Distance from center of infiltration BMP (m)	Ground-water mounding (m)
0	0.32
1	0.32
2.5	0.32
5	0.32
7.5	0.32
10	0.15
12.5	0.00
15	0.00
17.5	0.00
20	0.00

IF YOU CHANGE THE SCALE OF THE DISTANCE MEASUREMENTS (OR ANY OTHER PARAMETER), YOU MUST RECALCULATE!!