

APPENDIX 'A'

GEOTECHNICAL REPORT

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The geotechnical report is provided to aid in the Contractor's evaluation of soil conditions. The information presented is considered accurate at the locations shown on the Drawings and at the time of drilling. However, variations in soil conditions may exist between test holes and fluctuations in groundwater levels can be expected seasonally and may occur as a result of construction activities. The nature and extent of variations may not become evident until construction commences.

Summary of Core Samples

**KENASTON BLVD SOUTH EXTENSION
 GEOTECHNICAL INVESTIGATION**

Testhole no.	Sample Depth (m)	Soil Type	Sample Description	Moisture Content (%)	Particle Size Analysis				Atterberg Limits		
					Gravel (%) 75 to 4.75 mm	Sand (%) -4.75 to 0.075 mm	Silt (%) -0.075 to 0.005 mm	Clay (%) <0.005 mm	Liquid Limit	Plastic Limit	Plasticity Index
TH13	0.6	Silt	tan, compact, moist, low plasticity, some clay	22	0	0.8	60.4	38.8	37	16	21
TH21	0.9	Clay	grey, stiff, moist, high plasticity	29	0	0.4	14.1	85.5	94	32	62
TH27	0.6	Silt	tan, compact, moist, low plasticity	17	0	9.7	66.6	23.7	25	16	9
TH33	0.9	Clay	grey, stiff, moist, high plasticity	24	0	1.5	17.5	81.0	83	28	55
TH39	0.6	Clay	grey, stiff, moist, high plasticity	28	0	1.6	20.2	78.2	87	24	63

Test Hole Log for TH20

TESTHOLE TH20				
Project Name: Kenaston Blvd South Extension Project Location: Winnipeg, Manitoba Client: Stantec Drilling Contractor: Active Drilling and Piling Drilling Method: 125 mm Solid Stem Auger UTM Coordinates: 14U 630128 m E, 5516241 m N		Date Drilled: October 12, 2012 Depth of Testhole: 3.0 m Logged by: Trevor Schellenberg Reviewed by: Aron Piamsalee		
Depth (m)	Symbol	Description	Sample Type	● Water Content (%)
				25 50 75 100
		Topsoil		
		Clay - black, stiff, moist, high plasticity - trace organic material to 0,3 m - grey below 0,9 m		
1.0			BS	● 30
			BS	● 24
			BS	● 24
			BS	● 23
			BS	● 24
2.0			BS	● 36
			BS	● 35
			BS	● 38
			BS	● 45
3.0			BS	● 53
		<ul style="list-style-type: none"> • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Testhole terminated at a depth of 3,0 m. 		

Test Hole Log for TH21

TESTHOLE TH21



Project Name: Kenaston Blvd South Extension
Project Location: Winnipeg, Manitoba
Client: Stantec
Drilling Contractor: Active Drilling and Piling
Drilling Method: 125 mm Solid Stem Auger
UTM Coordinates: 14U 630209 m E, 5516112 m N

Date Drilled: October 12, 2012
Depth of Testhole: 3.0 m
Logged by: Trevor Schellenberg
Reviewed by: Aron Piamsalee

Depth (m)	Symbol	Description	Sample Type	Particle Size Distribution				Water Content (%)											
				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	PL	LL	PL	LL								
		Topsoil																	
		Clay - grey, stiff, moist, high plasticity - trace organic material to 0,3 m																	
			BS																
			BS																
1.0			BS	0,0	0,4	14,1	85,5												
			BS																
			BS																
			BS																
2.0			BS																
			BS																
			BS																
			BS																
3.0			BS																

• No groundwater seepage or soil sloughing was observed during or upon completion of drilling.
 • Testhole terminated at a depth of 3.0 m.

Test Hole Log for TH22

TESTHOLE TH22				
Project Name: Kenaston Blvd South Extension Project Location: Winnipeg, Manitoba Client: Stantec Drilling Contractor: Active Drilling and Piling Drilling Method: 125 mm Solid Stem Auger UTM Coordinates: 14U 630242 m E, 5515963 m N		Date Drilled: October 12, 2012 Depth of Testhole: 3.0 m Logged by: Trevor Schellenberg Reviewed by: Aron Piamsalee		
Depth (m)	Symbol	Description	Sample Type	● Water Content (%)
				25 50 75 100
		Topsoil		
		Clay - grey, stiff, moist, high plasticity - trace organic material to 0,3 m		
1.0			BS	● 23
			BS	● 19
			BS	● 21
			BS	● 22
			BS	● 31
			BS	● 33
2.0			BS	● 45
			BS	● 45
			BS	● 42
3.0			BS	● 52
		<ul style="list-style-type: none"> • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Testhole terminated at a depth of 3.0 m. 		

Test Hole Log for TH23

TESTHOLE TH23



Project Name: Kenaston Blvd South Extension
Project Location: Winnipeg, Manitoba
Client: Stantec
Drilling Contractor: Active Drilling and Piling
Drilling Method: 125 mm Solid Stem Auger
UTM Coordinates: 14U 630323 m E, 5515835 m N

Date Drilled: October 12, 2012
Depth of Testhole: 3.0 m
Logged by: Trevor Schellenberg
Reviewed by: Aron Piamsalee

Depth (m)	Symbol	Description	Sample Type	● Water Content (%)			
				25	50	75	100
		Topsoil					
		Clay - grey, stiff, moist, high plasticity - trace organic material to 0.3 m					
1.0			BS		22		
			BS		24		
			BS		21		
			BS		29		
			BS		34		
			BS		38		
			BS		49		
			BS		49		
			BS		53		
3.0			BS		55		
		<ul style="list-style-type: none"> • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Testhole terminated at a depth of 3.0 m. 					

Test Hole Log for TH24

TESTHOLE TH24		
Project Name: Kenaston Blvd South Extension Project Location: Winnipeg, Manitoba Client: Stantec Drilling Contractor: Active Drilling and Piling Drilling Method: 125 mm Solid Stem Auger UTM Coordinates: 14U 629413 m E, 5515745 m N		Date Drilled: October 12, 2012 Depth of Testhole: 3.0 m Logged by: Trevor Schellenberg Reviewed by: Aron Piamsalee

Depth (m)	Symbol	Description	Sample Type	Water Content (%)
				● 25 50 75 100
		Topsoil		
		Clay - grey, very stiff, moist, high plasticity - trace organic material to 0,3 m - stiff below 0,9 m		
1.0			BS	● 19
			BS	● 22
			BS	● 20
			BS	● 25
			BS	● 25
2.0			BS	● 26
			BS	● 41
			BS	● 47
			BS	● 42
3.0			BS	● 48
<ul style="list-style-type: none"> • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Testhole terminated at a depth of 3,0 m. 				

Test Hole Log for TH25

TESTHOLE TH25				
Project Name: Kenaston Blvd South Extension Project Location: Winnipeg, Manitoba Client: Stantec Drilling Contractor: Active Drilling and Piling Drilling Method: 125 mm Solid Stem Auger UTM Coordinates: 14U 630443 m E, 5515519 m N		Date Drilled: October 12, 2012 Depth of Testhole: 3.0 m Logged by: Trevor Schellenberg Reviewed by: Aron Piamsalee		
Depth (m)	Symbol	Description	Sample Type	● Water Content (%)
				25 50 75 100
		Topsoil		
		Silt - tan, firm, moist, low plasticity	BS	● 19
			BS	● 20
		Clay - grey, stiff, moist, high plasticity	BS	● 35
1.0			BS	● 32
			BS	● 38
			BS	● 39
2.0			BS	● 45
			BS	● 44
			BS	● 52
3.0			BS	● 42
<ul style="list-style-type: none"> • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Testhole terminated at a depth of 3.0 m. 				

Test Hole Log for TH26

TESTHOLE TH26				
Project Name: Kenaston Blvd South Extension Project Location: Winnipeg, Manitoba Client: Stantec Drilling Contractor: Active Drilling and Piling Drilling Method: 125 mm Solid Stem Auger UTM Coordinates: 14U 630471 m E, 5515409 m N		Date Drilled: October 12, 2012 Depth of Testhole: 3.0 m Logged by: Trevor Schellenberg Reviewed by: Aron Piamsalee		
Depth (m)	Symbol	Description	Sample Type	● Water Content (%)
				25 50 75 100
		Topsoil		
		Silt - tan, firm, moist, low plasticity	BS	16
			BS	11
		Clay - grey, stiff, moist, high plasticity	BS	34
1.0			BS	35
			BS	41
			BS	34
2.0			BS	45
			BS	52
			BS	54
3.0			BS	53
<ul style="list-style-type: none"> • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Testhole terminated at a depth of 3.0 m. 				

Test Hole Log for TH27

TESTHOLE TH27



Project Name: Kenaston Blvd South Extension
Project Location: Winnipeg, Manitoba
Client: Stantec
Drilling Contractor: Active Drilling and Piling
Drilling Method: 125 mm Solid Stem Auger
UTM Coordinates: 14U 630552 m E, 5515281 m N

Date Drilled: October 12, 2012
Depth of Testhole: 3.0 m
Logged by: Trevor Schellenberg
Reviewed by: Aron Piamsalee

Depth (m)	Symbol	Description	Sample Type	Particle Size Distribution				Water Content (%)						
				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	PL		LL				
		Topsoil												
		Clay - grey, stiff, moist, high plasticity	BS											24
		Silt - tan, firm, moist, low plasticity	BS	0.0	9.7	66.6	23.7							17
		Clay - grey, stiff, moist, high plasticity - some silt from 1.5 m to 1.8 m	BS											31
1.0			BS											43
			BS											30
			BS											45
2.0			BS											53
			BS											41
			BS											55
3.0			BS											52

• No groundwater seepage or soil sloughing was observed during or upon completion of drilling.
 • Testhole terminated at a depth of 3.0 m.

Test Hole Log for TH28

TESTHOLE TH28				
Project Name: Kenaston Blvd South Extension Project Location: Winnipeg, Manitoba Client: Stantec Drilling Contractor: Active Drilling and Piling Drilling Method: 125 mm Solid Stem Auger UTM Coordinates: 14U 630585 m E, 5515132 m N		Date Drilled: October 12, 2012 Depth of Testhole: 3.0 m Logged by: Trevor Schellenberg Reviewed by: Aron Piamsalee		
Depth (m)	Symbol	Description	Sample Type	● Water Content (%)
				25 50 75 100
		Topsoil		
		Clay - grey, stiff, moist, high plasticity - trace organic material to 0,3 m	BS	●25
			BS	●24
			BS	●27
1.0			BS	●28
			BS	●35
			BS	●38
2.0			BS	●42
			BS	●42
			BS	●53
3.0			BS	●51
		<ul style="list-style-type: none"> • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Testhole terminated at a depth of 3.0 m. 		

Test Hole Log for TH29

TESTHOLE TH29



Project Name: Kenaston Blvd South Extension
Project Location: Winnipeg, Manitoba
Client: Stantec
Drilling Contractor: Active Drilling and Piling
Drilling Method: 125 mm Solid Stem Auger
UTM Coordinates: 14U 630666 m E, 5515002 m N

Date Drilled: October 12, 2012
Depth of Testhole: 3.0 m
Logged by: Trevor Schellenberg
Reviewed by: Aron Piamsalee

Depth (m)	Symbol	Description	Sample Type	● Water Content (%)			
				25	50	75	100
		Topsoil					
		Clay - grey, stiff, moist, high plasticity	BS	●25			
		Silt - tan, firm, moist, low plasticity	BS	●19			
		Clay - grey, stiff, moist, high plasticity - some silt to 2.1 m	BS	●29			
1.0			BS	●22			
			BS	●34			
			BS	●34			
2.0			BS	●44			
			BS	●42			
			BS	●46			
3.0			BS	●52			
		<ul style="list-style-type: none"> • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Testhole terminated at a depth of 3.0 m. 					

Test Hole Log for TH30

TESTHOLE TH30				
Project Name: Kenaston Blvd South Extension Project Location: Winnipeg, Manitoba Client: Stantec Drilling Contractor: Active Drilling and Piling Drilling Method: 125 mm Solid Stem Auger UTM Coordinates: 14U 630699 m E, 5514855 m N		Date Drilled: October 12, 2012 Depth of Testhole: 3.0 m Logged by: Trevor Schellenberg Reviewed by: Aron Piamsalee		
Depth (m)	Symbol	Description	Sample Type	● Water Content (%)
				25 50 75 100
		Topsoil		
		Clay - grey, stiff, moist, high plasticity - trace organic material to 0,3 m	BS	●22
			BS	●21
			BS	●25
1.0		Silt - tan, firm, moist, low plasticity	BS	●15
		Clay - grey, stiff, moist, high plasticity	BS	●38
			BS	●35
2.0			BS	●36
			BS	●39
			BS	●47
3.0			BS	●50
		<ul style="list-style-type: none"> • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Testhole terminated at a depth of 3.0 m. 		

Test Hole Log for TH31

TESTHOLE TH31		
Project Name: Kenaston Blvd South Extension Project Location: Winnipeg, Manitoba Client: Stantec Drilling Contractor: Active Drilling and Piling Drilling Method: 125 mm Solid Stem Auger UTM Coordinates: 14U 630780 m E, 5514726 m N		Date Drilled: October 12, 2012 Depth of Testhole: 3.0 m Logged by: Trevor Schellenberg Reviewed by: Aron Piamsalee

Depth (m)	Symbol	Description	Sample Type	● Water Content (%)			
				25	50	75	100
		Topsoil					
		Clay - black, stiff, moist, high plasticity - trace organic material to 0,3 m - grey below 0,6 m	BS		33		
			BS		30		
1.0			BS		21		
		Silt - tan, firm, moist, low plasticity	BS		6		
			BS		10		
2.0			BS		7		
			BS		9		
		Clay - grey, stiff, moist, high plasticity	BS		35		
			BS		34		
3.0			BS		45		
		<ul style="list-style-type: none"> • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Testhole terminated at a depth of 3.0 m. 					

Test Hole Log for TH32

TESTHOLE TH32		
Project Name: Kenaston Blvd South Extension Project Location: Winnipeg, Manitoba Client: Stantec Drilling Contractor: Active Drilling and Piling Drilling Method: 125 mm Solid Stem Auger UTM Coordinates: 14U 630622 m E, 5514682 m N		Date Drilled: October 12, 2012 Depth of Testhole: 3.0 m Logged by: Trevor Schellenberg Reviewed by: Aron Piamsalee

Depth (m)	Symbol	Description	Sample Type	Water Content (%)
				● 25 50 75 100
		Topsoil		
		Clay - black, stiff, moist, high plasticity - trace organic material to 0,3 m - grey below 0,3 m - some silt to 2,4 m		
1.0			BS	● 25
			BS	● 22
			BS	● 21
			BS	● 20
			BS	● 30
			BS	● 25
2.0			BS	● 27
			BS	● 28
			BS	● 34
3.0			BS	● 50
<ul style="list-style-type: none"> • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Testhole terminated at a depth of 3.0 m. 				