APPENDIX 'A'

GEOTECHNICAL REPORT

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The geotechnical report is provided to aid in the Contractor's evaluation of soil conditions	Tho

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.



SHARP BOULEVARD LODGE AVENUE TO BRUCE AVENUE 2007 CITY OF WINNIPEG RESIDENTIAL STREET RENEWAL

Prepared for Earth Tech (Canada) Inc. 1000 Waverley Street Winnipeg, Manitoba R3T 0P3

Prepared by The National Testing Laboratories Limited 199 Henlow Bay Winnipeg, Manitoba R3Y 1G4

January 11, 2007

2007 City of Winnipeg Residential Street Renewal Geotechnical Investigation Sharp Boulevard Lodge Avenue to Bruce Avenue

		Payement Si	Pavement Surface Pavement Structure Mat				Sample	Moisture	Particle Size Analysis				Atterberg Limits		
Testhole ID	Testhole Location	Туре	Thickness (mm)	Туре	Thickness (mm)	Sample Description	Depth (m)	Content (%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Index
TH1	3.2 m N of S property line of 262 Sharp Blvd., 1.9 m E of W curb	Asphalt/Concrete	40/150	N/A	-	N/A	-	-	-	-	-	-	-	-	-
TH2	4.5 m S of S property line of 284 Sharp Blvd., 2.1 m E of W curb	Asphalt/Concrete	35/165	N/A	-	Clay	1.7	36.6	0.0	0.1	29.0	70.9	70	21	49
тнз	5.2 m S of N property line of 300 Sharp Blvd., 2.3 m E of W curb	Asphalt/Concrete	40/160	N/A	-	Clay	0.9	33.7	0.0	1.9	10.7	87.4	86	23	63
TH4	7.5 m N of S property line of 328 Sharp Blvd., 2.4 m E of W curb	Asphalt/Concrete	25/155	N/A	-	Clay	-	-	-	-	-	-	-	-	-



Project Name: 2007 City of Winnipeg Residential Street Renewal Client: Earth Tech (Canada) Ltd. Site: Sharp Boulevard, Lodge Avenue to Bruce Avenue Date Drilled: January 5, 2006 Depth of Testhole: 2.1 m Logged by: Kurtis Kulchyski

Testhole Location: 3.2 m N of the S property line of 262 Sharp Blvd., 1.9 m E of the W curb

		Subsurface Profile	Laboratory Testing						
Depth	Symbol	Description	0	Wa 20	ter Cc (%) 40	ontei) 60	nt 80 100		
0.0		Ground Surface							
0.0-		Asphalt		- T -					
-	<u> </u>	Concrete		Ì		i			
	0.0000			į		Ì			
		Clay - black/grey, moist, firm, high plasticity, trace thin silt layers - mottled brown below 0.5 m - gypsum inclusions below 1.2 m							
-					•				
1.0-					9 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -				
1.5-									
2.0-	-	End of testhole at 2.1 m below grade. No water seepage or soil sloughing were observed during or after the		1					
2.5-		No water seepage or soil sloughing were observed during or after the completion of drilling.		1 1 1					



Project Name: 2007 City of Winnipeg Residential Street Renewal Client: Earth Tech (Canada) Ltd. Site: Sharp Boulevard, Lodge Avenue to Bruce Avenue Date Drilled: January 5, 2006 Depth of Testhole: 2.1 m Logged by: Kurtis Kulchyski 1 m E of the W curb

Testhole Location: 4.5 m S of the S property line of 284 Sharp Blvd., 2.1 m E of the W curb

		Subsurface Profile	Laboratory T	esting			
Depth (m)	Symbol	Description	Moisture Content (%) PLLL 0 25 50 75 100	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
		Ground Surface					,
0.0-		Asphalt					
-		Concrete					
-		Clay Fill - brown, moist, firm, high plasticity		×			
0.5-	-	Clay - black/grey, moist, firm, high plasticity, trace thin silt layers - mottled brown below 0.9 m - light brown between 1.6 m to 1.8 m, with silt					a.
1.0-		- gypsum inclusions below 1.8 m					
1.5				0.0	0.1	29.0	70.9
2.0							
	-	End of testhole at 2.1 m below grade.					
2.5	-	No water seepage or soil sloughing were observed during or after the completion of drilling.					



Project Name: 2007 City of Winnipeg Residential Street Renewal Client: Earth Tech (Canada) Ltd. Site: Sharp Boulevard, Lodge Avenue to Bruce Avenue Date Drilled: January 5, 2006 Depth of Testhole: 2.1 m Logged by: Kurtis Kulchyski 3 m E of the W curb

Testhole Location: 5.2 m S of the N property line of 300 Sharp Blvd., 2.3 m E of the W curb

		Subsurface Profile	Laboratory Testing
Depth (m)	Symbol	Description	Moisture Content (%) (%) Sand (%) 22 00 52 0 Clay (%) Silt (%) 6 6 6 6
0.0-		Ground Surface	
0.0-		Asphalt	
0.5-		Concrete Clay - mottled brown, moist, firm, high plasticity, trace thin silt layers - light brown between 1.3 m to 1.4 m, with silt - gypsum inclusions below 1.8 m	0.0 1.9 10.7 87
2.0			
2.5		End of testhole at 2.1 m below grade. No water seepage or soil sloughing were observed during or after the completion of drilling.	

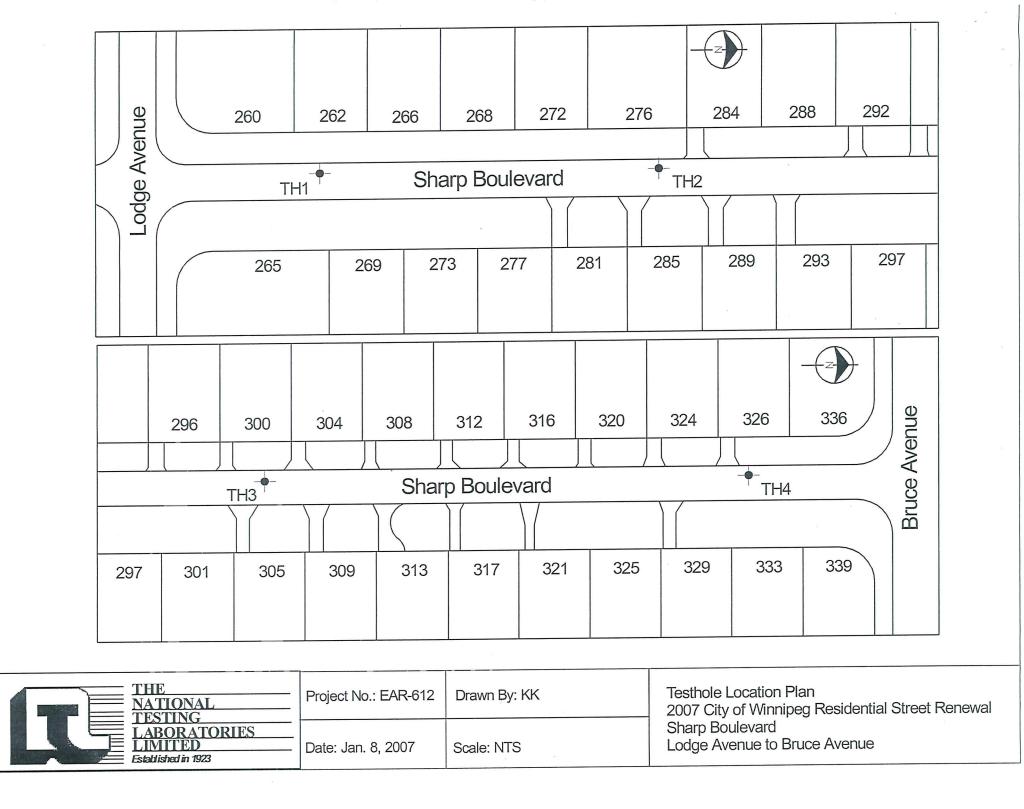


Project Name: 2007 City of Winnipeg Residential Street Renewal Client: Earth Tech (Canada) Ltd. Site: Sharp Boulevard, Lodge Avenue to Bruce Avenue

Date Drilled: January 5, 2006 Depth of Testhole: 2.1 m Logged by: Kurtis Kulchyski

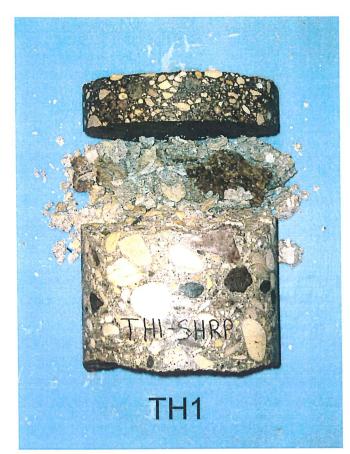
Testhole Location: 7.5 m N of the S property line of 328 Sharp Blvd., 2.4 m E of the W curb

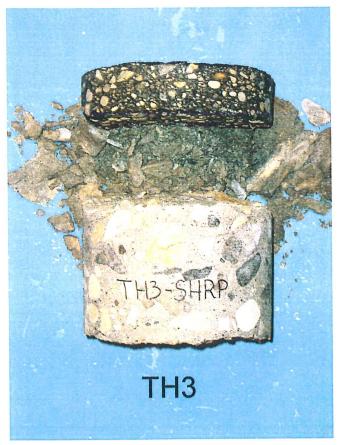
		Subsurface Profile	Laboratory Testing						
Depth	Symbol	Description	0	Wa 20	ter Conte (%) 40 60	ent 80 100			
		Ground Surface							
0.0-		Asphalt		- -					
-		Concrete		1					
0.5-		Clay - black/grey, moist, firm, high plasticity, trace thin silt layers - mottled brown below 0.8 m - light brown between 1.0 m to 1.1 m, intermediate plasticity, and silt - gypsum inclusions below 1.1 m							
1.0-									
1.5-									
2.0		End of testhole at 2.1 m below grade.							
2.5		No water seepage or soil sloughing were observed during or after the completion of drilling.							

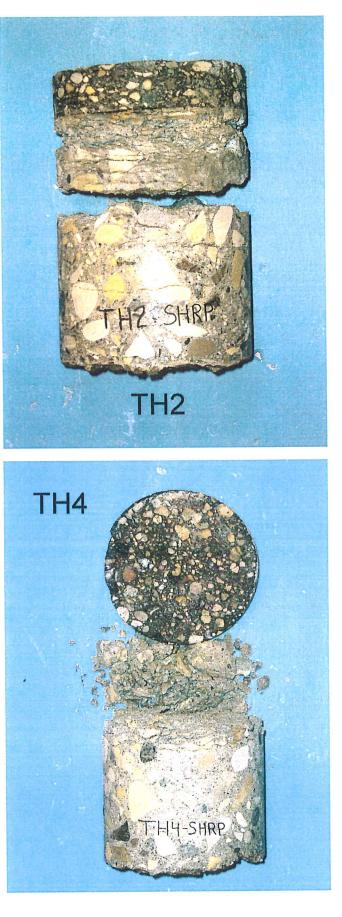


2007 City of Winnipeg Residential Street Renewal Sharp Boulevard Lodge Avenue to Bruce Avenue











Blair Cockrell

HEARNE AVENUE LODGE AVENUE TO MOUNT ROYAL ROAD 2007 CITY OF WINNIPEG RESIDENTIAL STREET RENEWAL

Prepared for Earth Tech (Canada) Inc. 1000 Waverley Street Winnipeg, Manitoba R3T 0P3

Prepared by The National Testing Laboratories Limited 199 Henlow Bay Winnipeg, Manitoba R3Y 1G4

January 11, 2007

2007 City of Winnipeg Residential Street Renewal Geotechnical Investigation Hearne Avenue Lodge Avenue to Mount Royal Road

		Pavement Surface			Pavement Structure Material			Moisture		Particle Siz	ze Analysis		Atterberg Limits			
Testhole ID	Testhole Location	Туре	Thickness (mm)	Туре	Thickness (mm)	Sample Description	Depth (m)	Content (%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Index	
TH1	1.3 m S of the S property line of 151 Hearne Avenue, 1.5 m E of W curb	Asphalt/Concrete	60/190	N/A	-	N/A	-	-	-	-	-	-	-	-	-	
TH2	3.4 m W of the E property line of 127 Hearne Avenue, 1.5 m S of N curb	Asphalt/Concrete	35/200	N/A	-	Clay	0.9	35.3	0.0	3.9	19.5	76.6	78	20	58	
тнз	4.8 m W of the E property line of 114 Hearne Avenue, 1.4 m N of S curb	Asphalt/Concrete	45/185	N/A	-	N/A	-	-	-	-	-	-	-	-	-	
TH4	In line with the W property line of 102 Hearne Avenue, 1.1 m S of N curb	Asphalt/Concrete	50/200	N/A	-	Clay	-	-	-	-	÷	-	-	-	-	



Project Name: 2007 City of Winnipeg Residential Street Renewal Client: Earth Tech (Canada) Inc. Site: Hearne Avenue, Lodge Avenue to Mount Royal Road Date Drilled: December 19, 2006 Depth of Testhole: 2.1 m Logged by: Kurtis Kulchyski

Testhole Location: 1.3 m S of the S property line of 151 Hearne Ave., 1.5 m E of the W curb

		Laboratory Testing						
Depth	Symbol	Description	0	Wa 20	ter Conte (%) 40 60	ent 80 100		
		Ground Surface						
0.0-	254202	Asphalt	1-	- T -				
-		Concrete						
0.5-		Clay - black, moist, soft to firm, high plasticity, some silt - grey below 0.9 m, firm - brown below 1.2 m						
1.0-								
1.5-								
2.0								
	-	End of testhole at 2.1 m below grade.		l I I				
2.5		No water seepage or soil sloughing were observed during or after the completion of drilling.						



Project Name: 2007 City of Winnipeg Residential Street Renewal Client: Earth Tech (Canada) Inc.

Date Drilled: December 19, 2006 Depth of Testhole: 2.1 m Logged by: Kurtis Kulchyski

Site: Hearne Avenue, Lodge Avenue to Mount Royal RoadLogged by: Kurtis Kurt

		Subsurface Profile	Laboratory Testing	
Depth (m)	Symbol	Description	Moisture Content (%) LL Sand (%) Silt (%)	Clay (%)
		Ground Surface		
0.0-		Asphalt		
-		Concrete		
0.5-		Clay - black/grey, moist, soft to firm, high plasticity, some silt - brown below 1.2 m		
1.0			0.0 3.9 19.5 7	76.6
1.5				
2.0				
2.5		End of testhole at 2.1 m below grade. No water seepage or soil sloughing were observed during or after the completion of drilling.		



Project Name: 2007 City of Winnipeg Residential Street Renewal Client: Earth Tech (Canada) Inc. Site: Hearne Avenue, Lodge Avenue to Mount Royal Road Date Drilled: December 19, 2006 Depth of Testhole: 2.1 m Logged by: Kurtis Kulchyski 1.4 m N of the S curb

Testhole Location: 4.8 m W of the E property line of 114 Hearne Ave., 1.4 m N of the S curb

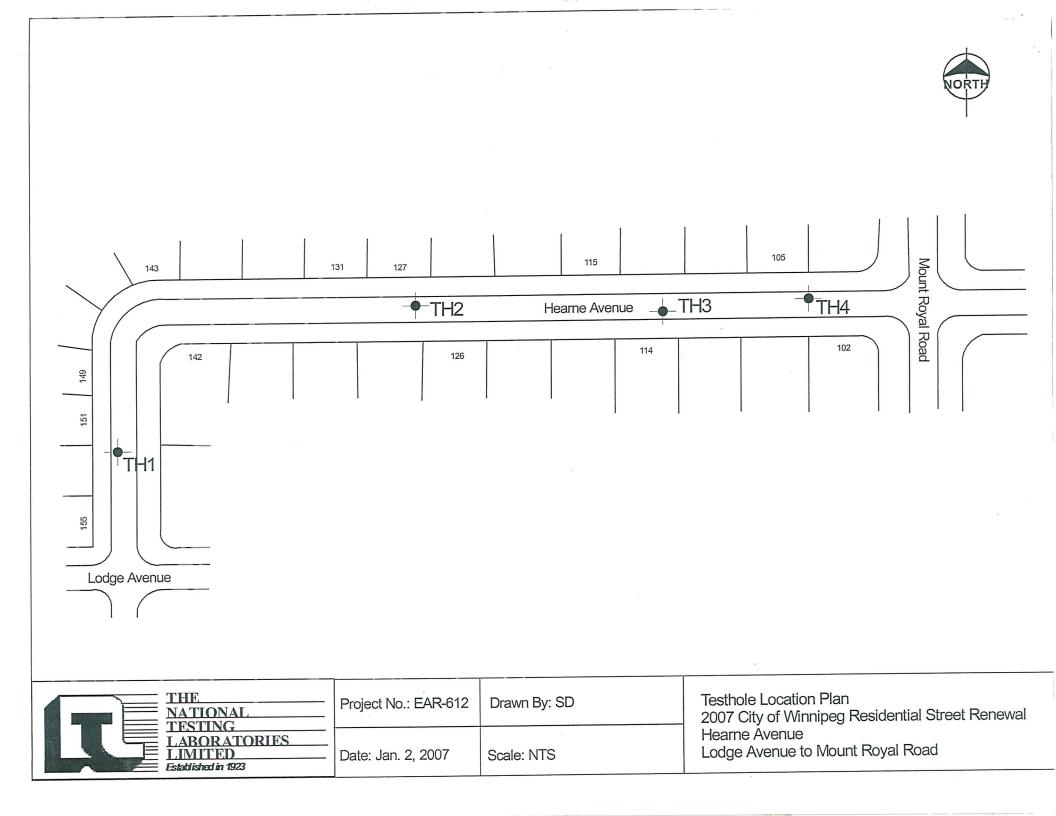
	Subsurface Profile					Laboratory Testing						
Depth	Symbol	Description	0	Wa 20	ter C (% 40	6)	e nt 80 100					
		Ground Surface	F	11								
0.0-		Asphalt		- <u>-</u> -			·					
_		Concrete		1			i					
_		001101010		1		Î.						
				- i	i	î.						
		Clay Fill - brown, moist, firm, high plasticity		i	Ti	į						
-	1.1.1.1	- blown, moist, mm, mgn plasticity		i i		1						
0.5-	مربر تر کر				1	1						
-	7777				l t	1	1					
-	ر کر کر کر			1	1	1						
-	تر بر کر کر				I.	1						
				1	1	1	1					
	ת ת ת א			1		1	1					
1.0-	הה אין			1		I.						
	ىرىر كر كر											
	<u></u>				\							
		Clay - black/grey, moist, firm, high plasticity, some silt			1	1						
		 brown below 1.5 m, with silt layers trace thin silt layers below 1.7 m 		1	li	1						
1.5-		- trace thin silt layers below 1.7 m		1	1	I.	1					
1.5-				i I	•	1						
				1	1	1	1					
	-//////////////////////////////////////			1	1	1	1					
	-{///////			1		1	1					
				1	1	1	1					
2.0-				I.	1	1	1					
2.0					1	1	1					
		End of testhole at 2.1 m below grade.			l.	í.	ſ					
				1	1							
	-	No water seepage or soil sloughing were observed during or after the completion of drilling.		1								
2.5		A fracture was observed within the concrete core at the bottom of the road slab. A 50 mm layer of fine to coarse grained sand was present within the fracture.				1						
	-			1	1	1	l.					
	-			1	1	l,	1					



Project Name: 2007 City of Winnipeg Residential Street Renewal Client: Earth Tech (Canada) Inc. Site: Hearne Avenue, Lodge Avenue to Mount Royal Road Date Drilled: December 19, 2006 Depth of Testhole: 2.1 m Logged by: Kurtis Kulchyski 1.1 m S of the N curb

Testhole Location: In line with the W property line of 102 Hearne Ave., 1.1 m S of the N curb

		Subsurface Profile	Laboratory Testing						
Depth	Symbol	Description	0	Wa 20	ter Co (%	onte) 60	nt 80 100		
		Ground Surface							
0.0-		Asphalt		- T -					
-		Concrete							
0.5-		Clay - brown, moist, soft to firm, high plasticity, some silt - and silt between 0.8 and 1.2 m			•				
1.0-					•				
1.5-									
2.0-		End of testhole at 2.1 m below grade.							
2.5	-	No water seepage or soil sloughing were observed during or after the completion of drilling.		1					



2007 City of Winnipeg Residential Street Renewal Hearne Avenue Lodge Avenue to Mount Royal Road



