# **GEOTECHNICAL INVESTIGATION**



### Clonard/Stranmillis Ave. Between Des Meurons St. and Egerton Rd. Project No. 063048-Back Lane Local Improvements

Teethele		Pavement Structure Material		Comple	Sample	Moisture Particle Size Analysis					Atterberg Limits		
	Testhole Location	Type	Thickness	Description	Depth	Content	Gravel	Sand	Silt	Clay	Liquid	Plastic	Plasticity
ID		туре	(mm)		(m)	(%)	(%)	(%)	(%)	(%)	Limit	Limit	Index
TH1	5 m east and 2.5 m south of the southwest corner of lot 128 Clonard Ave.	Granular	150	Clay	1.5	31.7	0.0	2.8	10.9	86.3	81	21	60
TH2	2.5 m east, 2.5 m south of the southwest corner of lot 162 Clonard Ave.	Granular	100	Clayey Silt	1.2	38.9	0.0	3.5	69.3	27.2	81	21	60
TH3	2 m east and 1 m south of the Southwest corner of lot 182 Clonard Ave.	Granular	150	N/A	-	-	-	-	-	-	-	-	-





Project Name: Project No. 063048 - Back Lane Local Improvements Client: SEG Engineering Inc. Date Drilled: May 28, 2007 Depth of Testhole: 2.1 m

Site: Clonard/Stranmillis Ave. between Des Meurons St.to Egerton Rd. Logged by: Olya Babashko Testhole Location: 2.5 m east, 2.5 m south of the southwest corner of lot 162 Clonard Ave.

	Laboratory Testing		
Depth (m)	Symbol	Description	Water Content (%) 0 20 40 60 80 100
		Ground Surface	
-0.0	ဘူ့စည်းသူစ စီလို့စီလိုရ စီလို့စစ်လို့ရ	<b>Granular Base</b> - 20 mm maximum aggregate size.	
- - - 0.5-		Fill - mixture of clay, silt , trace organic.	24.7
-		<b>Clay</b> - black, stiff to firm, moist, high plasticity.	18,6
- 1.0- - -		Silt - tan, soft, moist to wet, low to intermediate plasticity.	38.9
1.5- - -		Glav	25/3
- 2.0		- brown, stiff, moist, high plasticity.	
-		<ul> <li>No water seepage or sloughing were observed during or after the completion of drilling.</li> <li>Drilling terminated at a depth of 2.1 m.</li> </ul>	
2.5-	-		



Project Name: Project No. 063048 - Back Lane Local Improvements Client: SEG Engineering Inc. Date Drilled: May 28, 2007 Depth of Testhole: 2.1 m Logged by: Olya Babashko

Site: Clonard/Stranmillis Ave. between Des Meurons St.to Egerton Rd. Logged by: Olya Babashko Testhole Location: 2 m east, 1 m south of the southeast corner of lot 182 Clonard Ave.

	Laboratory Testing		
Depth (m)	Symbol	Description	Water Content (%) 0 20 40 60 80 100
		Ground Surface	
-0.0	တ္လ၀င္မွ တ္၀ ၀၀၀ ၀၀၀	Granular Base - 20 mm maximum aggregate size.	
- - - 0.5 -		Fill - mixture granular, clay, silt , trace organic.	25.6
- - - 1.0-		Silt - tan, soft, moist, non to low plasticity.	- 10.5
- - 1.5- - -		<b>Clay</b> - brown, stiff, moist, high plasticity.	26.0
- 2.0- -		No water seepage or sloughing were observed during or after the completion of drilling.	36,5
- 2.5	-	<ul> <li>Drilling terminated at a depth of 2.1 m.</li> </ul>	



Project Name: Project No. 063048 - Back Lane Local Improvements Client: SEG Engineering Inc. Date Drilled: May 28, 2007 Depth of Testhole: 2.1 m Logged by: Olya Babashko

Site: Clonard/Stranmillis Ave. between Des Meurons St.to Egerton Rd. Logged by: Olya Babashko Testhole Location: 5 m east and 2.5 m south of the southwest corner of lot 128 Clonard Ave.

		Laboratory Testing				
Depth (m)	Symbol	Description	Water Content (%) 0 20 40 60 80 100			
		Ground Surface				
-0.0	တူ၀ဦးတူ၀ ဂီလိုလိုဂ် ဂီလိုဂ္ဂဂ်င်	<b>Granular Base</b> - 20 mm maximum aggregate size.				
- - - 0.5-		Fill - mixture of granular, clay, some sand, trace organic.	6.2			
- - - - - - - - - - - - - - - - - - -		Clay - black, stiff to firm, moist, high plasticity. - grey below 1.5 m. - silt inclusions below 2.0 m.	34.3 27.3 31.7 32.3			
-	-	<ul> <li>No water seepage or sloughing were observed during or after the completion of drilling.</li> <li>Drilling terminated at a depth of 2.1 m.</li> </ul>				
2.5-						



# Guilbault/Archibald St. South of Guilbault St. Project No. 063048-Back Lane Local Improvements

Teethele		Pavement Structure Material		Comula	Sample	ample Moisture Particle Size Analysis					Atterberg Limits		
	Testhole Location	Type	Thickness	Sample	Depth	Content	Gravel	Sand	Silt	Clay	Liquid	Plastic	Plasticity
ID		туре	(mm)	Description	(m)	(%)	(%)	(%)	(%)	(%)	Limit	Limit	Index
TH1	0.5 m east and 3 m south of the southwest corner of lot 614 Lachance St.	Granular	150	N/A	-	-	-	-	-	-	-	-	-
TH2	1.5 m east and 3 m south of the southwest corner of lot 594 Guilbault St.	Granular	150	Clay	1.2	27.3	0.0	24.8	12.0	63.3	61	18	43
TH3	7 m west and 12 m north of the southwest corner of lot 584 Guilbault St.	Granular	150	Clayey Silt	1.2	38.9	0.0	3.5	69.3	27.2	81	21	60





Project Name: Project No. 063048 - Back Lane Local Improvements Client: SEG Engineering Inc.

Site: Guilbault/Archibald St. South of Guilbault St.

Date Drilled: May 28, 2007 Depth of Testhole: 2.1 m Logged by: Farouk Fourar

Testhole Location: 0.5 m east and 3 m south of the southeast corner of lot 614 Guilbault St.

		Laboratory Testing				
Depth (m)	Symbol	Description	Water Content (%) 0 20 40 60 80 100			
0.0		Ground Surface				
-0.0	တ္လလ္ရွိလ္ရွိလိုလ္ရ လိုလ္လွ်လိုလိုလ္ရ	Granular Base - 20 mm maximum aggregate size.				
-		<b>Clay</b> - black, stiff, moist, high plasticity. - grey below 0.5 m.	35.9			
0.5-			37,4			
- - - -			22/4			
1.5- - - 2.0-		Silt - tan, soft, wet, low to intermediate plasticity, some clay.	27.3 28.6 19/5			
		<ul> <li>No water seepage or sloughing were observed during or after the completion of drilling.</li> <li>Drilling terminated at a depth of 2.1 m.</li> </ul>				



Project Name: Project No. 063048 - Back Lane Local Improvements Client: SEG Engineering Inc.

Site: Guilbault/Archibald St. South of Guilbault St.

Date Drilled: May 28, 2007 Depth of Testhole: 2.1 m Logged by: Farouk Fourar

Testhole Location: 1.5 m east and 3 m south of the southeast corner of lot 598 Guilbault St.

		Laboratory Testing				
Depth (m)	Symbol	Description	Water Content (%) 0 20 40 60 80 100			
		Ground Surface				
-0.0	ၯႍၜႜၓႍၯႍၜ ၜႍႍႍႍႍၜၣၜ ၜႍႍႍၜႍၜၣၜ	Granular Base - 20 mm maximum aggregate size.				
-		Fill - mixture of granular, clay.	34.1			
0.5-			33.2			
-		Clay - black, stiff, moist, high plasticity. - grey below 0.8 m. - trace silt, granular inclusion below 1.2 m.	29.5			
1.0- - -			27.3			
- 1.5- -		Silt - tan, soft, wet, low plasticity, some clay.	26.1			
-		Clay - brown, stiff, moist, high plasticity, some silt layer	19.7			
2.0-	·	Silt - tan, firm, moist, intermediate plasticity.	12.0			
-		<ul> <li>No water seepage or sloughing were observed during or after the completion of drilling.</li> <li>Drilling terminated at a depth of 2.1 m.</li> </ul>				
2.5-						



Project Name: Project No. 063048 - Back Lane Local Improvements Client: SEG Engineering Inc.

Site: Guilbault/Archibald St. South of Guilbault St.

Date Drilled: May 28, 2007 Depth of Testhole: 2.1 m Logged by: Farouk Fourar

Testhole Location: 7 m west and 12 m north of the southwest corner of lot 584 Guilbault St.

		Laboratory Testing				
Depth (m)	Symbol	Description	Water Content (%) 0 20 40 60 80 100			
		Ground Surface				
-0.0	တ္၀င္ တ္၀ ၀၀၀ ၀၀၀	Granular Base - 20 mm maximum aggregate size.				
-		Fill - mixture of granular, clay, silt.	22.7			
0.5-			19.8			
-		Clay - black, stiff, moist, high plasticity.				
- 1.0- - - - 1.5-		Silt - tan, soft, moist, low plasticity.	15.5			
		<b>Clay</b> - brown, stiff, moist, high plasticity.	38.6			
2.0-			42.2			
- - 2.5-		<ul> <li>No water seepage or sloughing were observed during or after the completion of drilling.</li> <li>Drilling terminated at a depth of 2.1 m.</li> </ul>				



# Horace/Eugenie St. East of Rue Youville Project No. 063048-Back Lane Local Improvements

Teethele		Pavement Structure Material		Comula	Sample	Moisture	ure Particle Size Analysis				Atterberg Limits		
	Testhole Location	Type	Thickness	Sample	Depth	Content	Gravel	Sand	Silt	Clay	Liquid	Plastic	Plasticity
		турс	(mm)	Description	(m)	(%)	(%)	(%)	(%)	(%)	Limit	Limit	Index
TH1	4 m south and 0.5 m east if the southwest corner of lot 428 Horace St.	Granular	150	Clayey Silt	1.5	28.2	0.0	2.2	53.4	44.4	35	17	18
TH2	3 m south on line of the southwest corner of lot 450 Horace St.	Granular	150	N/A	-	-	-	-	-	-	-	-	-
TH3	3 m north and 4 m east if the southeast corner of lot 441 Eugenie St.	Granular	150	Clay	1.5	30.7	0.0	2.2	14.2	83.6	72	25	47





Project Name: Project No. 063048 - Back Lane Local Improvements Client: SEG Engineering Inc. Site: Horace/Eugenie St. East of Rue Youville. Date Drilled: May 28, 2007 Depth of Testhole: 2.1 m Logged by: Farouk Fourar

Testhole Location: 4 m south and 0.5 m east of the southwest corner of lot 428 Horace St.

		Laboratory Testing	
Depth (m)	Symbol	Description	Water Content (%) 0 20 40 60 80 100
0.0		Ground Surface	
-0.0	<u>တ္လလွ တ</u> ွ ဂိုင်္ဂ <sub>ိုဂ</sub> ိုင်	Granular Base - 20 mm maximum aggregate size.	
-		Fill - mixture of granular, clay, trace silt.	14.8
- 0.5- - - -		<b>Clay</b> - grey, stiff, moist, high plasticity, some silt increasing with depth.	35.3
1.0- - - -			29.1
1.5- - - 2.0-		Silt - tan, firm to soft, moist, low plasticity, some clay between 1.4 m to 1.7 m.	28.2 23.1 24.9
- - 2.5-		<ul> <li>No water seepage or sloughing were observed during or after the completion of drilling.</li> <li>Drilling terminated at a depth of 2.1 m.</li> </ul>	



Project Name: Project No. 063048 - Back Lane Local Improvements Client: SEG Engineering Inc. Site: Horace/Eugenie St. East of Rue Youville. Date Drilled: May 28, 2007 Depth of Testhole: 2.1 m Logged by: Farouk Fourar

Testhole Location: 3 m south on line of the southwest corner of lot 450 Horace Str.

	Laboratory Testing					
Depth (m)	Symbol	Description	0	<b>Wa</b> 20	ater Cont (%) 40 60	ent 80 100
		Ground Surface				
-0.0	20220 08508	Granular Base - 20 mm maximum aggregate size.				
-		Fill - mixture of granular, clay, trace silt.		26.	0	
- 0.5		<b>Clay</b> - grey, stiff, moist, high plasticity.		26.	7	
- - - - -		- brown below 1.20 m.		3	4.6	
1.5- - - 2.0-		Silt - tan, firm to soft, moist, low plasticity, some clay between 1.4 m to 2.0 m.		25. 22.4 23.6	9	
- - - 2.5-		<ul> <li>No water seepage or sloughing were observed during or after the completion of drilling.</li> <li>Drilling terminated at a depth of 2.1 m.</li> </ul>				



Project Name: Project No. 063048 - Back Lane Local Improvements Client: SEG Engineering Inc. Site: Horace/Eugenie St. East of Rue Youville. Date Drilled: May 28, 2007 Depth of Testhole: 2.1 m Logged by: Farouk Fourar

Testhole Location: 3 m north and 4 m east of the southeast corner of lot 441 Eugenie St.

		Laboratory Testing				
Depth (m)	Symbol	Description	Water Content (%) 0 20 40 60 80 100			
0.0-		Ground Surface				
- 0.0	202200 000000	Granular Base - 20 mm maximum aggregate size.				
-		Fill - mixture of granular, clay, silt.	12.4			
0.5						
		<b>Clay</b> - grey, stiff, moist, high plasticity. - brown below 1.5 m. - trace silt below 1.8 m.	32.5			
-			31.7			
1.0-						
-			29.9			
- 1.5- -			30.6			
-			31.7			
2.0-			28.1			
-		<ul> <li>No water seepage or sloughing were observed during or after the completion of drilling.</li> <li>Drilling terminated at a depth of 2.1 m.</li> </ul>				
2.5-						



# Ross/Elgin Ave. Between Juba St. and Keewatin St. Project No. 063048-Back Lane Local Improvements

Teethele		Pavement Str	ucture Material	Comple	Sample	Moisture		Particle Si	Particle Size Analysis		Atterberg Limits		nits
I esthole	Testhole Location	Type	Thickness	Description	Depth	Content	Gravel	Sand	Silt	Clay	Liquid	Plastic	Plasticity
ID		туре	(mm)		(m)	(%)	(%)	(%)	(%)	(%)	Limit	Limit	Index
TH1	1 m west and 1.5 m south of the southwest corner of lot 1842 Ross Ave.	Granular	150	N/A	-	-	-	-	-	-	-	-	-
TH2	3 m east and 1.5 m south of southwest corner of lot 1822 Ross Ave.	Granular	150	Clay	0.9	34.9	0.0	3.1	14.4	82.5	81	24	57
TH3	4 m east and 1.5 south of the southeast corner of lot 1808 Ross Ave.	Granular	150	Clay	1.2	21.1	0.0	6.5	69.7	23.8	24	16	8



#### INE NATIONAL IESING LABORATORIES LIMITED LABORATORIES

#### **TESTHOLE TH1**

Project Name: Project No. 063048 - Back Lane Local Improvements Client: SEG Engineering Inc.

Site: Ross/Elgin Ave. Between Juba St. and Keewatin St.

Testhole Location: 1 m west and 1.5 m south of the southwest corner of lot 1842 Ross Ave.

	Laboratory Testing			
Depth (m)	Symbol	Description	Water Content (%) 0 20 40 60 80 100	
		Ground Surface		
-0.0	ၯၜႜၓႍၯၜ ၟႍႍၣၜၟၟၟၣၜ	Granular Base - 20 mm maximum aggregate size.		
-		Fill - mixture of granular, clay, silt. - trace organic.	17:5	
0.5-		СІау	32.9	
- - - 1.0- - -		<ul> <li>black, stiff, moist, high plasticity.</li> <li>Silt <ul> <li>tan, soft, moist, low to intermediate plasticity.</li> <li>trace layers of brown clay below 1.9 m.</li> </ul> </li> </ul>	34.9 20/9	
- 1.5- -			20.0	
- - 2.0-			23.6 21.4	
- - - 25-		<ul> <li>No water seepage or sloughing were observed during or after the completion of drilling.</li> <li>Drilling terminated at a depth of 2.1 m</li> </ul>		
2.0			1	

Date Drilled: May 28, 2007 Depth of Testhole: 2.1 m Logged by: Farouk Fourar



Project Name: Project No. 063048 - Back Lane Local Improvements Client: SEG Engineering Inc.

Site: Ross/Elgin Ave. Between Juba St and Keewatin St.

Depth of Testhole: 2.1 m Logged by: Farouk Fourar

Date Drilled: May 28, 2007

Testhole Location: 3 m east and 1.5 m south of the southwest corner of lot 1822 Ross Ave.

	Laboratory Testing						
Depth (m)	Symbol	Description	0	<b>Wa</b> 20	ter C (% 40	<b>conte</b> 60	ent 80 100
0.0		Ground Surface					
0.0-	ಬಂಧಿ ಬಂ ್ಲಿ ್ಲಿ ್ಲಿ	Granular Base					
-		- mixture of granular, clay, silt.		3	4.4 •		
0.5- - -		<b>Clay</b> - black, stiff, moist, high plasticity. - trace silt below 0.90 m.		33	3.4		
- - 1.0-		Silt		3	4.9		
- - - 1.5- -		- tan, firm, moist, low plasticity, some clay.		25.3	3		
- - 2.0-				22.6			
- - - 2.5–		<ul> <li>No water seepage or sloughing were observed during or after the completion of drilling.</li> <li>Drilling terminated at a depth of 2.1 m</li> </ul>					

#### THE NATIONAL IESING LABORATORIES LIMITED

Date Drilled: May 28, 2007

Depth of Testhole: 2.1 m

Logged by: Farouk Fourar

**TESTHOLE TH3** 

Project Name: Project No. 063048 - Back Lane Local Improvements Client: SEG Engineering Inc.

Site: Ross/Elgin Ave. Between Juba St and Keewatin St.

Testhole Location: 4 m east and 1.5 m south of the southeast corner of lot 1808 Ross Ave.

	Laboratory Testing			
Depth (m)	Symbol	Description	Water Content (%) 0 20 40 60 80 100	
0.0		Ground Surface		
-0.0	చంద్ర చం చింద్ర చం చంద్ర చం	Granular Base - 20 mm maximum aggregate size.		
-		Fill - mixture of granular, clay, trace silt.	20.0	
0.5- - -		<b>Clay</b> - grey, stiff, moist, high plasticity. - some layers of silt below 0.8 m.	31.2	
- 1.0- - -		Silt - tan, soft to firm, moist, low plasticity, some clay.	19/4	
- 1.5- - -			21.1	
- - 2.0-			21.9	
- - - 2.5–		<ul> <li>No water seepage or sloughing were observed during or after the completion of drilling.</li> <li>Drilling terminated at a depth of 2.1 m.</li> </ul>		



# Vivian/Essex Avenue Between Des Meurons St. and Egerton Rd. Project No. 063048-Back Lane Local Improvements

Testhole ID		Pavement Str	ucture Material	Comple	Sample	Moisture		Particle Siz	ze Analysis		Atterberg Limits		
	Location	Turoo	Thickness	Description	Depth	Content	Gravel	Sand	Silt	Clay	Liquid	Plastic	Plasticity
		туре	(mm)		(m)	(%)	(%)	(%)	(%)	(%)	Limit	Limit	Index
TH1	2 m south of the southwest corner of lot 66 Vivian Avenue.	Granular	150	Silt	1.8	23.9	0.0	2.5	72.0	25.5	26	18	8
TH2	1 m west and and 1 m south of the southeast corner of lot 80 Vivian Avenue.	Granular	150	Clay	1.5	22.0	0.0	3.8	15.8	80.4	83	21	62
TH3	1 m west and and 1 m south of the southwest corner of lot 106 Vivian Avenue.	Granular	150	N/A	-	-	-	-	-	-	-	-	-



THE NATIONAL TESTING	Project No.: SEG-706	Drawn by: FL	Figure: 1	Testhole Location Plan, Project No. 063048, Back Lane Local Improvements
LABORATORIES LIMITED Established in 1923	Date: June 6, 2007	Reviewed by: RH	Scale: NTS	Vivian/Essex Ave., Between Des Meurons St. and Egerton Rd. Winnipeg, Manitoba.



Project Name: Project No. 063048 - Back Lane Local Improvements Client: SEG Engineering Inc.

Date Drilled: May 28, 2007 Depth of Testhole: 2.1 m Logged by: Olya Babashko

Site: Vivian/ Essex Ave. between Des Meurons St. to Egerton Rd. Lo Testhole Location: 2 m south of the southwest corner of lot 66 Vivan Ave.

		Laboratory Testing				
Depth (m)	Symbol	Description	Water Content (%) 0 20 40 60 80 100			
		Ground Surface				
-0.0	ဘ၀ဦဘ၀ ဂီလို ဂီလို	Granular Base - 20 mm maximum aggregate size.				
- - - - - -		Fill - mixture of granular and clay.	14.6			
- - - - -		<b>Clay</b> - black, stiff, moist, high plasticity. - grey below 1.4 m.	35.1			
- 1.5- -			33.4			
- - 2.0-		Silt - tan, soft, moist, non to low plasticity, some clay.	23.9			
- - - 2.5-		<ul> <li>No water seepage or sloughing were observed during or after the completion of drilling.</li> <li>Drilling terminated at a depth of 2.1 m.</li> </ul>				



Project Name: Project No. 063048 - Back Lane Local Improvements Client: SEG Engineering Inc.

Date Drilled: May 28, 2007 Depth of Testhole: 2.1 m Logged by: Olya Babashko

Site: Vivian/ Essex Ave. between Des Meurons St. to Egerton Rd. Logged by: Oly Testhole Location: 1 m west and 1 m south of the southeast corner of lot 80 Vivan Ave.

		Laboratory Testing				
Depth (m)	Symbol	Description	Water Content (%) 0 20 40 60 80 100			
0.0		Ground Surface				
-0.0	တ္၀င္ တ၀ ၀၀ိ ္ ၀၀ိ	Granular Base - 20 mm maximum aggregate size.				
- - - 0.5 -		Fill - mixture of granular, silt, clay.	20.5			
- - - 1.0-		Clay - grey, firm, moist, high plasticity . - trace silt layers below 2.0 m.	36.2			
- - - 1.5-			35.6 33.9			
- - 2.0- - -		<ul> <li>No water seepage or sloughing were observed during or after the completion of drilling.</li> <li>Drilling terminated at a depth of 2.1 m</li> </ul>	35.9			
- 2.5-						



Project Name: Project No. 063048 - Back Lane Local Improvements Client: SEG Engineering Inc. Date Drilled: May 28, 2007 Depth of Testhole: 2.1 m Logged by: Olya Babashko

Site: Vivian/ Essex Ave. between Des Meurons St. to Egerton Rd. Logged by: Olya Testhole Location: 1 m west and 1 m south of the southwest corner of lot 106 Vivan Ave.

		Laboratory Testing	
Depth (m)	Symbol	Description	Water Content (%) 0 20 40 60 80 100
0.0		Ground Surface	
-0.0	တူလွ လူလ ရှိပ်င် ရှိပ်င်	Granular Base - 20 mm maximum aggregate size.	
- - - 0.5-		Fill - mixture of granular and clay.	4.8
- - 1.0- - -		Clay - grey, firm, dry, high plasticity,trace silt layer.	35.6
- - - - 2.0-	· · · · · · · · · · · · · · · · · · ·	Silt - tan, soft, moist,intermediate to low plasticity, some clay decreasing with depth.	28.8
- - - 2.5-		<ul> <li>No water seepage or sloughing were observed during or after the completion of drilling.</li> <li>Drilling terminated at a depth of 2.1 m.</li> </ul>	