APPENDIX 'A'

GEOTECHNICAL REPORT

GEOTECHNICAL STREET TESTING PROGRAM MAIN ST. (EASTSIDE)/NORTH-SOUTH LANE BY ROYAL AVE. ALLEY, MAIN ST. (EASTSIDE)/NORTH-SOUTH LANE BY BURRIN AVE. ALLEY PERTH AVE. /JEFFERSON AVE. ALLEY, ST.ANTHONY AVE./JEFFERSON AVE. ALLEY, FIFE ST. /MCPHILLIPS ST. ALLEY, GARFIELD ST. N/ SHERBURN ST. ALLEY, VICTOR ST. /AGNES ST. ALLEY, YOUNG ST. / SPENCE ST. ALLEY, NEWMAN ST. /BASSWOOD PL. ALLEY, CHESTNUT ST. /WALNUT ST. ALLEY WINNIPEG, MANITOBA

Prepared for:

City of Winnipeg Public Works Department

Project No: 151 13889 00 April 13, 2016



WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8 Phone: (204) 477-6650~ Fax: (204) 474-2864

www.wspgroup.com

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4.0 5.0	FIELD TESTING	

Appendix A – Main St. (Eastside) /North-South Lane by Royal Ave. Alley

Appendix B – Main St. (Eastside) /North-South Lane by Burrin Ave. Alley

Appendix C – Perth Ave. /Jefferson Ave. Alley

- Appendix D St. Anthony Ave. /Jefferson Ave. Alley
- Appendix E Fife St. /McPhillips St. Alley

Appendix F – Garfield St. N /Sherburn St. Alley

- Appendix G Victor St. /Agnes St. Alley
- Appendix H Young St. /Spence St. Alley
- Appendix I Newman St. /Basswood Place Alley
- Appendix J Chestnut St. /Walnut St. Alley

A geotechnical investigation was conducted for the proposed back lane upgrade projects in Winnipeg, Manitoba. The purpose of this investigation was to assess the general subsurface conditions with respect to identifying the existing pavement structure and the underlying soil profile.

Ten Alleys (Main St. (Eastside) /North-South Lane Alley from Royal Ave. to Kingsbury Ave., Main St. (Eastside) /North-South Lane Alley from Burrin Ave. to Semple Ave., Perth Ave. /Jefferson Ave. Alley from Andrews St. to Powers St., St. Anthony Ave. /Jefferson Ave. Alley from McKenzie St. to McGregor St., Fife St. /McPhillips St. Alley from Chamberlain Ave. to Troy Ave., Garfield St. N /Sherburn St. Alley from Grundy Ave. to Notre Dame Ave., Victor St. /Agnes St. Alley from Ellice Ave. to Sargent Ave., Young St. /Spence St. Alley from Sargent Ave. to Cumberland Ave., Newman St. /Basswood Place Alley from Wolseley St. to Portage Ave. and Chestnut St. /Walnut St. Alley from Westminster Ave. to Preston Ave.) were cored and drilled to at least 2.13m depth in conjunction with City of Winnipeg (COW) geotechnical investigation guideline.

The subsurface conditions under the investigated streets are summarized in Appendix A to J consisting of a Table, Site Plan, Testhole Logs and Photographs.

2.0 INTRODUCTION

2.1 SCOPE OF WORK/ BACKGROUND

WSP Inc. was retained to undertake a soils investigation for a proposed alley reconstruction and upgrade in Winnipeg, Manitoba. The purpose of this work was to establish the soil and groundwater conditions at the sites, of which the pavement structure is identified and soil stratigraphy is profiled using the City of Winnipeg (COW) geotechnical investigation guideline. Authorization to proceed with the work was provided by City of Winnipeg.

2.2 PROPOSED ALLEY RECONSTRUCTION AND UPGRADES

The proposed alleys are from Main St. (Eastside) /North-South Lane Alley (Royal Ave. to Kingsbury Ave.), Main St. (Eastside) /North-South Lane Alley (Burrin Ave. to Semple Ave.),

Perth Ave. /Jefferson Ave. Alley (Andrews St. to Powers St.), St. Anthony Ave. /Jefferson Ave. Alley (McKenzie St. to McGregor St.), Fife St. /McPhillips St. Alley (Chamberlain Ave. to Troy Ave.), Garfield St. N /Sherburn St. Alley (Grundy Ave. to Notre Dame Ave.), Victor St. /Agnes St. Alley (Ellice Ave. to Sargent Ave.), Young St. /Spence St. Alley (Sargent Ave. to Cumberland Ave)., Newman St. /Basswood Place Alley (Wolseley St. to Portage Ave.) and from Chestnut St. /Walnut St. Alley (Westminster Ave. to Preston Ave).

3.0 FIELD METHODOLOGY

The subsoils encountered were visually classified to the full extent in the testhole and representative soil samples were recovered at regular depth intervals (every 300mm down to 2.13m). For confirmation, all of the soil samples are tested for moisture contents and selected soil samples (minimum one per street) between the depth of 0.3m and 0.9m were either submitted for Atterberg Limit test or Particle Size Analysis test (PSA). The asphalt and concrete cores were measured for thicknesses and assess its condition (poor or good). In addition, each core was photograph. Any groundwater seepage and sloughing encountered in the testholes were noted.

4.0 FIELD TESTING

The field investigation was undertaken between January 21, 2016 and January 28, 2016. A total of 27 testholes (TH16 to TH36, TH39 to TH44) were cored and drilled down to 2.13m depth using a truck-mounted CME rig equipped with 125mm auger. All testholes were backfilled with auger cuttings/bentonite and capped with cold mix asphalt after completion of drilling. The testhole locations and ground elevations were surveyed using a GPS and are shown on the site plan, attached with the Testhole Logs for everyalleys.

Detailed descriptions of the soil profiles in each testhole are shown on the attached logs

5.0 TEST RESULTS

The subsurface conditions under the investigated streets are summarized using a Table,

Site Plan, Testhole Logs and Photographs. The test results which include a Table, Site Plan, Testhole Logs and Photographs for alley are arranged using Appendices A to F.

6.0 CLOSURE

The findings and recommendations provided in this report were prepared by WSP Inc. (the Consultant) in accordance with generally accepted professional engineering principles and practices. The recommendations are based on the results of field and laboratory investigations and are reflective only of the actual testhole(s) and/or excavation(s) examined. If conditions encountered during construction appear to be different than those shown by the testhole(s) and/or excavation(s) at this site, the Consultant should be notified immediately in order that the recommendations can be reviewed and modified as necessary to address actual site conditions.

This report is limited in scope to only those items that are specifically referenced in this report. There may be existing conditions that were not recorded in this report. Such conditions were not apparent to the Consultant due to the limitations imposed by the scope of work. The Consultant, therefore, accepts no liability for any costs incurred by the Client for subsequent discovery, manifestation or rectification of such conditions.

This report is intended solely for the Client named as a general indication of the visible or reported physical condition of the items addressed in the report at the time of the geotechnical investigation. The material in this report reflects the Consultant's best judgment in light of the information available to it at the time of preparation.

This report and the information and data contained herein are to be treated as confidential and may be used only by the Client and its officers and employees in relation to the specific project that it was prepared for. Any use a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. The Consultant accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The report has been written to be read in its entirety, do not use any part of this report as a

separate entity.

All files, notes, source data, test results and master files are retained by the Consultant and remain the property of the Consultant.

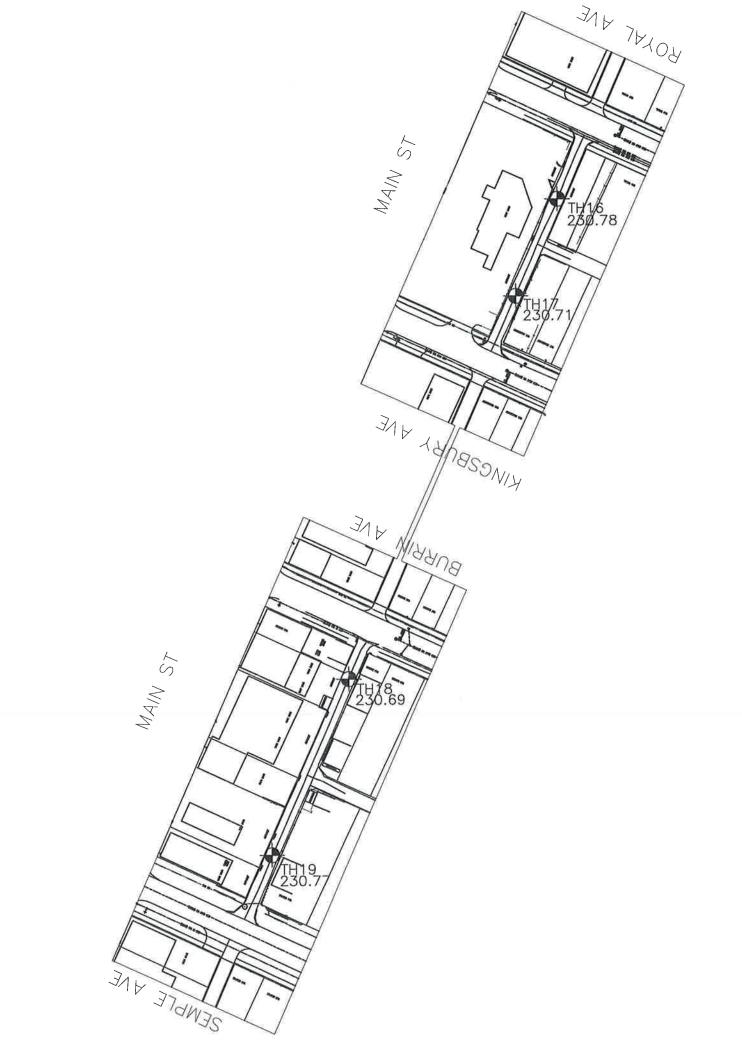
Prepared by: Silvestre S. Urbano Jr., P.Eng, Reviewed by: Scott Minty, P.Eng.





APPENDIX A

Main Street (Eastside)/ North-South Lane Alley by Royal Avenue



<u> </u>	-		· · · · · · · · · · · · · · · · · · ·	
	Plasticity Index	I	Ľ	
Atterberg Limits	Plastic Limit	ł	L	
	Liquid Limit	1	Ī	
	Clay (%)	53	I	
e Analysis	Silt (%)	28	I	
Particle Size Analysis	Sand (%)	19	Ļ	
	Gravel (%)	0	Ĩ,	1
Moisture Content	(%)	38	Ē	
Sample Depth (m)		0.3	I,	
Soll Description		Clay Fill, mixed	Clay Fill, mixed	
Structure rial	Thickness (mm)	468.5	470	
Pavement Structure Material	Type	Clay Fill	Clay Fill	
Pavement Surface	Thickness (mm)	131.5	130	
Paveme	Type	Concrete (Trace of Voids)	Concrete (Trace of Fractures)	
Testhole Location		See site plan	See site plan	
Testhole ID		TH16	TH17	

Main Street (Eastside)/ North-South Lane Alley Royal Avenue to Kingsbury Avenue

PAGE 1 OF 1 Winnipeg. PAGE 1 OF 1 PROJECT NAME 2016 Alley Reconstructions Data GROUND ELEVATION 100 m HOLE SIZE 125 mm DRILLING CONTRACTOR Made Leaf Drilling GROUND WATER LEVELS: AT TIME OF DRILLING			WSP Canada Inc.					TH16	
Telephone: (201/4177-6650 PROJECT NAME 2016 Alley Reconstructions PROJECT NAME 2016 Alley Reconstructions PROJECT LOCATION Withinked, MB DATE STATED 1/21/16		W.	SP 1600 Buffalo Place					PAGE 1 OF 1	
CLENT City of Winnbeg PROJECT NUMBER 151 3988-80 PROJECT NUMBER 151 3988-80 COMPLETED 1/2/1/9 OROUND LEVENTON 100 m HOLE STATE 125 mm DRELING CONTRACTOR Marke Leef Dolling OROUND LEVENTON 100 m HOLE STATE 125 mm DRELING METHOD Control to Kingsbury AT TIME OF DRELING			Winnipeg, MB R31 688 Telephone: (204)-477-6650						
PROJECT NUMBER 151-13889-00 PROJECT LOCATION Winnipes, MB DATE STATED 121/16 COMPLETED 121/16 CROUND ELEVATION 100 m HOLE SIZE 125 mm DRILING Combuse Auger CATE TATEL Cate Function CROUND ELEVATION 100 m HOLE SIZE 125 mm DRILING Combuse Auger CATE TATEL OF DRILLING		T CH			2016 Alley	Decon	etructiv	226	
DATE STATED 12113 COMPLETED 12113 GROUND ELEVATION 100 m HOLE SUZE 125 mm DBILLING CONTRACTOR Made Led Drilling GROUND WATER LEVELS: GROUND WATER LEVELS: GROUND CONTRACTOR ATTIME OF DRILLING		-							
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DBILLING METHOD Continuous Auger AT TIME OF DBILLING	DATE	STAR	TED _1/21/16 COMPLETED _1/21/16	GROUND ELEVATION	100 m		HOL	E SIZE _ 125 mm	
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NOTE: Aley east of Main S1 from Royal to Kingsbury AFTER DRLLING	DRILL	ING M	ETHOD Continuous Auger	AT TIME OF DR	ILLING				
Harmonic Barlow MATERIAL DESCRIPTION Starting of the second of the	LOGG	ED BY	Dana Bredin CHECKED BY Silvestre Urbano	AT END OF DRI	LLING				
EBUE EBUE EBUE SUBSTRUE SUBSTRUE <td>NOTE</td> <td>S_Alle</td> <td>ey east of Main St from Royal to Kingsbury</td> <td>AFTER DRILLIN</td> <td>G</td> <td></td> <td></td> <td></td>	NOTE	S_Alle	ey east of Main St from Royal to Kingsbury	AFTER DRILLIN	G				
CONCRETE - 131.5 mm thick. CLAY FILL - 468.5 mm thick, black MC = 38% CLAY Fill 468.5 mm thick, black MC = 38% CLAY - grey-black, fissured; brown at 0.91 m, stiff below 0.91 m Frost to 0.91 m MC = 28% MC = 28% MC = 28% SILT - tan-brown, very soft, moist to wet, slight seepage MC = 21% SILT - tan-brown, very soft, moist to wet, slight seepage MC = 21% 22 MC = 21% 23								SPT N VALUE	
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MC = 23% Z3 Z3									
MC = 23% Z3 Z3	<u>-</u>								
	3.0			MC = 23%		25	23	•	
	20		Bottom of hole at 3.05 m.		3				
	111								
	0								
	5								

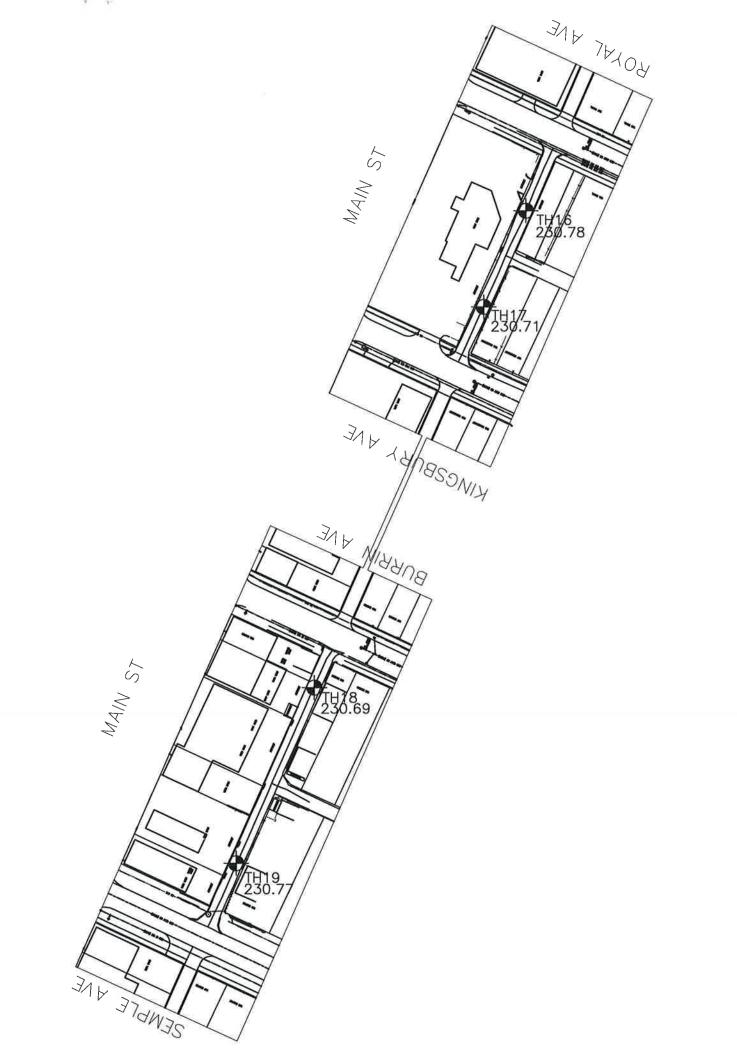
		WSP Canada Inc. SP 1600 Buffalo Place					TH17	
		Winnipeg, MB R3T 6B8 Telephone: (204)-477-6650					PAGE 1 OF 1	
CLIEN	T Cit		PROJECT NAME	2016 Allow	Pecon	etructio		
		y of Winnipeg UMBER 151-13889-00	PROJECT LOCAT					
			GROUND ELEVATION 100 m HOLE SIZE 125 mm					
		ONTRACTOR Maple Leaf Drilling						
DRILL	ING M	ETHOD Continuous Auger	AT TIME OF DR	ILLING	l			
		Dana Bredin CHECKED BY Silvestre Urbano			_			
NOTE	S_Alle	ey east of Main St from Royal to Kingsbury	AFTER DRILLIN	G				
			(0		ż	ш%	▲ SPT N VALUE ▲	
DEPTH (m)	GRAPHIC LOG		TESTS AND REMARKS	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	20 40 60 80 PL MC LL	
185 185	GRA	MATERIAL DESCRIPTION	E MAR	N VBLC	اڭ ج	NTE	20 40 60 80	
)	D C	20	☐ FINES CONTENT (%) ☐ 20 40 60 80	
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	CONCRETE - 130 mm thick						
		CLAY FILL - 470 mm thick, mixed clay, dark brown and black	(
	\otimes		MC = 31%			31		
	\otimes							
0.5	\otimes							
4 4		CLAY - brown, fissured, stiff below 0.9 m	MC = 38%			38	•	
		Frost to 0.9 m						
			MC = 29%			29		
1.0			WC - 29%			29		
			MC = 31%			31		
1.5								
1.5			PP = 225 kPa MC = 31%		225	31	•	
			MC = 35%			35		
109			WIG = 0070					
2.0				-		-		
5	11		MC = 33%			33	•••••••••••••••••••••••••••••••••••••••	
 Z		SILT - tan-brown, soft, moist to wet						
2								
2.5								
3								
3.0			PP = 25 kPa MC = 22%		25	22	•	
010		Bottom of hole at 3.05 m.						
ELVAL								
den					_			





APPENDIX B

Main Street (Eastside)/ North-South Lane Alley by Burrin Avenue

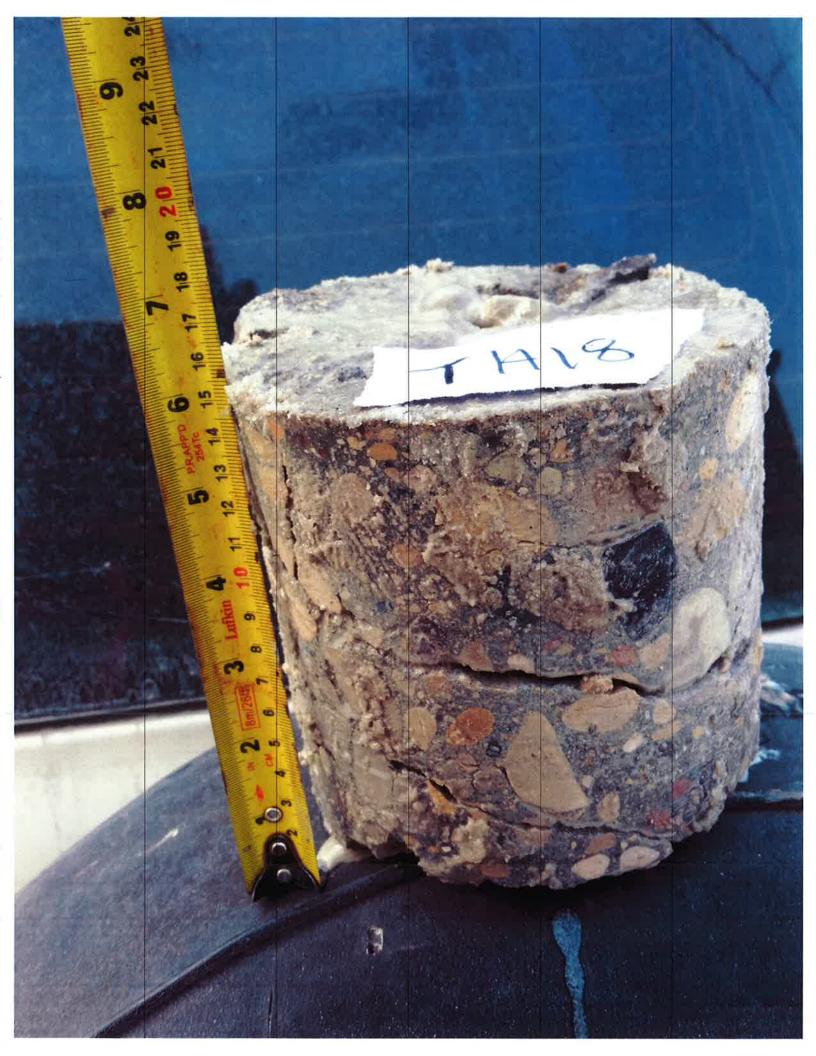


	Plasticity Index	Ĺ	1	
Atterbert Limits	Liquid Limit Plastic Limit	I	ł	
	Liquid Limit	I	-I	
	Clay (%)	I.	ŝ	
e Analysis	Sand Silt (%) (%)	Ĩ	29	
Particle Siz	Sand (%)	ł	5	
	Gravel (%)	I	I	
Moisture	Content (%)	L	8	
Sample	Depth (m)	I	0.3	
Sail		Clay Fill, mixed	Clay Fill, mixed	
ucture Material	Type Thickness (mm)	450	450	
Pavement Stn	Type	Clay Fill	Clay Fill	
ace	Thickn ess (mm)	150	150	
Pavement Surface	Type	Concrete (Trace of Fractures)	Concrete (Intact)	
Testhole Location		See site plan	See site plan	
Testhole ID		TH18	TH19	

Main Street (Eastside)/ North-South Lane Alley Burrin Avenue to Semple Avenue

	W:	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8 Telephone: (204)-477-6650							TH18 1 OF 1	
		/ of Winnipeg								
PROJE	ECT NU	MBER	PROJECT LOCATION Winnipeg, MB							
			GROUND ELEVATION			HOLI	E SIZE 125 r	nm		
		ONTRACTOR Maple Leaf Drilling								
		THOD Continuous Auger	AT TIME OF DR							
		Dana Bredin CHECKED BY Silvestre Urbano	AT END OF DRI							
NOTES	S Alle	y east of Main St from Burrin to Semple	AFTER DRILLIN	G						
					z		▲ SPT	N VALUE		
E	GRAPHIC LOG		TESTS AND REMARKS	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	20 40 PL	60 MC	80 LL	
DEPTH (m)	ΓČ	MATERIAL DESCRIPTION		ALON		IST TEF		•	-1 ₈₀	
	5			ΰz	lo N	δŇ		CONTENT (
	539.04.9				Ľ.,	Ľ	20 40	60	80	
		CONCRETE - 150 mm thick, trace of fractures								
-	\otimes	CLAY FILL - 450 mm thick, mixed, black and brown								
	\otimes		MC = 37%		1	37				
	\otimes						handhaad	amashar	adjaan	
0.5	\otimes								4	
a -	\bigotimes		MC = 35%			35		umlja	en jaran	
		CLAY - dark brown, fissured, stiff below 0.9 m; tan-brown, SIL below 0.9 m	TY							
a 1	$\langle \rangle \rangle$							ļ	n daram	
	$\langle \rangle \rangle$	Frost to 0.9 m	MC = 33%			33				
1.0	$\langle \rangle \rangle$									
-									ļ	
L	$\langle \rangle \rangle$		MC = 28%			28			,	
-	$\langle \rangle \rangle$								a ja ma	
			PP = 275 kPa		275					
1.5			PP = 50 kPa		50	22			<u></u>	
		SILT - tan-brown, firm to soft, trace of clay	MC = 22%					i normani	n jaan di	
8 8								and a	un Şamarı	
			MC = 22%			22				
-										
2.0								1		
			MC = 21%			21			ļ	
									į	
							ļ			
a 5								aaaijaa		
2.5	11	CLAY - grey-brown, stiff, fissured								
-	11									
	11									
	11								ulum	
	11									
3.0	11		PP = 225 kPa		225	44				
		Bottom of hole at 3.05 m.	MC = 44%		-l			X		
					_				_	

ROJECT NUN									
	MBER 151-13889-00								
	ED _1/21/16 COMPLETED _1/21/16 GR				HOL	E SIZE	125 mn	<u>n</u>	
	NTRACTOR Maple Leaf Drilling GR	AT TIME OF DRI							
	THOD _ Continuous Auger Dana Bredin CHECKED BY _ Silvestre Urbano	AT END OF DRIL							
	east of Main St from Burrin to Semple	AFTER DRILLING	-	_					
			0	1	_	1	SPTN	VALUE	
0		<u>8</u>	ωŴ	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	20		60	80
(m) (m) LOG	MATERIAL DESCRIPTION	TESTS AND REMARKS	BLOW COUNTS (N VALUE)	Ba)	In The second se	PL		IC	LL
			K CO B	N S S	SION	20	40		80
-			0	۲ <u>۲</u>	20	E 	NES CO	60	(%) 80
2324	CONCRETE - 150 mm thick					Ĩ			
	CLAY FILL - 450 mm thick, black and brown, mixed							1	
		MC = 38%			38				
		MC = 38%			38				
0.5							1	2012	-
\sim		MC = 36%			36			l.	
	CLAY - brown, fissured, stiff below 0.9 m, grey-brown below 0.9	m						in in the second	
1//	Frost to 0.9 m							ļ.	
1//		MC = 29%			29		.		
.0							<u> </u>		
-///									
-///		MC = 31%			31		•		
-///									**************************************
-///								- nije	
1.5		PP = 350 kPa MC = 27%		350	27		,		
-//>								aan fin	
-///								- de la composición T	isaandar I
-44	SILT - olive-grey, soft, trace of clay	MC = 26%			26	•	e de la composición de	-	ere fee
	SILT - Olive-grey, solt, trace of day								1
2.0									
		MC = 23%			23	•		i i	i i
-							1	T	
	CLAY - grey-brown, stiff, fissured							1	1
2.5									
1/1									
1/1								an ĝa	
-1/2									
3.0		PP = 150 kPa		150	44				
111	Bottom of hole at 3.05 m.	MC = 44%				-			



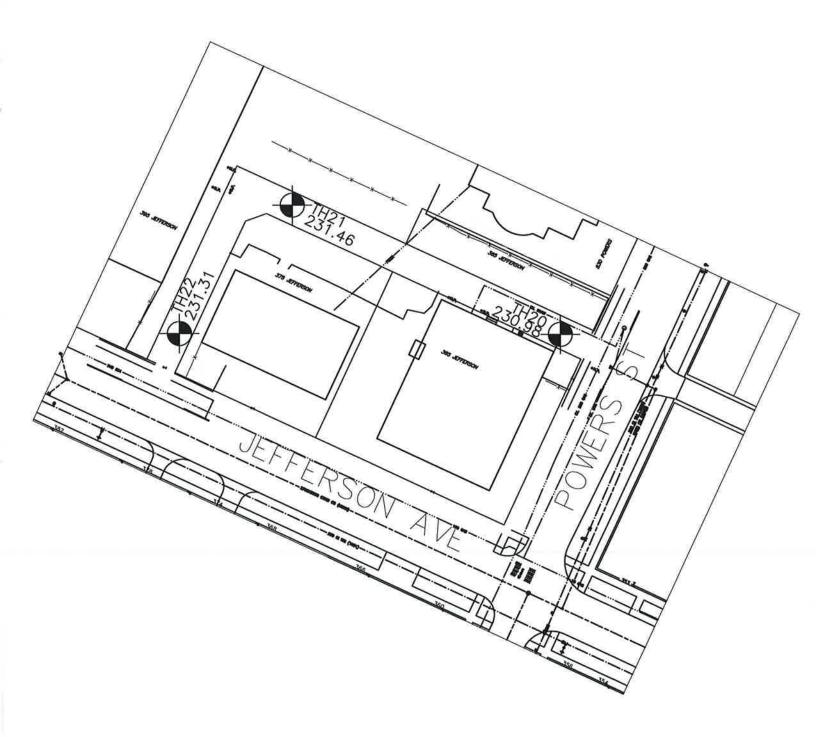


APPENDIX C

Perth Avenue/ Jefferson Avenue Alley

	Plasticity Index	н		l,
Atterberg Limits	Plastic Limit	1	1	L
	Liquid Limit	I	I	I
	Clay (%)	I	60	I
Particle Size Analysis	Silt (%)	н	34	I
Particle Siz	Sand (%)	_	Q	I
	Gravel (%)		I	I
Moisture Content	(%)		ŝ	I
Sample Depth (m)		1	0.6	I
Soil Description		Clay Fill, mixed	Clay Fill, mixed	Clay Fill, mixed
Structure	Thickness (mm)	875	750	775
Pavement Structure Material	Type	Clay Fill	Clay Fill	Clay Fill
urface	Thickness (mm)	175	150	125
Pavement Surface	Type	Concrete(Intact)	Concrete(Intact)	Concrete (Intact)
Testhole Location		See site plan	See site plan	See site plan
Testhole ID		TH20	ТН21	ТН22

Perth Avenue/ Jefferson Avenue Alley Andrews Street to Powers StreetWellington Crescent to Academy Road



W	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8 Telephone: (204)-477-6650					TH2 PAGE 1 OF
LIENT City	of Winnipeg	PROJECT NAME	2016 Allev	Recon	structi	ons
	MBER 151-13889-00					
	ED _1/26/16 COMPLETED _1/26/16					E SIZE 125 mm
	NTRACTOR Maple Leaf Drilling				c	
	THOD Continuous Auger	AT TIME OF DRI		•		
OGGED BY	Dana Bredin CHECKED BY Silvestre Urbano	AT END OF DRIL	LING			
OTES _Jeff	erson/Powers Alley	AFTER DRILLING	G			
				1.		SPT N VALUE
- -		s s	ုလည်	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	20 40 60 80
DEPTH (m) (m) LOG	MATERIAL DESCRIPTION	TESTS AND REMARKS	BLOW COUNTS (N VALUE)	Ê E E a	STU	PL MC LL 20 40 60 80
8 8 4			±00 €0	١ž =	I§2	20 40 60 60
				۲ ۲	-ō	20 40 60 80
	CONCRETE - 175 mm thick, intact					
	CLAY FILL - 875 mm thick, mixed, brown and black	MC = 33%			33	
	Frost down to 1.05 m	WC - 33 /8			55	
0.5						
		MC = 33%			33	
		100 - 0070				
		MC = 30%			30	
.0						
-	CLAY - tan-brown, SILTY, stiff, fissured					
		MC = 24%			24	
-///					<u> </u>	
1.5		PP = 175 kPa		175	26	
-	SILT - tan-brown, stiff, dry, trace of clay	MC = 26%				
-		MC = 25%			25	
-						
2.0						
		MC = 22%			22	•
-						
-						
2.5	CLAY - grey-brown, stiff, fissured					
-//>						ana familan familian familia
-///					1	
-//>						
-1//						
3.0_		PP = 175 kPa MC = 42%		175	42	
	Bottom of hole at 3.05 m.					

	WS	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8 Telephone: (204)-477-6650					TH21 PAGE 1 OF 1		
CLIEN	T Citv	of Winnipeg	PROJECT NAME	2016 Allev	Recon	structio	ons		
		MBER 151-13889-00	PROJECT LOCATION _ Winnipeg, MB						
		ED _1/26/16 COMPLETED _1/26/16							
		NTRACTOR Maple Leaf Drilling							
		THOD Continuous Auger							
		Dana Bredin CHECKED BY Silvestre Urbano	AT END OF DRIL	LING					
NOTE	S Jeffe	erson/Powers Alley	AFTER DRILLIN	G					
<u> </u>	r r				Τ.	<u> </u>	SPT N VALUE		
	<u>_</u>		s s	ູ ທ ເ ມີ	EN I	MOISTURE CONTENT (%)	20 40 60 80		
DEPTH (m)	H S	MATERIAL DESCRIPTION	TESTS AND REMARKS	BLOW COUNTS (N VALUE)	ET F	STU EN1	PL MC LL		
۳ <u>۳</u>	8-				POCKET PEN. (kPa)	NO NO	20 40 60 80		
					۱ <u>۳</u>	-0	20 40 60 80		
		CONCRETE - 150 mm thick, intact							
	××	CLAY FILL - 750 mm thick, mixed, brown and black							
	\otimes		MC = 36%			36			
	\boxtimes		WIC - 30%			30			
0.5									
_			MC = 35%			35			
	\otimes								
	\otimes		MC = 34%			34			
1.0		CLAY - grey-brown. stiff, fissured, SILTY at 2.7 m							
		Frost down to 1.05 m							
			MC = 31%			31			
a d									
1.5			PP = 150 kPa MC = 30%		150	30	•		
							na an tampan da an tampan an tampa an t		
			MC = 26%			26	•		
2.0	1/1				-				
-			MC = 23%			23	•		
<u>}</u>									
2.5									
	1/								
[
3.0	11		PP = 100 kPa		100	34			
	111	Bottom of hole at 3.05 m.	MC = 34%		100	04			
						_			

ROJECT NU ATE STAR	y of Winnipeg	PROJECT NAME _ PROJECT LOCATK			structio	ons		
	JMBER 101-13669-00				.			
	TED 1/26/16 COMPLETED 1/26/16				HOL	E SIZE 125	mm	
	ONTRACTOR Maple Leaf Drilling							
	ETHOD Continuous Auger Dana Bredin CHECKED BY Silvestre Urbano	AT TIME OF DRI						
	ferson/Powers Alley	AFTER DRILLING						
		l l).	-			TALVALUE	
_ u		<u>s</u>	ωÛ	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	20 4	TNVALUE 0 60	
(m) (m) LOG	MATERIAL DESCRIPTION	TESTS AND REMARKS	BLOW COUNTS (N VALUE)	Pa)	IN TO LE	PL	мс	LL
ן - אַן ``אַ		L H H H H H H H H H H H H H H H H H H H	N COB	NX K	SION	20 4	0 60	80
			0	۲ <u>۲</u>	20		CONTENT 0 60	- (%) 80
223	CONCRETE - 125 mm thick, intact				_	20 -		
	CLAY FILL - 775 mm thick, mixed, black and brown						. 1	i
\otimes		MC = 36%			36			
		WIC = 30%			30			
0.5								
-		MC = 35%			35		ll.	
-888								
-								
-		MC = 34%			34			į.
.0	CLAY - brown, fissured, stiff below 1.05 m							
-//>	Frost to 1.05 m							
-///		MC = 31%			31			į.
-///								····· 1.
-///						140000	ļu salar	
1.5	SILT - tan-brown, soft, moist to wet	PP = 200 kPa MC = 30%		200	30	•		
	SILT - tan-brown, son, moist to wet							
-								
-		MC = 26%			26	•	i an	eren da
2.0								····
								-
		MC = 23%			23	•		1
								*
						1		
.5								÷
-///	CLAY - brown, stiff, fissured							
-//>								
3.0		PP = 150 kPa		150	34			_
	Bottom of hole at 3.05 m.	MC = 34%					<u> </u>	





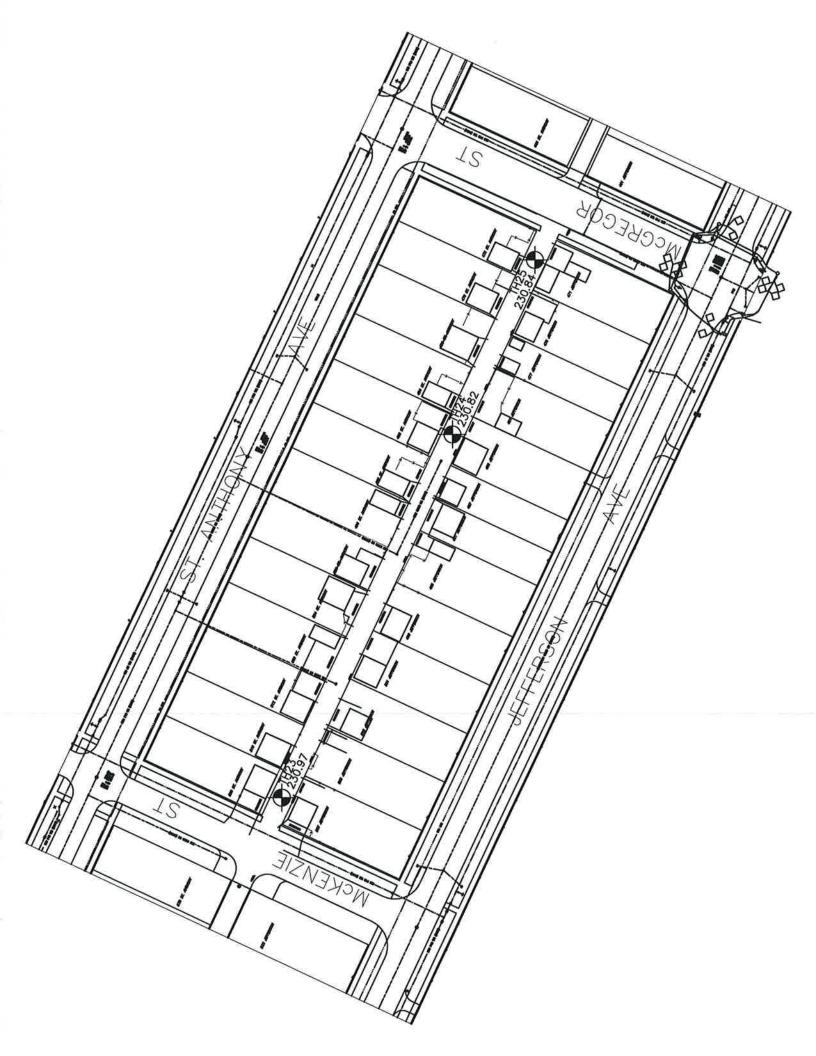


APPENDIX D

St. Anthony Avenue/ Jefferson Avenue Alley

St. Anthony Avenue/ Jefferson Avenue Alley McKenzie Street to McGragor Street

	Plasticity Index	I	Ĩ	I	
Atterbert Limits	Plastic Limit	Ē	Ĩ	ï	
	Liquid Limit	Ĩ	Ĩ	ï	
	Clay (%)	ľ	I	17	
Particle Size Analysis	Silt (%)	I)	I.	70	
Particle Siz	Sand (%)	ľ	1	13	
	Gravel (%)	R	1	1	
Moisture Content	(%)	E	I	26.8	
Sample Depth (m)		E		0.0	
Soil Description		Clay Fill, mixed clay	Clay Fill, mixed/ Silt	Clay Fill, mixed/ Silt	
Structure	Thickness (mm)	812.5	912.5/450	750/900	
Pavement Structure Material	Type	Clay Fill	Clay Fill/ Silt	Clay Fill/Silt	
Irface	Thickness (mm)	87.5	137.5	150	
Pavement Surface	Type	Concrete(Broken)	Concrete(Intact)	Concrete(Intact)	
Testhole Location		See site plan	See site plan	See site plan	
Testhole ID		ТН23	TH24	TH25	



ILLING CONTRACTOR ILLING METHOD Conti GGED BY Dana Bredin TES St Anthony/Jeffers	COMPLETED 1/26/16 GF Maple Leaf Drilling GF				PROJECT NAME _ 2016 Alley Reconstructions PROJECT LOCATION Winnipeg, MB							
ILLING CONTRACTOR ILLING METHOD Conti GGED BY Dana Bredin TES St Anthony/Jeffers	Maple Leaf Drilling GR											
ILLING METHOD Conti GGED BY Dana Bredin TES St Anthony/Jeffers	nuous Auger				HOL							
GGED BY _Dana Bredin TES _St Anthony/Jeffers		AT TIME OF DRI		e.								
TES St Anthony/Jeffers		AT END OF DRIL										
0	on Alley from McKenzie to McGregor	AFTER DRILLIN	G									
						SPT N VALUE						
	MATERIAL DESCRIPTION	S	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	20 40 60 80						
(m) GRAPHIC LOG		TESTS AND REMARKS				PL N		ц. 1				
- GR						20 40 60 80						
					-õ	20 40	.60	パリロ 80				
Contraction of the second s	E - 90 mm thick, fractured											
CLAY FILL	- 810 mm thick, mixed, black and brown					i i	i	1				
		MC = 29%			29			3				
		WIC - 29 %			29			nignes Instance				
5							1					
		MC = 35%			35							
		1010 - 3376			00							
		MC = 31%			31			<u>.</u>				
0 CLAY - bro	wn, fissured, stiff below 1.05 m, grey-brown at 1.8 m	1010 - 3178					ţ					
SILTY at 2.	4 m, tan-brown											
Frost to 1.0	15 m	MC = 34%			34							
5		PP = 300 kPa		300	34		ł					
		MC = 34%										
		MC = 50%			50		٠					
						mahaada	с mulm	į				
0												
-1/2		MC = 44%			44							
-///												
-(/)						ļļ		••••				
- ///						mahanda						
5												
-//>						ատիստիս						
-///												
-///												
-//							n niện t					
0		PP = 150 kPa MC = 43%		150	43							
Montootal	Bottom of hole at 3.05 m.											

OJECT NUMBER 151-13889-00 TE STARTED 1/26/16 COMPLETED 1/26/16 GR ILLING CONTRACTOR Maple Leaf Drilling GR ILLING METHOD Continuous Auger GR GGED BY Dana Bredin CHECKED BY Silvestre Urbano TES St Anthony/Jefferson Alley from McKenzie to McGregor MATERIAL DESCRIPTION	ROUND WATER LEV AT TIME OF DRI AT END OF DRI AFTER DRILLIN		•	HOL	E SIZE _ 125 mm		
ILLING CONTRACTOR Maple Leaf Drilling GR ILLING METHOD Continuous Auger GGED BY Dana Bredin CHECKED BY Silvestre Urbano TES St Anthony/Jefferson Alley from McKenzie to McGregor	ROUND WATER LEV AT TIME OF DRI AT END OF DRI AFTER DRILLIN	els: Lling .ling	-		E SIZE 125 mm		
ILLING METHOD Continuous Auger GGED BY Dana Bredin CHECKED BY TES St Anthony/Jefferson Alley from McKenzie to McGregor	AT TIME OF DRI AT END OF DRIL AFTER DRILLIN	LLING					
GGED BY Dana Bredin CHECKED BY Silvestre Urbano TES St Anthony/Jefferson Alley from McKenzie to McGregor	AT END OF DRIL	LING					
TES St Anthony/Jefferson Alley from McKenzie to McGregor	AFTER DRILLIN						
الله المعرفة (E) MATERIAL DESCRIPTION	s, i						
E MATERIAL DESCRIPTION		BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	щ [%]	▲ SPT N VALUE ▲ 20 40 60 80		
C C C C C C C C C C C C C C C C C C C	TESTS AND REMARKS			MOISTURE CONTENT (%)	PL MC LL		
					20 40 60 80		
				20	☐ FINES CONTENT (%) [] 20 40 60 80		
CONCRETE - 135 mm thick, intact							
CLAY FILL - 915 mm thick, mixed, brown and black							
Frost to 1.05 m	MC = 44%			44			
	1010 - 44%			44			
5			1				
	MC = 41%			41			
					aandaandaandaanda		
	MC = 37%			37			
0							
- SILT - tan-brown, firm to soft, moist to wet							
-	MC = 25%			25	•		
-							
5 CLAX arey brown stiff fingured	PP = 50 kPa MC = 28%	50	50	28	•		
CLAY - grey-brown, stiff, fissured							
-///	MC = 45%			45	•		
0							
	MC = 38%			38	•		
-							
5							
			ic				
SILT - tan-brown, firm, moist to wet, trace of clay							
-							
<u>o</u>	PP = 75 kPa		75	24			
Bottom of hole at 3.05 m.	MC = 24%						

DATE START DRILLING CO DRILLING ME	MBER 151-13889-00 ED 1/26/16 GRC NTRACTOR Maple Leaf Drilling GRC			peg, ivi	5					
DRILLING CO DRILLING ME										
DRILLING ME	NIRACIOR Manie Leat Drilling				HUL		25 1111			
	THOD Continuous Auger	GROUND WATER LEVELS: AT TIME OF DRILLING								
LOGGED BY	Dana Bredin CHECKED BY Silvestre Urbano	AT END OF DRI								
NOTES St A	nthony/Jefferson Alley from McKenzie to McGregor	AFTER DRILLIN								
						A	SPT N VA	N VALUE		
DEPTH (m) GRAPHIC LOG	MATERIAL DESCRIPTION	s s	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	20 40 60 80			80	
		TESTS AND REMARKS					MC		1	
		R H H				20	40 IES CONTE	60 =NT (%	<u>80</u>	
					0	20		60	80	
	CONCRETE - 150 mm thick, intact					mini		Į	1	
-	CLAY FILL - 750 mm thick, mixed, brown and black, dry, fractured	E E						Į		
-888	Frost to 0.9 m	MC = 45%			45	·		ļ		
								÷	÷.	
0.5								-		
		MC = 40%			40	*****		÷	÷	
-									÷.	
						****	n franciska T	÷	·	
1.0	SILT - tan-brown, firm to soft, moist to wet	MC = 27%			27	••••		ļ	÷	
1.0								:	1	
						******		-	÷	
-		MC = 23%			23	•		-		
						8. 1 A Y - 1 A A A A A Y A		Į		
1.5		PP = 50 kPa		50	27					
		MC = 27%		50	21			<u>.</u>		
								į		
		MC = 36%			36					
11/	CLAY - brown, stiff, fissured, grey-brown at 2.7 m					saan kan				
2.0								<u>.</u>		
-1//		MC = 45%			45		•	ļ		
-///						aanalaa		Genera		
-//>						manifasi	adhana		·	
						******	-pan	÷	··•.	
2.5								÷	÷	
-//								i	••••	
								1	÷	
								1		
3.0		PP = 100 kPa					din se	ĝ	1	
		MC = 54%		100	54			1	:	





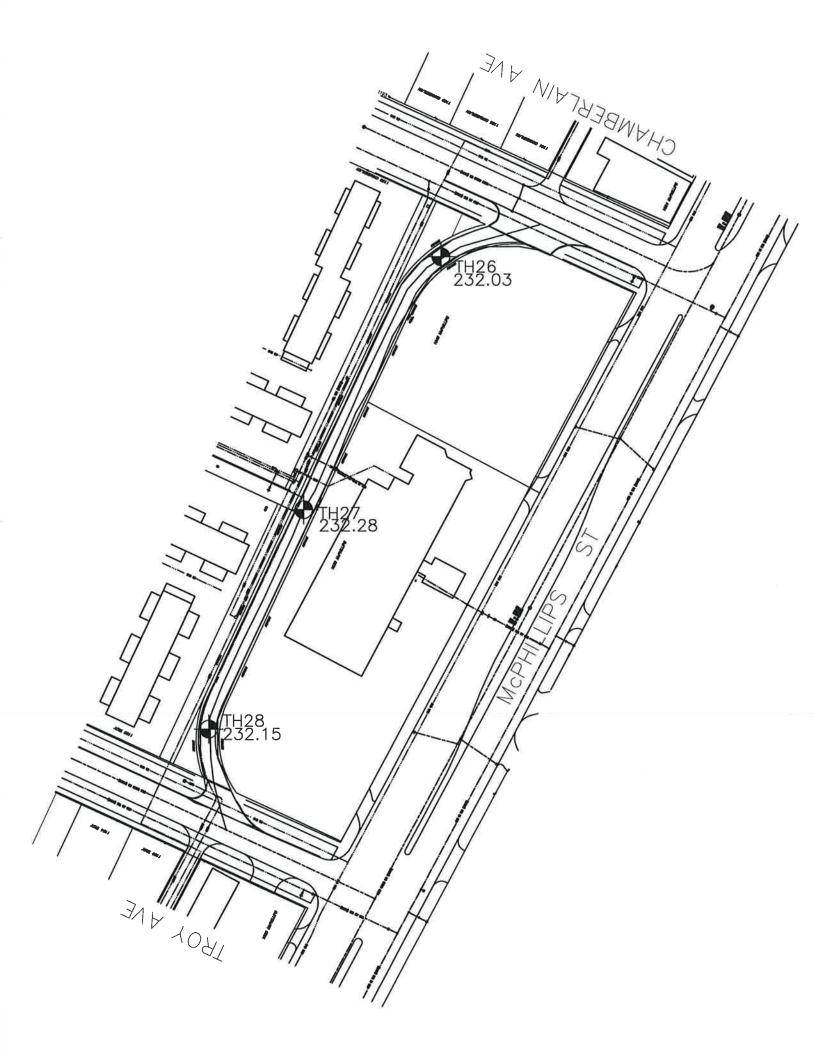


APPENDIX E

Fife Street/ McPhillips Street Alley

ps Street Alley	e to Trov Avenu
McPhillig	Avenue
Fife Street/	Chamberlain

Testhole ID	Testhole Location	Pavem	Pavement Surface	Pavement Structu Material	int Structure aterial	Soil Description	Sample Depth (m)	Moisture Content		Particle Size Analysis	e Analysis			Atterberg Limits	
		Type	Thickness (mm)	Type	Thickness (mm)			(%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit Plastic Limit	Plastic Limit	Plasticity Index
ТН26	See site plan	Concrete (Intact)	175	Clay Fill	425	Clay Fill, mixed	9.0	37,8	I	Ĩ	I	I	47	20	27
ТН27	See site plan	Concrete (Intact)	162.5	Clay Fill	437.5	Clay Fill, mixed	I	1	and the second s	1	I	Î	Ī	L	I
ТН28	See site plan	Concrete (Intact)	175	Clay Fill/ Silt	875/ 450	Clay Fill, mixed/ Silt	I	I	ſ	Î	Ľ	Ĺ	I	Ľ	l



		_ PROJECT NAME _				ons				
		_				E 817E 405 mm				
	/26/16 COMPLETED _1/26/16 CTOR _ Maple Leaf Drilling	-			HUL					
	Continuous Auger	_ AT TIME OF DRI								
	Bredin CHECKED BY Silvestre Urbano									
	nillips Alley from Chamberlain to Troy	AFTER DRILLING								
1 1		1		Γ.		SPT N VALUE				
		s s	_ ເ ເ	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	20 40 60 80				
(m) GRAPHIC LOG	MATERIAL DESCRIPTION	TESTS AND REMARKS	BLOW COUNTS (N VALUE)	kPa)	IEN I	PL MC LL 20 40 60 80				
8 8			^a ℃ź	lý,	N N N	20 40 60 80				
				٩.	0	20 40 60 80				
CO	NCRETE - 175 mm thick, intact									
- KK CL/	AY FILL - 425 mm thick, mixed, brown and black									
-		MC = 53%			53					
-										
0.5										
	AY - tan-brown, SILTY, fissured, stiff below 1.05 m	MC = 38%			38	·····				
Fro	st to 1.05 m									
		MC = 33%			33	•				
.0										
SIL	T - tan-brown, soft, moist to wet	MC = 27%			27	•				
-										
-		PP = 150 kPa								
	AY - grey-brown, stiff, trace of fine gravel inclusions	MC = 25%		150	150	150	150	150	25	
		MC = 46%				46				
		WC - 4078					40			
2.0										
		MC = 45%			45					
-//2										
-///										
-//>										
2.5										
-///						nam kana kana kana kana kana kana kana k				
-///										
						om for specific second s				
3.0		PP = 100 kPa MC = 55%		100	55	•				
	Bottom of hole at 3.05 m.									

ATER LEVELS: IE OF DRILLING	m	HOL	E SIZE _ 125 mm
ATER LEVELS: ME OF DRILLING ID OF DRILLING R DRILLING	3 		,
he of Drilling D of Drilling R Drilling		г	
D OF DRILLING		г	
R DRILLING		r	
REMARKS	LUE) T PEN.		
BLOW	LUE) T PEN.		SPT N VALUE
REMARK	C L e	122	20 40 60 80
	х∢ тшш	MOISTURE CONTENT (%)	PL MC LL
		ISEN SER	20 40 60 80
		[∠] 8	□ FINES CONTENT (%) □ 20 40 60 80
			20 40 00 00
- 240/			
C = 34%		34	
2 = 26%		26	
/ - 20/0		20	
C = 26%		26	
		1	
C = 22%		22	
			·····
= 50 kPa C = 23%	50	23	•
C = 40%		40	•••••
C = 43%		43	•
= 150 kPa	150	52	
∠ = 52% L	1100		
=	= 150 kPa IC = 52%	= 150 kPa IC = 52%	= 150 kPa IC = 52%

ROJECT NUMBER 151-13889-0 ATE STARTED 1/26/16 RILLING CONTRACTOR Marke		PROJECT LOCATIO	ON Winnij	pea. Mi	3		
RILLING CONTRACTOR Marka					HOL	E SIZE 125 mm	
	Leaf Drilling GI						
RILLING METHOD Continuous A	CHECKED BY Silvestre Urbano						
OTESWest McPhillips Alley from		AFTER DRILLING					
				1	-	1	
0		N.	۵Ŵ	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	▲ SPT N VA 20 40	LUE 🛦 60 80 -
CEAPHIC COG LOG	MATERIAL DESCRIPTION	TESTS AND REMARKS	BLOW COUNTS (N VALUE)	a)	TUR	PL MC	LL
	WATERIAE DESCRIPTION		N KBLC	Р К К	SIO	20 40	60 80
				R	≥S		
CONCRETE - 175	mm thick, intact			<u> </u>		20 40	<u>60 80</u>
-							1
CLAY FILL - 725 n	nm thick, mixed, brown and black						
Frost to 1.05 m		MC = 34%			34	•	Ť
0.5							
		MC = 26%			26		1
1000							1 1
I.O		MC = 26%			26		
	off molet to wet					i i	
SILT - tan-brown, s	ion, moist to wet	MC = 22%			22		
		WIC - 2276			22		
							1
1.5		PP = 200 kPa		200	23		
CLAY - brown, stift	f, fissured, trace of fine gravel inclusions	MC = 23%					ļļ.
-1/2							lamb.
		MC = 40%			40		Į
-///						malandara	ţļ.
2.0							
-//2		MC = 43%			43	• • •	
-///							ł
-///						magangana	
2.5					ŝ		+
-///							††.
-///							
							j
3.0		PP = 125 kPa					† min
5.0	Bottom of hole at 3.05 m.	MC = 52%		125	52	•	





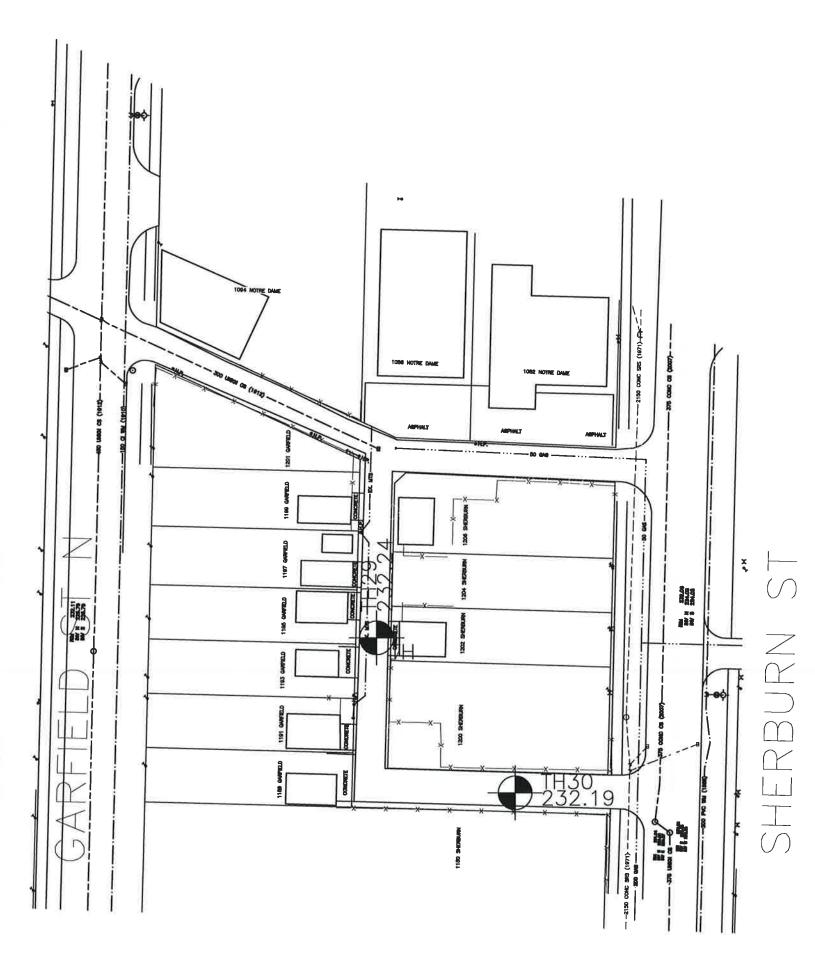


APPENDIX F

Garfield Street N/ Sherburn Street Alley

	Plasticity Index	I	1	
Atterberg Limits	Plastic Limit	1	I	
	Liquid Limit	I	1	
	Clay (%)	Ĩ	63.7	
Particle Size Analysis	Silt (%)	I	31,8	
Particle Siz	Sand (%)	Ĩ	4.5	
	Gravel (%)	l		
Moisture Content	(%)	I	29,2	
Sample Depth (m)		Ĭ	0.3	
Soil Description		20mm down/ Clay Fill, mixed	Silty Clay/ Silt	
Structure Tal	Thickness (mm)	212.5/ 350	712,5/750	
Pavement Structure Material	Type	Granular Fill/ Clay Fill	Clay/ Silt	
Pavement Surface	Thickness (mm)	37.5	187.5	
Paveme	Type	Asphalt (Fractured)	Concrete (Trace of Fracture)	
Testhole Location		See site plan	See site plan	
Testhole ID		ТН29	ТН30	

Garfield Street N/ Sherburn Street Alley Grundy Avenue to Notre Dame Avenue



	W	WSP Canada Inc. 1600 Buffalo Place					TH29 PAGE 1 OF 1
-		Winnipeg, MB R3T 6B8 Telephone: (204)-477-6650					
CLIEN	T _Cit	y of Winnipeg	PROJECT NAME	2016 Alley	Recon	structio	ons
PROJ	ECT NI	JMBER 151-13889-00	PROJECT LOCATI	ON Winnig	xeg, M	В	
DATE	STAR	TED _1/27/16 COMPLETED _1/27/16	GROUND ELEVATION	100 m		HOL	E SIZE _ 125 mm
DRILL	ING CO	ONTRACTOR Maple Leaf Drilling	GROUND WATER LEV	ELS:			
		ETHOD Continuous Auger	AT TIME OF DR	ILLING			
		Dana Bredin CHECKED BY Silvestre Urbano					
NOTE	S <u>All</u>	alleys bounded by Garfield St N, Sherburn, Notre Dame and Grun	dy AFTER DRILLIN	G			
					z		SPT N VALUE
E~	GRAPHIC LOG		TESTS AND REMARKS	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	20 40 60 80 PL MC LL
DEPTH (m)	¶Å 2	MATERIAL DESCRIPTION			Х Я	UST TET	20 40 60 80
	o		E E	οz	Q	ĕĝ	□ FINES CONTENT (%) □
<u> </u>		ASPHALT - 38 mm thick, fractured				<u> </u>	20 40 60 80
		GRANULAR FILL - 212 mm thick, base course material					
:-		12 5					
2.2	\otimes	CLAY FILL - 350 mm thick, mixed, brown and black	MC = 19%			19	•••••
0.5	888						
0.0	\otimes						
	11	CLAY - brown, fissured	MC = 41%			41	
		Frost to 1.2 m					
			MC = 34%			34	
1.0			WC - 34%			34	
_							
			MC = 30%			30	
-		SILT - tan-brown, soft, moist to wet					
1.5	Щ		PP = 300 kPa		300	24	
		CLAY - grey brown, stiff, fissured					·····
	$\langle \rangle \rangle$		MC = 33%			33	•••••••••
2.0	11						
2.0							
			MC = 38%			38	••••••
2.5	11						
	11						
	11						
3.0			PP = 100 kPa MC = 54%		100	54	•
		Bottom of hole at 3.05 m.					

WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8 Telephone: (204)-477-6650					TH3 PAGE 1 OF
IENT _ City of Winnipeg	PROJECT NAME	2016 Alley	Recon	structi	ons
ROJECT NUMBER	PROJECT LOCATE	ON Winnij	beg, Mi	3	
ATE STARTED _1/27/16 COMPLETED _1/27/16 GI	ROUND ELEVATION	100 m		HOL	E SIZE 125 mm
RILLING CONTRACTOR Maple Leaf Drilling Gi	ROUND WATER LEV	ELS:			
RILLING METHOD Continuous Auger	AT TIME OF DRI	LLING			
DGGED BY Dana Bredin CHECKED BY Silvestre Urbano	AT END OF DRI	LING	_		
DTES All alleys bounded by Garfield St N, Sherburn, Notre Dame and Grundy	AFTER DRILLIN	G			
					SPT N VALUE
	TESTS AND REMARKS	> s îi	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	20 40 60 80
	AND MAF	BLOW COUNTS (N VALUE)	KPa KPa	IEN I	
		°°2°	lộ Q	N N N	20 40 60 80
			<u> </u>	0	20 40 60 80
CONCRETE - 190 mm, trace of fractures					
CLAY - tan-brown, SILTY					
-	MC = 29%			29	•
0.5					
	MC = 20%			20	
.0 SILT - tan-brown, trace of clay, soft below 1.05 m, moist to wet	MC = 22%			22	•
Frost to 1.05 m					
	MC = 17%			17	•
.5					
	MC = 16%			16	•
CLAY - grey-brown, stiff, fissured, trace of fine gravel inclusions	PP = 300 kPa			•	
	MC = 21%		300	21	
2.0					
	10 - 000				
	MC = 23%			23	
2.5					
8.0	PP = 100 kPa		100		
Bottom of hole at 3.05 m.	MC = 23%		100	23	



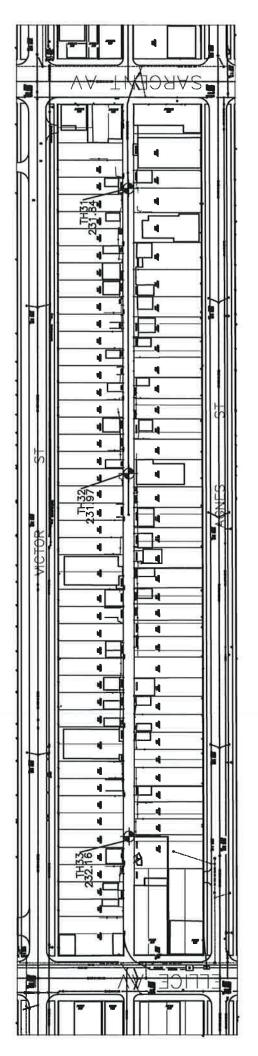


APPENDIX G

Victor Street/ Agnes Street Alley

Victor Street/ Agnes Street Alley Ellice Avenue to Sargent Avenue

	Plasticity Index	1	I	44	
Atterbert Limits	Plastic Limit	l	1	26	
	Liquid Limit	Ĺ	I	70	
	Clay (%)	Ĩ	1		
Particle Size Analysis	Silt (%)	ţ	l	I	
Particle Siz	Sand (%)	Ĩ	l	I	
	Gravel (%)	Ĺ	1	I	
Moisture Content	(%)	Ł	I	24,8	
Sample Depth (m)		ł	Ę	6.O	
Soil Description		20mm down Granular Fill/Clay Fill	20mm down Granular/ Clay Fill, mixed	20mm down Granular/ Grey-Black Clay	
Structure rial	Thickness (mm)	100/350	175/300	300/1050	
Pavement Structure Material	Type	Granular Fill/ Clay Fill	Granular Fill/Clay Fill	Granular Fill/ Clay	
urface	Thickness (mm)	150	125	150	
Pavement Surface	Type	Concrete(Intact)	Concrete(Intact)	Concrete(Intact)	
Testhole Location		See site plan	See site plan	See site plan	
Testhole ID		TH31	TH32	ТН33	



		WSP Canada Inc.						TH31
	W	S P 1600 Buffalo Place					PAC	GE 1 OF 1
		Winnipeg, MB R3T 6B8						
		Telephone: (204)-477-6650			_			
		r of Winnipeg	PROJECT NAME				ons	
		MBER 151-13889-00	PROJECT LOCATI	ON Winnig	beg, M	В		
DATE	START	ED 1/27/16 COMPLETED 1/27/16 G	ROUND ELEVATION	100 m		HOL	E SIZE 125 mm	
DRILL	ING CC	ONTRACTOR Maple Leaf Drilling G	ROUND WATER LEV	'ELS:				
DRILL	ing me	THOD Continuous Auger	AT TIME OF DRI	ILLING				
		Dana Bredin CHECKED BY Silvestre Urbano						
NOTE	S Vict	or/Agnes Alley from Sargent to Ellice	AFTER DRILLIN	G —				
	<u> </u>				T	r		1E A
	0			۵ŵ	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	▲ SPT N VALU 20 40 60	
DEPTH (m)	GRAPHIC LOG	MATCHAL DEGODISTICS	TESTS AND REMARKS	BLOW COUNTS (N VALUE)	a)	12 F	PL MC	, <u>ov</u> Li
ЦЩ ^Б	L &	MATERIAL DESCRIPTION	AN AN	<u>X</u> N N N N	꽁꽁	ISE I	20 40 60	80
	"			02	No 1	ĭžõ		NT (%) 🗆
	A	CONCRETE 150 mm thick intent				ļ	20 40 60	0 80
		CONCRETE - 150 mm thick, intact						į
		GRANULAR FILL - 100 mm thick, base course material						İ
		CLAY FILL - 350 mm thick, mixed, brown and black	MC = 20%			20		
	\otimes		WIG = 20 %			20		
0.5	\otimes							
	\otimes				1			
- T	11	CLAY - brown, fissured; SILTY at 0.9 m, tan-brown; stiff below	1.05 MC = 19%		1	19	•	
1	1/1	m; grey-brown below 1.8 m			1		na di kara di k	·····
		Frost to 1.05 m						
	1/		MC = 16%		1	16	••••	n milanan
1.0	11				1			
	11							
	11		MC = 14%		1	14		
	11				1			
1.5			PP = 150 kPa		150	16		
	11		MC = 16%		150	10		
	11				1		5 I I	1
	1/1		MC = 13%		1	13	•	
					1		1 I I	n andrene i
2.0	1//				-			
	11		MC = 18%			18	••••	*****
	11							
	11							
	11							
2.5	11							
	11							
	11							i.
F 7	11							1
3.0	1/1		PP = 100 kPa				mini	
3.0	11		MC = 16%		100	16	•	
		Bottom of hole at 3.05 m.						
<u>ال</u>								

ATE STARTED _1/27/16 COMPLETED _1/27/16 GROU NILLING CONTRACTOR _Maple Leaf Drilling GROU NILLING METHOD _Continuous Auger GROU VGGED BY _Dana Bredin CHECKED BY _Silvestre Urbano		_100 m ELS: LLING		HOL	
RILLING CONTRACTORMaple Leaf Drilling GROU RILLING METHOD _Continuous Auger	ND WATER LEVI AT TIME OF DRIL AT END OF DRIL AFTER DRILLING SLUE SLUE SLUE SLUE SLUE SLUE SLUE SLUE	ELS: LLING G	- T		
Rulling METHODContinuous Auger PGGED BYDana Bredin CHECKED BYSilvestre Urbano_ DTESVictor/Agnes Alley from Sargent to Ellice (E) (C) CONCRETE - 125 mm thick, intact (GRANULAR FILL - 175 mm thick, base course material (CLAY FILL - 300 mm thick, mixed, brown and black (5)	AT TIME OF DRI AT END OF DRILLING AFTER DRILLING UNP SLOW BUNN ANNE ANNE ANNE ANNE ANNE ANNE ANNE A	LLING .LING G	T		
OGGED BY Dana Bredin CHECKED BY Silvestre Urbano OTES Victor/Agnes Alley from Sargent to Ellice Image: Silvestre Urbano MATERIAL DESCRIPTION Image: Silvestre Urbano MATERIAL DESCRIPTION Image: Silvestre Urbano Image: Silvestre Urbano Image: Silvestre Urbano Image: Silve	AT END OF DRIL AFTER DRILLING UND SUND SUND SUND SUND SUND SUND SUND	.LING G	T		
OTES Victor/Agnes Alley from Sargent to Ellice (E) U	AFTER DRILLING SLSSIS AND AND AND AND AND AND AND AND AND AND	G <u> </u>		r	r
E DHOD BO MATERIAL DESCRIPTION CONCRETE - 125 mm thick, intact GRANULAR FILL - 175 mm thick, base course material CLAY FILL - 300 mm thick, mixed, brown and black CLAY - brown, fissured, stiff below 1.05 m	TESTS AND REMARKS		POCKET PEN. (kPa)	MOISTURE CONTENT (%)	▲ SPT N VALUE ▲ 20 40 60 80 PL MC LL 20 40 60 80 FL ENER CONTENT OF 10 50
CONCRETE - 125 mm thick, intact GRANULAR FILL - 175 mm thick, base course material CLAY FILL - 300 mm thick, mixed, brown and black CLAY - brown, fissured, stiff below 1.05 m		BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	▲ SPT N VALUE ▲ 20 40 60 80 PL MC LL 20 40 60 80 ELENED CONTENT (0) 50
CONCRETE - 125 mm thick, intact GRANULAR FILL - 175 mm thick, base course material CLAY FILL - 300 mm thick, mixed, brown and black CLAY - brown, fissured, stiff below 1.05 m		BLOW COUNTS (N VALUE)	POCKET PEN (KPa)	MOISTURE CONTENT (%	20 40 60 80 PL MC LL 20 40 60 80
CONCRETE - 125 mm thick, intact GRANULAR FILL - 175 mm thick, base course material CLAY FILL - 300 mm thick, mixed, brown and black CLAY - brown, fissured, stiff below 1.05 m		BLO COUN (N VAL	POCKET (kPa	MOISTI	
CONCRETE - 125 mm thick, intact GRANULAR FILL - 175 mm thick, base course material CLAY FILL - 300 mm thick, mixed, brown and black CLAY - brown, fissured, stiff below 1.05 m		шо́ <u>г</u>	POCI	No.	
GRANULAR FILL - 175 mm thick, base course material CLAY FILL - 300 mm thick, mixed, brown and black CLAY - brown, fissured, stiff below 1.05 m	MC = 19%		<u> </u>		FINES CONTENT (%)
GRANULAR FILL - 175 mm thick, base course material CLAY FILL - 300 mm thick, mixed, brown and black CLAY - brown, fissured, stiff below 1.05 m	MC = 19%				20 40 60 80
CLAY FILL - 300 mm thick, mixed, brown and black CLAY - brown, fissured, stiff below 1.05 m	MC = 19%				
.5 CLAY - brown, fissured, stiff below 1.05 m	MC = 19%				
.5 CLAY - brown, fissured, stiff below 1.05 m				19	
CLAY - brown, fissured, stiff below 1.05 m	1 1				
-1//2	1 1				
-1//2	MC = 15%			15	
Frost to 1.05 m	1 1				
					am fam fam fam fam fa
	MC = 18%			18	····•
.0					
-///					·····
-///	MC = 18%			18	•
	1 1				
5	PP = 125 kPa MC = 14%		125	14	•
-///					
	MC = 16%			16	•
0					
	MC = 20%			20	
.5					
0	MC = 28%			28	
Bottom of hole at 3.05 m.					

DATE START	MBER _151-13889-00	PROJECT LOCATI	ON Minnie			
	ED <u>1/27/16</u> COMPLETED <u>1/27/16</u>				HOL	E SIZE 125 mm
	ONTRACTOR Maple Leaf Drilling					
	THOD Continuous Auger	AT TIME OF DRI				
	Dana Bredin CHECKED BY Silvestre Urbano					
	or/Agnes Alley from Sargent to Ellice		G			
		(0		z	ш%	▲ SPT N VALUE ▲
DEPTH (m) GRAPHIC LOG	MATERIAL DESCRIPTION	TESTS AND REMARKS	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	20 40 60 80 PL MC LL
	WATERIAL DESCRIPTION	E AN	BLOW COUNT	NS R	NIS EI	20 40 60 80
		Ľ.	· E	6	≥ö	□ FINES CONTENT (%) □
	CONCRETE - 150 mm thick, intact			1		20 40 60 80
	GRANULAR FILL - 300 mm thick, base course material					
1988						
		MC = 11%			11	
0.5	CLAY - grey-brown, fissured, stiff below 1.05 m					
	Frost to 1.05 m	MC = 25%			25	
-///						
-///		MC = 25%			25	•
1.0						
		MC = 26%			26	•
1.5		PP = 250 kPa				
	SILT - tan-brown, soft, moist to wet	MC = 23%		250	23	
-	CLAV, statukatur aliff flagunad Oll DV at 0.7 m for here					
	CLAY - grey-brown, stiff, fissured; SILTY at 2.7 m, tan-brown	MC = 33%			33	
-///					00	
2.0						
- //>		MC = 33%			33	
-///						
-///						
2.5						
2.0						
3.0		PP = 100 kPa		100	22	
	Bottom of hole at 3.05 m.	MC = 33%		100	33	





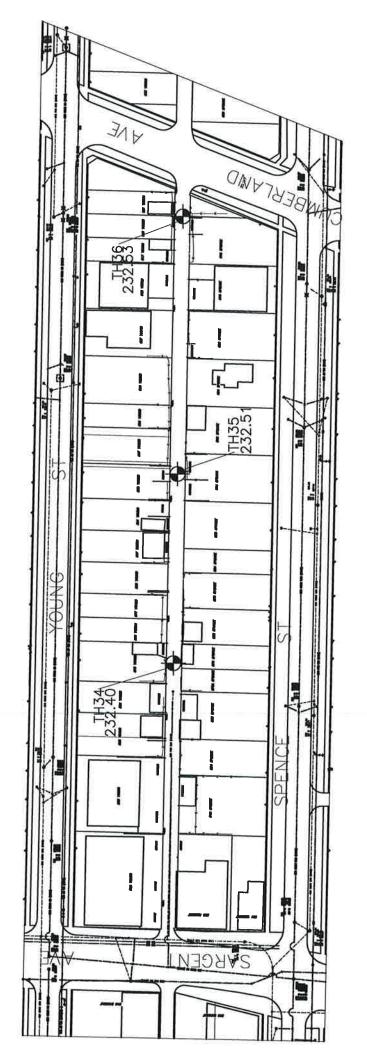


APPENDIX H

Young Street/ Spence Street Alley

_					
	Plasticity Index	I	I	I	
Atterbert Limits	Plastic Limit	T	1	I	
	Liquid Limit	Ĩ	1	I	
	Clay (%)	I	1	68.3	
e Analysis	Silt (%)	Ę	1	56	
Particle Size Analysis	Sand (%)	ß	I	4.2	
	Gravel (%)	I	1	1. 2.	
Moisture Content (%)		IJ	1	42.2	
Sample Depth (m)		Ľ	1	0.3	
Soil Description		Grey-Black Clay	Clay Fill, mixed	Clay Fill, mixed	
Structure	Thickness (mm)	850	400	575	
Pavement Structure Material	Type	Clay	Clay Fill	Clay Fill	
Pavement Surface	Thickness (mm)	200	500	225	
	Type	Concrete(Intact)	Concrete(Broken)	Concrete(Intact)	
Testhole Location		See site plan	See site plan	See site plan	
Testhole ID		TH34	TH35	TH36	

Young Street/Spence Street Alley Sargent Avenue to Cumberland Avenue



	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8 Telephone: (204)-477-6650		2016 100	Deser	official.	005	PAG	GE 1 OF	
-	/ of Winnipeg	PROJECT NAME 2016 Alley Reconstructions							
PROJECT NUMBER 151-13889-00									
	ED _1/27/16 COMPLETED _1/27/16 DNTRACTOR _Maple Leaf Drilling				HUL		o mm		
	THOD Continuous Auger			_					
	Dana Bredin CHECKED BY Silvestre Urbano	AT TIME OF DRILLING							
	Ing/Spence Alley from Cumberland to Sargent		_						
	MATERIAL DESCRIPTION	w l	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	щ8	▲ SPT N VALUE ▲ 20 40 60 80			
DEPTH (m) SRAPHIC LOG		TESTS AND REMARKS			E F	PL	MC MC	LL	
비 문화 (문화 이		E A A			MOISTURE CONTENT (%)	20	40 60	0 80	
		<u>د</u>					ES CONTEN	VT (%) 🗆	
80 8 M	CONCRETE - 200 mm thick, intact					20	40 60	0 80	
-							4		
-	CLAY - grey-black, fissured; stiff at 1.05 m, brown					·····.	-tt		
-///		MC = 28%			28	•••••			
	Frost to 1.05 m					aangaan	. <u>.</u>		
0.5							+ +		
-///		MC = 24%			24	•	-ff		
-///						mendines			
-///							dame		
1/1		MC = 21%			21	••••			
1.0					i.		4	<u>.</u>	
- fff	SILT - tan-brown, soft, moist to wet						dum)	erren in de la company	
-		MC = 20%			20		daad	janan fan	
							4	in section of the	
-									
1.5		PP = 175 kPa MC = 16%	175	175	16		<u></u>		
-///	CLAY - grey-brown, stiff, fissured	WC - 1078						ļ	
								,	
		MC = 22%			22				
-///						daand			
2.0							_		
-///		MC = 24%			24				
-///							i i i i i i i i i i i i i i i i i i i		
1/1							dand	(
-///									
2.5									
								ļļ	
-///									
3.0		PP = 100 kPa		100	30				
110	Bottom of hole at 3.05 m.	MC = 30%		1.00	1.00	•		<u></u>	
	Bottom of hole at 3.05 m.	PP = 100 kPa MC = 30%		100	30	•			

ATE STARTED RILLING CONT	BER 151-13889-00 D 1/27/16 COMPLETED 1/27/16 GRO	PROJECT LOCATK		Deg, IVII				
			100 m			E SIZE 125 mm		
	RACTOR Maple Leaf Drilling GRO				HOL			
	HOD Continuous Auger	AT TIME OF DRI		-				
DGGED BY	Dana Bredin CHECKED BY Silvestre Urbano	AT END OF DRIL	LING					
OTES Young	Spence Alley from Cumberland to Sargent	AFTER DRILLING	G					
				z		SPT N VALUE		
(m) GRAPHIC LOG	MATERIAL DESCRIPTION	TESTS AND REMARKS	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	PL MC LL 20 40 60 80 PL MC LL 20 40 60 80		
(m) SRAPHIC LOG		ANI						
U					ĭŽÔ	□ FINES CONTENT (%) □		
6.505	CONCRETE - 200 mm thick, broken				-	<u>20 40 60 80</u>		
-								
	CLAY FILL - 400 mm thick, mixed, brown and black							
		MC = 15%			15			
.5								
_		MC = 12%			12			
-1/2	CLAY - grey-black, fissured; stiff below 1.05 m; grey-brown below 1.35 m	1						
-///	Frost to 1.05 m							
-1//		MC = 10%			10	•		
.0								
-///		MC = 11%			11	•		
.5	SILT - tan-brown, soft, moist to wet	PP = 125 kPa		125	13			
-		MC = 13%						
-								
		MC = 10%			10	• •		
_								
.0				-				
-		MC = 10%			10	•		
.5	CLAY - grey-brown, stiff, fissured	_						
-//						ana kan kan kan k		
-///								
-//								
		PP = 150 kPa						
		MC = 13%		150	13	0		

DJECT NUMBER 151-13889-00 TE STARTED 1/27/16 ILLING CONTRACTOR Maple Leaf Drilling		nnipeg, M	в				
LLING CONTRACTOR Maple Leaf Drilling		PROJECT LOCATION Winnipeg, MB GROUND ELEVATION HOLE SIZE 125 mm					
ILLING METHOD Continuous Auger GGED BY Dana Bredin CHECKED BY Silvestre Urba	AT TIME OF DRILLING ano AT END OF DRILLING						
TES Young/Spence Alley from Cumberland to Sargent	AFTER DRILLING						
		- 1	r	SPT N VALUE			
_ <u>♀</u>			п (%) П	20 40 60 80			
	TESTS AND REMARKS BLOW	(N VALUE) POCKET PEN. (kPa)	MOISTURE CONTENT (%)	PL MC LL 20 40 60 80			
R			lãõ	□ FINES CONTENT (%) □			
CONCRETE - 225 mm thick, intact				20 40 60 80			
CONCRETE - 225 min ulick, intact							
CLAY FILL - 975 mm thick, mixed, brown and black							
Frost to 1.05 m	MC = 42%		42	•			
5							
	MC = 33%		33				
				a			
-	MC = 41%		41	·····•			
CLAY - tan-brown, stiff, SILTY, fissured; clayey below	MC = 28%		28	•			
grey-brown; SILTY at 2.7 m, tan-brown							
5	PP = 125 kPa	125	26				
	MC = 26%						
-							
	MC = 31%		31	•			
0							
	MC = 31%		31				
5							
0	PP = 100 kPa	400	40				
	MC = 40%	100	40				

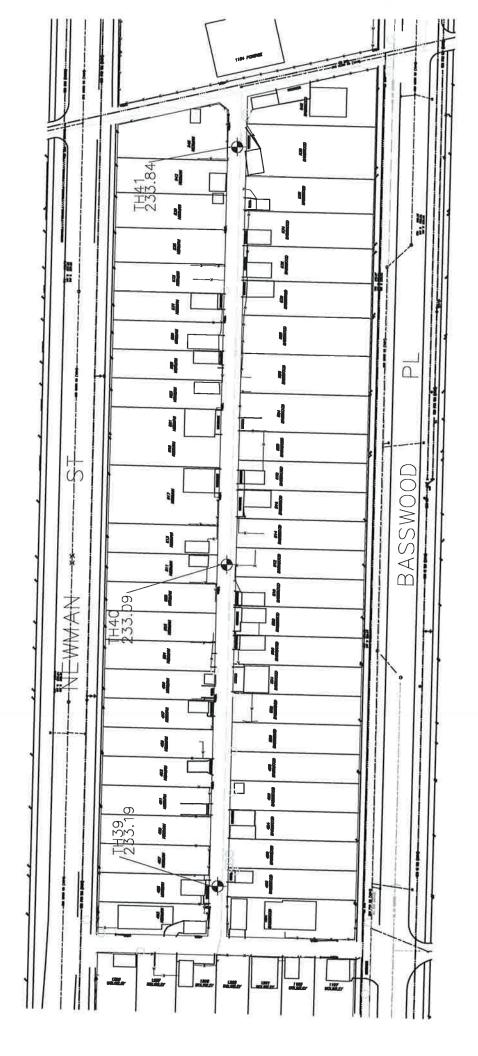






APPENDIX I

Newman Street/ Basswood Place Alley



	_				
	Plasticity Index	50.5	1	Ē	
Atterbert Limits	Plastic Limit	30	Ĩ	Ē	
	Liquid Limit	80.5	Ĩ	Ĩ	
	Clay (%)	1	I	Ì	
Particle Size Analysis	Silt (%)	I	ł	I	
Particle Siz	Sand (%)	1	1	ļ	
	Gravel (%)	ł	I	I	
Moisture Content	(%)	34,7	1	1	
Sample Depth (m)		8	I	I	
Soil Description		20mm down Granular Fill/Clay Fill	Clay Fill, mixed	20mm down Granular/ Clay Fill, mixed	
Structure rial	Thickness (mm)	250/450	400	100/300	
Pavement Structure Material	Type	Granular Fill/ Clay Fill	Clay Fill	Granular Fill/Clay Fill	
Irface	Thickness (mm)	200	20	175	
Pavement Surface	Type	Concrete(Intact)	Asphalt (Layered)	Concrete(Intact)	
Testhole Location		See site plan	See site plan	See site plan	
Testhole ID		6EHT	ТН40	TH41	

Newman Street/ Basswood Place Alley Wolseley Street to Portage Avenue

DJECT NUMBER 151-13889-00 TE STARTED 1/28/16 COMPLETED 1/28/16 Gi LLING CONTRACTOR Maple Leaf Drilling Gi LLING METHOD Continuous Auger Gi GGED BY Dana Bredin CHECKED BY Silvestre Urbano TES Newman/Basswood Alley from Portage to Wolseley	ROUND WATER LEVE AT TIME OF DRI	100 m			E 617E 495 mm
LLING CONTRACTOR Maple Leaf Drilling Gl LLING METHOD Continuous Auger Gl GGED BY Dana Bredin CHECKED BY Silvestre Urbano	ROUND WATER LEVE AT TIME OF DRI			TUL	
LLING METHOD Continuous Auger GGED BY Dana Bredin CHECKED BY Silvestre Urbano	AT TIME OF DRI	LLJ.			
GGED BY Dana Bredin CHECKED BY Silvestre Urbano		LLING			
	AFTER DRILLING				
			· ·		▲ SPT N VALUE ▲
	s S	, si≘	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	20 40 60 80
	TESTS AND REMARKS	BLOW COUNTS (N VALUE)	(ET kPa)	IST IEN	PL MC LL 20 40 60 80
8		۳öź	ů O	NO NO	□ FINES CONTENT (%) □
			<u> </u>	0	20 40 60 80
CONCRETE - 200 mm thick, intact					
GRANULAR FILL - 250 mm thick, base course material	MC = 54%			54	•
-					
5 CLAY FILL - 450 mm thick, mixed, brown and black					
-	MC = 35%			35	•
-					
-					
CLAY - gery-black, fissured, stiff below 1.05 m	MC = 34%			34	•
Frost to 1.05 m					
	110 001				
	MC = 32%			32	
5	PP = 100 kPa		100	32	
SILT - tan-brown, soft, moist to wet	MC = 32%				
-	MC = 24%			24	
0					
	MC = 28%			28	•
CLAY - grey-brown, stiff, fissured					
5					
<u> </u>					
0	PP = 125 kPa		125	40	
Bottom of hole at 3.05 m.	MC = 40%		120	140	

		WSP Canada Inc. SP 1600 Buffalo Place					TH40 PAGE 1 OF 1
		Winnipeg, MB R3T 6B8					FAGE I OF 1
	- 04	Telephone: (204)-477-6650		2016 Allow	Decen	otructio	
	_	y of Winnipeg JMBER 151-13889-00	PROJECT NAME				ліз
							E SIZE 125 mm
		COMPLETED 1/28/16 DNTRACTOR Maple Leaf Drilling	GROUND ELEVATION			HUL	
		ETHOD Continuous Auger					
		Dana Bredin CHECKED BY Silvestre Urbano					
		wman/Basswood Alley from Portage to Wolseley	AFTER DRILLING	G			
							SPT N VALUE
Γ	일		s X	_si≘	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	20 40 60 80
DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	TESTS AND REMARKS	BLOW COUNTS (N VALUE)	КРа (ЕТ	IEN.	PL MC LL 20 40 60 80
	ାନ୍ତ୍ର –		⊢ `⊞	۳٥ź	10 0	NO NO	20 40 60 80
					ш. 		20 40 60 80
	.	ASPHALT - 50 mm thick, intact GRANULAR FILL - 400 mm thick, base course material					
			MC = 29%			29	•
0.5	\otimes	CLAY FILL - 450 mm thick, mixed, brown and black					
	\otimes		MC = 36%			36	•
	\otimes						
1	\otimes					4.5	
1.0	11	CLAY - brown, fissured, stiff below 1.05 m	MC = 45%			45	
		Frost to 1.05 m					
	11		MC = 48%			48	
		SILT - tan-brown, soft, moist to wet					
					1		
1.5			PP = 25 kPa MC = 22%		25	22	
: :							
il			MC = 24%			24	•
2.0							
2.0							
			MC = 23%			23	P 1 1 1
20-							
2.5							
	11	CLAY - grey-brown, fissured, stiff					
5	11						
3.0	11		PP = 75 kPa MC = 31%		75	31	•
200		Bottom of hole at 3.05 m.					
2							
					_		

		WSP Canada Inc. 1600 Buffalo Place					TH41
	VV S	1600 Buffalo Place Winnipeg, MB R3T 6B8 Telephone: (204)-477-6650					PAGE 1 OF 1
CLIEN	T Citv	relepinone. (204)-417-0050	PROJECT NAME	2016 Allev	Recon	structio	ons
		MBER 151-13889-00	PROJECT LOCATI				
		ED 1/28/16 COMPLETED 1/28/16					E SIZE 125 mm
		NTRACTOR Maple Leaf Drilling					
DRILLI	ING ME	THOD Continuous Auger	AT TIME OF DRI	ILLING			
LOGG	ED BY	Dana Bredin CHECKED BY Silvestre Urbano	AT END OF DRIL	LLING			
NOTES	New New	man/Basswood Alley from Portage to Wolseley	AFTER DRILLIN	G			
					z		SPT N VALUE
E	GRAPHIC LOG		TESTS AND REMARKS	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	20 40 60 80 PL MC LL
DEPTH (m)	Lor	MATERIAL DESCRIPTION		ALOUR	ТÄ Š	UIST VIEV	20 40 60 80
	σ			υz	No 1	ĕõ	G FINES CONTENT (%)
	8. 8. A.	CONCRETE - 175 mm thick, intact			<u> </u>		20 40 60 80
40. s 4		GRANULAR FILL - 100 mm thick, base course material					
त्म ज		CLAY FILL - 300 mm thick, mixed, brown and black	MC = 50%			50	
0.5	\otimes						
0.0	\otimes						
	11	CLAY - brown, fissured	MC = 32%			32	
	$\langle \rangle \rangle$						
	$\langle \rangle \rangle$		MC = 38%			38	
1.0		SILT - tan-brown, soft below 1.05 m, moist to wet	WIC - 30 %			50	
		Frost to 1.05 m					
			MC = 23%			23	
45 G -							
1.5			MC = 23%		1	23	•
		CLAY - grey-brown, stiff, fissured; SILTY at 2.7 m, tan-brown	PP = 250 kPa		250		
	//		MC = 37%			37	•
2.0	//						
2.0	$\langle \rangle \rangle$						
			MC = 41%			41	
2.5							
	11						
	11						·····
3.0	11		PP = 100 kPa MC = 44%		100	44	•
2		Bottom of hole at 3.05 m.					
·							





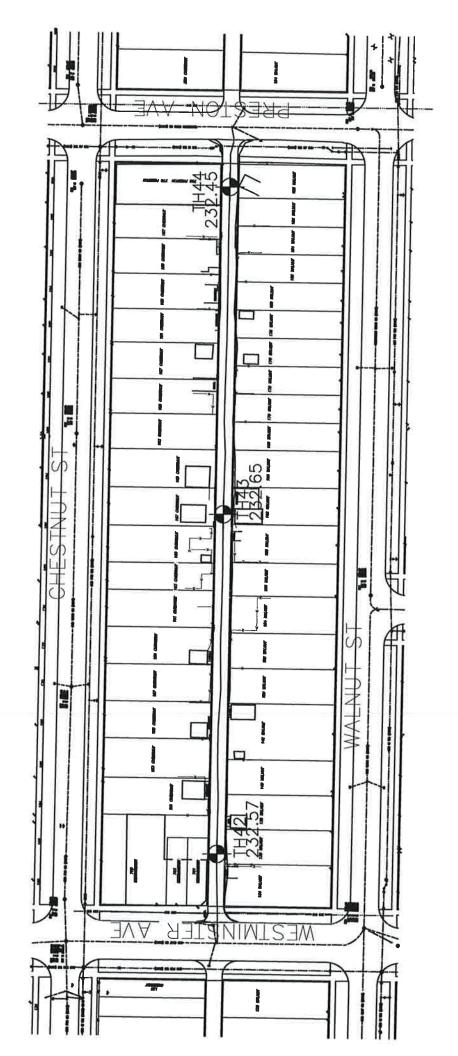


APPENDIX J

Chestnut Street/ Walnut Street Alley

-					
	Plasticity Index	1	ł	T	
Atterbert Limits	Plastic Limit	I	Ì	Ì	
	Liquid Limit	ł	Ĩ		
	Clay (%)	1	46	É	
Particle Size Analysis	Silt (%)	1	35	L	
Particle Siz	Sand (%)	1	20		
	Gravel (%)	1	Ĩ	l	
Moisture Content	(%)		29.7	Ĩ	
Sample Depth (m)		4	0.0	I	
Soil Description		20mm down Granular Fill/Clay Fill	20mm down Granular Fill/Clay Fill	20mm down Granular Fill/Clay Fill	
Structure	Thickness (mm)	312.5/750	450/450	650/600	
Pavement Structure Material	Type	Granular Fill/ Clay Fill	Granular Fill/ Clay Fill	Granular Fill/Clay Fill	
urface	Thickness (mm)	137.5	150	75/175	
Pavement Surface	Type	Concrete(Intact)	Concrete(Intact)	Asphalt (Layered)/ Concrete(Intact)	
Testhole Location		See site plan	See site plan	See site plan	
Testhole ID		TH42	TH43	TH44	

Chestnut Street/ Walnut Street Alley Westminster Avenue to Preston Avenue



JECT NUMBER151-13889-00 'E STARTED1/28/16 COMPLETED1/28/16 GF LLING CONTRACTORMaple Leaf Drilling GF LLING METHODContinuous Auger GF		100 m			E 817E 195 mm
LLING CONTRACTOR Maple Leaf Drilling GF LLING METHOD Continuous Auger GF					
LLING METHOD Continuous Auger		ELS:			
			-		
GED BY Dana Bredin CHECKED BY Silvestre Urbano	AT END OF DRIL	LING			
ES _Chestnut/Walnut Alley, from Preston to Westminster	AFTER DRILLING	G		_	
					SPT N VALUE
우 , ,	TESTS AND REMARKS	vE) UE)	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	20 40 60 80
MATERIAL DESCRIPTION		BLOW COUNTS (N VALUE)	(kPa (kPa	DIST	PL MC LL 20 40 60 80
0		"ůz	Po	₽S	FINES CONTENT (%)
CONCRETE - 140 mm thick, intact			<u> </u>		20 40 60 80
GRANULAR FILL - 310 mm thick, base course material					
-	MC = 19%			19	•
CLAX EIL - 750 mm thick mixed brown and black trace of fin					
CLAY FILL - 750 mm thick, mixed, brown and black, trace of fin gravel					
Frost to 1.05 m	MC = 32%			32	
1					
	MC = 33%			33	
	WIC - 5576			00	
-	MC = 34%			34	
 CLAY - brown, stiff, fissured; SILTY at 2.35 m, tan-brown; claye below 2.6 m, grey-brown 	y				
-//>					
5	PP = 250 kPa MC = 31%		250	31	•
-					
	MC = 34%			34	•
	MC = 42%			42	
	IVIC - 4270			42	
-//>					
-					
5					
-					
	PP = 125 kPa				

ATE START	MBER 151-13889-00	PROJECT LOCATIO	JN Winnii			
KILLING CO	ED 1/28/16 COMPLETED 1/28/16				HOL	E SIZE _ 125 mm
	NTRACTOR Maple Leaf Drilling THOD Continuous Auger	AT TIME OF DRI				
	Dana Bredin CHECKED BY Silvestre Urbano					
	stnut/Walnut Alley, from Preston to Westminster	AFTER DRILLING				
		f f		1	r	SPT N VALUE
_ _		S .	sш	POCKET PEN. (kPa)	MOISTURE CONTENT (%)	20 40 60 80
UEPTH (m) (m) LOG	MATERIAL DESCRIPTION	TESTS AND REMARKS	BLOW COUNTS (N VALUE)	Pa)		PL MC LL
		L A A A A A A A A A A A A A A A A A A A		NX K	SION	20 40 60 80
				R R	20	☐ FINES CONTENT (%) □ 20 40 60 80
3.5%	CONCRETE - 150 mm thick, intact					
	GRANULAR FILL - 450 mm thick, base course material					
		MC = 47%			47	
					– – /	
0.5						
-833		MC = 30%			30	
-888	CLAY FILL - 450 mm thick, mixed, brown to black					
-888	Frost to 1.05 m					
-		MC = 31%			31	•
1.0						
-7/2	CLAY - brown, stiff , fissured; SILTY at 1.5 m					
-///		MC = 30%			30	
1.5		PP = 300 kPa				
		MC = 28%		300	28	
1/1		MC = 30%			30	
-///						
2.0						
-///		MC = 28%			28	
-	SILT - tan-brown, soft, moist to wet					
-						
				1.		mmfaandamdaaada
2.5				1		
-						en de conferencia de constantes de la constante
-						
-						
3.0		PP = 10 kPa			0.5	
	Bottom of hole at 3.05 m.	MC = 25%		10	25	

ATION <u>100 m</u> ATION <u>100 m</u> ER LEVELS: OF DRILLING DF DRILLING <u></u> SYNEW ATION <u>100 m</u> SYNEW OF DRILLING <u></u> SYNEW ATION <u>100 m</u> SYNEW ATION <u>100 m</u> ATION <u>100 m</u> SYNEW ATION <u>100 m</u> ATION <u>100 m</u> SYNEW ATION <u>100 m</u> ATION <u>100 m</u> A	n 		(r	▲ SPT N VA 40 - MC 40 iNES CONT	60 8 LL 60 8
SYNCH CONTRACTOR OF DRILLING RILLING SYNCH CONTRACTOR OF DRILLING RILLING SYNCH CONTRACTOR OF DRILLING SYNCH CO		MOISTURE CONTENT (%)	20 PL 20 I F	▲ SPT N VA 40 - MC 40 iNES CONT	60 8 LL 60 8 ENT (%)
OF DRILLING DF DRILLING IRILLING SXX MOTE SXX MOTE SX		MOISTURE CONTENT (%)	20 PL 20	▲ SPT N VA 40 - MC 40 INES CONT	60 8 LL 60 8 ENT (%)
STATES STRUCTURE		MOISTURE CONTENT (%)	20 PL 20	▲ SPT N VA 40 - MC 40 INES CONT	60 8 LL 60 8 ENT (%)
RILLING	1	LE MOISTURE CONTENT (%)	20 PL 20	▲ SPT N VA 40 - MC 40 INES CONT	60 8 LL 60 8 ENT (%)
BLOW BLOW 31%	9	31	20 PL 1 20		60 8 LL 60 8 ENT (%)
31%	(N VALUE) POCKET PEN.	31	20 PL 1 20		60 8 LL 60 8 ENT (%)
31%	(N VALUI POCKET P (kPa)	31			LL 60 8 ENT (%) [
31%		31		40 INES CONT	ENT (%) 🗆
31%		31			
31%				•	
31%				•	
31%				•	
31%				•	
		31		•	
		31		•	
				* :	
32%					
32%					
		32		•	
1					<u>.</u>
40%		40	madin		
00 kPa 26%	100	26			1 1
			mede		
			aanga		. <u>.</u>
44%		44	menifica	•	
			un de la compre	angaan I	· [·····]
					: :
45%		45		•	
			- and -	anĝines 	
		0			
			1		1
				1	
1					a service diff and
	100	15	3		1
			100 kPa = 45% 100 45	100 kPa	100 kPa





