# APPENDIX 'A' GEOTECHNICAL REPORT

### **APPENDIX 'A' - GEOTECHNICAL REPORT**

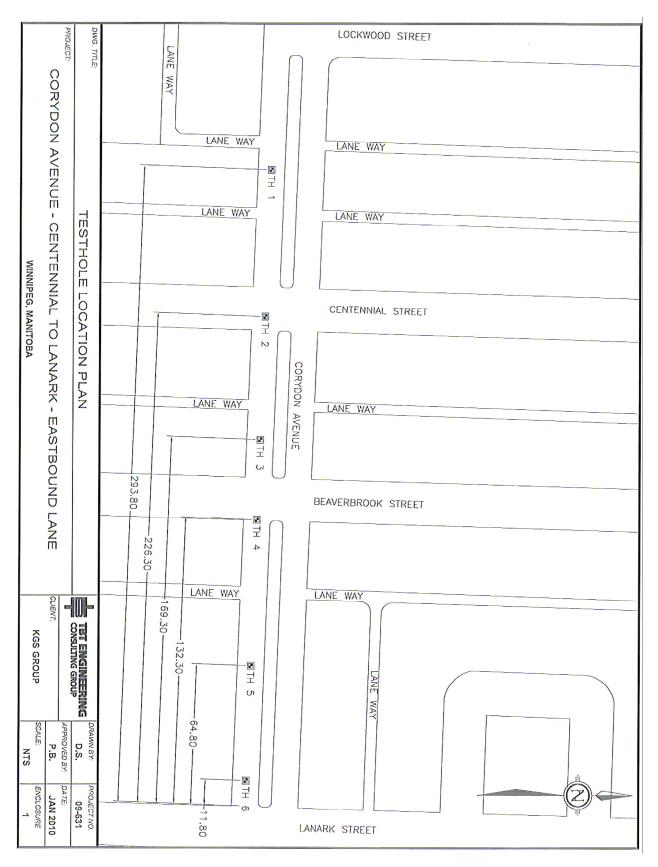
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The geotechnical report is provided to aid in the Contractor's evaluation of the existing pavement structure and/or soil conditions. The information presented is considered accurate at the locations shown on the Drawings and at the time of drilling. However, variations in pavement structure and/or 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.

### **Geotechnical Report for Corydon Avenue Eastbound**

### **Test Hole Locations**



# **Summary of Core Samples**

Depth	Moisture Content (%)													
(m)	TH 1	TH 2	TH 3	TH 4	TH 5	TH 6								
0.40	-	29.60	7.02	23.45	32.01									
0.70	31.77	29.01	30.96	31.36	29.46	36.46								
1.0	32.96	20.08	30.65	27.48	31.87	30.84								
1.3	17.59	28.08	30.39	30.60	34.90	29.19								
1.6	24.27	29.88	34.79	32.55	37.31	28.97								
1.9	26.03	34.02	36.61	41.16	38.98	35.66								
2.2	32.52	32.65	41.45	44.32	39.71	38.79								
2.5	34.76	39.01	46.95	48.21	41.59	39.90								

# **Test Hole Log #1 for Corydon Avenue**

C Pl	LIEN	REF. No.: 09-631 NT: KGS Group Inc. IECT: Corydon Avenue F XTION: Corydon Avenue Winnipeg,Manitol		men	it Inv	/esti	gatio	n			E D D	QUIF IAMI ATE	PMENT ETER: : <b>2009</b>	LEV.: : Diam 125mm Decem PANY: /	ond E 1 ber 1	3it Drill 7	//SS Auger	
		SOIL PROFILE		s	AMPL	.ES	gg.	Ĺ.,	CPT	(kPa)		_		2002200	NATURA	9	REMARKS	3
DEPTH	ELEV.	DESCRIPTION	STRAT PLOT	% RECOVERY	TYPE	"N" VALUES	GROUND WATER CONDITIONS	DEPTH SCALE	X F	IELD SH PT (N)	IEAR (k	Pa)⊗ La	00 1500 (kF ab Shear (k CPT 0 100	Pa	CONTEX W ER CON	TENT (%)	GRAIN DISTRIE (% GR SA	BUTION (6)
		ASPHALT - 180mm	-300		СС												Dry Upon Completion.	
-		CONCRETE PAVEMENT - 300mm	#3 +# #2 +# #3		сс				-								Completion.	
-		FILL - CLAY - trace sand & gravel, trace silt, grey							_						•			
-		CLAY - black			AS				-									
1 -					AS			1	=						•			
-		CLAY - Silty, brown		$\square$	AS													
-		- trace sand & gravel		$\vdash$	AS				-									
-				$\vdash$	AS				-						0			
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		End of Borehole @ 2.5 m.	_(///	$\vdash$	AS				1					1	•		1	
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		TBT Engineering	Ltd		Τ'			<u>S</u>	ÀMP	LET	YPE	LEG	<u>END</u>					
		110 Paramount F	Road	14/2		A	NS.	Auge	r Samı	ole		RC	Rock	Core				
E		Winnipeg, Manitoba I PH: 204-633-60	800	VVJ	55 Sp			Split	Spoon	Sample PS Ponar Sample <i>ENCLOSU</i>		NCLOSURE	2					
	11	FX: 204-633-66 Email: tbte@tbte	te.ca			70m	70mm Thin Wall Tube SD Side Sample			Sample			PAGE 1 OF 1					
		Web: www.tbte	.ca			CC Cor			oncrete/Asphalt Co								FAGE 1 OF 1	

# **Test Hole Log #2 for Corydon Avenue**

CI	LIEN ROJ	REF. No.: 09-631 NT: KGS Group Inc. IECT: Pavement Investiga ITION: Corydon Avenue Winnipeg,Manitob		1						E D D	QUI IAM ATE	FACE EL IPMENT: IETER: 12 E: 2009 D L COMPA	HS Aug 25 mm ecembe	jer er 17	illing	ſ.
		SOIL PROFILE		5	SAMPL	ES.	K	101		CPT (kPa)	>	-	PLASTIC .	(ATURAL	LIQUID	REMARKS
DEPTH	ELEV.	DESCRIPTION	STRAT PLOT	% RECOVERY	TYPE	"N" VALUES	GROUND WATER CONDITIONS	DEPTH SCALE		X FIELD SHEAR (k	Pa)Ø L	200 1500 (kPa Lab Shear (kPa DCPT 80 100	₩ <sub>P</sub>	CONTENT 40 6	EIMIT W <sub>L</sub> ▲	GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
		ASPHALT - 40mm		F	CC				П							Dry Upon
-		CONCRETE - 160mm CLAY - Silty, trace sand &	==:	_	CC				-							Completion.
		gravel, grey/brown			AS											
				-	AS			Ш	П				"			
-									-							0 5 46 49
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.		CLAY - trace sand & gravel,						١. ا	П							
1 -		grey			AS			1					•			
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-		End of Borehole @ 2.2 m.	1111	$\square$	AS			$\vdash \vdash$	Н					•		
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		110 Paramount R Winnipeg, Manitoba R	110 Paramount Road Winnipeg, Manitoba R2X 2W3					\$700 A		Sample poon Sample	RC PS				FI	NCLOSURE 3
	FX: 204-633-6620						Thin Wall Tube	SD		350		-"	TOLOGONE 3			
	Email: tbte@tbte.ca							ete/Asphalt Core	SU	Side Sa	mple			PAGE 1 OF 1		

# Test Hole Log #3 for Corydon Avenue

CI	LIEN ROJ	REF. No.: 09-631 NT: KGS Group Inc. IECT: Corydon Avenue Pa NTION: Corydon Avenue Winnipeg,Manitob		mer	nt Inv	vesti	gatio	n	DATE: 2009 December 17 DRILL COMPANY: Active Drilling												
		SOIL PROFILE		5	SAMPL	.ES	K.	Ĺ	CPT (kPa)	>			NATURAL		REMARKS						
ОЕРТН	ELEV.	DESCRIPTION	STRAT PLOT	% RECOVERY	TYPE "N" VALUES		% RECOVERY TYPE "N" VALUES		% RECOVERY TYPE "N" VALUES		% RECOVERY		GROUND WATER CONDITIONS	DEPTH SCALE	★ FIELD SHEAR (     ■ SPT (N)	00 1200 (Pa)9 Lab S • DCP1	(kPa) Shear (kPa	WA.	C NATURAL MOISTURE CONTENT W  TER CONTENT 20 40 60	CONTRACT	GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
		ASPHALT - 80mm			СС										Dry Upon						
		CONCRETE - 230mm	-		СС							0			Completion.						
-		FILL - Gravel, brown CLAY - trace sand & gravel, trace silt, grey			AS				-				•								
1 -		- Silty, brown			AS AS			1	-				•								
2 -		End of Borehole @ 2.5 m.			AS AS			2	-				•								
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									_												
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	I	TBT Engineering I 110 Paramount Ro Winnipeg, Manitoba R PH: 204-633-600	oad 2X 2	W3			AS SS	Auge	AMPLE TYPE or Sample Spoon Sample	RC PS	ND Rock Co Ponar S		. '	E	NCLOSURE 4						
	I	FX: 204-633-662 Email: lbte@lbte. Web: www.lbte.c	20 ca				W CC		m Thin Wall Tube	SD	Side Sar	mple			PAGE 1 OF 1						

# **Test Hole Log #4 for Corydon Avenue**

CI	LIEN	REF. No.: 09-631 IT: KGS Group Inc. ECT: Pavement Investiga TION: Corydon Avenue Winnipeg,Manitob		)						EQUIP DIAME DATE:	PMENT: ETER: 12 : 2009 De	EV.: metres HS Auger 25 mm ecember 17 NY: Active Drill	ing
		SOIL PROFILE		SA	MPL	ES	æ	w	CPT (kPa)	>		PLASTIC NATURAL L	REMARKS
DEPTH	ELEV.	DESCRIPTION	STRAT PLOT	% RECOVERY	TYPE	"N" VALUES	GROUND WATER CONDITIONS	DEPTH SCALE	300 600  ** FIELD SHEAR  SPT (N)  0 20 40	♦ D0	(kPa) ab Shear (kPa	WATER CONTENT ( 20 40 60	OU D  IMMI GRAIN SIZE  UL  DISTRIBUTION  (%)  GR SA SI CL
		ASPHALT - 90mm			CC								Dry Upon
-		CONCRETE - 210mm			СС				_				Competion.
<del>-</del>		CLAY - trace sand & gravel, grey			AS				-			0	
					AS							<b>♦</b>	<b>△</b> 0 5 17 78
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					AS							•	
-		 - brown			AS							0	
2 -		· bioini			AS			2	-			•	
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:		Fold (Doorbolt O.05 or			AS								
-		End of Borehole @ 2.5 m.											
3 -								3	_				
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									-				
		TBT Engineering Li 110 Paramount R	oad			,	L	-	AMPLE TYP er Sample	E LEGI RC	END Rock Co	pre	
E	11	Winnipeg, Manitoba R PH: 204-633-60 FX: 204-633-66 Email: tbte@tbte	08 20	W3	ss TW				Spoon Sample m Thin Wall Tube	PS SD	Ponar S Side Sa	*	ENCLOSURE 5
		Web: www.tbte.			СС			Cond	crete/Asphalt Core	9			PAGE 1 OF 1

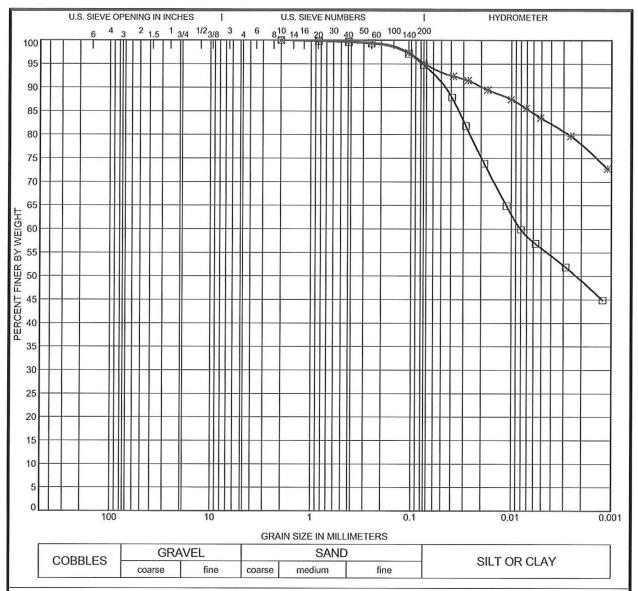
# Test Hole Log #5 for Corydon Avenue

C P	LIEN ROJ	REF. No.: 09-631 NT: KGS Group Inc. JECT: Corydon Avenue P NTION: Corydon Avenue Winnipeg,Manitob		mer	nt Inv	/esti	gatio	n	{ [ [	EQUIF DIAMI DATE	ACE ELE PMENT: ETER: 12 : 2009 DO . COMPA	HS Aug 25mm ecemb	ger er 17	lling	L
		SOIL PROFILE		5	SAMPL	ES	α. 	w	CPT (kPa)	>		PLASTIC ,	NATURAL MOISTURE	LIQUID	REMARKS
ОЕРТН	ELEV.	DESCRIPTION	STRATPLOT	% RECOVERY	TYPE	"N" VALUES	GROUND WATER CONDITIONS	DEPTH SCALE	X FIELD SHEAR (	kPa)⊗ La		W <sub>P</sub>	MOISTURE CONTENT W CONTENT 40 60	LIMIT WL ▲ (%)	GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
		ASPHALT - 60mm	7		CC										Dry Upon
-		CONCRETE - 240mm			cc				_						Completion.
		FILL - CLAY - trace sand &	111										•		
		gravel, grey			AS										4
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-		CLAY - trace sand & gravel,							-						
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		End of Borehole @ 2.5 m.			AS								-0-		
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	Ш	110 Paramount Road			F	S	Auge	r Sample	RC	Rock Co	ore				
		Pri. 204-033-0000			SS	Split :	Spoon Sample	PS	Ponar S	amp!e		El	NCLOSURE 6		
	EV: 204 622 6620			T	W	70mr	n Thin Wall Tube	SD	Side Sa	mple					
		Email: tbte@tbte.ca  Web: www.tbte.ca  CC			C	Conc	rete/Asphalt Core						PAGE 1 OF 1		

# **Test Hole Log #6 for Corydon Avenue**

C P	LIE RO	REF. No.: 09-631 NT: KGS Group Inc. JECT: Corydon Avenue P ATION: Corydon Avenue Winnipeg,Manitol		mei	nt Inv	/esti	gatio	n		EQUII DIAMI DATE	PMENT: ETER: 12 :: 2009 D	EV.: metres HS Auger 25mm ecember 17 ANY: Active Di	rilling	
		SOIL PROFILE			SAMPL	.ES	K.		CPT (kPa)			NATURAL	REMARKS	
DEPTH	ELEV.	DESCRIPTION	STRAT PLOT	% RECOVERY	TYPE	"N" VALUES	GROUND WATER CONDITIONS	DEPTH SCALE	300 600  X FIELD SHEAF SPT (N) 0 20 40	R (kPa)Ø L:	(kPa)	WATER CONTEN	GRAIN SIZE  WL DISTRIBUTION  (%)  IT (%)  60  GR SA SI CL	
		ASPHALT - 65mm	<b>∤</b> =::		CC								Dry Upon	
-		CONCRETE - 275mm			СС								Completion.	
*	2	FILL - CLAY - trace sand & gravel, grey											5	
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S					AS			,						
					AS							0		
_									-					
7					AS				-			0		
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2 -		CLAY - trace sand & gravel, brown			AS			2	-					
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		End of Borehole @ 2.5 m.		,	AS				and the same of th			<b></b>		
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		TBT Engineering	oad	1/0	AS Auge				r Sample	RC	Rock Co	re		
		Winnipeg, Manitoba R PH: 204-633-606	08	183	SS Split:			plit Spoon Sample PS P			ample	ENCLOSURE 7		
	П	FX: 204-633-662 Email: tbte@tbte	.ca						n Thin Wall Tube	SD	Side Sar	nple	PAGE 1 OF 1	
		Web: www.tbte.o	va			С	C	Conc	rete/Asphalt Core				PAGE 1 OF 1	

### **Grain Size Distribution**



Remarks:

Т	est Hole	Sample	Depth (m)	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
	2		0.68	2	0.008			0.0	5.2	94	1.8
*	4		0.70	2				0.0	4.8	95	5.2



TBT Engineering Limited 110 Paramount Road Winnipeg, Manitoba R2X 2W3 PH: 204-633-6008 FX: 204-633-6620 Email: tbte@lbte.ca Web: www.tbte.ca

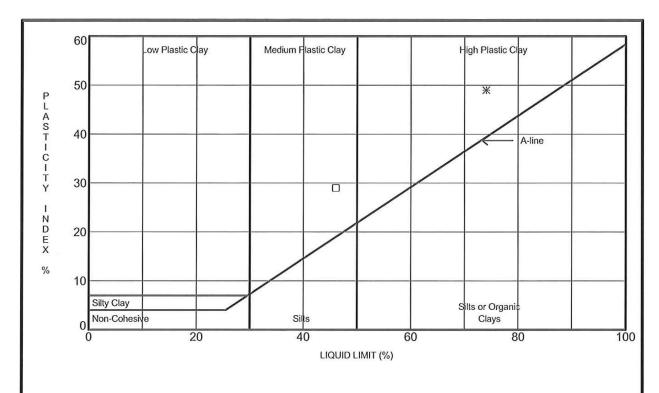
# **GRAIN SIZE DISTRIBUTION**

Project: Pavement Investigation

Location: Corydon Avenue

Number: 09-631 ENCLOSURE 8

### **Atterberg Limit Results**



			3		S 0		14.0	
	Testhole No.	Sample No.	Depth (m)	LL%	PL%	PI%	M/C%	
	2		0.68	46	17	29		
*	4		0.68	74	25	49		
Г								
Г								,



TBT Engineering Ltd. 110 Paramount Road Winnipeg, Manitoba P2X 2W3 Telephone: 204-633-6008 Fax: 204-633-6620

# ATTERBERG LIMIT RESULTS

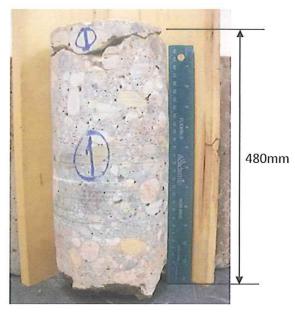
Project: Pavement Investigation Location: Corydon Avenue

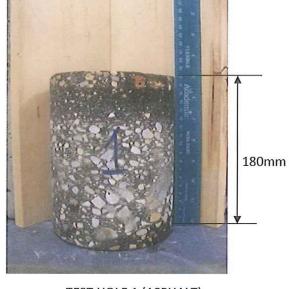
Eddalon: Gorydon Wendo

Number: 09-631

**ENCLOSURE** 9

### **Pavement Core Photos**





TEST HOLE 1 (CONCRETE ONLY)

TEST HOLE 1 (ASPHALT)

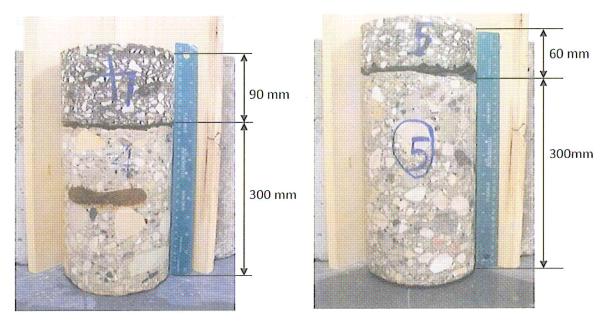




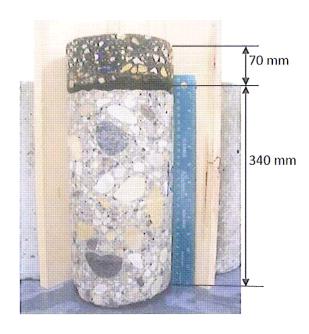
**TEST HOLE 2** 

**TEST HOLE 3** 

### **Pavement Core Photos**



TEST HOLE 4 TEST HOLE 5



TEST HOLE 6