## AQUEDUCT ASSET PRESERVATION BRANCH 1 AQUEDUCT UNDERDRAIN

SHERBROOK ST TO KING ST

**TESH HOLE LOGS** 

Aqueduct Asset Preservation Branch 1 Aqueduct Underdrain Sherbrook St to King St

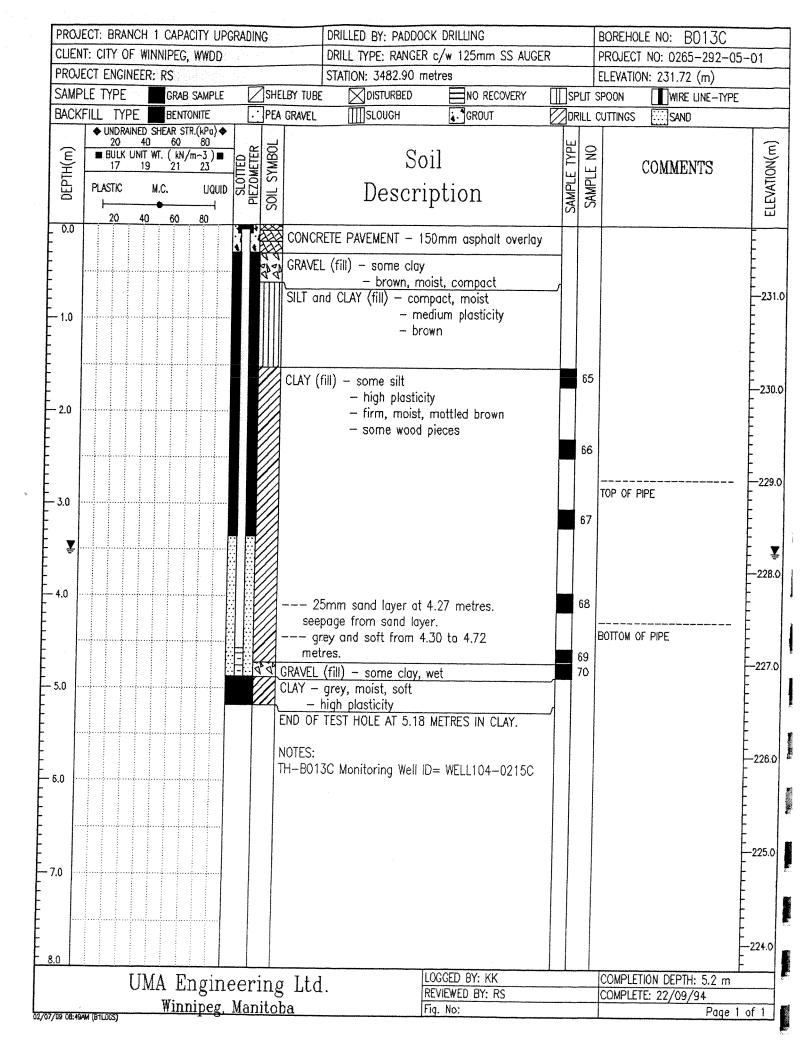
## **Test Hole Locations**

Test Hole No.	Location Along Pacific Avenue	Offset from Aqueduct Centerline
B013	86m W of W Property Line Sherbrook St (at 687 Pacific Av)	0.85m South
B013A	86m W of W Property Line Sherbrook St	1.40m South
B013B	86m W of W Property Line Sherbrook St	0.70m North
B013C	86m W of W Property Line Sherbrook St	1.15m North
B014	102m E of E Property Line Sherbrook St (at 623 Pacific Av)	0.95m South
B015	189m W of W Property Line Isabel St (at 565 Pacific Av)	1.05m South
B015A	189m W of W Property Line Isabel St	0.75m South
B016	49m E of E Property Line Isabel St (at 517 Pacific Av)	0.75m South
B017	113m E of E Property Line Isabel St (at 449 Pacific Av)	0.85m South
B018	1m W of W Property Line Ellen St (at 401 Pacific Av)	1.10m South
B018A	1m W of W Property Line Ellen St	0.30m South
B018B	1m W of W Property Line Ellen St	0.75m South
B019	152m W of W Property Line Princess St (at 315 Pacific Av)	1.15m South
B019A	152m W of W Property Line Princess St	0.80m South
B019B	152m W of W Property Line Princess St	0.80m North
B020	42m W of W Property Line Princess St (at 230 Princess St)	1.25m South
B021	5m E of E Property Line King St (at 227 Pacific Av)	0.75m South
B021A	5m E of E Property Line King St (at 227 Pacific Av)	1.25m South

		CT: BRANC			RADIN	G		DRILLED BY: PADDOCK DRILLING				BOREHOLE NO: B013		
		: CITY OF		, WWDD				DRILL TYPE: RANGER		GER			NO: 0265-292-	-05-01
L		CT ENGINE						STATION: 3482.90 m	etres			ELEVATIO	N: 231.86 (m)	
		E TYPE		SAMPLE		J.	LBY TUBE	K	NO RECOVERY			SPOON	WIRE LINE-T	YPE
BAC	KF	ILL TYPE		ONITE		PEA	GRAVEL	SLOUGH	<b>₄.</b> ⁴GR0UT		RILL	CUTTINGS	SAND	
DEPTH(m)		BULK UN 17 PLASTIC	HO SHEAR SI 40 60 HT WT. ( kN, 19 21 M.C.	IR.(kPa) ◆ 80 /m~3 ) ■ 23  □QUID 80	INSTRUMENTATION DATA	TOBILY SYMBOL		So Descri		CAMPI F TVDE	SAMPI F NO		COMMENTS	ELEVATION(m)
- 1.0							CLAY (	(fill) — stiff, trace gr — moist, black - compact, moist - yellow brown	avel		47			-231.0
- 2.0 2.0 	)							- silty · moist, firm to stiff · high plasticity · mottled brown/grey			48			
3.0			•	•			_	trace silt inclusions			49 50 51	TOP OF P	ipe	
5.0											52	воттом о	F PIPE	-227.0
- - - - - - - -							END OF	TEST HOLE AT 6.10	METRES IN CLAY.		53			
7.0							and sea	OLE BACKFILLED WITH ALED WITH BENTONITE ITOM. OLE DRY UPON COMP	PIECES ON TOP					
<u>.</u>	UMA Engineering Ltd.  LOGGED BY: KK COMPLETION DEPTH: 6.1 m  REVIEWED BY: RS COMPLETE: 21/09/04													
		Ĺ						1.	REVIEWED BY: RS				E: 21/09/94	
02/07/09 0	10. 10.		Win	nipeg,	<u>Man</u>	ito	ba		īg. No:				Pag	e 1 of 1

PROJE	CT: BRAN	ICH 1 CAPA	CITY UPGF	RADING		DRILLED BY: PADDOCK DRILLING DRILL TYPE: RANGER c/w 125mm SS AUGER				BOREHOLE NO: BO13A		
CLIENT	r: city of	WINNIPEG,	WWDD			DRILL TYPE: RANGER	c/w 125mm SS AU	GER		PROJECT NO: 0265-292-05-	01	
PROJE	CT ENGIN	EER: RS				STATION: 3482.90 m				LEVATION: 231.86 (m)		
	LE TYPE		SAMPLE		ELBY TUB	K3	NO RECOVERY	∏SF				
BACK	FILL TYP			<u> .</u> : PI	A GRAVEL	SLOUGH	GROUT		RILL C	uttings Sand		
DEPTH(m)	20	INED SHEAR STI 40 60 UNIT WT. ( kN/ 19 21 M.C.		SLOTTED PIEZOMETER	1	So Descri		SAMPLE TYPE	SAMPLE NO	COMMENTS	ELEVATION(m)	
	20	40 60	80		5		1	\sqrt{\sq}}\sqrt{\sq}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}	1			
0.0	20	70 00			\$ \$ 	ALT PAVEMENT					- - - -	
- - - - 1.0					-	(fill) — silty moist, soft to firm, i intermediate plasticit trace wood pieces			54		_ 231.0 - - - -	
- - - 2.0						soft below 2.29 meti	roc		55 56		- 230.0 - - -	
- - - - - - - - - - - - -	•	هر م		888		grey and moist below		/	57	TOP OF PIPE	- - 229.0 - - - - -	
- - - - - - - - - -						IL (fill) — trace clay, — homogeneous — high plasticity	silty, wet		59 60	BOTTOM OF PIPE	- 22 <b>-</b> 22-	
5.0						- grey, moist, soft to - trace silt inclusions	o firm S					
- - 6.0 -					END (	DF TEST HOLE AT 6.10	O METRES IN CLAY		61		226.0 - - -	
- - - - - 7.0				Andropens and the Market Scholars and Section Continues to Long Section Continues to Long Section Continues to	NOTES			5A			- - 225.0 -	
-				urbanen sepera ganer rescheronspeciales secciolos de sepera				The second control of	Anneally or the first section of the first section		- - - 224.0	
8.0							LOGGED BY: KK		<u></u>	COMPLETION DEPTH: 6.1 m	느ー	
		UMA				td.	REVIEWED BY: RS			COMPLETE: 22/09/94		
		Wi	<u>nnipeg</u>	, Man	toba		Fig. No:			Page	1 of 1	
12/07/09 0	8:49AM (B1LDGS	]										

			PACITY UPG	RADIN	G	DRILLED BY: PADDO		OED.		BOREHOLE NO: B013B PROJECT NO: 0265-292-05-1	<u> </u>
		of Winnipe Ineer: RS	G, WWDD			STATION: 3482.90 i	R c/w 125mm SS AU	UEK		ELEVATION: 231.83 (m)	<u> </u>
	LE TYPE		AB SAMPLE		<u>ל</u>	Y TUBE DISTURBED	NO RECOVERY	ППор		SPOON WIRE LINE—TYPE	
	FILL TY		NTONITE		PEA G		GROUT			CUTTINGS SAND	<del></del>
	◆ UNDR	ZAINED SHEAR 40 60 ( UNIT WT. ( k		NO I		Little Control of the		TYPE S	9		(E
DEPTH(m)	17 PLASTIC	19 21	1 23 ⊔QUID	INSTRUMENTATION DATA	SOIL SYMBOL		oil ription	SAMPLE TY	SAMPLE N		ELEVATION(m)
	20	40 60	3 80	SE_	S		<b>.</b>	S			ш
_ 0.0 - -						SPHALT PAVEMENT  LAY (fill) — silty					- - - -
- - - - 1.0						- mottled brown, mo - intermediate plasti					-23 -
- - - - 2.0						wood pieces from : trace gravel and so	2.29 to 2.44 metres.		62		23 
- 3.0						to 2.44 metres.  used hand auger fr 3.81 metres.				TOP OF PIPE	- 22 22
- 4.0						AND AUGER REFUSAL AT ONCRETE	3.81 METRES ON		64		_ - -—22 - - -
- 5.0					T	OTES: EST HOLE BACKFILLED N ND SEALED WITH BENTON ND BOTTOM.				BOTTOM OF PIPE	
- 6.0											
7.0											- - - - - 225 - - - -
8.0		TTACA	The six		•	111	LOGGED BY: KK			COMPLETION DEPTH: 3.8 m	- 224
			Engin		~		REVIEWED BY: RS			COMPLETE: 22/09/94	
7.	49AM (B1LOG	W	<u>linnipeg</u>	<u>. Ma</u>	<u>nıtol</u>	)â	Fig. No:			Page 1	of 1



PROJE	CT: BRAN	ICH 1 CAPA	CITY UPGI	RADING		DRILLED BY: PADDOCK DRILLING				BOREHOLE NO: BO14		
CLIENT	: CITY OF	F WINNIPEG,	WWDD			DRILL TYPE: RANGER	c/w 125MM SS AUG	ER		PROJECT NO: 0265-292-05	-01	
1		IEER: RS			-	STATION: 3689.93 m				ELEVATION: 231.87 (m)		
	E TYPE		SAMPLE		IELBY TUBI		NO RECOVERY			SPOON WIRE LINE-TYPE		
BACKE	TILL TYP				A GRAVEL	SLOUGH	GROUT	OF	RILL C	CUTTINGS SAND		
DEPTH(m)	◆ UNDRA 20 ■ BULK 17 PLASTIC	INED SHEAR ST 40 60 UNIT WT. (kN) 19 21 M.C.	R.(kPa) ◆ 80 /m~3 ) ■ 23	INSTRUMENTATION DATA COIL CYMDOL		So		PLE TYPE	SAMPLE NO		ELEVATION(m)	
B	FLASIK	M1.0.	——————————————————————————————————————	STRU	5	Descri	puon	SAMP	SS		ELE	
0.0	20	40 60	80	<u>≤</u> ×	S ACDIV	LIT DAVENERIT			-			
1.0					GRAVE CLAY	ALT PAVEMENT  (fill) - some clay (fill) - some silt, tro - moist, firm - medium to - brown to 2.  ey/black intermixed ey below 3.3 metres	nigh plasticity 1 metres from 2.1 to 3.3		71 72 73	TOP OF PIPE	-231.6 -231.6 -230.6	
- - - - - - - - - - -				45 45	3	L (fill) — well gradec — seepage,	grey		75 80		- - -228¥ - - - - -	
5.0					GRAVE	(fill) — high plasticity — moist, firm, L (fill) — some sand — firm, moist, grey,	prown , grey, wet		81	BOTTOM OF PIPE	227.0	
6.0						F TEST HOLE AT 6.10			82		226.0	
7.0					TEST H AND SI AND BO	IOLE BACKFILLED WIT EALED WITH BENTONI' DTTOM. LEVEL 3.96 METRES		₹				
	· · · · · · · · · · · · · · · · · · ·	UMA ]	Fnain	pori	na It	А	LOGGED BY: KK			COMPLETION DEPTH: 6.1 m		
			_		_	u.	REVIEWED BY: RS	······································		COMPLETE: 22/09/94	4 .6 4	
2/67/00 00	194M (B1LOGS)	W11	nnipeg,	Manı	toda		Fig. No:	···		Page	1 10 1	

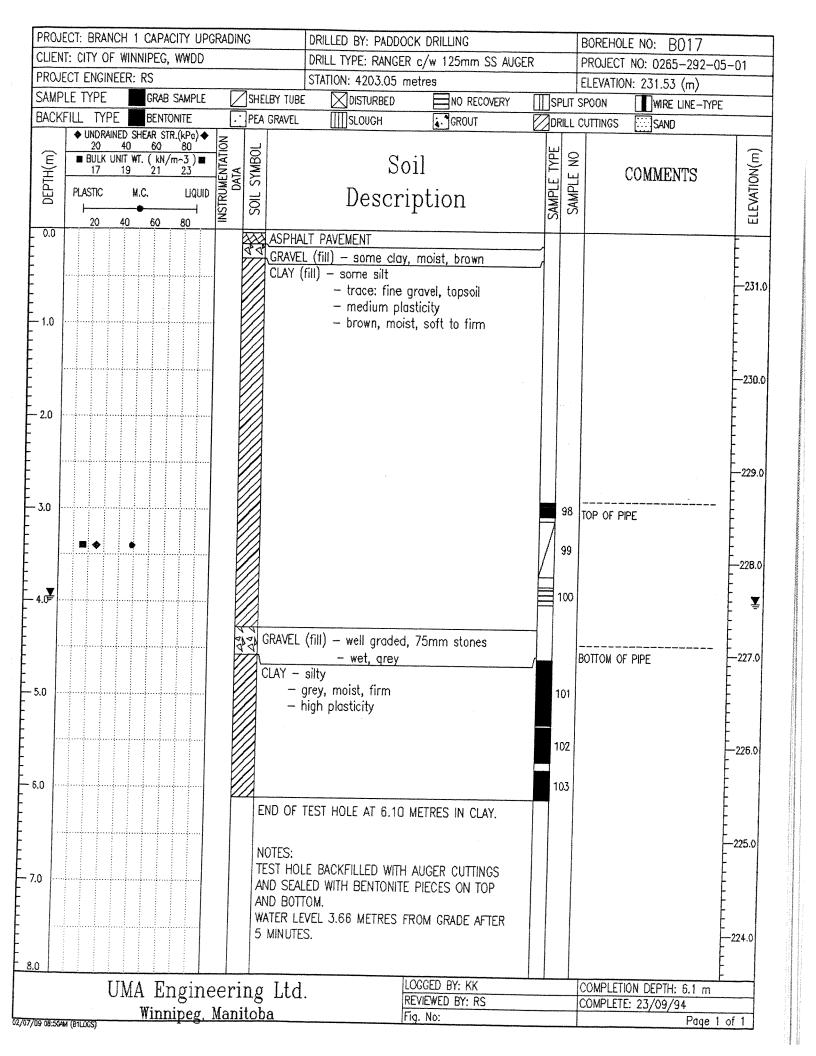
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PROJE	CT: BRAN	ICH 1 CAPAC	ITY UPG	RADIN	G						BOREHOLE NO: B015		
		F WINNIPEG,	WWDD						ER		PROJECT NO: 0265-292-05-	01	
		NEER: RS					STATION: 3875.38 r		ПП -		ELEVATION: 231.58 (m)		
	E TYPE		SAMPLE			BY TUBE		NO RECOVERY	البطياب		SPOON WIRE LINE-TYPE		
BACKF	ILL TYP			<u> </u>		GRAVEL	[[[]]SLOUGH	<b>₫.</b> GROUT		KILL (	CUTTINGS SAND		
ОЕРТН(м)	20 ■ BULK 17	INED SHEAR STR 40 60 Unit WT. ( kn/r 19 21	80 n-3) ■ 23	INSTRUMENTATION DATA	SYMBOL			oil ·	SAMPLE TYPE	SAMPLE NO		ELEVATION(m)	
	PLASTIC L	M.C.	⊔QUID ——  80	INSTRU	SOIL			iption ————	SAM	₹S		ELEV	
0.0						·	LT PAVEMENT					<b> -</b>	
<b> -</b>					7	GRAVE	L (fill) - some cla	y, moist, brown				F	
						CLAT (	(fill) — silty, firm — moist, bro	wn		83		F-231.0	
1.0 						SILT (f	fill) — compact — moist, bro	wn					
-						CLAY (	(fill) - some silt			84		230.0	
2.0  -							— brown, mo — high plasti	ist, firm to stiff city		85			
- - -	7	1	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \							86		- -229.0	
3.0						CLAY -				87	TOP OF PIPE		
							mottled grey/brown moist, firm to still high plasticity trace: silt inclusion	ff					
- 4.0  - - - - -			•							88	 ВОПОМ ОГ РІРЕ		
5.0						.—— S	oft and grey below	4.6 metres				-227.0 - - - - - -	
										89		- 226.0	
6.0						END OF	F TEST HOLE AT 6.1	O METRES IN CLAY.		90		- - -	
7.0							OLE BACKFILLED WI TALED WITH BENTON	TH AUGER CUTTINGS ITE PIECES ON TOP				225.0	
8.0												224.0 	
		UMA F	ngin	leei	rin	g Lt	d.	LOGGED BY: KK REVIEWED BY: RS			COMPLETION DEPTH: 6.1 m		
	3		nipeg			$\sim$		Fig. No:	<del> </del>		COMPLETE: 22/09/94 Page 1	of 1	
2/07/09 08:4	494M (B1LDGS)	11 414		,,,,,,,	<u> </u>	- t t-t							

	ECT: BRANCI			RADIN	IG		DRILLED BY: PADDO	CK DRILLING			BOREH	OLE NO: BO15A	
<u></u>	T: CITY OF I		, WWDD				DRILL TYPE: RANGER		UGER		PROJE(	CT NO: 0265-292-0	5-01
	ECT ENGINE						STATION: 3875.38 n	netres				ION: 231.58 (m)	
	LE TYPE		SAMPLE			LBY TUBE	K	NO RECOVERY			T SPOON	WIRE LINE-TYP	E
BACK	FILL TYPE  OUTPAINE		ONITE			GRAVEL	SLOUGH	<b>₄.</b> GROUT		DRIL	L CUTTINGS	SAND	
ОЕРТН(m)	20 ■ BULK UN 17 PLASTIC	40 60	80	INSTRUMENTATION DATA	SOIL SYMBOL		So Descri			SAMPLE TYPE	SAMPLE NO	COMMENTS	ELEVATION(m)
0.0					XX		LT PAVEMENT			$\top$			_
1.0					T V	GRAVE	L (fill) — trace silt, (fill) — stiff, high pl — moist, brow	asticity					231.0
-						3.	requent wood piece: 81 metres.			3			- - - 229.0
3.0						3.8	11 metres.		d	9.		PIPE .	
- 4.0						o	bstruction at 3.81 r hand auger. No ful UGER REFUSAL AT 3	netres, switch ther advancement			воттом	OF PIPE	- - - - 227.0
5.0 - - - - - -						TEST HO AND SE	DLE BACKFILLED WIT ALED WITH BENTONIT D BOTTOM.						226.0
6.0													
7.0													-22 <b>4</b> .0
0.8									Marie Constant				F
	Ţ	MA E	ngine	eer	in	y I,t.d	_	LOGGED BY: KK				ETION DEPTH: 3.9 m	
			nipeg.		_	_		REVIEWED BY: RS Fig. No:			COMPL	ETE: 23/09/94	1 05 1
2/07/09 08:49	AM (81) 005)	11 111	F	A14 LA 3.				114. 110.				rage	1 of 1

PROJE	CT: BRANC	H 1 CAPA	CITY UPGR	ADING		DRILLED BY: PADDOC						E NO: B016	
	: CITY OF		, WWDD			DRILL TYPE: RANGER		JGER				NO: 0265-292-0	o-01
PROJE	CT ENGINE	ER: RS				STATION: 4014.61 m			,			V: 231.71 (m)	
SAMPL	LE TYPE	GRAE	SAMPLE	SI	IELBY TUB	K3	NO RECOVERY			T SPO		WIRE LINE-TYPE	· ·
BACKE	FILL TYPE		ONITE	. PI	A GRAVEL	SLOUGH	<b>₄.</b> ⁴GR0UT		DRIL	L CU	ITINGS	SAND	·····y-···
DEPTH(m)	◆ UNDRAIN 20 ■ BULK UI 17  PLASTIC  — 20	ED SHEAR S 40 60 NIT WT. ( kN 19 21 M.C.		SLOTTED PIEZOMETER	SOL SIMBOL	So Descri			SAMPLE TYPE	SAMPLE NO	(	COMMENTS	FI FVATION(m)
0.0	20	40 00	30	118	ASPH	ALT PAVEMENT			1			, <u>, , , , , , , , , , , , , , , , , ,</u>	F
- 1.0					CLAY	L (fill) — some silt, (fill) — some silt — high plastic — moist, stiff,	ity						—23
2.0						anna waad aigaaa f				94			
3.0						some wood pieces f 05 metres.	IVIII 2. <del>44</del> (0			95 T	OP OF F		- 229
4.0						grey and soft at 3.7				96			
5.0				3	AUGEF	IL (fill) — sandy, gre R REFUSAL AT 4.57 N S: 016 Monitoring Well I	METRES IN GRAVEL.	3		97    -  B	OTTOM	)F PIPE	
6.0				The production and the same agency and a first productive for many property.									- - 220
				The property of the control of the c				and the second s					- - - - - - - - 22!
'.0  -  -								A desirable de la constante de					
8.0								·					<u>-224</u>
		UMA	Engin	eeri	nø I.	-d	LOGGED BY: KK					ETION DEPTH: 4.6 n	1
			nnipeg.			<i>-</i> \( \dag{\tau} \)	REVIEWED BY: RS Fig. No:				CUMPL	ETE: 23/09/94	1 of 1



		VCH 1 CA		GRADI	ING		DRILLED BY: PA					BOREHOLE NO: B018	
CLIENT	r: city o	F WINNIPE	G, WWDD						v 125mm SS AUG	ER		PROJECT NO: 0265-292-05-	-01
<u></u>		NEER: RS					STATION: 4371.9					ELEVATION: 231.51 (m)	
	LE TYPE		AB SAMPLE		SHEI	BY TUBE		ED .	NO RECOVERY			SPOON WIRE LINE-TYPE	
BACK	FILL TYP		NTONITE	[.	PEA	GRAVEL	Sronch		GROUT		RILL C	CUTTINGS SAND	
DEPTH(m)	◆ UNDRA 20 ■ BULK 17 PLASTIC I— 20	NNED SHEAR 40 64 UNIT WT. ( I 19 2 M.C. 40 66	0 80° kN/m-3)∎ 1 23 UQUI	MENTATIO	SOIL SYMBOL			Soil cript	ion	SAMPI F TYPE	SAMPLE NO	COMMENTS	ELEVATION(m)
0.0					**	-	LT_PAVEMENT						F
E					2000	GRAVE	VEL (FILL) — some clay, brown, dry					F 1	
- - - - - - 1.0							(fill) — some sil — moist, — interme — brown a	firm diate pla	nsticity intermixed		104		231.0 
- - - - - 2.0											105		-230.0
- - - - - - - 3.0						WOOD	OD CHIPS (fill) — soft — wet				106		229.0
-						CLAY (	fill) — some wo — moist, l				107	TOP OF PIPE	- - 228.0
4.0						OLAT (	— high pla — brown, i		rmi		108		227.0
5.0						NOTES:	TEST HOLE AT					BOTTOM OF PIPE	- 227.0
-					1 1	AND SE AND BC	'ALED WITH BEN' )TTOM.	TONITE P	IECES ON TOP				
6.0													
7.0													
8.0									OED DV: NA			TOOMBLETION DEDTIL 4.0	-224.0
		UMA	Engin	nee	ring	g Lto	d.	k	GED BY: KK IEWED BY: RS			COMPLETION DEPTH: 4.6 m COMPLETE: 23/09/94	
			<u>innipe</u>						No:			Page 1	of 1
/07/09 08:5	OAM (B1LDCS)			,									

		ICH 1 CAP		GRADIN	G	DRILLED BY: PADDOCK DRILLING			BOREHOLE NO: BO18A	***************************************
		WINNIPEG	, WWDD	····		DRILL TYPE: RANGER c/w 125mm SS AUG	ER		PROJECT NO: 0265-292-05	-01
	ECT ENGIN				1	STATION: 4371.90 metres			ELEVATION: 231.51 (m)	
	LE TYPE		B SAMPLE			LBY TUBE DISTURBED NO RECOVERY			SPOON WIRE LINE-TYPE	
BACK	FILL TYP	L BEN NED SHEAR S	TONITE	<del>, Ŀ</del>	PEA	GRAVEL SLOUGH GROUT		DRILL	CUTTINGS SAND	
DEPTH(m)	20	40 60 JNIT WT. (kN 19 21 M.C.	80	INSTRUMENTATION DATA	SOIL SYMBOL	Soil Description		SAMPLE TYPE	COMMENTS	ELEVATION(m)
0.0						ASPHALT PAVEMENT				-
- 1.0						GRAVEL (fill) — some clay, dry, brown CLAY (fill) — some silt  — moist, firm to stiff  — brown & black intermixed  — intermediate plasticity  —— concrete rubble encountered at 1.22 metres. Augers deflecting towards pipe				-231.
- 2.0						some wood chips at 2.44 metres.		111		- - - - - - - - - - - - - - - - - - -
4.0						END OF TEST HOLE AT 3.05 METRES IN CLAY.  NOTES: TEST HOLE ABANDONED AT 3.05 METRES BECAUSE AUGERS DEFLECTING TOWARDS PIPE AFTER HITTING CONCRETE RUBBLE AT 1.22m. TEST HOLE BACKFILLED WITH AUGER CUTTINGS AND SEALED WITH BENTONITE PIECES ON TOP AND BOTTOM.				-228.0
5.0						THE DOTTOM.			BOTTOM OF PIPE	227.0 
.0										-225.0
0	T	TA(A) D			and the second s	I + d LOGGED BY: KK			ICOMPLETION DECEMAND	-224.0
	(	JMA E	_		$\sim$	REVIEWED BY: RS			COMPLETION DEPTH: 3.1 m COMPLETE: 23/09/94	
	M (B1LOGS)	Wini	nipeg.	Mani	tob	a Fig. No:			Page 1 <	<del>,, 1</del>

PROJECT: BRANCH 1 CAPACITY UPGRADING CLIENT: CITY OF WINNIPEG, WWDD							DRILLED BY: PADDOCK DRILLING  DRILL TYPE: RANGER c/w 125mm SS AUGER				BOREHOLE NO: B018B			
CLIENT	: CITY OF	WINNIPEG,	WWDD				DRILL TYPE: RANGER	R c/w 125mm SS	AUGER		PI	ROJECT N	NO: 0265-292-0!	5-01
PROJE	CT ENGIN	EER: RS					STATION: 4371.90 m	netres			EL	EVATION	: 231.51 (m)	
SAMPL	E TYPE	GRAB	SAMPLE		SHEL	BY TUBE	DISTURBED	■NO RECOVE	RY [	SPLIT	SP	OON	WIRE LINE-TYPE	
BACKF	ILL TYP	E BENTO	NITE	[·	PEA (	GRAVEL	SLOUGH	GROUT	E	DRILL	. CU	TTINGS	SAND	***************************************
DEPTH(m)	20	NED SHEAR STF 40 60 UNIT WT. (kN/i 19 21 M.C.	R.(kPa) ◆ 80 m-3 ) ■ 23 LIQUID	NSTRUMENTATION DATA	SOIL SYMBOL		So Descri			SAMPLE TYPE	SAMPLE NO	C	OMMENTS	ELEVATION(m)
_ 0.0	20	40 60	80		222	ACDUA	LT DAY/FUENT				+			
- 0.0					रें से	GRAVE	LT PAVEMENT L (fill) — some clay	brown dry		4				F
- - - - - - 1.0						CLAY (	(fill)  - moist, stiff,  - high plastic	, brown		<b></b>				231.0 
- 1.0								•						230.0
2.0										11	12			
3.0										11	- T	OP OF PIF	 E	-229.0
-														228.0 
4.0				- 1	44 44 44	GRAVEL	. (fill) — well graded — brown, we			11		OTON OF		-227.0
- 5.0							firm, high plasticit moist, mottled bro			11	5   8	ОПОМ ОБ	PIPE	-
- 6.0					-		oft and wet from 5. 10 metres.	94 to		11				-226.0
						END OF	TEST HOLE AT 6.10	) METRES IN CLAY	<b>'</b> -		-			225.0
- 7.0					T	EST HO	DLE BACKFILLED WIT ALED WITH BENTONIT TTOM.							-224.0
-				No. of the last of	Physical design									F
8.0														<u> </u>
UMA Engineering Ltd						<del></del>	LOGGED BY: KK					ON DEPTH: 6.1 m		
			_		~	,	u.·				_	COMPLET		
/07/09 08-5/	UMA Engineering Ltd.  Winnipeg, Manitoba  Fig. No:  COMPLETE: 23/09/94  Fig. No:  Page 1 of 1													

PROJ	JECT: BRANCH 1 CAPACITY UPGI	RADING	DRILLED BY: PADDOC	K DRILLING		BOREHOLE NO: BO19	
	NT: CITY OF WINNIPEG, WWDD		DRILL TYPE: RANGER	c/w 125MM SS AUGE	R	PROJECT NO: 0265-292-05	-01
	JECT ENGINEER: RS	<u> </u>	STATION: 4567.21 m	etres		ELEVATION: 231.52 (m)	· · · · · · · · · · · · · · · · · · ·
L	PLE TYPE GRAB SAMPLE		y tube \squarbed disturbed	NO RECOVERY	SPLIT S	SPOON WIRE LINE-TYPE	
BACK	KFILL TYPE BENTONITE	PEA GF	RAVEL SLOUGH	GROUT	DRILL (	CUTTINGS SAND	
DEPTH(m)		INSTRUMENTATION DATA SOIL SYMBOL	So Descri		SAMPLE TYPE SAMPLE NO	COMMENTS	ELEVATION(m)
- 1.0		4 7 G	SPHALT PAVEMENT  RAVEL (fill) — some clay,  RAVEL AND CLAY  — brown, m  LAY (fill) — brown, moist,	oist, stiff	129		231.0
- 2.0		-	— high plastici —— 150mm thick black o layer at 1.22 metres.		130		230.0
3.0					131		- 229.0
4.0		CI	LAY (possible fill)— — moist, mottled brow — high plasticity	rn, firm	132	TOP OF PIPE	- - 228.0 - - - - -
- - - - - - 5.0			ID OF TEST HOLE AT 4.57 DTES:	METRES IN CLAY.	134	BOTTOM OF PIPE	227.0
- - - - - - - - - -		AN AN TR	ST HOLE BACKFILLED WITH ID SEALED WITH BENTONITI ID BOTTOM. ACE SEEPAGE BELOW 4.0 ST HOLE COMPLETION.	E PIECES ON TOP			-226.0
7.0							
8.0							-224.0
	UMA Engine	perina		LOGGED BY: KK		COMPLETION DEPTH: 4.6 m	
				REVIEWED BY: RS		COMPLETE: 26/09/94	
02/07/09 08:5	Winnipeg. Winnipeg.	<u>manitoda</u>	1	īg. No:		Page 1	of 1

PROJE	CT: BRAN	CH 1 CAPAC	CITY UPG	RADIN	G		DRILLED BY: PADDOC	K DRILLING			E	OREHOL	E NO: B019A	
CLIENT	: CITY OF	WINNIPEG,	WWDD				DRILL TYPE: RANGER	c/w 125mm SS Al	JGER				NO: 0265-292-	05-01
PROJE	CT ENGIN	eer: RS					STATION: 4567.21 m	eters					N: 231.51 (m)	
SAMPL	E TYPE	GRAB	SAMPLE		SHEL	BY TUBE	<u> </u>	NO RECOVERY				POON	WIRE LINE-TYP	PE
BACKF	ILL TYP			<u>.</u>	PEA	GRAVEL	SLOUGH	<b>₫.</b> GROUT		DR	LL C	UTTINGS	SAND	
DEPTH(m)	20	NED SHEAR STI 40 60 JNIT WT. (kN/ 19 21 M.C. 40 60		SLOTTED PIEZOMETER	SOIL SYMBOL		So Descri			SAMPLE TYPE	SAMPLE NO		COMMENTS	ELEVATION(m)
_ 0.0	20	40 00	80	1	<b>***</b>	ASPHA	LT PAVEMENT							-
					4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	GRAVE	L (fill) — some clay — moist, blo (fill) — some gravel	to 1.07 metres elow 1.4 metres plasticity						-231.0
2.0														E
- - - - - - - - - - - - -														-229.0
- "											135	TOP OF	PIPE	F
4.0					7	000	(rin) r.				136			
					2/2/ Q, Q,	GRAVE	L (fill) — coarse, fin — brown, we				137			<u> </u>
- 5.0					7,2		- mottled brown, mo				138	BOTTOM	OF PIPE	
- 6.0											139			—226.0
- - - - - - - - -				An an and a second seco		NOTES:	F TEST HOLE AT 6.10 : 19A Monitoring Well		9A					-225.0
8.0								<b>-</b>						
		UMA I	Engir	ieei	rin	g Lt	d.	LOGGED BY: KK REVIEWED BY: RS					ETION DEPTH: 6.1 ETE: 26/09/94	<u>m</u> *
	• .		nnipeg			$\overline{}$		Fig. No:				COMPL		ge 1 of 1
2/07/09 08:5	SOAM (B1LOGS)													

	PROJE	CT: BRANC	H 1 CAPA	CITY UPGI	RADING		DRILLED BY: PADDOC	K DRILLING			BOREHOLE NO: B019B	
- 1-		T: CITY OF		, WWDD			· <del> </del>	c/w 125mm SS AUC	GER		PROJECT NO: 0265-292-05-	-01
_		CT ENGINE	···		<u></u>		STATION: 4567.21 m				ELEVATION: 231.5 (m)	·
L-		LE TYPE		SAMPLE	K	HELBY TUB	<u> </u>	NO RECOVERY			SPOON WIRE LINE-TYPE	
ŀ	SAUKE	FILL TYPE	ED SHEAR ST	ONITE	<u> [.]</u> P	EA GRAVEL	SLOUGH	GROUT GROUT		KILL (	CUTTINGS SAND	Т
	DEPTH(m)	20	40 60 VIT WT. ( kN, 19 21 M.C. 40 60		SLOTTED PIEZOMETER	SQL SQL	So Descri		SAMPI F TYPE	SAMPLE NO	COMMENTS	ELEVATION(m)
F	0.0					ASPH/	ALT PAVEMENT			T		+
	-1.0					GRAVE	— moist, bla (fill) — some gravel — intermediate	ck and brown to 0.76 metres e plasticity led brown, stiff	t-	147		231.0
	- 2.0									148		-230.0 - - - - - - - - - - - - - - - - - -
	<b>3.0 ¥</b> 4.0						se 50mm diameter h tres.	nand auger below 3.	51	151	TOP OF PIPE	- - - - - 228
	5.0							27 METRES IN		152	BOTTOM OF PIPE	- - - 227.0 - - -
	6.0 ··					- Obs	truction at 3.51 met lauger, continue to 198 Monitoring Well	4.27 metres.				- 226.0 - - - - -
	7.0											225.0
	3.0											
		]	UMA I	ngin	eerii	na It	d	LOGGED BY: KK			COMPLETION DEPTH: 4.3 m	
		•		_		_		REVIEWED BY: RS		···········	COMPLETE: 27/09/94	
2/6	Zna na.e.	OAM (B1LOGS)	Y¥ 11	<u>inipeg.</u>	man1	LODA		Fig. No:			Page 1	of 1

PROJE	CT: BRAN	NCH 1 CAPA	CITY UPG	RADING		DRILLED BY: PADDOC		BOREHOLE NO: BO20		
CLIENT	: CITY O	F WINNIPEG,	, WWDD				c/w 125mm SS AUG	ER	PROJECT NO: 0265-292-05-	01
PROJE	CT ENGIN	NEER: RS	-			STATION: 4676.62 m	etres		ELEVATION: 231.6 (m)	
SAMP	LE TYPE	GRAB	SAMPLE		HELBY TUE	BE DISTURBED	NO RECOVERY	L-11-3	SPOON WIRE LINE-TYPE	
BACK	FILL TYP		ONITE		PEA GRAVEL	. Isronch	<b>₄.</b> GROUT	DRILL	CUTTINGS SAND	
DEPTH(m)	◆ UNDRA 20 ■ BULK 17 PLASTIC I———————————————————————————————————	NED SHEAR ST 40 60 UNIT WT. ( kN) 19 21 M.C. 40 60	IR.(kPa) ◆ 80 /m-3 ) ■ 23  □QUID		SOIL SYMBOL	So Descri		SAMPLE TYPE	COMMENTS	ELEVATION(m)
0.0	20	40 60	80	2	₩ CONC	CRETE PAVEMENT				1
1:0					-	- 100 mm asphalt ov - concrete rubble bel (fill) — high plasticit — moist, brow	ow Ó.4 metres y	14	0	231.0
- 2.0 - - - -								14	1	
- 3.0								14:	2 TOP OF PIPE	-229.0
- 4.0				040404	GRAVE GRAVE	EL (fill) — fine — wet, grey		143		
5.0					CLAY	- high plasticity - moist, grey, firm	,		BOTTOM OF PIPE	227.0
6.0					END C	F TEST HOLE AT 6.10	) METRES IN CLAY	145		226.0 
7.0					NOTES TEST H AND S		H AUGER CUTTINGS			
8.0		UMA I	Engin	eeri	ng Li		LOGGED BY: KK REVIEWED BY: RS		COMPLETION DEPTH: 6.1 m	-224.0
			nnipeg.		_		Fig. No:		COMPLETE: 26/09/94 Page 1	of 1
/07/09 08:5	1/4M (B1LOGS)	1111		14711	uu		11 - 7 - 11 - 1	····	, 090 1	النند

PROJE	CT: BRANC	H 1 CAPA	CITY UPGI	RADIN	G		DRILLED BY: PADD			[	BOREHO	LE NO: B021	
	: CITY OF		, WWDD				DRILL TYPE: RANG		S AUGER			NO: 0265-292-05	5-01
	CT ENGINE				1	D. 71105	STATION: 4842.96		при ППа			N: 231.59 (m)	
	LE TYPE FILL TYPE		SAMPLE	<u> </u>		LBY TUBE	DISTURBED	■ NO RECO		PLIT S		WIRE LINE-TYPE	
BACKI	◆ UNDRAINE		rp (i.p.\ 🛦	<u> </u>	JPCA	GRAVEL	Шэголен	4. JGRUUI		T C	UTTINGS	SAND	1
DEPTH(m)	20 BULK UN 17  PLASTIC	40 60 IT WT. (kN) 19 21 M.C.	80 /m-3 ) ■ 23 LIQUID 	INSTRUMENTATION DATA	SOIL SYMBOL			oil ciption	SAMPI F TYPE	SAMPLE NO		COMMENTS	ELEVATION(m)
0.0						- 2 - 2	LT OVERLAY (170r 230mm concrete 200mm concrete (fill) — some silt t	rubble rubble and gravel		153			-231
- - - 1.0 - - -						000	— moist, bri — high plasi	own, stiff		133			-
- - 2.0										154 155			230 
- - - - - 3.0	7	•								158			-229
- - - - -									/	159	TOP OF	PIPE	- - - 228.
4.0	<b>1</b>					AUGER	REFUSAL AT 4.27	METRES.	. 7	160			227.
5.0						TEST H	EPAGE OBSERVED. OLE BACKFILLED W TALED WITH BENTO OTTOM.				BOTTOM	OF PIPE	
6.0										Territoria de constante de const			<del></del>
7.0				artelessonaleurosampirariomatempirariotatiphiscondessonateurosampus per	Amender (1994) (1994) (1994) (1994) (1994) (1994) (1994) (1994) (1994) (1994) (1994) (1994) (1994)					en de strict ant économies en en popular passages de la composition en strict annuel de la composition de la c			-225.0 - - - - -
8.0	r	TA/A T	Incir		<u> </u>	~ T i	d	LOGGED BY: KK			TCOMPLI	ETION DEPTH: 4.3 m	224.0
	(		Engin		•	~	u.	REVIEWED BY: R				TE: 27/09/94	
	JAM (B1LOGS)	<u>Wir</u>	nnipeg,	Mar	<u>nito</u>	<u>ba</u>		Fig. No:				Page	1 of 1

PROJECT E SAMPLE T BACKFILL  (E) E	TYPE INDEPLIED INDRAINED SHEAT 10 40 BULK UNIT WT. (17 19 STIC M.C.	PEG, WWDD  S  GRAB SAMPLE  BENTONITE  AR STR.(kPa)   60 80  (kN/m-3)   21 23  UQUID	∑SHI ∴ PE	elby Tube A gravel	STATION: 4842.96 r	R c/w 125mm SS AUG netres NO RECOVERY	∭SPI		T NO: 0265-292-05 DN: 231.57 (m) WIRE LINE-TYPE	-01
BACKFILL  (m) HLd JO  PLA  PLA  PLA  PLA  PLA  PLA  PLA  PL	YPE TYPE TO TYPE TO TYPE TO TYPE TO TYPE TO TYPE TO TYPE TYPE TYPE TYPE TYPE TYPE TYPE TYPE	GRAB SAMPLE BENTONITE  AR STR.(kPa) ← 60 80 (kN/m~3) ■ 21 23  UQUID	. PE∕	GRAVEL	DISTURBED	■NO RECOVERY		JT SPOON	WIRE LINE-TYPE	
BACKFILL (m) HLAG	TYPE INDEPLIED INDRAINED SHEAT 10 40 BULK UNIT WT. (17 19 STIC M.C.	BENTONITE  AR STR.(kPa) ◆ 60 80  (kN/m-3) ■ 21 23  UQUID	. PE∕	GRAVEL	Ki					
DEPTH(m)	INDRAINED SHEA 20 40 BULK UNIT WT. ( 17 19 STIC M.C.	AR STR.(kPa) ◆ 60 80 ( kN/m-3 ) ■ 21 23  UQUID			[[]]SLOUGH	GROUT	DRI	I CUTTINGS	Fire	
DEPTH(m)	20 40 BULK UNIT WT. ( 17 19 STIC M.C.	60 80 (kN/m-3) ■ 21 23 UQUID	OTTED OMETER SYMBOL				السلاما		SAND	
0.0		60 80	SOIL			oil iption	SAMPLE TYPE	SAMPLE NO	COMMENTS	()1401147017
			11:88	ASPHA	LT PAVEMENT				**************************************	E
-1.0				X	RETE RUBBLE  (fill) — some: silt, q — trace wood — intermedia — moist, bro	pieces te plasticity				-2
2.0					occasional wood pie	eces below 1.83 m.		161		
3.0			<b>2</b> 8					162 TOP OF	PIPE	- 2 - 2 
4.0			1000	GRAVEI	_ (fill) — well grade — brown dry	d, trace silt to wet with depth		163		2 
5.0			24.4		- trace seeps high plasticity moist, brown, firm	ige .		BOTTOM 165	OF PIPE	-2
6.0				NOTES: TH-BO	21A Manitaring Well	3 METRES IN CLAY. ID= WELL107-0086A PRDED, ALWAYS DRY.	4			22
7.0										-22
										F
3.0		Engir Winnipeg		$\sim$	d.	LOGGED BY: KK REVIEWED BY: RS Fig. No:			ETION DEPTH: 5.3 m ETE: 27/09/94 Page	<u></u>