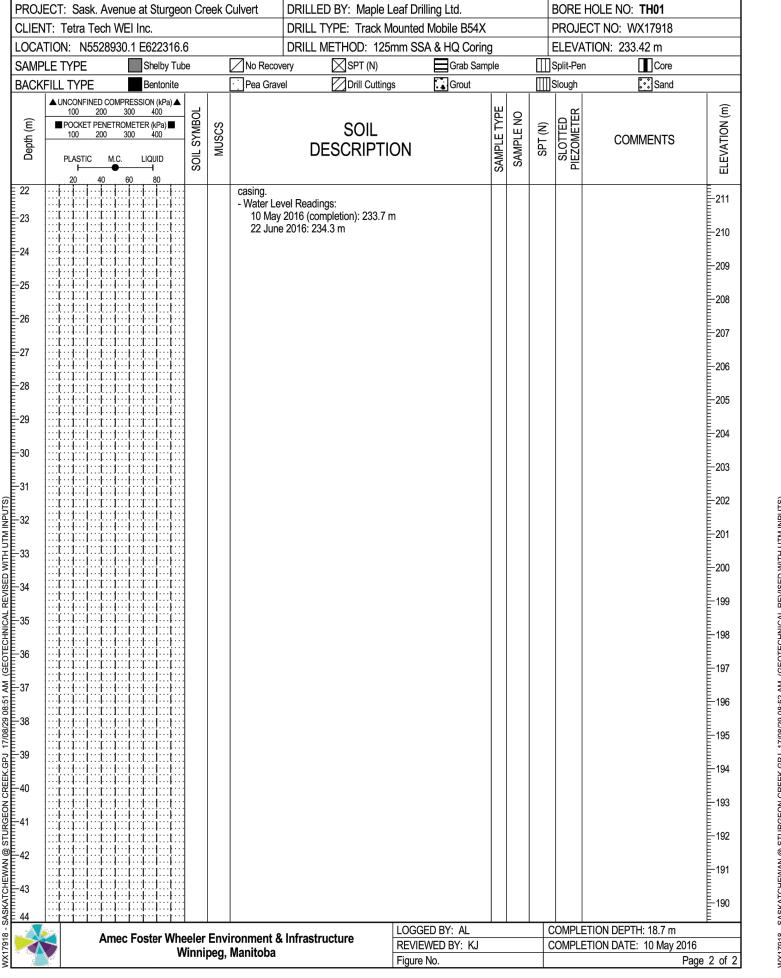


PROJE	JECT: Sask. Avenue at Sturgeon Creek C	ulvert DRILLED BY: Maple I	Leaf Drilling Ltd.		BORE	HOLE NO: TH01		
	NT: Tetra Tech WEI Inc.	DRILL TYPE: Track N	<del>-</del>			ECT NO: WX17918		
OCA	ATION: N5528930.1 E622316.6	DRILL METHOD: 125	DRILL METHOD: 125mm SSA & HQ Coring			ELEVATION: 233.42 m		
SAMP	PLE TYPE Shelby Tube	✓ No Recovery SPT (N)			Split-Pen			
BACKI	KFILL TYPE Bentonite	Pea Gravel Drill Cutting	gs Grout		Slough	Sand		
Depth (m)	▲ UNCONFINED COMPRESSION (kPa) ▲  100 200 300 400  ■ POCKET PENETROMETER (kPa) ■ 100 200 300 400  PLASTIC M.C. LIQUID 20 40 60 80	SOIL DESCRIPTI	ON SAMPLE TYPE	SAMPLE NO SPT (N)		COMMENTS	ELEYATION (m)	
0 1 2 3 4 5 6 6 7 8	CH CH	ORGANIC CLAY - silty, medium to hi (inferred), dark grey to black, frequen covered  CLAY (FILL) - silty, high plastic, mois frequent rootlets - below 0.8m, trace sand, no rootlets, occasional sulphates  CLAY - silty, high plastic, moist, firm to occasional fine rootlets - below 2.1m, no rootlets, firm, grey - below 3.1m, occasional silt lenses ~ - at 4.4m, cored through limestone bo SILT (TILL) - trace clay, some sand a moist, very loose, grey to light grey - below 4.6m, sandy and gravelly, ver at 5.3, auger refusal. Switched to HC Casing advanced to 9.1 m below grad SAND (TILL) - gravelly, trace fines, m grained, poorly graded, sub-rounded, brown	t rootlets, grass t, stiff, dark grey, greyish brown, to soft, dark grey, -5mm thick builder and gravel, low plastic, ry dense Q coring method. de. dedium to coarse	1 2 3 4 5 6 7 8 41 9		- harder drilling below 5.2m - No recovery from 5.3 m to 9.1 m	233 	
10 11 12 13	ML 0001	SILT (TILL) - sandy, gravelly, trace to (cemented)  GRAVEL (TILL) - coarse grained, por sub-rounded to angular, very dense (	orly graded,	11 12			=-224 =-223 =-222 =-222 =-221	
13 14 15 16	ML	- at 14.3 m, limestone cobble  BEDROCK - medium strong, dark gre	ey to grey limestone	13	*	Core Run S15:	219	
17	BR	interbedded with frequent reddish gre mm to 75 mm thick, moderately weat subrounded to rounded clasts	ey mudstone layers 10	15	-	Recovery: 100% RQD: 63% Core Run S16: Recovery: 100% RQD: 94%	217	
19 20 21		TEST HOLE TERMINATED AT 18.7n NOTES: - Significant sloughing was encounter below 14.6m Artesian water conditions were obset 17.1m below grade with a rate of app - Test hole was instrumented with a 2 standpipe, complete with above ground terminate in the standpipe of the standpipe in the stan	red during drilling erved at 15.5m and roximately 4 L/min. 25mm diameter PVC				215	
22			LOGGED BY: AL		COMPI	 ETION DEPTH: 18.7 m	<u> </u>	
X	Amec Foster Wheeler Envi Winnipeg, I		REVIEWED BY: KJ COMPLETION DATE: 10 May 2016					
1	vvirinipeg, i	viaiiilUDa	Figure No.			Page	1 of 2	



PROJ	JECT: Sask. Avenue at Sturge	on Creek	Culvert	DRILLED BY:	Maple Leaf Dril	lina Ltd.				BORE	HOLE NO: TH02	
	NT: Tetra Tech WEI Inc.		Track Mounted				-		ECT NO: WX17918			
LOCATION: N5528918.4 E622274.5				DRILL METHOD: 125mm SSA & HQ Coring			-	ELEVATION: 233.91 m				
SAMP	PLE TYPE Shelby Tul	be	No Reco			Grab Sam	_		<u> </u>	Split-Pe	n Core	
BACK	KFILL TYPE Bentonite		Pea Grav	rel Di	rill Cuttings	Grout				Slough	Sand	
Depth (m)	▲ UNCONFINED COMPRESSION (kPa) ▲ 100 200 300 400  ■ POCKET PENETROMETER (kPa) ■ 100 200 300 400  PLASTIC M.C. LIQUID 20 40 60 80	SOIL SYMBOL MUSCS		DESC	OIL RIPTION		SAMPLE TYPE	SAMPLE NO	SPT (N)	SLOTTED SLOTTED PIEZOMETER	COMMENTS	ELEVATION (m)
0 - 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 1		CH ML GP	(inferred), covered CLAY (FIL plastic, mo and rootle below 0.8 CLAY - sili grey, stiff, below 2.3 below 3. diameter below 4.5 SILT (TILL moist, ligh below 4.6 oxidation i below 5.5 very moist at 5.6m, GRAVEL 6 aggregate possibly wat 27.5m TEST HOI NOTES: - Significant during drill - Test hole standpipe, casing Water Le 6 May 10 May	Sm, brownish grey, by, trace sand, high occasional fine rooms, no sand and rollin, soft to firm, occasion, trace silt till income, occasion, trace silt till income, occasion, trace silt till income, occasion, trace sand and the greyish brown some sand some loss, loose, moist to nolusions, tan to be some harder drilling,	frequent rootlets ome sand, trace grown, occasional sulph occasional sulph oplastic, moist, grobitets ootlets, firm, greyicasional silt pocket dusions, brownish gravel, trace clay very moist, occas rown gravelly, some sa usal. Switched to limestone and grubrounded, trace ing process occasional sand AT 9.0m BELOW eepage was enco l with a 25mm dia ove ground protect 230.9 m	gravel, high silt inclusions ate inclusions ey to dark sh brown ets ~5mm a grey y, low plastic, sional and to sandy, HQ coring. Fanite to no fines lenses GRADE. Untered meter PVC tive steel		1 2 3 3 4 4 5 5 6 7 8 8 9 10 11 12	8	0     0   0   0   0   0   0   0   0   0		232 231 231 230 229 226 226 225 221 221 221 221 217 216 215 214 213
	Amec Foster Wh	eeler En	/ironment s	Infraetructuro		ED BY: AL			-		ETION DEPTH: 9.1 m	
			, Manitoba	i iiii asii uctufe		WED BY: KJ			C	OMPL	ETION DATE: 6 May 2016	
4			,		Figure	No.					Page	1 of '



B.I EL	M. EV.			TET TET	RA TECH	CE OF MANIFOR
				DESIGNED D.M.	CHECKED J.Z.	D. E.S.  MITCHELL ORIGINAL SIGNED 17.10.04 33352
				DRAWN BY B.M.	APPROVED E.F.S.	33352 PROFESS VONE
0	ISSUED FOR TENDER	17.10.04	D.M.	HOR. SCALE: AS NOTED VERTICAL:	ACCEPTED BY DATE ORIGINAL DRAWING 17.10.04 SIGNED BY: D. MUHURDAREVIC, P.ENG.	CONSULTANT DRAWING NO. 1600070700-DWG-S0007
NO.	REVISIONS	DATE	BY	DATE 17.10.04	D. MUHURDAREVIC, P.ENG. BRIDGE PROJECTS ENGINEER	1000070700-D <b>W</b> G-30007



## THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION

SASKATCHEWAN AVE AT STURGEON CREEK BRIDGE CONSTRUCTION	CITY DRAWING NUMBER B248-17-007
BRIDGE CONSTRUCTION	SHEET 7 OF 69
BOREHOLE LOGS SHEET 1 OF 2	7