

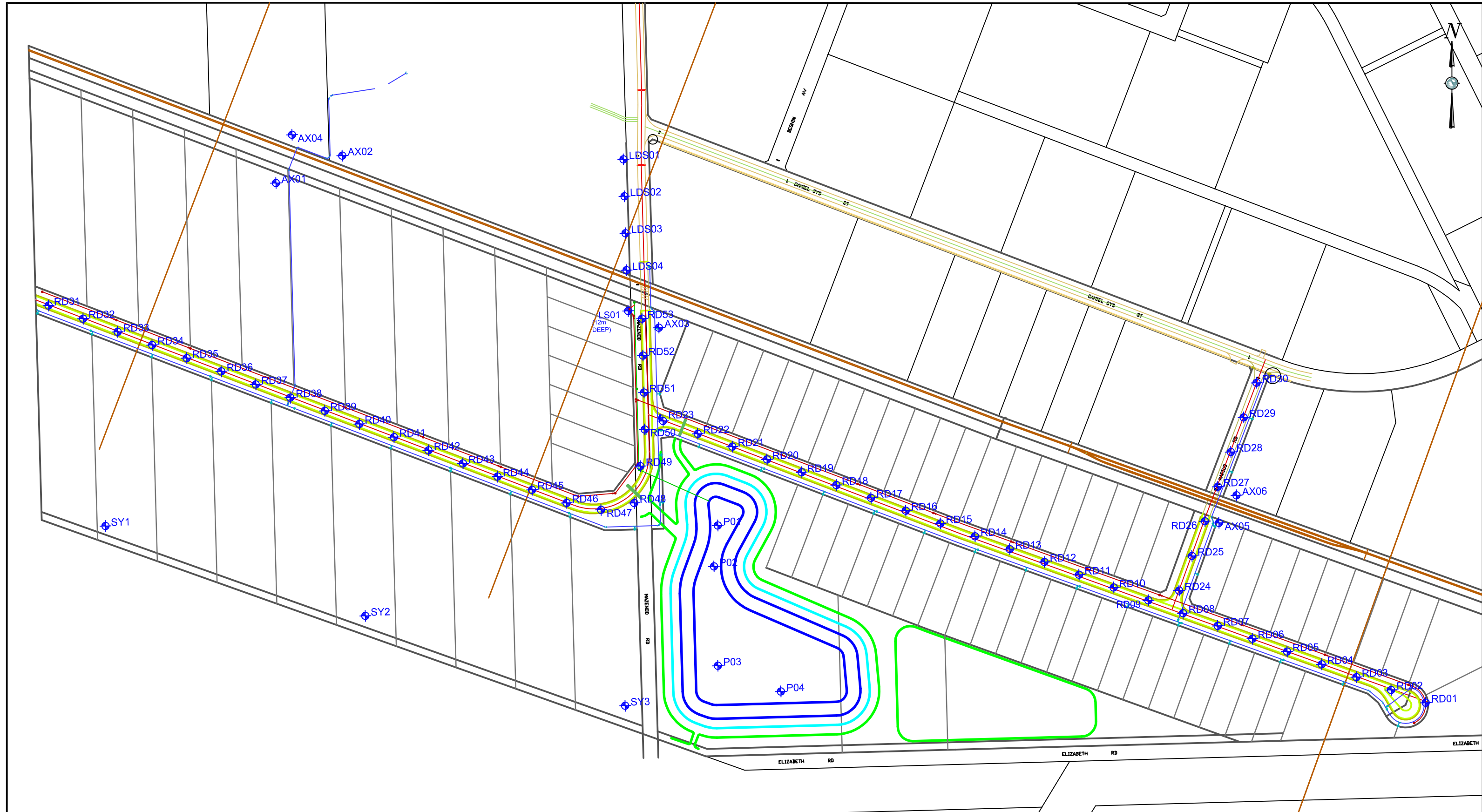
APPENDIX 'A'
GEOTECHINICAL REPORT

APPENDIX 'A' – GEOTECHNICAL REPORT

TABLE OF CONTENTS

Test Hole Location Plan	2
Test Hole Log for RD31	3
Test Hole Log for RD32	4
Test Hole Log for RD33	5
Test Hole Log for RD34	6
Test Hole Log for RD35	7
Test Hole Log for RD36	8
Test Hole Log for RD37	9
Test Hole Log for RD38	10
Test Hole Log for RD39	11
Test Hole Log for RD40	12
Test Hole Log for RD41	13
Test Hole Log for RD42	14
Test Hole Log for SY01	15
Test Hole Log for SY02	16

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



NOTE: THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE AMEC EARTH & ENVIRONMENTAL REPORT No. WX17188 DATED JULY 2013.

CLIENT LOGO

CLIENT:
TERRACON DEVELOPMENTS
 AMEC Environment & Infrastructure
 440 DOVERCOURT DRIVE
 WINNIPEG, MANITOBA R3Y 1N4
 PHONE: 204.488.2997 FAX:204.489.8261



DWN BY: MD
 CHK'D BY: RB
 DATUM: NAD83
 PROJECTION: UTM Zone 14 U
 SCALE: AS SHOWN

**GEOTECHNICAL INVESTIGATION
 PROPOSED PRAIRIE INDUSTRIAL PARK
 NEAR MAZENOD AND CAMEL SYS
 WINNIPEG, MANITOBA**

TEST HOLE LOCATION PLAN

DATE: SEPTEMBER 2013
 PROJECT NO: WX17188
 REV. NO.: A
 FIGURE No. FIGURE 1

PROJECT: Prairie Industrial Park		DRILLED BY: Maple Leaf Drilling Ltd.		BORE HOLE NO: RD31	
CLIENT: Terracon Developments		DRILL TYPE: Track Mounted DR150		PROJECT NO: WX17188	
LOCATION: Winnipeg, Manitoba		DRILL METHOD: 125mm Solid Stem Augers		ELEVATION:	
SAMPLE TYPE		<input checked="" type="checkbox"/> Shelby Tube	<input type="checkbox"/> No Recovery	<input checked="" type="checkbox"/> SPT (N)	<input type="checkbox"/> Grab Sample
BACKFILL TYPE		<input checked="" type="checkbox"/> Bentonite	<input type="checkbox"/> Pea Gravel	<input checked="" type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Grout
		<input type="checkbox"/> Split-Pen	<input type="checkbox"/> Core	<input type="checkbox"/> Slough	<input type="checkbox"/> Sand

Depth (m)	UNCONFINED COMPRESSION (kPa)	POCKET PENETROMETER (kPa)	PLASTIC	M.C.	LIQUID	SOIL SYMBOL	MUSCS	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	SPT (N)	COMMENTS	Depth (m)
0						OR		SURFACE ORGANICS (Moss) - ~25mm thick					0
0.1								CLAY - silty, trace rootlets, high plastic, moist, firm to stiff, grey to dark grey		1			0.1
0.2								- no rootlets, stiff, occasional silt inclusions below 0.6m		2			0.2
0.3								- greyish brown, occasional sulphate inclusions below 0.9m		3			0.3
0.4								- 75mm thick silt layer at 1.2m		4			0.4
0.5								- brown below 1.5m		5			0.5
0.6								- occasional oxidation inclusions below 1.8m		6			0.6
0.7								- firm to stiff below 2.1m		7		Hydrometer Analysis Results @ "2.0m": Gravel= 0.0% Sand= 0.2% Silt= 18.2% Clay= 81.6%	0.7
0.8						CH		- firm, brown to light brown below 3m		8			0.8
0.9								- occasional sulphate inclusions below 4.6m		9			0.9
1.0										10			1.0
1.1								TEST HOLE TERMINATED AT 6.1m BELOW EXISTING GRADE					1.1
1.2								NOTES: - No sloughing and seepage encountered upon completion of drilling. Test hole remained open to 6.10m below grade upon completion. Test hole was backfilled with auger cuttings.					1.2

17188 - TERRACON - ST BONIFACE INDUSTRIAL PARK.GPJ 13/09/24 09:15 AM (GEOTECHNICAL REVISED)



AMEC Environment & Infrastructure
Winnipeg, Manitoba

LOGGED BY: AL

REVIEWED BY: RB

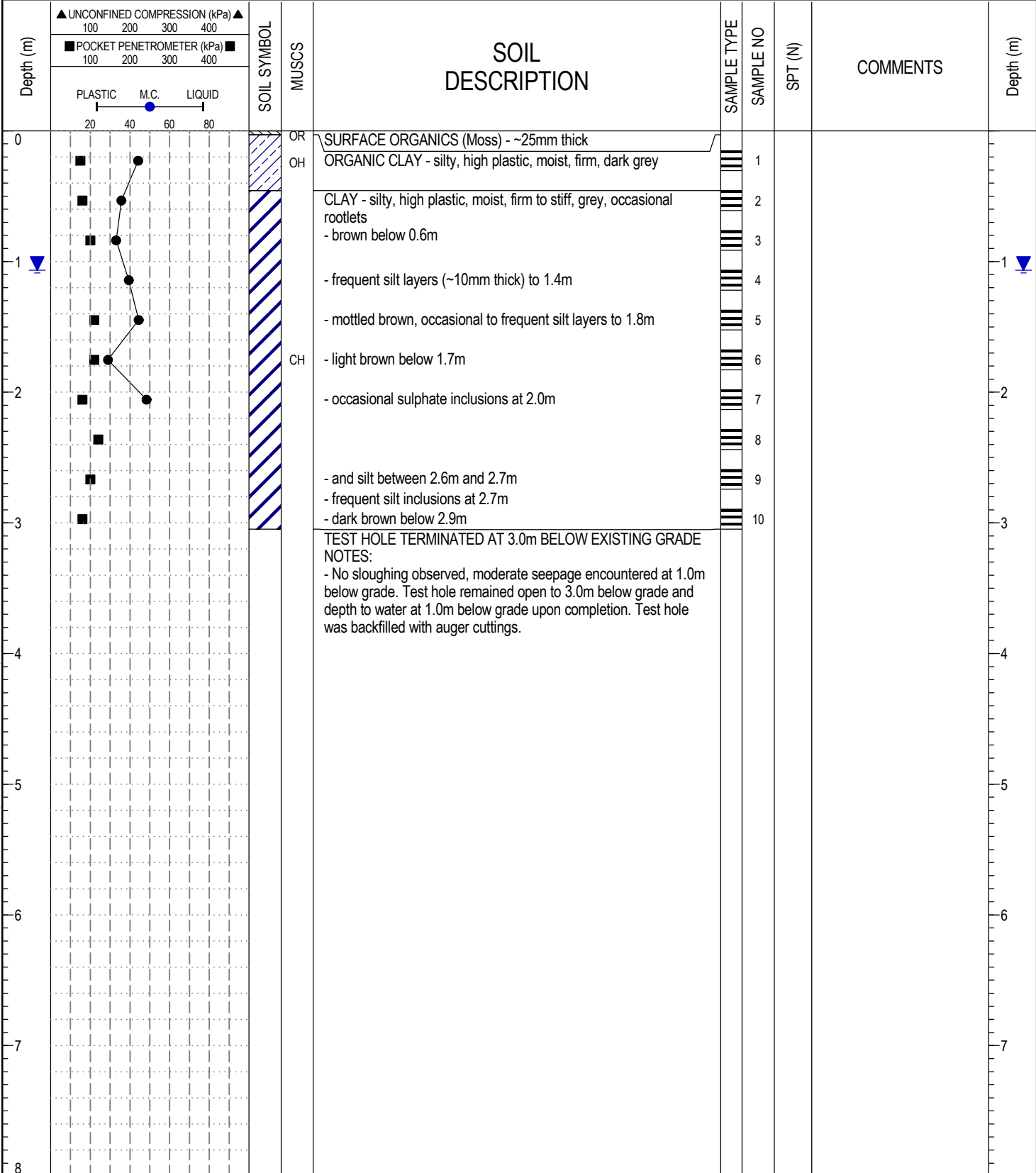
Figure No. 43

COMPLETION DEPTH: 6.1 m

COMPLETION DATE: August 26, 2013

Page 1 of 1

PROJECT: Prairie Industrial Park	DRILLED BY: AMEC	BORE HOLE NO: RD32
CLIENT: Terracon Developments		PROJECT NO: WX17188
LOCATION: Winnipeg, Manitoba	DRILL METHOD: Hand Auger	ELEVATION:
SAMPLE TYPE	<input type="checkbox"/> Shelby Tube <input type="checkbox"/> No Recovery <input checked="" type="checkbox"/> SPT (N) <input type="checkbox"/> Grab Sample <input type="checkbox"/> Split-Pen <input type="checkbox"/> Core	
BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> Pea Gravel <input checked="" type="checkbox"/> Drill Cuttings <input type="checkbox"/> Grout <input type="checkbox"/> Slough <input type="checkbox"/> Sand	



17188 - TERRACON - ST BONIFACE INDUSTRIAL PARK.GPJ 13/09/24 09:15 AM (GEOTECHNICAL REVISED)



AMEC Environment & Infrastructure
 Winnipeg, Manitoba

LOGGED BY: SK

REVIEWED BY: RB

Figure No. 44

COMPLETION DEPTH: 3 m

COMPLETION DATE: July 23, 2013

PROJECT: Prairie Industrial Park		DRILLED BY: Maple Leaf Drilling Ltd.		BORE HOLE NO: RD33	
CLIENT: Terracon Developments		DRILL TYPE: Track Mounted DR150		PROJECT NO: WX17188	
LOCATION: Winnipeg, Manitoba		DRILL METHOD: 125mm Solid Stem Augers		ELEVATION:	
SAMPLE TYPE		<input type="checkbox"/> Shelby Tube	<input type="checkbox"/> No Recovery	<input checked="" type="checkbox"/> SPT (N)	<input type="checkbox"/> Grab Sample
BACKFILL TYPE		<input checked="" type="checkbox"/> Bentonite	<input type="checkbox"/> Pea Gravel	<input checked="" type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Grout
		<input type="checkbox"/> Split-Pen	<input type="checkbox"/> Core	<input type="checkbox"/> Slough	<input type="checkbox"/> Sand

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	SPT (N)	COMMENTS	Depth (m)
0	OR	SURFACE ORGANICS (Moss) - ~50mm thick					
0	MUSCS	CLAY - silty, trace rootlets and organics, high plastic, moist, soft, grey to dark grey, occasional oxidation inclusions	Core	1			
0.6	MUSCS	- greyish brown, firm, no organics and rootlets below 0.6m	Core	2			
0.9	MUSCS	- firm to stiff, occasional oxidation inclusions below 0.9m	Core	3			
1.2	MUSCS	- brown, stiff below 1.2m	Core	4			
2.1	MUSCS	- firm below 2.1m	Core	5			
2.1	MUSCS		Core	6			
2.1	MUSCS		Core	7			
3.0	CH		Core	8			
4.6	CH	- occasional sulphate and silt inclusions, soft to firm below 4.6m	Core	9			
5.8	CH	- soft below 5.8m	Core	10			
6.1		TEST HOLE TERMINATED AT 6.1m BELOW EXISTING GRADE					
		NOTES: - No sloughing and seepage encountered upon completion of drilling. Test hole remained open to 6.10m below grade upon completion. Test hole was backfilled with auger cuttings.					

17188 - TERRACON - ST BONIFACE INDUSTRIAL PARK.GPJ 13/09/24 09:15 AM (GEOTECHNICAL REVISED)



AMEC Environment & Infrastructure
Winnipeg, Manitoba

LOGGED BY: AL

REVIEWED BY: RB

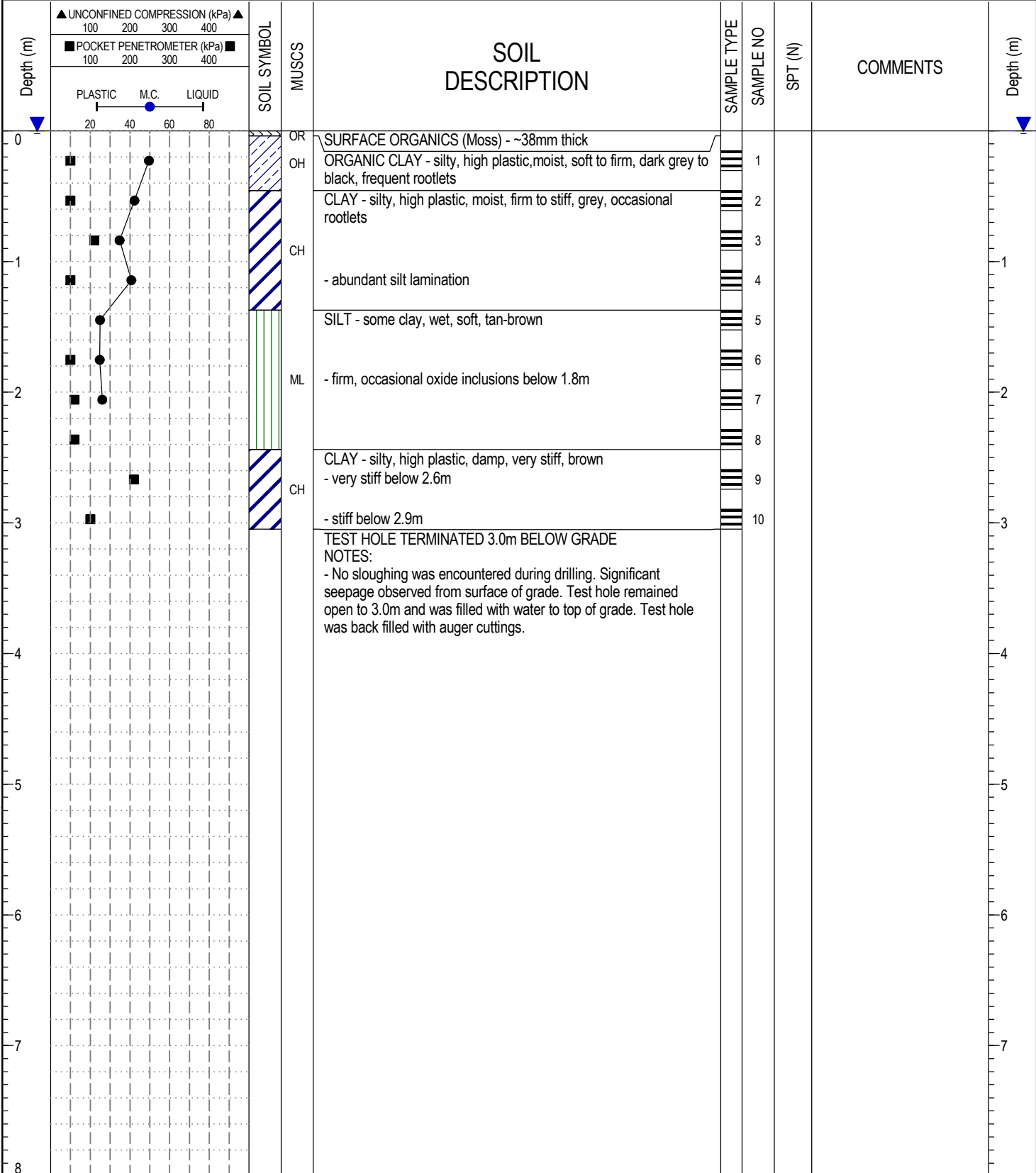
Figure No. 45

COMPLETION DEPTH: 6.1 m

COMPLETION DATE: August 26, 2013

Page 1 of 1

PROJECT: Prairie Industrial Park	DRILLED BY: AMEC	BORE HOLE NO: RD34
CLIENT: Terracon Developments		PROJECT NO: WX17188
LOCATION: Winnipeg, Manitoba	DRILL METHOD: Hand Auger	ELEVATION:
SAMPLE TYPE	<input type="checkbox"/> Shelby Tube <input type="checkbox"/> No Recovery <input checked="" type="checkbox"/> SPT (N) <input type="checkbox"/> Grab Sample <input type="checkbox"/> Split-Pen <input type="checkbox"/> Core	
BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> Pea Gravel <input checked="" type="checkbox"/> Drill Cuttings <input type="checkbox"/> Grout <input type="checkbox"/> Slough <input type="checkbox"/> Sand	



17188 - TERRACON - ST BONIFACE INDUSTRIAL PARK.GPJ 13/09/24 09:15 AM (GEOTECHNICAL REVISED)



AMEC Environment & Infrastructure
Winnipeg, Manitoba

LOGGED BY: SK

REVIEWED BY: RB

Figure No. 46

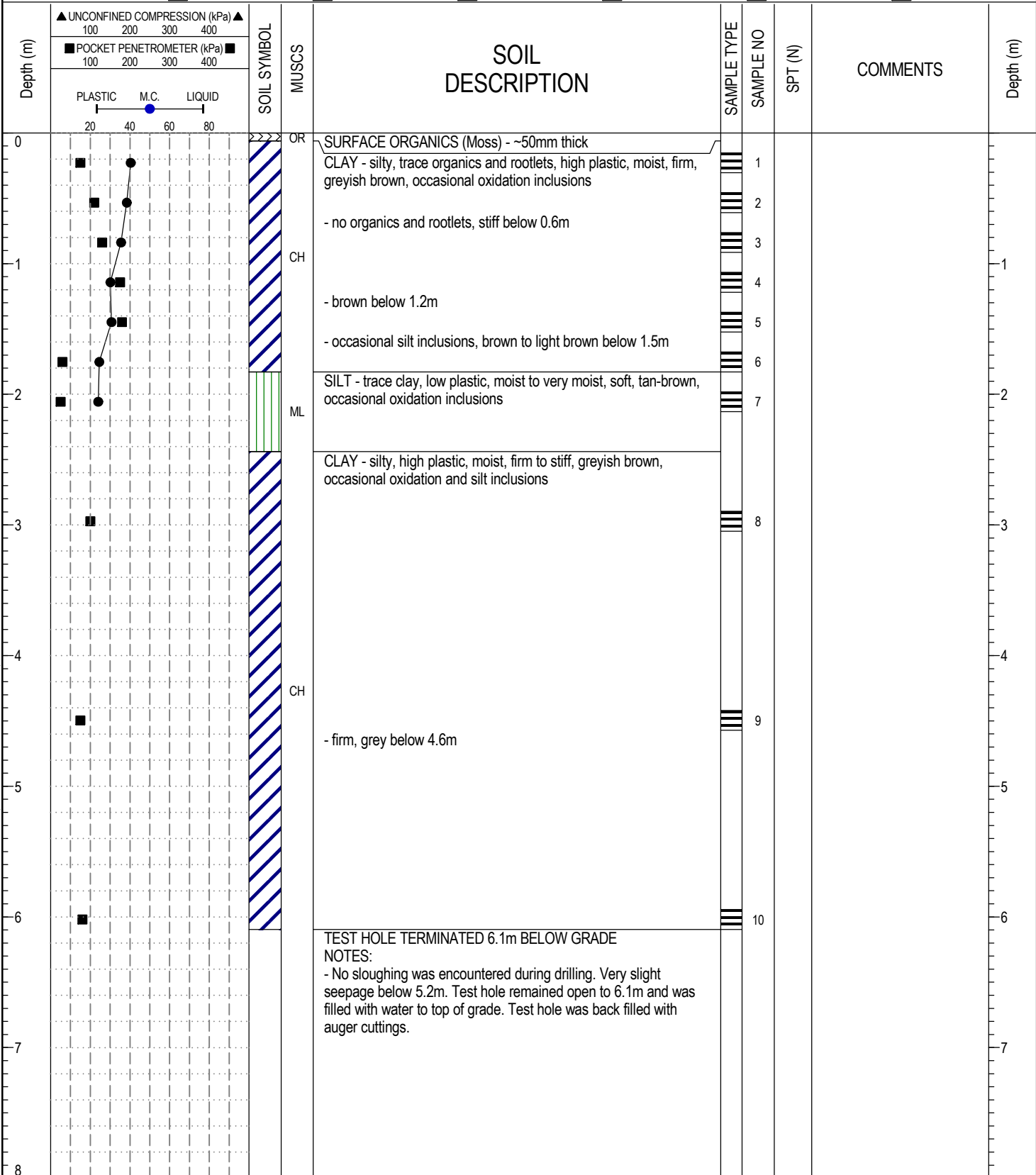
COMPLETION DEPTH: 3 m

COMPLETION DATE: July 23, 2013

Page 1 of 1

PROJECT: Prairie Industrial Park	DRILLED BY: Maple Leaf Drilling Ltd.	BORE HOLE NO: RD35
CLIENT: Terracon Developments	DRILL TYPE: Track Mounted DR150	PROJECT NO: WX17188
LOCATION: Winnipeg, Manitoba	DRILL METHOD: 125mm Solid Stem Augers	ELEVATION:

SAMPLE TYPE	<input checked="" type="checkbox"/> Shelby Tube	<input type="checkbox"/> No Recovery	<input checked="" type="checkbox"/> SPT (N)	<input type="checkbox"/> Grab Sample	<input type="checkbox"/> Split-Pen	<input type="checkbox"/> Core
BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite	<input type="checkbox"/> Pea Gravel	<input checked="" type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Grout	<input type="checkbox"/> Slough	<input type="checkbox"/> Sand



17188 - TERRACON - ST BONIFACE INDUSTRIAL PARK.GPJ 13/09/24 09:15 AM (GEOTECHNICAL REVISED)

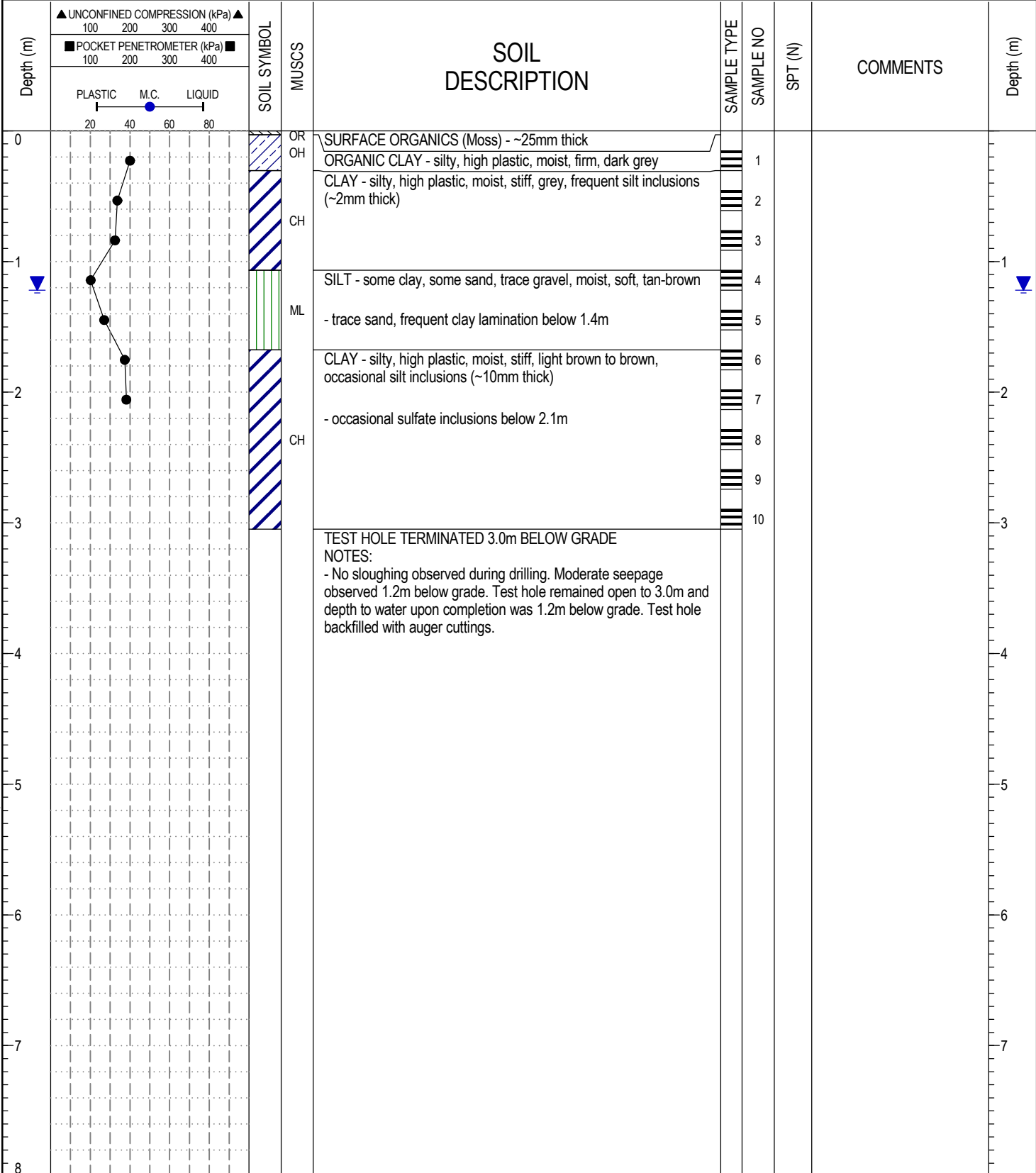


AMEC Environment & Infrastructure
Winnipeg, Manitoba

LOGGED BY: AL
REVIEWED BY: RB
Figure No. 47

COMPLETION DEPTH: 6.1 m
COMPLETION DATE: August 26, 2013

PROJECT: Prairie Industrial Park	DRILLED BY: AMEC	BORE HOLE NO: RD36
CLIENT: Terracon Developments		PROJECT NO: WX17188
LOCATION: Winnipeg, Manitoba	DRILL METHOD: Hand Auger	ELEVATION:
SAMPLE TYPE	<input type="checkbox"/> Shelby Tube <input type="checkbox"/> No Recovery <input checked="" type="checkbox"/> SPT (N) <input type="checkbox"/> Grab Sample <input type="checkbox"/> Split-Pen <input type="checkbox"/> Core	
BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> Pea Gravel <input checked="" type="checkbox"/> Drill Cuttings <input type="checkbox"/> Grout <input type="checkbox"/> Slough <input type="checkbox"/> Sand	



17188 - TERRACON - ST BONIFACE INDUSTRIAL PARK.GPJ 13/09/24 09:16 AM (GEOTECHNICAL REVISED)



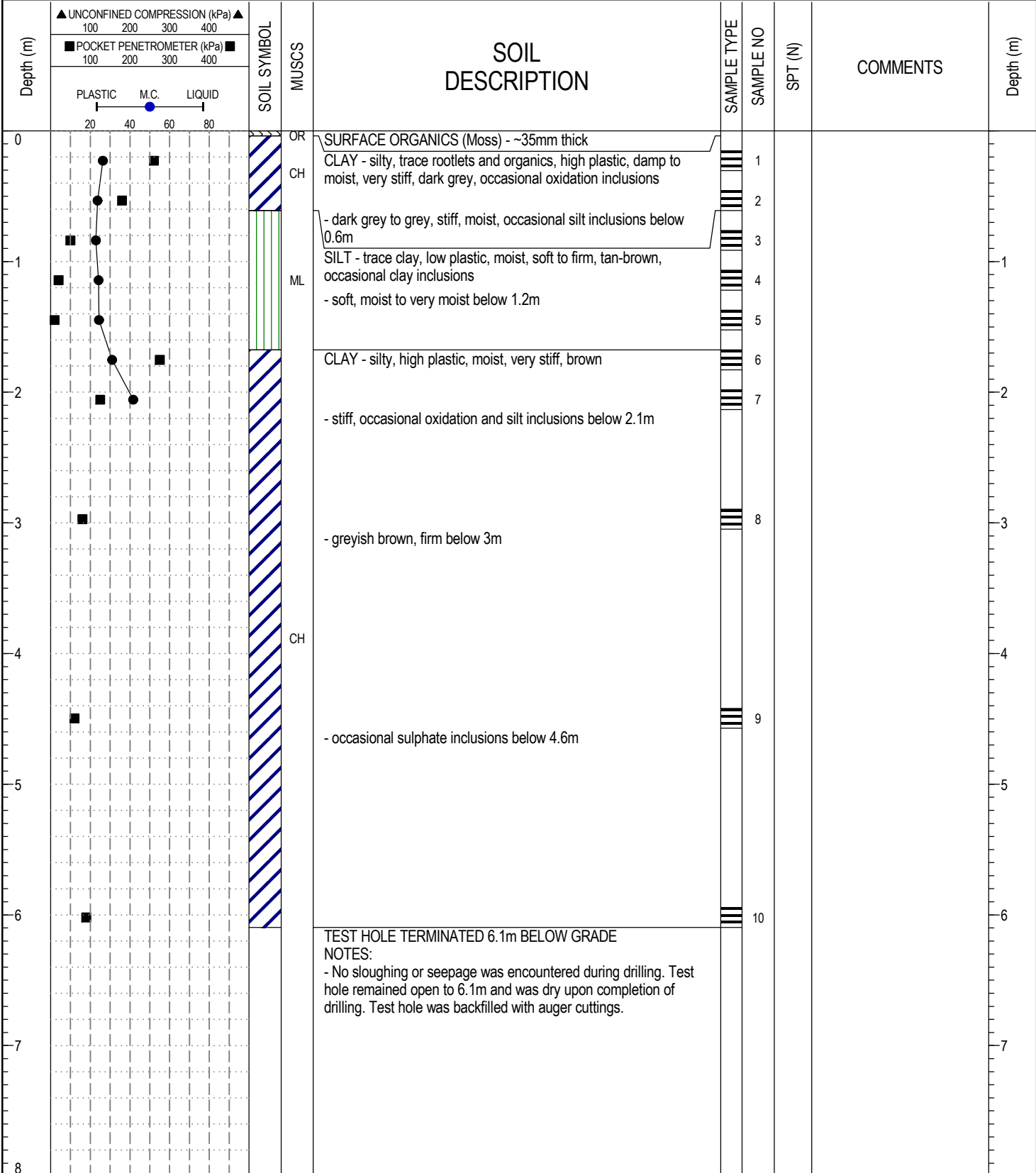
AMEC Environment & Infrastructure
Winnipeg, Manitoba

LOGGED BY: SK
REVIEWED BY: RB
Figure No. 48

COMPLETION DEPTH: 3 m
COMPLETION DATE: July 24, 2013

PROJECT: Prairie Industrial Park	DRILLED BY: Maple Leaf Drilling Ltd.	BORE HOLE NO: RD37
CLIENT: Terracon Developments	DRILL TYPE: Track Mounted DR150	PROJECT NO: WX17188
LOCATION: Winnipeg, Manitoba	DRILL METHOD: 125mm Solid Stem Augers	ELEVATION:

SAMPLE TYPE	<input checked="" type="checkbox"/> Shelby Tube	<input type="checkbox"/> No Recovery	<input checked="" type="checkbox"/> SPT (N)	<input type="checkbox"/> Grab Sample	<input type="checkbox"/> Split-Pen	<input type="checkbox"/> Core
BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite	<input type="checkbox"/> Pea Gravel	<input checked="" type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Grout	<input type="checkbox"/> Slough	<input type="checkbox"/> Sand



17188 - TERRACON - ST BONIFACE INDUSTRIAL PARK.GPJ 13/09/24 09:16 AM (GEOTECHNICAL REVISED)



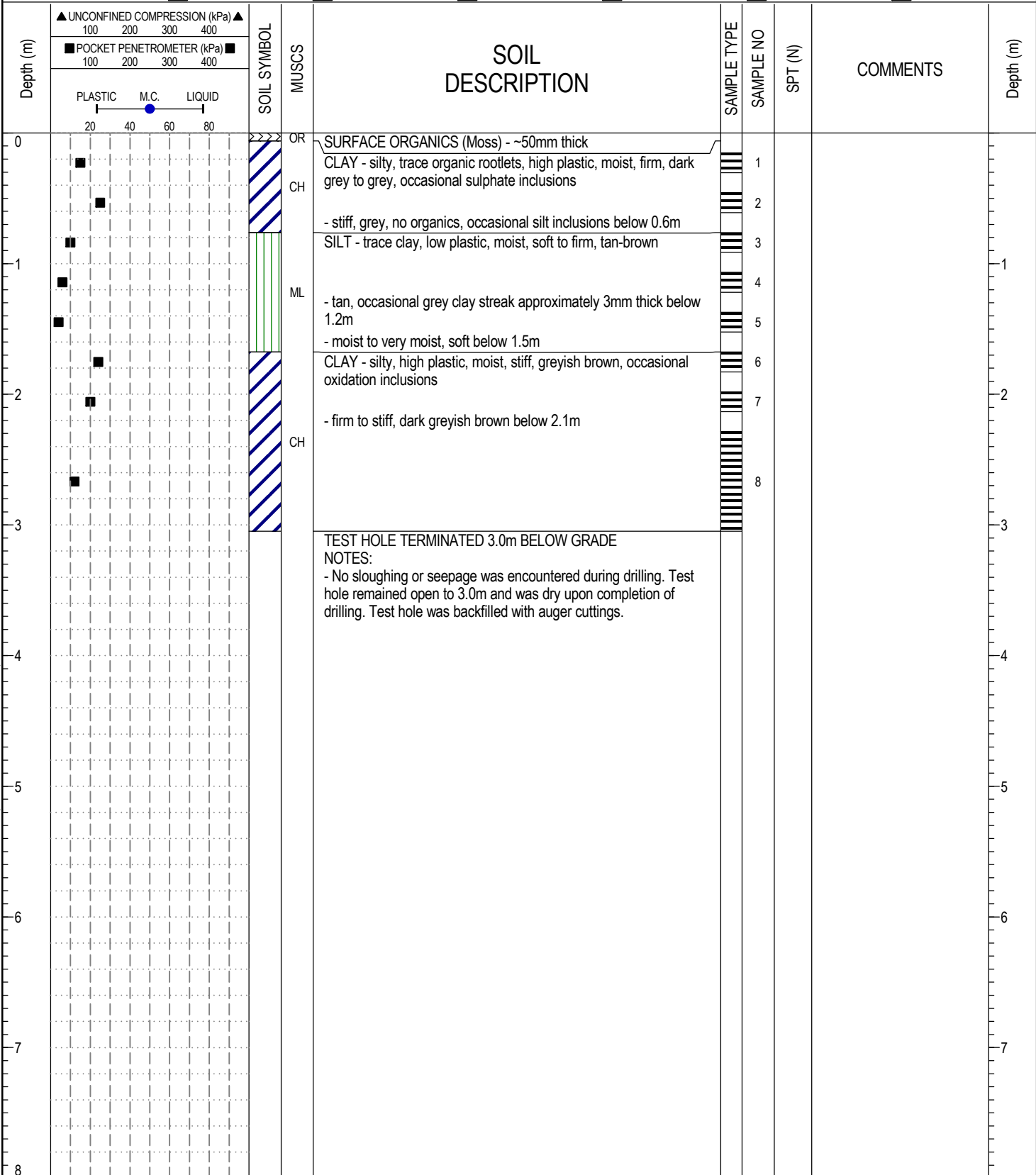
AMEC Environment & Infrastructure
Winnipeg, Manitoba

LOGGED BY: AL
REVIEWED BY: RB
Figure No. 49

COMPLETION DEPTH: 6.1 m
COMPLETION DATE: August 26, 2013

PROJECT: Prairie Industrial Park	DRILLED BY: Maple Leaf Drilling Ltd.	BORE HOLE NO: RD38
CLIENT: Terracon Developments	DRILL TYPE: Track Mounted DR150	PROJECT NO: WX17188
LOCATION: Winnipeg, Manitoba	DRILL METHOD: 125mm Solid Stem Augers	ELEVATION:

SAMPLE TYPE	<input checked="" type="checkbox"/> Shelby Tube	<input type="checkbox"/> No Recovery	<input checked="" type="checkbox"/> SPT (N)	<input type="checkbox"/> Grab Sample	<input type="checkbox"/> Split-Pen	<input type="checkbox"/> Core
BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite	<input type="checkbox"/> Pea Gravel	<input checked="" type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Grout	<input type="checkbox"/> Slough	<input type="checkbox"/> Sand



17188 - TERRACON - ST BONIFACE INDUSTRIAL PARK.GPJ 13/09/24 09:16 AM (GEOTECHNICAL REVISED)



AMEC Environment & Infrastructure
Winnipeg, Manitoba

LOGGED BY: AL
REVIEWED BY: RB
Figure No. 50

COMPLETION DEPTH: 3 m
COMPLETION DATE: August 26, 2013

PROJECT: Prairie Industrial Park		DRILLED BY: Maple Leaf Drilling Ltd.		BORE HOLE NO: RD39	
CLIENT: Terracon Developments		DRILL TYPE: Track Mounted DR150		PROJECT NO: WX17188	
LOCATION: Winnipeg, Manitoba		DRILL METHOD: 125mm Solid Stem Augers		ELEVATION:	
SAMPLE TYPE		<input type="checkbox"/> Shelby Tube	<input type="checkbox"/> No Recovery	<input checked="" type="checkbox"/> SPT (N)	<input type="checkbox"/> Grab Sample
BACKFILL TYPE		<input checked="" type="checkbox"/> Bentonite	<input type="checkbox"/> Pea Gravel	<input checked="" type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Grout
		<input type="checkbox"/> Split-Pen	<input type="checkbox"/> Core	<input type="checkbox"/> Slough	<input type="checkbox"/> Sand

Depth (m)	UNCONFINED COMPRESSION (kPa)		SOIL SYMBOL	MUSCS	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	SPT (N)	COMMENTS	Depth (m)
	▲	■								
0			OR		SURFACE ORGANICS (Moss) - ~50mm thick					
0			OH		ORGANIC CLAY - silty, trace rootlets, trace organics, high plastic, moist, soft, dark grey to black		1		Hydrometer Analysis Results @ "0.5m": Gravel= 0.0% Sand= 3.8% Silt= 60.0% Clay= 36.2%	
0.1			ML		SILT - trace clay, occasional rootlets, occasional organics, low plastic, moist, very soft, tan-brown		2			
0.2					CLAY - silty, high plastic, moist, stiff, greyish brown, occasional oxide inclusions		3			
0.3							4			
0.4							5			
0.5							6			
0.6							7			
0.7					- occasional silt inclusions below 1.8m		8			
0.8					- firm, brown below 2.1m		9			
0.9							10			
1.0			CH							
1.1										
1.2										
1.3										
1.4										
1.5										
1.6										
1.7										
1.8										
1.9										
2.0										
2.1										
2.2										
2.3										
2.4										
2.5										
2.6										
2.7										
2.8										
2.9										
3.0										
3.1										
3.2										
3.3										
3.4										
3.5										
3.6										
3.7										
3.8										
3.9										
4.0										
4.1										
4.2										
4.3										
4.4										
4.5										
4.6										
4.7										
4.8										
4.9										
5.0										
5.1										
5.2										
5.3										
5.4										
5.5										
5.6										
5.7										
5.8										
5.9										
6.0										
6.1										
6.2										
6.3										
6.4										
6.5										
6.6										
6.7										
6.8										
6.9										
7.0										
7.1										
7.2										
7.3										
7.4										
7.5										
7.6										
7.7										
7.8										
7.9										
8.0										

17188 - TERRACON - ST BONIFACE INDUSTRIAL PARK.GPJ 13/09/24 09:16 AM (GEOTECHNICAL REVISED)



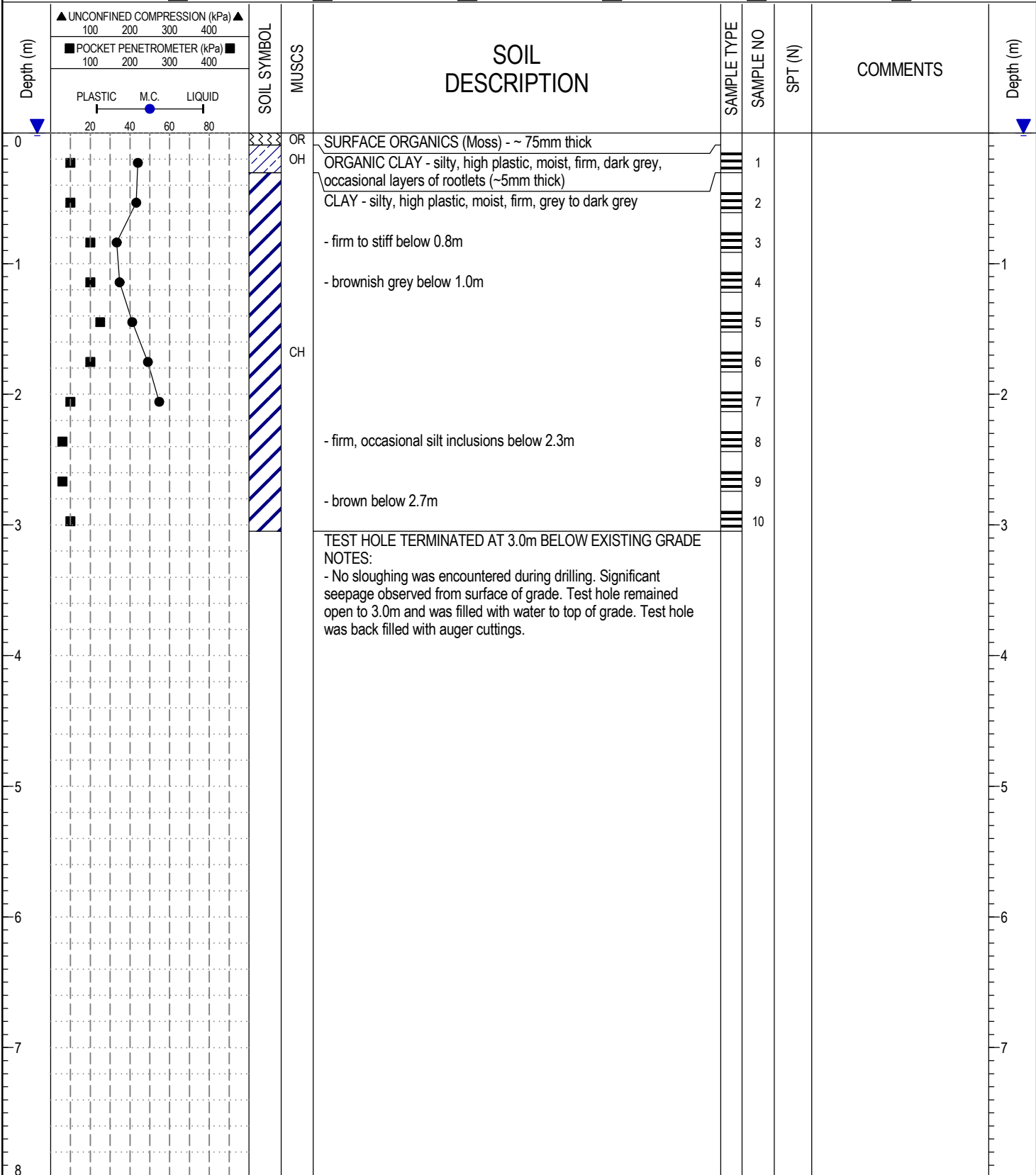
AMEC Environment & Infrastructure
Winnipeg, Manitoba

LOGGED BY: AL
REVIEWED BY: RB
Figure No. 51

COMPLETION DEPTH: 6.1 m
COMPLETION DATE: August 21, 2013

PROJECT: Prairie Industrial Park	DRILLED BY: AMEC	BORE HOLE NO: RD40
CLIENT: Terracon Developments		PROJECT NO: WX17188
LOCATION: Winnipeg, Manitoba	DRILL METHOD: Hand Auger	ELEVATION:

SAMPLE TYPE	<input type="checkbox"/> Shelby Tube	<input type="checkbox"/> No Recovery	<input checked="" type="checkbox"/> SPT (N)	<input type="checkbox"/> Grab Sample	<input type="checkbox"/> Split-Pen	<input type="checkbox"/> Core
BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite	<input type="checkbox"/> Pea Gravel	<input checked="" type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Grout	<input type="checkbox"/> Slough	<input type="checkbox"/> Sand



17188 - TERRACON - ST BONIFACE INDUSTRIAL PARK.GPJ 13/09/24 09:16 AM (GEOTECHNICAL REVISED)



AMEC Environment & Infrastructure
Winnipeg, Manitoba

LOGGED BY: SK

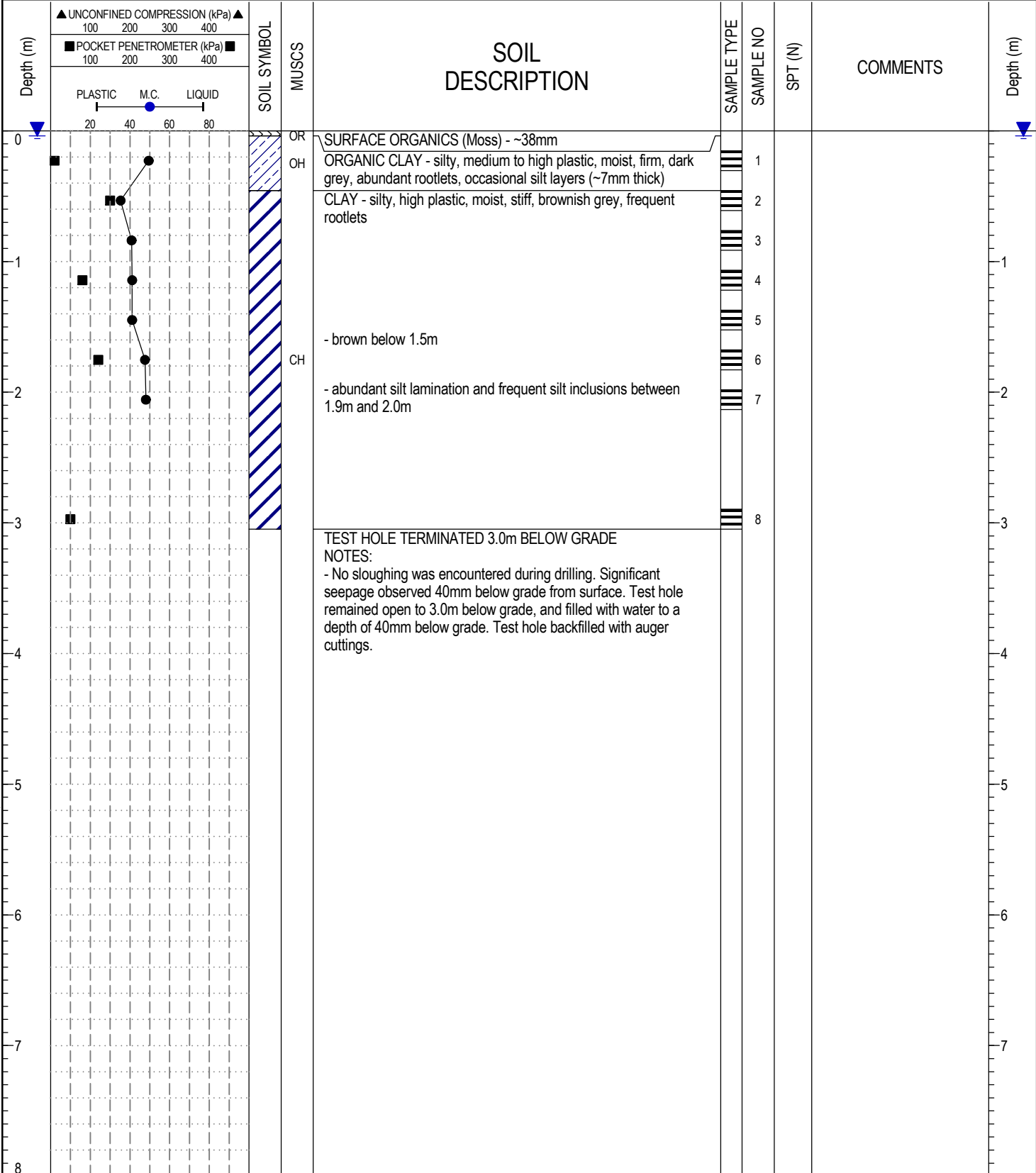
REVIEWED BY: RB

Figure No. 52

COMPLETION DEPTH: 3 m

COMPLETION DATE: July 24, 2013

PROJECT: Prairie Industrial Park	DRILLED BY: AMEC	BORE HOLE NO: RD42
CLIENT: Terracon Developments		PROJECT NO: WX17188
LOCATION: Winnipeg, Manitoba	DRILL METHOD: Hand Auger	ELEVATION:
SAMPLE TYPE	<input type="checkbox"/> Shelby Tube <input type="checkbox"/> No Recovery <input checked="" type="checkbox"/> SPT (N) <input type="checkbox"/> Grab Sample <input type="checkbox"/> Split-Pen <input type="checkbox"/> Core	
BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> Pea Gravel <input checked="" type="checkbox"/> Drill Cuttings <input type="checkbox"/> Grout <input type="checkbox"/> Slough <input type="checkbox"/> Sand	



17188 - TERRACON - ST BONIFACE INDUSTRIAL PARK.GPJ 13/09/24 09:16 AM (GEOTECHNICAL REVISED)



AMEC Environment & Infrastructure
 Winnipeg, Manitoba

LOGGED BY: SK

REVIEWED BY: RB

Figure No. 54

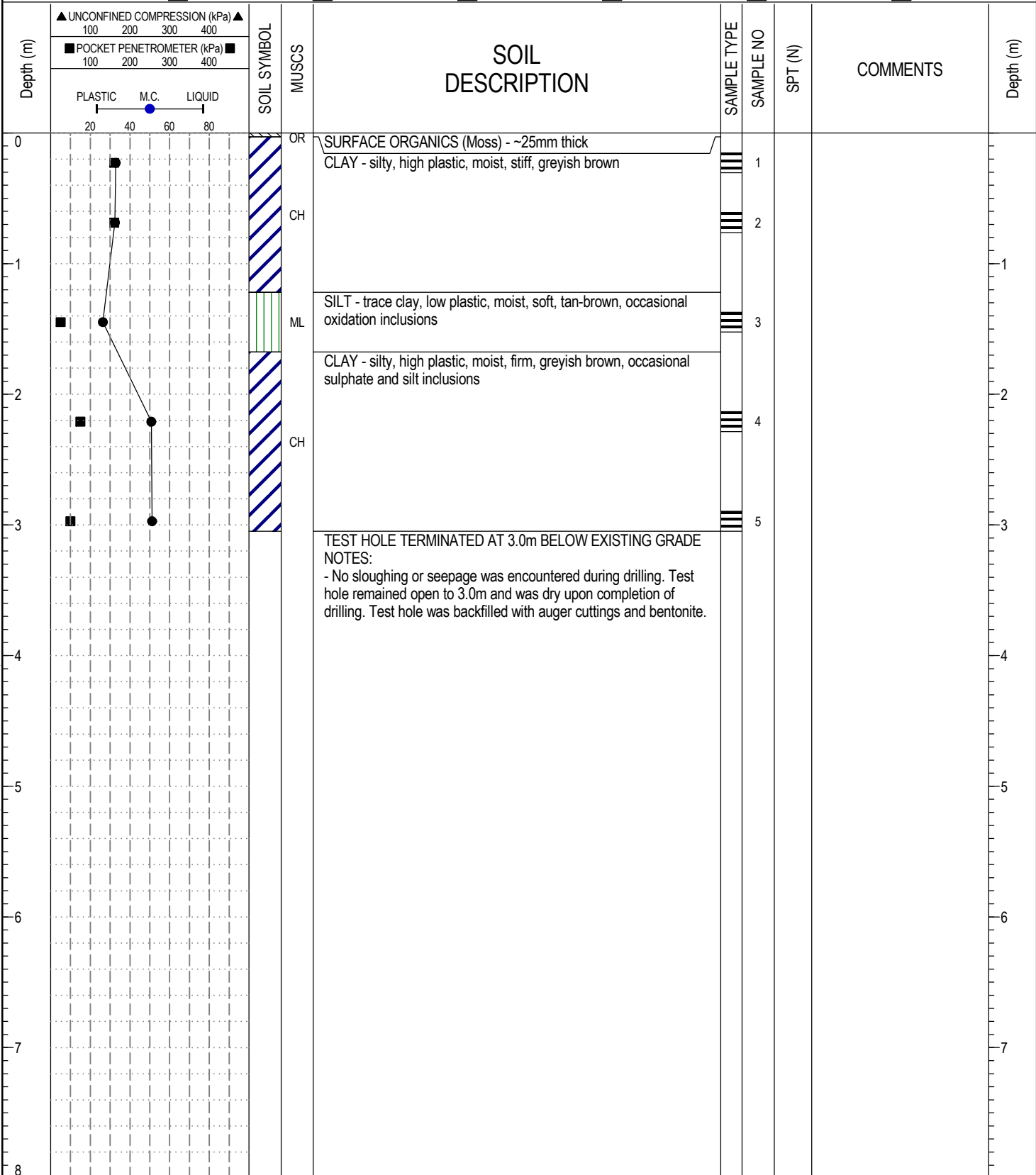
COMPLETION DEPTH: 3 m

COMPLETION DATE: July 26, 2013

Page 1 of 1

PROJECT: Prairie Industrial Park	DRILLED BY: Maple Leaf Drilling Ltd.	BORE HOLE NO: SY01
CLIENT: Terracon Developments	DRILL TYPE: Track Mounted DR150	PROJECT NO: WX17188
LOCATION: Winnipeg, Manitoba	DRILL METHOD: 125mm Solid Stem Augers	ELEVATION:

SAMPLE TYPE	<input checked="" type="checkbox"/> Shelby Tube	<input type="checkbox"/> No Recovery	<input checked="" type="checkbox"/> SPT (N)	<input type="checkbox"/> Grab Sample	<input type="checkbox"/> Split-Pen	<input type="checkbox"/> Core
BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite	<input type="checkbox"/> Pea Gravel	<input checked="" type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Grout	<input type="checkbox"/> Slough	<input type="checkbox"/> Sand



17188 - TERRACON - ST BONIFACE INDUSTRIAL PARK.GPJ 13/09/24 09:16 AM (GEOTECHNICAL REVISED)



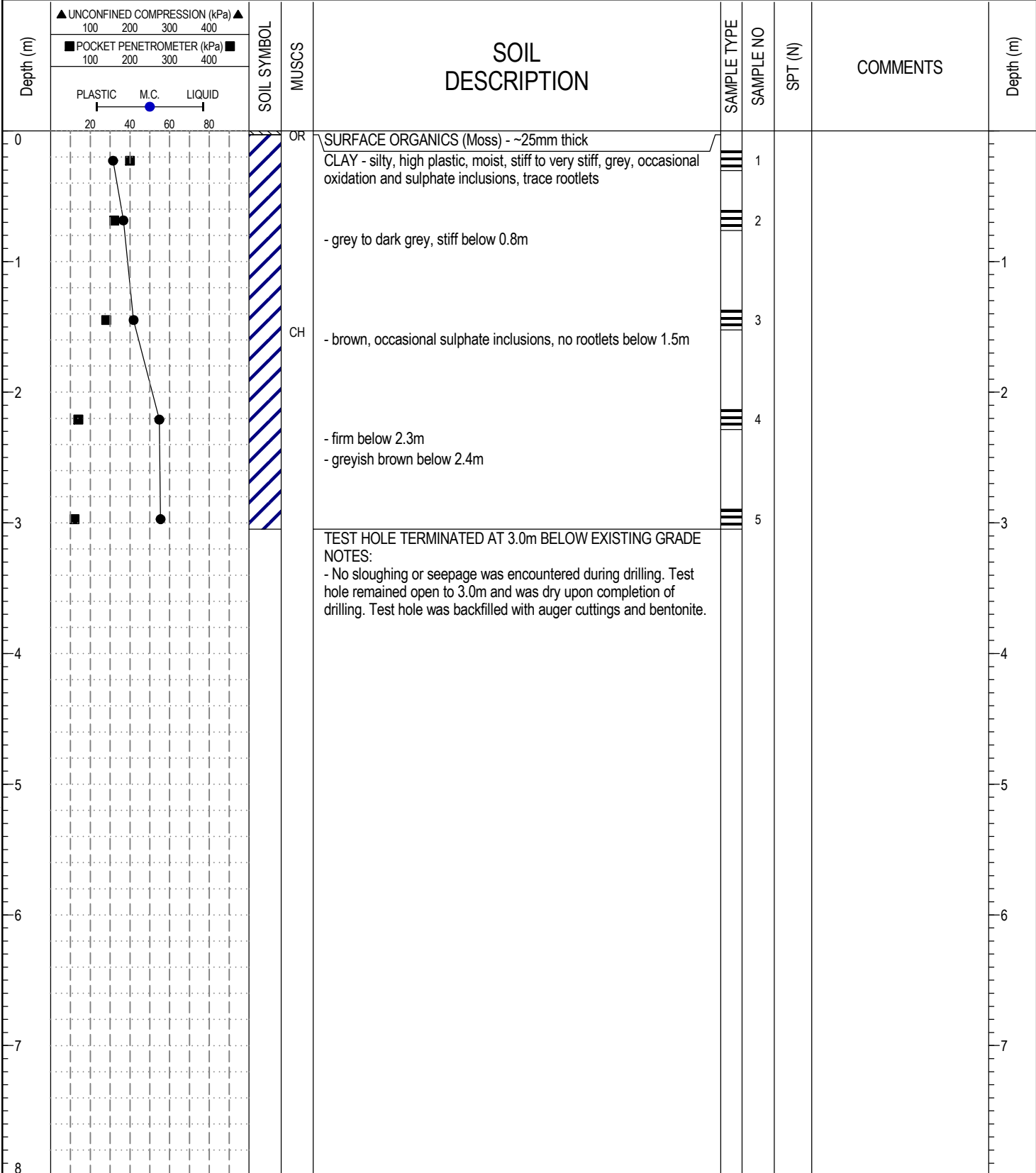
AMEC Environment & Infrastructure
Winnipeg, Manitoba

LOGGED BY: AL
REVIEWED BY: RB
Figure No. 66

COMPLETION DEPTH: 3 m
COMPLETION DATE: August 26, 2013

PROJECT: Prairie Industrial Park	DRILLED BY: Maple Leaf Drilling Ltd.	BORE HOLE NO: SY02
CLIENT: Terracon Developments	DRILL TYPE: Track Mounted DR150	PROJECT NO: WX17188
LOCATION: Winnipeg, Manitoba	DRILL METHOD: 125mm Solid Stem Augers	ELEVATION:

SAMPLE TYPE	<input checked="" type="checkbox"/> Shelby Tube	<input type="checkbox"/> No Recovery	<input checked="" type="checkbox"/> SPT (N)	<input type="checkbox"/> Grab Sample	<input type="checkbox"/> Split-Pen	<input type="checkbox"/> Core
BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite	<input type="checkbox"/> Pea Gravel	<input checked="" type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Grout	<input type="checkbox"/> Slough	<input type="checkbox"/> Sand



17188 - TERRACON - ST BONIFACE INDUSTRIAL PARK.GPJ 13/09/24 09:16 AM (GEOTECHNICAL REVISED)



AMEC Environment & Infrastructure
Winnipeg, Manitoba

LOGGED BY: AL
REVIEWED BY: RB
Figure No. 67

COMPLETION DEPTH: 3 m
COMPLETION DATE: August 26, 2013
Page 1 of 1