

Appendix A: Geotechnical Report

Geotechnical Testing Services for the Regional and Local Street Renewal Program

2026 Local Streets (26-R-03)

Prepared for:

Tetra Tech Canada Inc.
400 – 161 Portage Ave. East
Winnipeg, Manitoba

January 6, 2025

Table of Contents

Introduction	1
Field Work Program	1
Sample Review and Data Reporting.....	2
Closure.....	2

Appendix A – Reconstruction Sites

A.1. Crowson Bay (Dowker Ave to Dowker Ave).....	3
A.2. Kenneth St (Dowker Ave to End).....	21
A.3. Parker Avenue (Wynne St to 1223 Parker Ave).....	37

Appendix B – Rehabilitation Sites

B.1. Waterbury Drive (Lindenwood Dr E to Lindenwood Dr E).....	76
B.2. Boston Avenue (Pembina Hwy to Hudson St).....	94
B.3. Crescent Drive (Pembina Hwy to Park Entrance).....	101

Introduction

On November 21, 2025, H. Manalo Consulting Ltd. (HMCL) was authorized by Jeff Crang of Tetra Tech Canada Inc. to proceed with the geotechnical investigation, as outlined in the Subconsultant Agreement dated November 24, 2025. The objective of the investigation was to assess existing road conditions through pavement coring and subsurface soil sampling on six collector and local streets under City of Winnipeg Package 26-R-03. The list of streets included in this project is provided in Table 1 below.

Table 1. Local Street Package 26-R-03

Location	Classification	Treatment
Crowson Bay (Dowker Ave to Dowker Ave)	Local	Asphalt Reconstruction
Kenneth St (Dowker Ave to End)	Local	Asphalt Reconstruction
Parker Avenue (Wynne St to 1223 Parker Ave)	Local	Asphalt Reconstruction
Waterbury Drive (Lindenwood Dr E to Lindenwood Dr E)	Local	Major Rehabilitation
Boston Avenue (Pembina Hwy to Hudson St)	Local	Asphalt Rehabilitation
Crescent Drive (Pembina Hwy to Park Entrance)	Collector	Asphalt Rehabilitation

Field Work Program

The investigation adhered to the City of Winnipeg's guidelines, with core locations designated by Tetra Tech Canada Ltd. For local streets scheduled for pavement rehabilitation or reconstruction, pavement cores were extracted at joints and mid-slab to assess pavement condition. Coring was conducted from December 2 to December 10, 2025, using a 160 mm diameter coring bit.

Subgrade drilling was carried out to depths of 2.5 m for reconstruction projects and 1 m for rehabilitation projects between December 8 and December 10, 2025. Initial soil classification was performed on site, and samples were collected. Afterward, the pavement sections were refilled with aggregates and cold-mix asphalt. All collected samples were sent to the HMCL laboratory for analysis.

Laboratory Analysis and Reporting

Core samples were brought back to the laboratory for documentation. Thickness measurements and core sample images were documented for reference. Asphalt pavement thickness ranged from 20 mm to 180 mm, while concrete pavement thickness varied between 150 mm and 245 mm. Additionally, compressive strength testing was performed on concrete core samples taken from major rehabilitation sites.

Subsurface soil samples were tested for moisture content and visually classified. Selected samples underwent plasticity index, particle size distribution, and CBR testing. A soil log was completed for reference. The required quantity of testing was determined by the client in accordance with City of Winnipeg requirements. Please note that additional samples taken and tests completed are considered non-chargeable.

We appreciated the opportunity to assist you in this project. Please call the undersigned if you require further information.

Prepared by:



Mayumi Kawano, EIT

Geotechnical Engineer Intern
Field and Laboratory Supervisor

Reviewed by:



Paul Bevel

Manager, Field and Laboratory Services

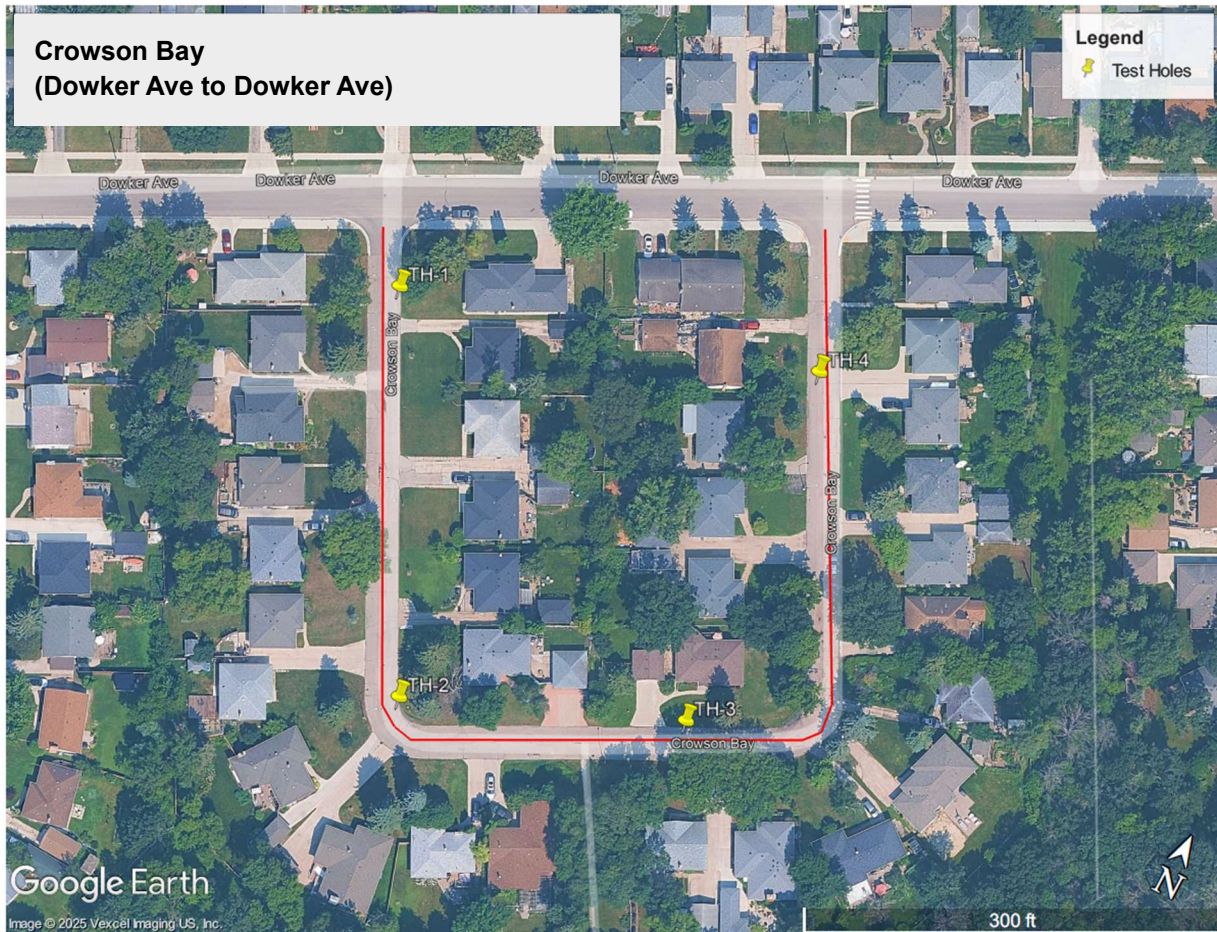
APPENDIX A.1.

CROWSON BAY

(DOWKER AVE TO DOWKER AVE)

Reconstruction Sites

Pavement Coring and Subsurface Drilling Locations

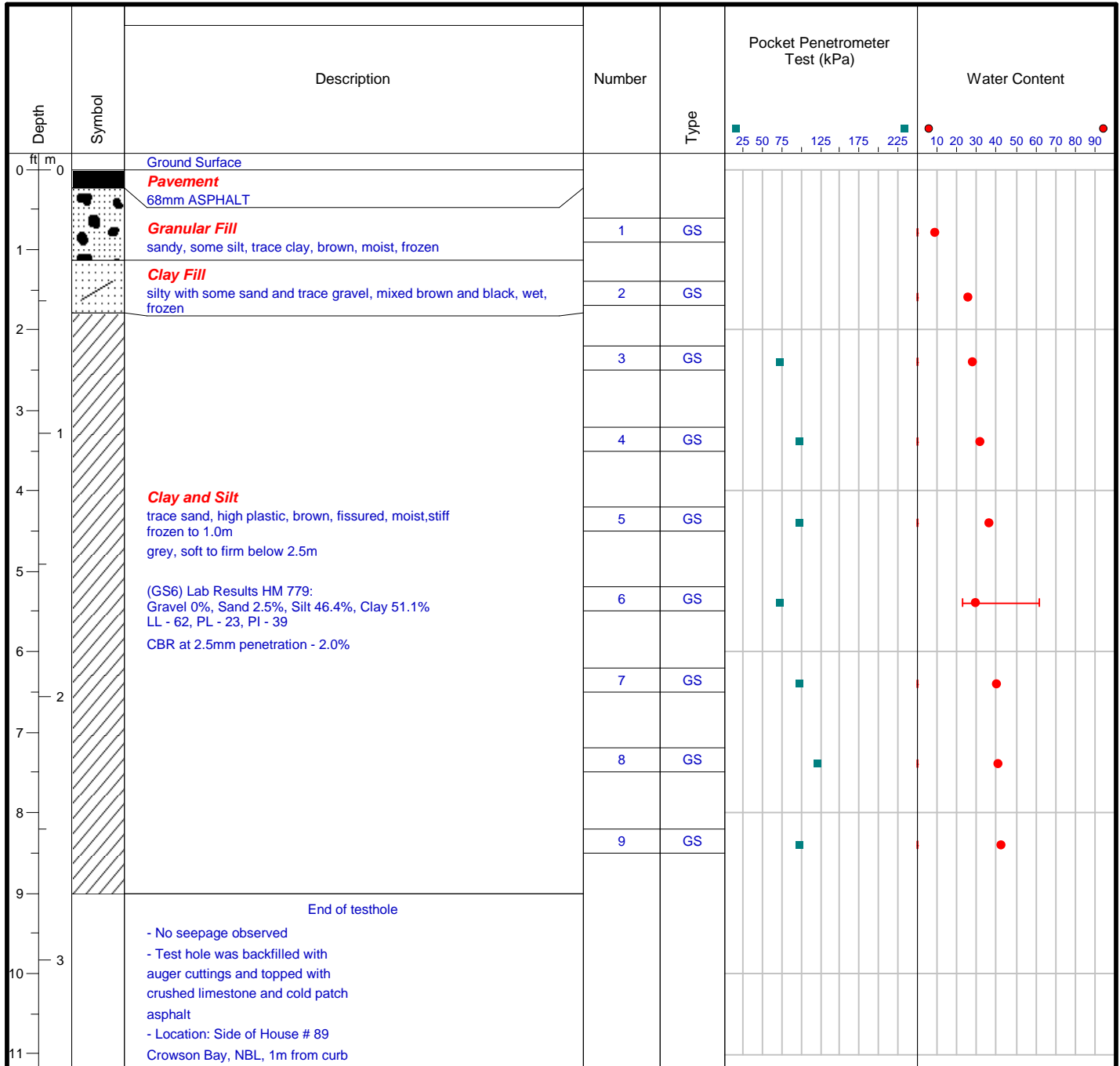


Reconstruction Sites

Pavement Structure Measurement

Test Hole No.	Test Hole Location	Asphalt Thickness (mm)	Concrete Thickness (mm)
Crowson Bay (Dowker Ave to Dowker Ave)			
TH1	Side of House # 89 Crowson Bay, NBL 14 U, 633199 E, 5522476 N	68mm	-
TH2	Front of House # 71 Crowson Bay, NBL 14 U, 633243 E, 5522398 N	35mm	195mm ^A
TH3	Front of House # 21 Crowson Bay, WBL 14 U, 633301 E, 5522424 N	30mm	150mm ^A
TH4	Front of House # 51 Crowson Bay, SBL 14 U, 633289 E, 5522505 N	90mm	165mm ^A

Note: ^A - deterioration of concrete pavement at this location



Drill Method: Auger Drilling

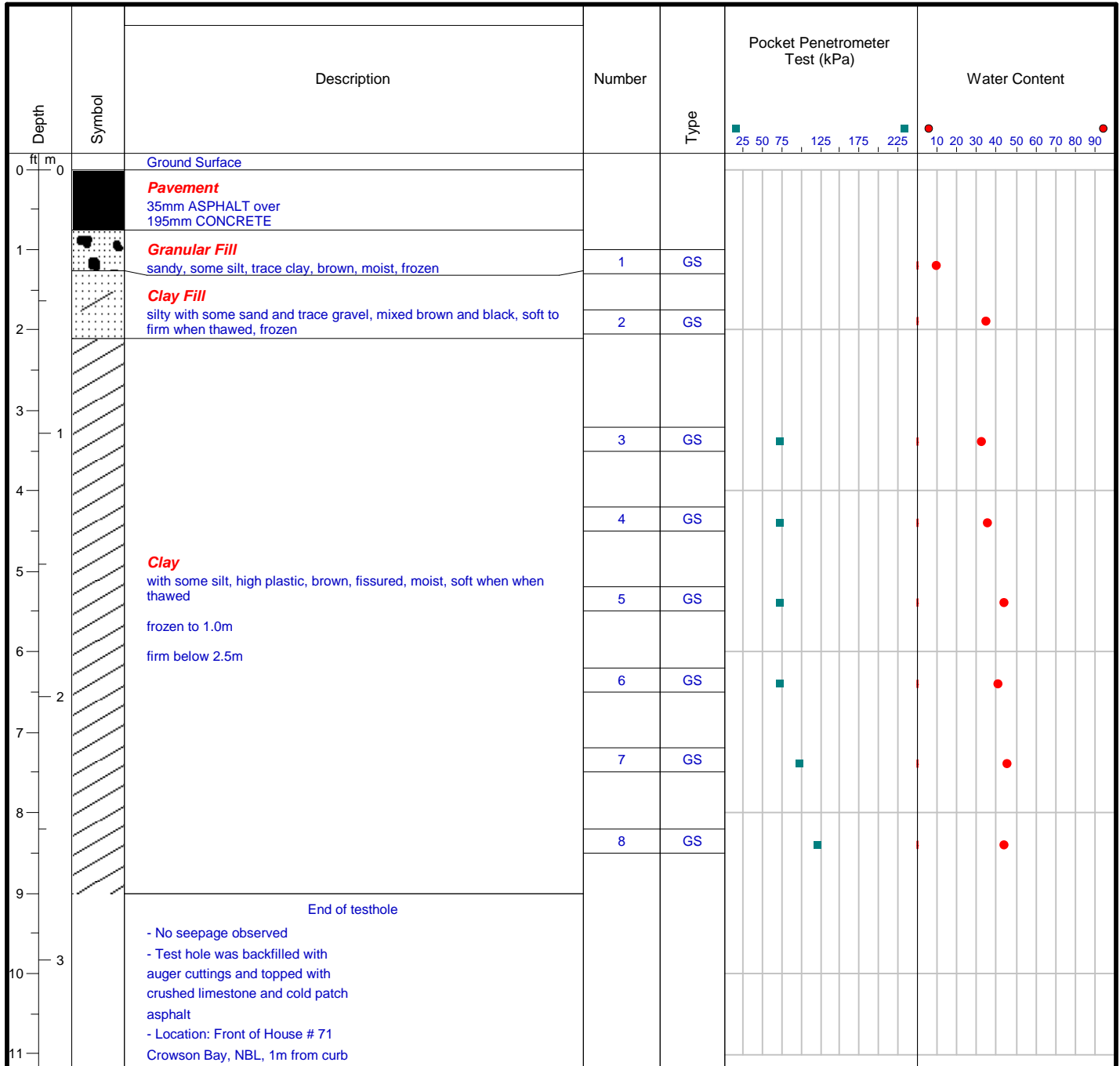
Drill Date: December 8, 2025

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1



Drill Method: Auger Drilling

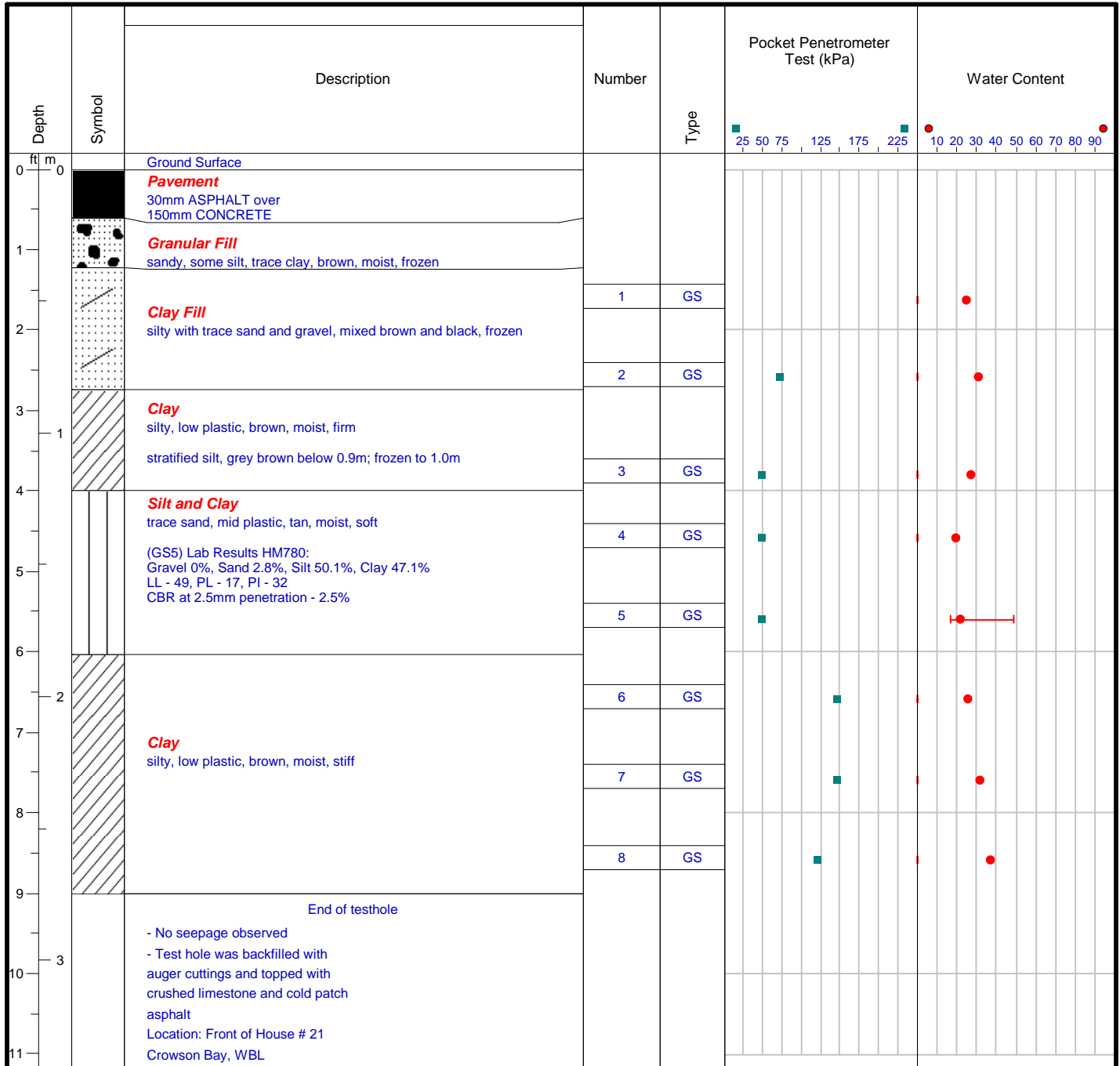
Datum: Existing surface

Drill Date: December 8, 2025

Checked by: Paul Bevel

Hole Size: 5 Inches

Sheet: 1 of 1



Drill Method: Auger Drilling

Drill Date: December 8, 2025

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1

Depth ft m	Symbol	Description	Number	Type	Pocket Penetrometer Test (kPa)		Water Content	
					25 50 75 125 175 225		10 20 30 40 50 60 70 80 90	
0		Ground Surface						
0		Pavement 90mm Asphalt over 165 Concrete						
1		Clay Fill silty with some sand and trace gravel, mixed brown and black, frozen	1	GS				
2			2	GS				
3		Clay silty, low plastic, dark brown, moist, soft to firm frozen to 1.0m brown, firm below 1.4m	3	GS				
4			4	GS				
5			5	GS				
6			6	GS				
7		Clay trace silt, high plastic, grey brown, stiff	7	GS				
8			8	GS				
9			9	GS				
10		End of testhole - No seepage observed - Test hole was backfilled with auger cuttings and topped with crushed limestone and cold patch asphalt -Location: Front of House # 51 Crowson Bay, SBL, 1m from curb						
11								

Drill Method: Auger Drilling

Drill Date: December 8, 2025

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1

Reconstruction Sites

Summary of Laboratory Testing

Crowson Bay (Dowker Ave to Dowker Ave)												
TH	GS	PSA				PI			PR		CBR	
		Gravel (%)	Sand (%)	Silt (%)	Clay (%)	LL (%)	PL (%)	PI (%)	MDD (kg/m ³)	OMC (%)	at 2.5mm penetration	at 5.1mm penetration
TH 1	GS 6	0.0	2.5	46.4	51.1	62	23	39	1561	24.3	2	1.7
TH 3	GS 5	0.0	2.8	50.1	47.1	49	17	32	1670	20.7	2.5	1.9

CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: Tetra Tech Canada Inc.

400-161 Portage Ave. E

Winnipeg, MB R3B 0Y4

Attention: Jeff Crang

Project 2026 Local Streets (26-R-03)

Location: Crowson Bay, Winnipeg

Project No: 550-2501

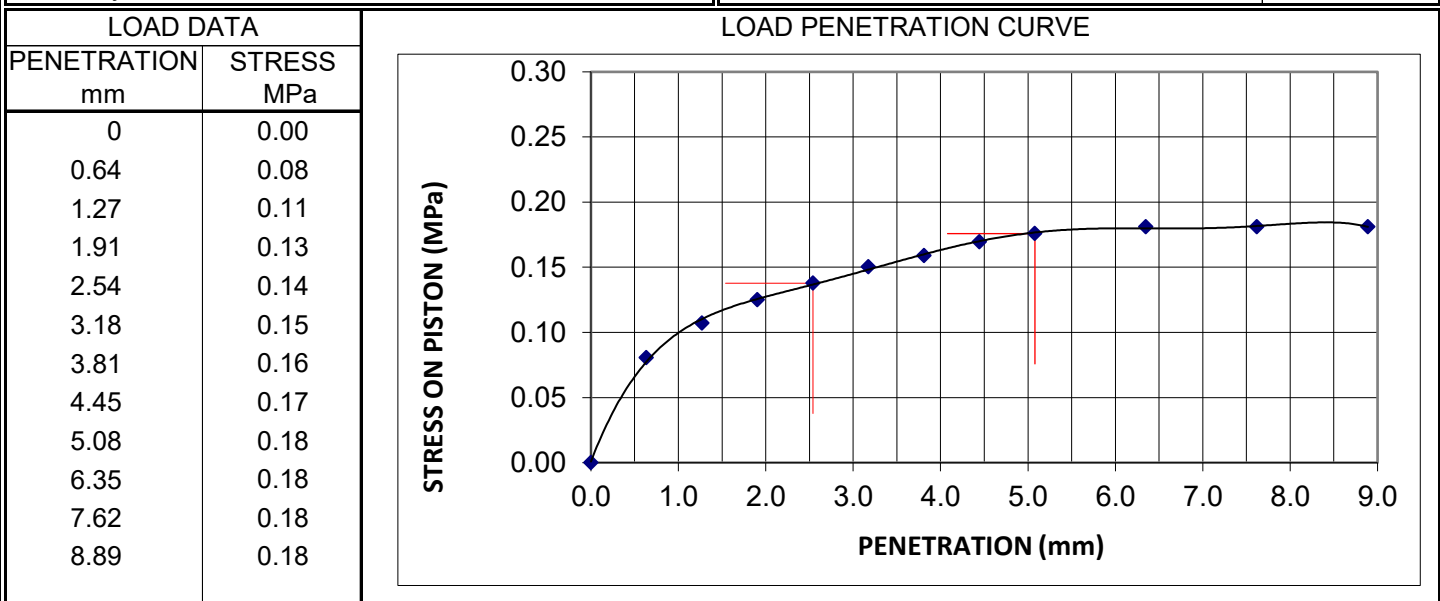
Lab No: HM 779

Date sampled/By: 08-Dec-25 MK

Date Received: 08-Dec-25 MK

Date Tested /By: 18-Dec-25 MA

SAMPLE DATA		SPECIMEN DATA		
Sample Type:	CLAY - Silty with trace sand	DESCRIPTION	Before Soaking	After Testing
Source:	Crowson Bay - TH-1 - GS 6	Moisture Content (MC), %	24.6	32.2
Sampled by:	MK	MC of top 25mm layer, %		
Optimum Moisture Content:	24.3 %	Dry Density, kg/m ³	1485	2022
Maximum Dry Density:	1561 kg/cm ³	Compaction, %	95%	
Method of Compaction:	Standard Proctor	CBR at 2.5mm penetration, %		2.0
Tested by:	ECS	Swell, %		1.4
	Date Tested: 17-Dec-26			



PENETRATION mm	STANDARD LOAD MPa	TEST LOAD		BEARING RATIO (soaked)	
		ACTUAL MPa	CORRECTED MPa	at 2.5 mm penetration	at 5.1 mm penetration
2.54	6.9	0.14	0.14	2.0	-
5.08	10.3	0.18	0.18	-	1.7

Remarks:

P. Bevel

Reviewed by: Paul Bevel

CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: Tetra Tech Canada Inc.

400-161 Portage Ave. E

Winnipeg, MB R3B 0Y4

Attention: Jeff Crang

Project 2026 Local Streets (26-R-03)

Location: Crowson Bay, Winnipeg

Project No: 550-2501

Lab No: HM 780

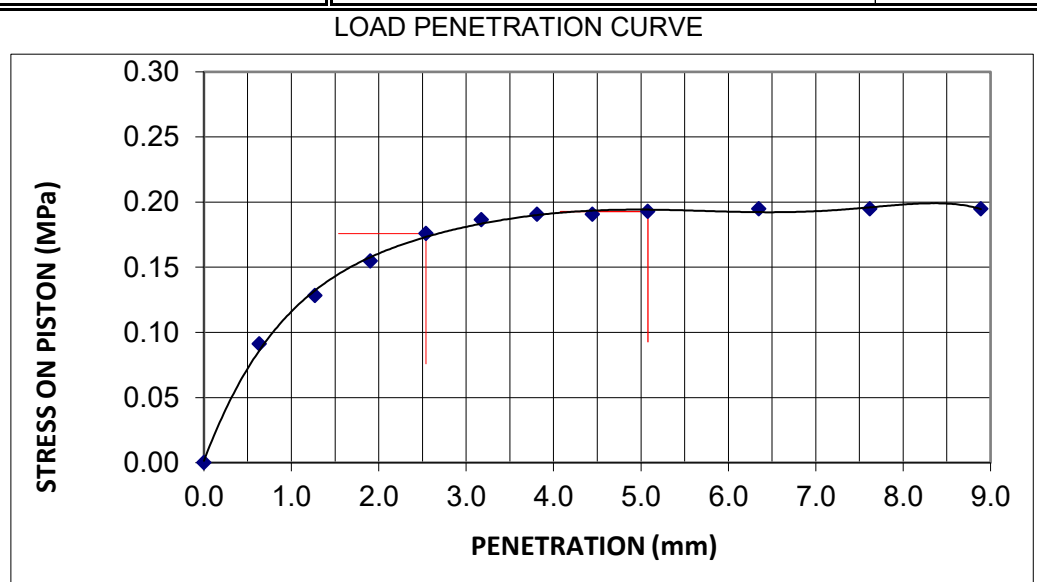
Date sampled/By: 08-Dec-25 MK

Date Received: 08-Dec-25 MK

Date Tested /By: 18-Dec-25 MA

SAMPLE DATA		SPECIMEN DATA		
Sample Type:	SILT - Clayey with trace sand	DESCRIPTION	Before Soaking	After Testing
Source:	Crowson - TH-3 - GS 5	Moisture Content (MC), %	15.4	24.6
Sampled by:	MK	MC of top 25mm layer, %		
Optimum Moisture Content:	20.7 %	Dry Density, kg/m ³	1593	2145
Maximum Dry Density:	1670 kg/cm ³	Compaction, %	95%	
Method of Compaction:	Standard Proctor	CBR at 2.5mm penetration, %		2.5
Tested by:	ECS	Swell, %		1.7
	Date Tested: 17-Dec-26			

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.09
1.27	0.13
1.91	0.15
2.54	0.18
3.18	0.19
3.81	0.19
4.45	0.19
5.08	0.19
6.35	0.19
7.62	0.19
8.89	0.19



PENETRATION mm	STANDARD LOAD MPa	TEST LOAD		BEARING RATIO (soaked)	
		ACTUAL MPa	CORRECTED MPa	at 2.5 mm penetration	at 5.1 mm penetration
2.54	6.9	0.18	0.18	2.5	-
5.08	10.3	0.19	0.19	-	1.9

Remarks:

P. Bevel

Reviewed by: Paul Bevel

MAXIMUM DRY DENSITY AND MOISTURE CONTENT - Proctor Method (ASTM D698)

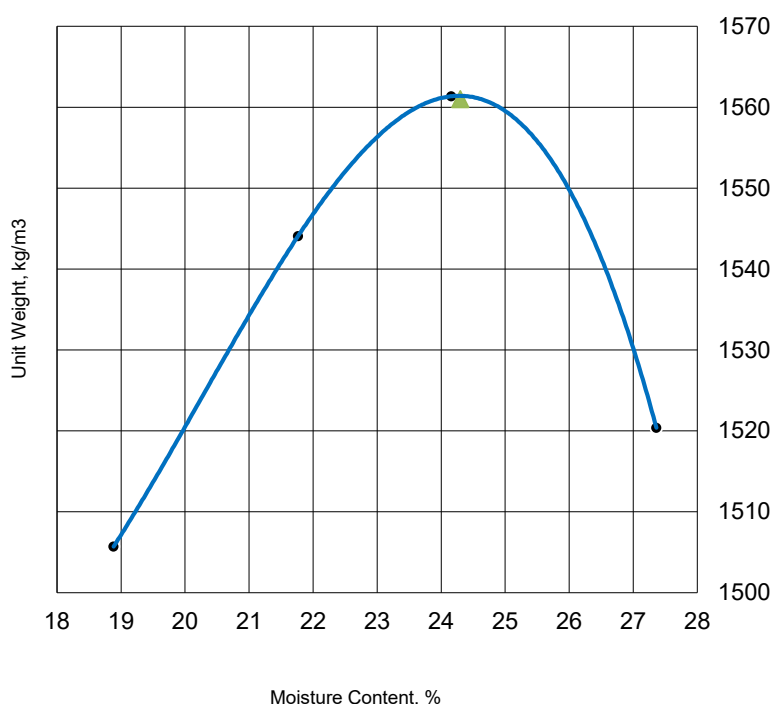
CLIENT	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No.:	550-2501
ATTENTION:	Jeff Crang	Lab No.:	HM 779
PROJECT:	2026 Local Streets (26-R-03) Crowson Bay, Winnipeg	Proctor Test No.:	1

Date Sampled:	08-Dec-25	Date Received:	08-Dec-25	PROCEDURE	A
Sampled By:	MK	Date Tested:	17-Dec-25	PREPARATION	Dry

MATERIAL INFORMATION				COMPACTION METHOD	Manual
Material Type:	CLAY - silty with trace sand			BLOWS PER LAYER	25
Material Use:	Soil Investigat	Material Supplier:	Not Applicable	NO. OF LAYERS	3
Maximum Size:	5mm	Material Source:	TH 1 - GS 6	MOLD SIZE	100
				MOLD VOLUME	943
				WEIGHT OF HAMMER	2.5 kg

Test No.	1	2	3	4	
Wet Density	1790	1880	1938	1936	
Moisture Content	18.9	21.8	24.2	27.4	
Dry Density	1506	1544	1561	1520	

Moisture - Density Relationship



Maximum Dry Density (MDD):
1561 kg/m³
Optimum Moisture Content
24.3 %

STONE CORRECTION (ASTM D 4718)

Retained on 4.75mm sieve:
%
Corrected Moisture:
24.3 %
Corrected Maximum Dry Density:
1561 kg/m³

Remarks:

P. Bevel

Tested by: Mehdi Abbasi

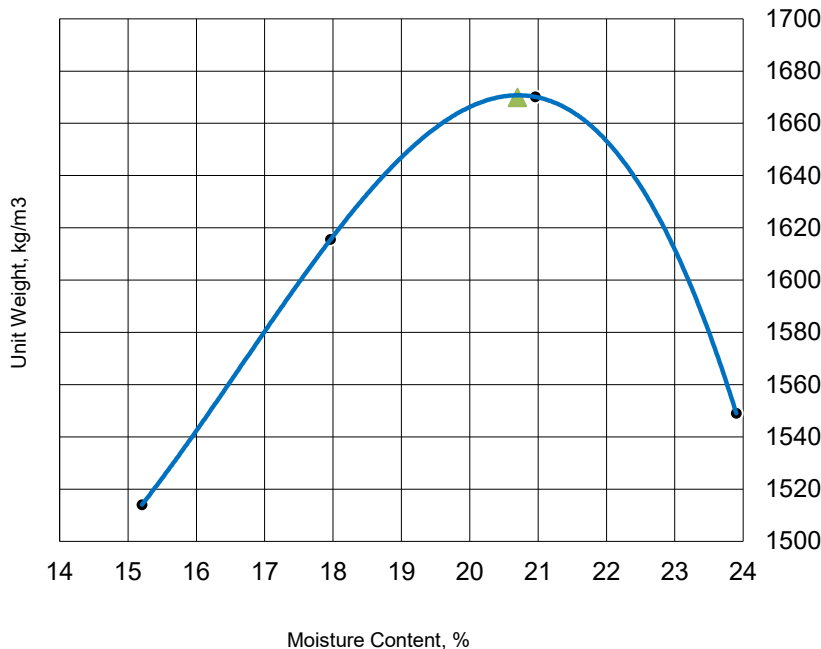
Reviewed by: Paul Bevel

MAXIMUM DRY DENSITY AND MOISTURE CONTENT - Proctor Method (ASTM D698)

CLIENT	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4		Project No.:	550-2501	
ATTENTION:	Jeff Crang		Lab No.:	HM 780	
PROJECT:	2026 Local Streets (26-R-03) Crowson Bay, Winnipeg		Proctor Test No.:	2	
Date Sampled:	08-Dec-25	Date Received:	08-Dec-25	PROCEDURE	A
Sampled By:	MK	Date Tested:	17-Dec-25	PREPARATION	Dry
MATERIAL INFORMATION Material Type: SILT - clayey with trace sand Material Use: Soil Investigati Maximum Size: 5mm Material Supplier: Not Applicable Material Source: TH 3 - GS 5				COMPACTION METHOD	Manual
				BLOWS PER LAYER	25
				NO. OF LAYERS	3
				MOLD SIZE	100
				MOLD VOLUME	743
				WEIGHT OF HAMMER	2.5 kg

Test No.	1	2	3	4
Wet Density	1744	1906	2020	1919
Moisture Content	15.2	18.0	21.0	23.9
Dry Density	1514	1616	1670	1549

Moisture - Density Relationship



Maximum Dry Density (MDD):
1670 kg/m³
Optimum Moisture Content
20.7 %

STONE CORRECTION (ASTM D 4718)

Retained on 4.75mm sieve:
0 %
Corrected Moisture:
20.7 %
Corrected Maximum Dry Density:
1670 kg/m³

Remarks:

Tested by: Edel Santiago

Reviewed by: *P. Bevel*
Paul Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: Tetra Tech Canada Inc.
400-161 Portage Ave. E
Winnipeg, MB R3B 0Y4

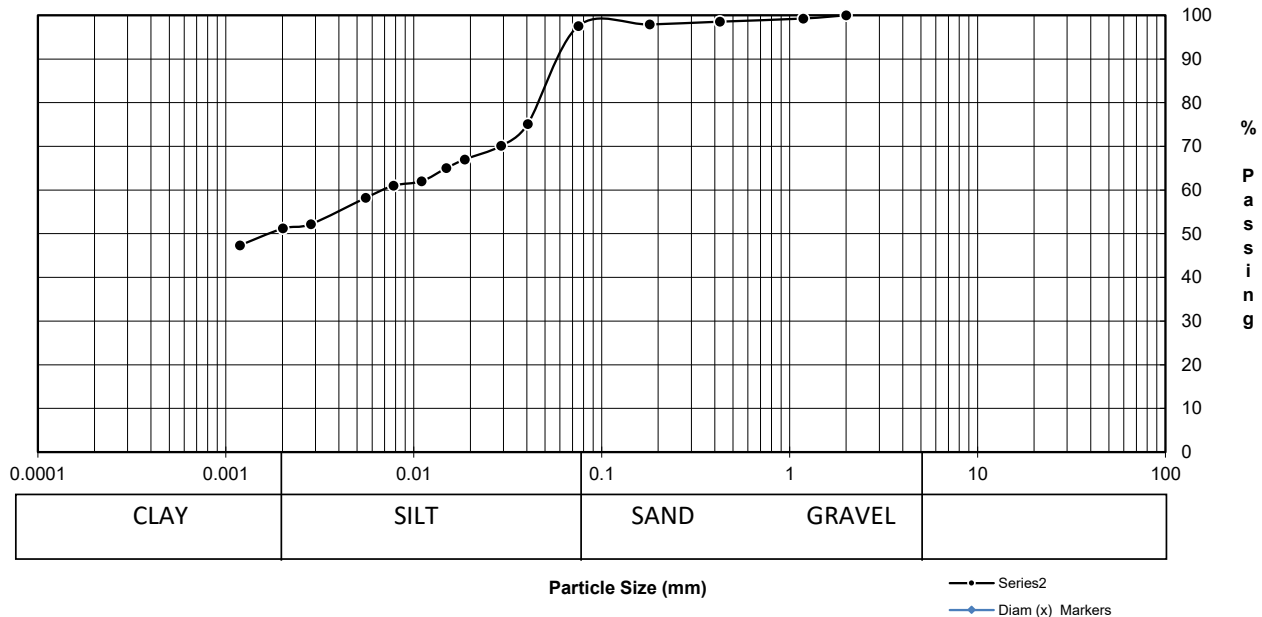
Project No.: 550-2501
PSA Test No.: 1
Lab No.: HM 779

ATTENTION: Jeff Crang

PROJECT: 2026 Local Streets (26-R-03)
Crowson Bay, Winnipeg

Date Sampled: 08-Dec-25	Date Received: 08-Dec-25	Sieve Analysis		Hydrometer Analysis	
Sampled By: MK	Date Tested: 16-Dec-25	Sieve (mm)	% Passing	Diameter	% Finer
Material Identification B.H./T.H. No. TH 1 Depth 5.5-ft Sample Source GS 6 Specific Gravity of Material: 2.65		50.00	100.0		
		37.50	100.0		
		25.00	100.0		
		19.00	100.0		
		16.00	100.0		
		12.50	100.0	0.0404	75.1
		9.50	100.0	0.0292	70.1
		4.75	100.0	0.0187	67.0
		2.00	100.0	0.0149	65.0
		1.18	99.3	0.0110	62.0
		0.425	98.5	0.0078	61.0
		0.180	97.9	0.0055	58.2
		0.075	97.5	0.0012	47.3

Grain Size Analysis



% Composition		D10
0.00	Gravel	D30
2.48	Sand	D60
46.38	Silt	Cu
51.14	Clay	Cc

Remarks:

P. Bevel

Technician: B. Yung

Reviewed by: Paul Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: Tetra Tech Canada Inc.
400-161 Portage Ave. E
Winnipeg, MB R3B 0Y4

Project No.: 550-2501

PSA Test No.: 2

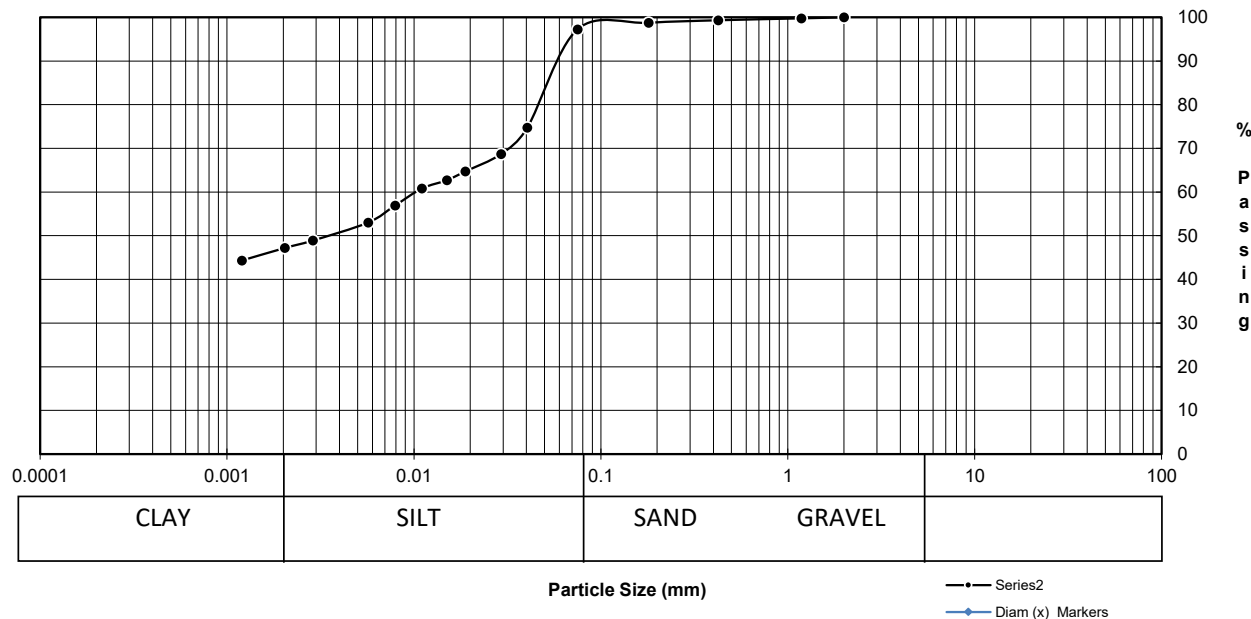
Lab No.: HM 780

ATTENTION: Jeff Crang

PROJECT: 2026 Local Streets (26-R-03)
Crowson Bay, Winnipeg

Date Sampled: 08-Dec-26	Date Received: 08-Dec-26	Sieve Analysis		Hydrometer Analysis	
Sampled By: MK	Date Tested: 16-Dec-26	Sieve (mm)	% Passing	Diameter	% Finer
Material Identification B.H./T.H. No. TH 3 Depth 5.5-ft Sample Source GS 5 Specific Gravity of Material: 2.65		50.00	100.0		
		37.50	100.0		
		25.00	100.0		
		19.00	100.0		
		16.00	100.0		
		12.50	100.0	0.0404	74.7
		9.50	100.0	0.0293	68.7
		4.75	100.0	0.0188	64.7
		2.00	100.0	0.0150	62.7
		1.18	99.8	0.0110	60.8
		0.425	99.3	0.0079	56.9
		0.180	98.7	0.0057	53.0
		0.075	97.2	0.0012	44.3

Grain Size Analysis



% Composition		D10
0.00	Gravel	D30
2.76	Sand	D60
50.13	Silt	Cu
47.11	Clay	Cc

Remarks:

P. Bevel

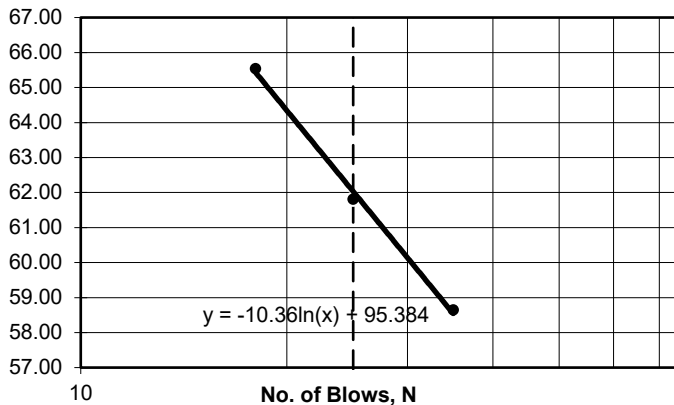
Technician: B. Yung

Reviewed by Paul Bevel

Atterberg Limits (ASTM D4318)

Client:	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No.:	550-2501
Attention.:	Jeff Crang	PI Test No.:	1
Project:	2026 Local Streets (26-R-03) Crowson Bay, Winnipeg	Lab No.:	HM 779
		Date Sampled/By:	December 1 Mayumi Kawan
		Date Received:	December 8, 2025
		Date Tested / By:	December 1 G. Manalo

Liquid Limit Determination					Liquid Limit 25 Blows
Dish No.:	1	2	3		
Wet Soil + Dish:	11.51	11.23	12.83		
Dry Soil + Dish:	8.9	8.64	9.52		
Moisture:	2.61	2.59	3.31		
Dish:	4.45	4.45	4.47		
Dry Soil:	4.45	4.19	5.05		
% Moisture:	58.65	61.81	65.54		
No. of Blows:	35	25	18		
Liquid Limit:					62

Liquid Limit**Material Identification:**

Test Hole: **TH 1**
Grab Sample No: **GS 6**
Depth: **5.5-ft**

Liquid Limit, %: **62**
Plastic Limit, %: **23**
Plasticity Index: **39**
(LL-PL)

Plastic Limit Determination					
Dish No.:	1	2	3		
Wet Soil + Dish:	10.24	10.7	10.95		
Dry Soil + Dish:	9.18	9.54	9.74		
Moisture:	1.06	1.16	1.21		
Dish:	4.42	4.48	4.49		
Dry Soil:	4.76	5.06	5.25		
% Moisture:	22.27	22.92	23.05		
				Average:	23

Test Method : ASTM: D4318, D2216

Remarks:

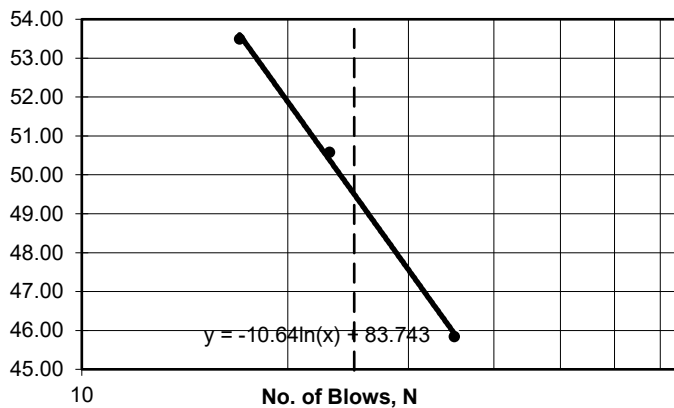
P. Bevel

Reviewed by: Paul Bevel

Atterberg Limits (ASTM D4318)

Client:	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No.:	550-2501
Attention.:	Jeff Crang	PI Test No.:	2
Project:	2026 Local Streets (26-R-03) Crowson Bay, Winnipeg	Lab No.:	HM 780
		Date Sampled/By:	08-Dec MK
		Date Received:	08-Dec
		Date Tested / By:	December GM

Liquid Limit Determination					Liquid Limit 25 Blows
Dish No.:	1	2	3		
Wet Soil + Dish:	11.31	12.29	11.45		
Dry Soil + Dish:	9.16	9.66	9		
Moisture:	2.15	2.63	2.45		
Dish:	4.47	4.46	4.42		
Dry Soil:	4.69	5.2	4.58		
% Moisture:	45.84	50.58	53.49		
No. of Blows:	35	23	17		
Liquid Limit:					49

Liquid Limit**Material Identification:**

Test Hole: **TH 3**
Grab Sample No: **GS 5**
Depth: **5.5-ft**

Liquid Limit, %: **49**
Plastic Limit, %: **17**
Plasticity Index: **32**
(LL-PL)

Plastic Limit Determination					
Dish No.:	1	2	3		
Wet Soil + Dish:	10.74	11.18	10.83		
Dry Soil + Dish:	9.78	10.19	9.91		
Moisture:	0.96	0.99	0.92		
Dish:	4.49	4.49	4.49		
Dry Soil:	5.29	5.7	5.42		
% Moisture:	18.15	17.37	16.97		
				Average:	17

Test Method : ASTM: D4318, D2216

Remarks:

P. Bevel

Reviewed by: Paul Bevel

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No:	550-2501
Attention:	Jeff Crang	Test No.:	1
Project:	2026 Local Streets (26-R-03) Crowson Bay, Winnipeg	Lab No.:	HM 779
		Date Sampled / By:	December 8, 2025 MK
		Date Received:	December 8, 2025
		Date Tested / By:	December 11, 2025 Chris Bautista

Test Hole No.	TH-1-GS1	TH-1-GS2	TH-1-GS3	TH-1-GS4	TH-1-GS5
Depth	9-inch	1.25-ft	2.5-ft	3.5-ft	4.5-ft
Tare No.	PS-1	A-14	H19	GM 9	PNL
Wt Wet Sample + Tare	144.6	172	169.7	165.6	159.3
Wt Dry Sample + Tare	132.5	137	133	126.2	117.8
Wt Water	12.1	35.0	36.7	39.4	41.5
Wt Tare	4.3	4.0	4.4	4.0	4.5
Wt Dry Sample	128.2	133.0	128.6	122.2	113.3
Moisture Content (%)	9.4	26.3	28.5	32.2	36.6
Test Hole No.	TH-1-GS6	TH-1-GS7	TH-1-GS8	TH-1-GS9	
Depth	5.5-ft	6.5-ft	7.5-ft	8.5-ft	
Tare No.	H-7	G1	C8	S-23	
Wt Wet Sample + Tare	126.2	154.7	156.8	176.4	
Wt Dry Sample + Tare	98	111.2	112.3	124.7	
Wt Water	28.2	43.5	44.5	51.7	
Wt Tare	4.4	4.3	4.6	4.6	
Wt Dry Sample	93.6	106.9	107.7	120.1	
Moisture Content (%)	30.1	40.7	41.3	43.0	
Test Hole No.	TH-2-GS1	TH-2-GS2	TH-2-GS3	TH-2-GS4	TH-2-GS5
Depth	1-ft	2.25-ft	3.25-ft	4.5-ft	5.5-ft
Tare No.	C-04	G23	M10	GM2	GM7
Wt Wet Sample + Tare	139.7	200.3	166.7	210.9	171.5
Wt Dry Sample + Tare	127.4	148.9	126.6	155.9	120.2
Wt Water	12.3	51.4	40.1	55.0	51.3
Wt Tare	4.4	4.6	4.6	3.9	3.9
Wt Dry Sample	123.0	144.3	122.0	152.0	116.3
Moisture Content (%)	10.0	35.6	32.9	36.2	44.1
Test Hole No.	TH-2-GS6	TH-2-GS7	TH-2-GS8		
Depth	6.5-ft	7.5-ft	8.5-ft		
Tare No.	C-05	G41	G-12		
Wt Wet Sample + Tare	157.6	187.3	169.7		
Wt Dry Sample + Tare	112.8	129.5	119.2		
Wt Water	44.8	57.8	50.5		
Wt Tare	4.0	4.4	4.4		
Wt Dry Sample	108.8	125.1	114.8		
Moisture Content (%)	41.2	46.2	44.0		

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No:	550-2501
Attention:	Jeff Crang	Test No.:	1
Project:	2026 Local Streets (26-R-03) Crowson Bay, Winnipeg	Lab No.:	HM 779
		Date Sampled / By:	December 8, 2025 MK
		Date Received:	December 8, 2025
		Date Tested / By:	December 11, 2025 Chris Bautista

Test Hole No.	TH-3-GS1	TH-3-GS2	TH-3-GS3	TH-3-GS4	TH-3-GS5
Depth	1.5-ft	2.5-ft	3.5-ft	4.5-ft	5.5-ft
Tare No.	M24	V2	C1	G18	H23
Wt Wet Sample + Tare	185.4	128.6	184.8	164.6	196.3
Wt Dry Sample + Tare	149.2	98.7	146.1	138.1	161.4
Wt Water	36.2	29.9	38.7	26.5	34.9
Wt Tare	4.8	4.5	4.5	4.6	4.4
Wt Dry Sample	144.4	94.2	141.6	133.5	157.0
Moisture Content (%)	25.1	31.7	27.3	19.9	22.2
Test Hole No.	TH-3-GS6	TH-3-GS7	TH-3-GS8		
Depth	6.5-ft	7.5-ft	8.5-ft		
Tare No.	C9	GM4	Z8		
Wt Wet Sample + Tare	195.2	163.6	190.7		
Wt Dry Sample + Tare	155.7	125	139.6		
Wt Water	39.5	38.6	51.1		
Wt Tare	4.6	4.0	4.5		
Wt Dry Sample	151.1	121.0	135.1		
Moisture Content (%)	26.1	31.9	37.8		
Test Hole No.	TH-4-GS1	TH-4-GS2	TH-4-GS3	TH-4-GS4	TH-4-GS5
Depth	10-inch	2-ft	3-ft	4-ft	5-ft
Tare No.	H16	PS2	H26	G-16	KMC
Wt Wet Sample + Tare	158.4	179.4	171.6	234.8	193.4
Wt Dry Sample + Tare	131.3	141.2	136.1	184.9	152
Wt Water	27.1	38.2	35.5	49.9	41.4
Wt Tare	4.5	4.5	4.4	4.5	4.5
Wt Dry Sample	126.8	136.7	131.7	180.4	147.5
Moisture Content (%)	21.4	27.9	27.0	27.7	28.1
Test Hole No.	TH-4-GS6	TH-4-GS7	TH-4-GS8	TH-4-GS9	
Depth	6-ft	7-ft	8-ft	9-ft	
Tare No.	MK1	H-17	M13	1	
Wt Wet Sample + Tare	172.7	162.5	174	189.1	
Wt Dry Sample + Tare	136.8	123.4	126.7	134	
Wt Water	35.9	39.1	47.3	55.1	
Wt Tare	4.5	4.4	4.9	4.5	
Wt Dry Sample	132.3	119.0	121.8	129.5	
Moisture Content (%)	27.1	32.9	38.8	42.5	

Appendix A - Reconstruction Sites

Picture of Test Holes

CROWSON BAY



TH 1



TH 1 - Site Photo



TH 2



TH 2 - Site Photo

Appendix A - Reconstruction Sites

Picture of Test Holes

CROWSON BAY



TH 3



TH 3 - Site Photo



TH 4



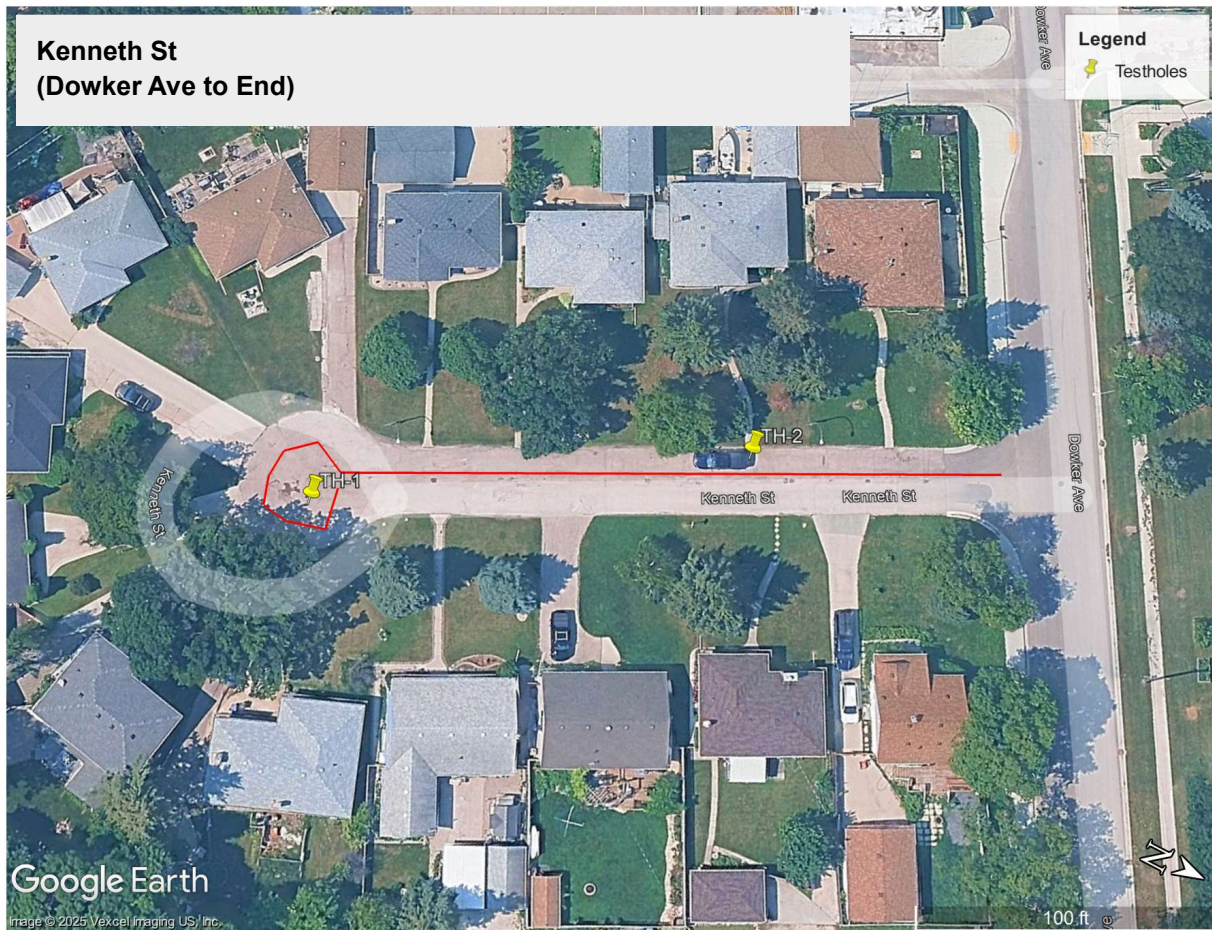
TH 4 - Site Photo

APPENDIX A.2.

KENNETH ST (DOWKER AVE TO END)

Reconstruction Sites

Pavement Coring and Subsurface Drilling Locations



Reconstruction Sites

Pavement Structure Measurement

Test Hole No.	Test Hole Location	Asphalt Thickness (mm)	Concrete Thickness (mm)
Kenneth St (Dowker Ave to End)			
TH1	Front of House # 17 Kenneth Street, at round-about 14 U, 633052 E, 5522325 N	150mm	- ^A
TH2	Front of House # 5 Kenneth Street, SBL 14 U, 633030 E 5522370 N	60mm	-

Note: ^A - deterioration of concrete pavement at this location

Depth ft m	Symbol	Description	Number	Type	Pocket Penetrometer Test (kPa)		Water Content	
					25 50 75 125 175 225		10 20 30 40 50 60 70 80 90	
0		Ground Surface						
0		Pavement 150mm ASPHALT						
1		Granular Fill sandy, some silt, trace clay, brown, moist, frozen	1	GS				
2			2	GS				
3		Clay with some silt, high plastic, brown, fissured, soft to firm when thawed, frozen to 1.0m	3	GS				
4		moist, with traces of silt inclusions and sulphates, stiff below 1.2m	4	GS				
5		(GS4) Lab Report HM793 Gravel 0%, Sand 2.0%, Silt 18.9%, Clay 79.1% LL - 91, PL - 34, PI - 57 CBR at 2.5mm penetration - 2.3%	5	GS				
6			6	GS				
7			7	GS				
8		Silt clayey, low plastic, oxidized mottles, redish brown, soft, wet grey below 2.3m	8	GS				
9		clayey below 2.8m	9	GS				
10			10	GS				
11		End of testhole						
12		- No seepage observed - Test hole was backfilled with auger cuttings and topped with crushed limestone and cold patch asphalt						
13		- Location: Front of House # 17 Kenneth St, 0.5m from curb						

Drill Method: Auger Drilling

Drill Date: December 8, 2025

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1

Depth ft m	Symbol	Description	Number	Type	Pocket Penetrometer Test (kPa)		Water Content	
					25 50 75 125 175 225		10 20 30 40 50 60 70 80 90	
0		Ground Surface						
0		Pavement 60mm ASPHALT						
1		Granular Fill sandy, some silt, trace clay, brown, moist, frozen	1	GS				
2		Clay Fill silty with some sand and trace gravel, mixed black and brown, frozen	2	GS				
3		Clay with traces of silt inclusions, low plastic, mixed tan brown, soft when thawed, frozen	3	GS				
4		Silt clayey, trace sand, low plastic, tan, soft when thawed, frozen to 1.0m (GS4) Lab Results HM 792: Gravel 0%, Sand 5.1%, Silt 64.7%, Clay 30.2% LL - 37, PL - 15, PI - 22 CBR at 2.5mm penetration - 3.9%	4	GS				
5			5	GS				
6		Clay silty, low plastic, brown, soft, moist trace oxidated mottles below 2.3m	6	GS				
7			7	GS				
8			8	GS				
9		Clay silty, high plastic, trace sulphates, brown, soft, moist	9	GS				
10			10	GS				
11		End of testhole - No seepage observed - Test hole was backfilled with auger cuttings and topped with crushed limestone and cold patch asphalt - Location: Front of House # 5 Kenneth Street, SBL, 0.7m fr curb						
12								
13								
14								

Drill Method: Auger Drilling

Drill Date: December 10, 2025

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1

Reconstruction Sites

Summary of Laboratory Testing

Kenneth St (Dowker Ave to End)												
TH	GS	PSA				PI			PR		CBR	
		Gravel (%)	Sand (%)	Silt (%)	Clay (%)	LL (%)	PL (%)	PI (%)	MDD (kg/m ³)	OMC (%)	at 2.5mm penetration	at 5.1mm penetration
TH 1	GS 4	0.0	2.0	18.9	79.1	91	34	57	1539	25.5	2.3	1.8
TH 2	GS 4	0.0	5.1	64.7	30.2	37	15	22	1738	17.3	3.9	3.5

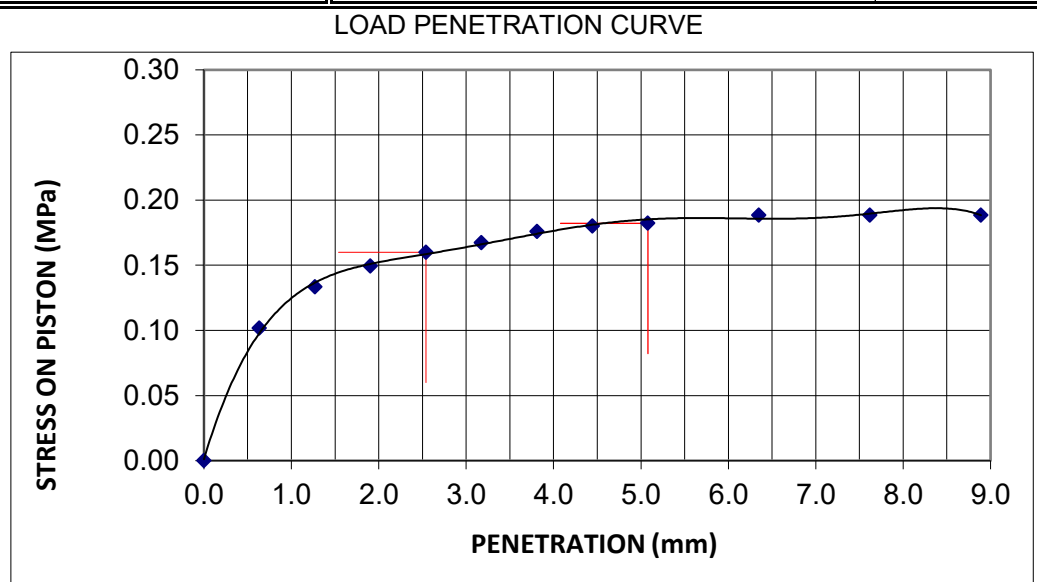
CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: Tetra Tech Canada Inc.
400-161 Portage Ave. E
Winnipeg, MB R3B 0Y4
Attention: Jeff Crang
Project 2026 Local Streets (26-R-03)
Location: Crowson Bay, Winnipeg

Project No: 550-2501
Lab No: HM 793
Date sampled/By: 10-Dec-25 MK
Date Received: 10-Dec-25
Date Tested /By: 26-Dec-25 MA

SAMPLE DATA		SPECIMEN DATA		
Sample Type:	CLAY - Some silt	DESCRIPTION	Before Soaking	After Testing
Source:	Kenneth St - TH 1 - GS 4	Moisture Content (MC), %	26.2	29.1
Sampled by:	MK	MC of top 25mm layer, %		
Optimum Moisture Content:	25.5 %	Dry Density, kg/m ³	1511	1389
Maximum Dry Density:	1539 kg/cm ³	Compaction, %	98%	
Method of Compaction:	Standard Proctor	CBR at 2.5mm penetration, %		2.3
Tested by:	ECS	Swell, %		1.7
	Date Tested: 22-Dec-25			

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.10
1.27	0.13
1.91	0.15
2.54	0.16
3.18	0.17
3.81	0.18
4.45	0.18
5.08	0.18
6.35	0.19
7.62	0.19
8.89	0.19



PENETRATION mm	STANDARD LOAD MPa	TEST LOAD		BEARING RATIO (soaked)	
		ACTUAL MPa	CORRECTED MPa	at 2.5 mm penetration	at 5.1 mm penetration
2.54	6.9	0.16	0.16	2.3	-
5.08	10.3	0.18	0.18	-	1.8

Remarks:

P. Bevel

Reviewed by: Paul Bevel

CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: Tetra Tech Canada Inc.

400-161 Portage Ave. E

Winnipeg, MB R3B 0Y4

Attention: Jeff Crang

Project 2026 Local Streets (26-R-03)

Location: Kenneth St, Winnipeg

Project No: 550-2501

Lab No: HM 792

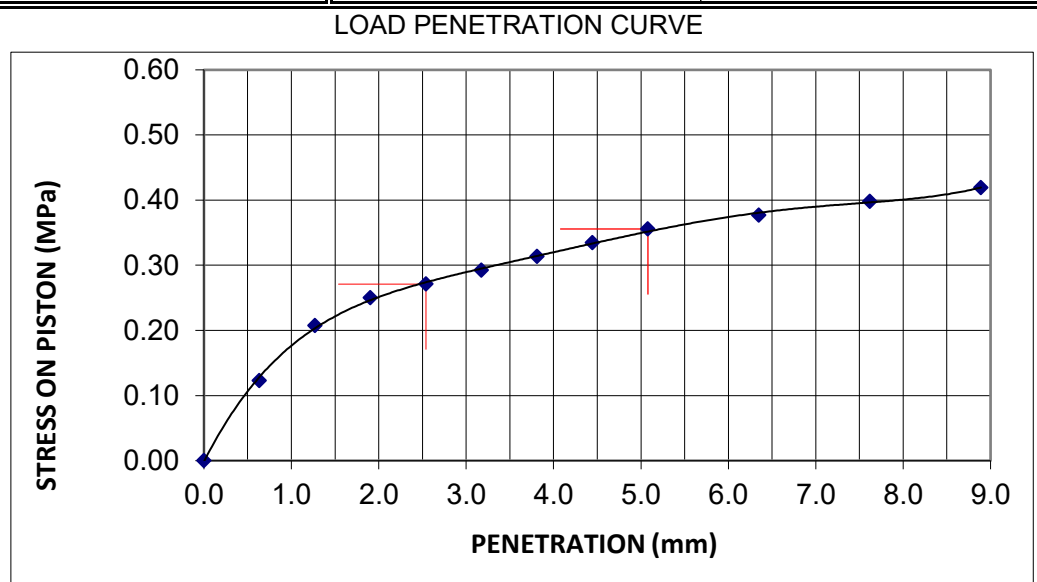
Date sampled/By: 10-Dec-25 MK

Date Received: 10-Dec-25

Date Tested /By: 18-Dec-25 Mehdi Abbasi

SAMPLE DATA		SPECIMEN DATA		
Sample Type:	CLAY - Silty trace sand	DESCRIPTION	Before Soaking	After Testing
Source:	Kenneth - TH 2 - GS 4	Moisture Content (MC), %	17.7	24.3
Sampled by:	MK	MC of top 25mm layer, %		
Optimum Moisture Content:	17.3 %	Dry Density, kg/m ³	1673	1625
Maximum Dry Density:	1738 kg/cm ³	Compaction, %	96%	
Method of Compaction:	Standard Proctor	CBR at 2.5 penetration, %	3.9	
Tested by:	ECS	Swell, %	1.9	
	Date Tested: 16-Dec-25			

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.12
1.27	0.21
1.91	0.25
2.54	0.27
3.18	0.29
3.81	0.31
4.45	0.33
5.08	0.36
6.35	0.38
7.62	0.40
8.89	0.42



PENETRATION mm	STANDARD LOAD MPa	TEST LOAD		BEARING RATIO (soaked)	
		ACTUAL MPa	CORRECTED MPa	at 2.5 mm penetration	at 5.1 mm penetration
2.54	6.9	0.27	0.27	3.9	-
5.08	10.3	0.36	0.36	-	3.5

Remarks:

P. Bevel

Reviewed by: Paul Bevel

MAXIMUM DRY DENSITY AND MOISTURE CONTENT - Proctor Method (ASTM D698)

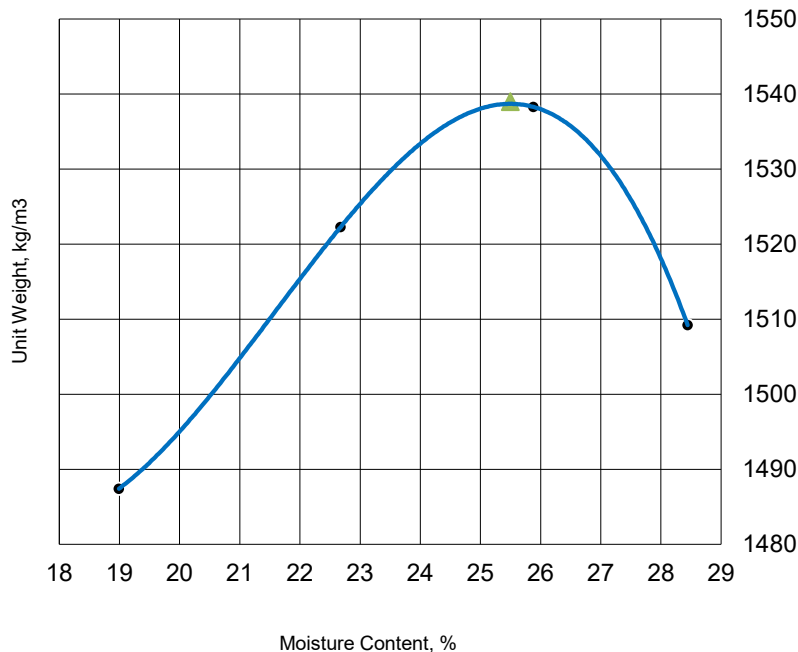
CLIENT	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No.:	550-2501
ATTENTION:	Jeff Crang	Lab No.:	HM 793
PROJECT:	2026 Local Streets (26-R-03) Kenneth St, Winnipeg	Proctor Test No.:	10

Date Sampled:	10-Dec-25	Date Received:	10-Dec-25	PROCEDURE	A
Sampled By:	MK	Date Tested:	15-Dec-25	PREPARATION	Dry

MATERIAL INFORMATION				COMPACTION METHOD	Manual
Material Type:	CLAY - some silt			BLOWS PER LAYER	25
Material Use:	Soil Investigat	Material Supplier:	Not Applicable	NO. OF LAYERS	3
Maximum Size:	5mm	Material Source:	TH 1 - GS 4	MOLD SIZE	100
				MOLD VOLUME	943
				WEIGHT OF HAMMER	2.5 kg

Test No.	1	2	3	4
Wet Density	1770	1867	1936	1938
Moisture Content	19.0	22.7	25.9	28.4
Dry Density	1487	1522	1538	1509

Moisture - Density Relationship



Maximum Dry Density (MDD):
1539 kg/m³
Optimum Moisture Content
25.5 %

STONE CORRECTION (ASTM D 4718)

Retained on 4.75mm sieve:
%
Corrected Moisture:
25.5 %
Corrected Maximum Dry Density:
1539 kg/m³

Remarks:

P. Bevel

Tested by: Mehdi Abbasi

Reviewed by: Paul Bevel

MAXIMUM DRY DENSITY AND MOISTURE CONTENT - Proctor Method (ASTM D698)

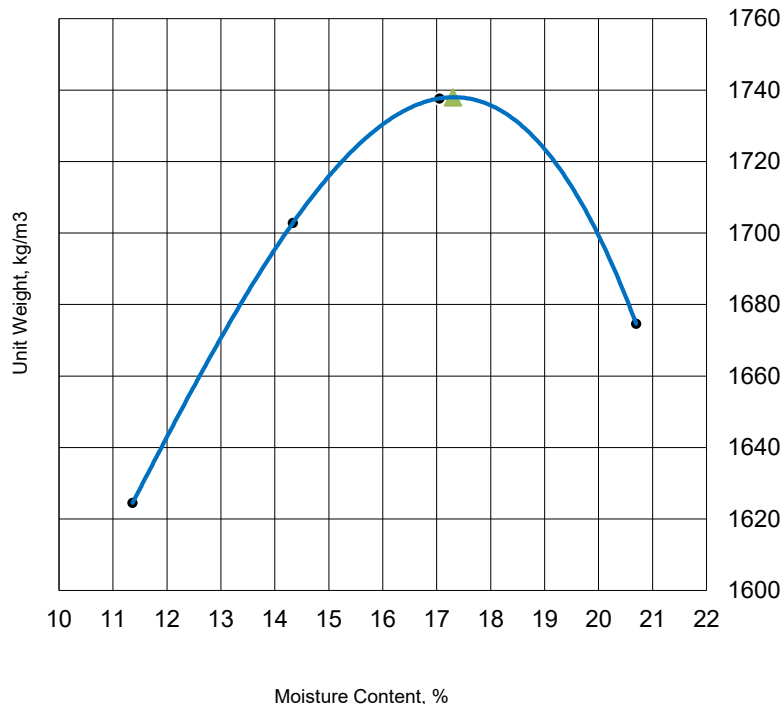
CLIENT	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No.:	550-2501
ATTENTION:	Jeff Crang	Lab No.:	HM 792
PROJECT:	2026 Local Streets (26-R-03) Kenneth St, Winnipeg	Proctor Test No.:	9

Date Sampled:	December 10,	Date Received:	December 10, 2025	PROCEDURE	A
Sampled By:	MK	Date Tested:	December 16, 2025	PREPARATION	Dry

MATERIAL INFORMATION				COMPACTION METHOD	Manual
Material Type:	CLAY - Silty trace sand			BLOWS PER LAYER	25
Material Use:	Soil Investigat	Material Supplier:	Not Applicable	NO. OF LAYERS	3
Maximum Size:	5mm	Material Source:	Kenneth TH 2 - GS4	MOLD SIZE	100
				MOLD VOLUME	943
				WEIGHT OF HAMMER	2.5 kg

Test No.	1	2	3	4	
Wet Density	1809	1947	2034	2021	
Moisture Content	11.4	14.3	17.0	20.7	
Dry Density	1625	1703	1738	1675	

Moisture - Density Relationship



Maximum Dry Density (MDD):
1738 kg/m³
Optimum Moisture Content
17.3 %

STONE CORRECTION (ASTM D 4718)

Retained on 4.75mm sieve:
 %
Corrected Moisture:
17.3 %
Corrected Maximum Dry Density:
1738 kg/m³

Remarks:

Tested by: Edel Santiago

Reviewed by: *P. Bevel*
Paul Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: Tetra Tech Canada Inc.
400-161 Portage Ave. E
Winnipeg, MB R3B 0Y4

Project No.: 550-2501

PSA Test No.: 10

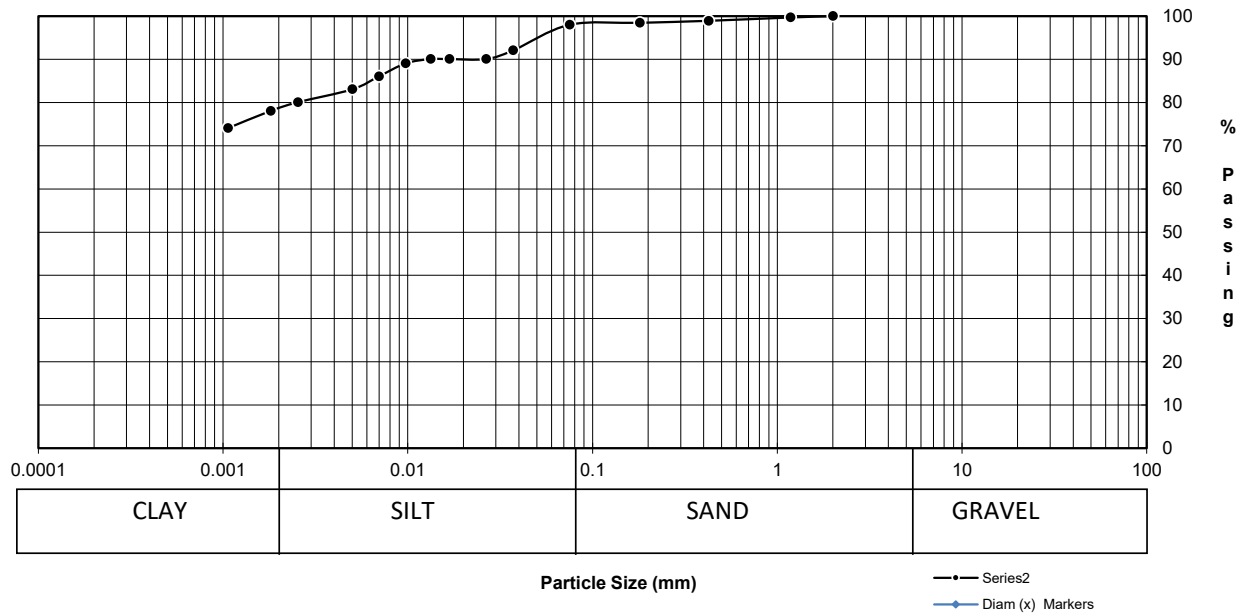
Lab No.: HM 793

ATTENTION: Jeff Crang

PROJECT: 2026 Local Streets (26-R-03)
Kenneth St, Winnipeg

Date Sampled:	10-Dec-25	Date Received:	10-Dec-25	Sieve Analysis		Hydrometer Analysis	
Sampled By:	MK	Date Tested:	18-Dec-25	Sieve (mm)	% Passing	Diameter	% Finer
Material Identification B.H./T.H. No. TH 1 Depth 4-ft Sample Source GS 4 Specific Gravity of Material: 2.65				50.00	100.0		
				37.50	100.0		
				25.00	100.0		
				19.00	100.0		
				16.00	100.0		
				12.50	100.0	0.0371	92.1
				9.50	100.0	0.0265	90.1
				4.75	100.0	0.0168	90.1
				2.00	100.0	0.0133	90.1
				1.18	99.7	0.0097	89.1
				0.425	98.9	0.0070	86.1
				0.180	98.5	0.0050	83.1
				0.075	98.0	0.0011	74.1

Grain Size Analysis



% Composition		D10
2.00	Gravel	D30
18.90	Sand	D60
79.10	Silt	Cu
	Clay	Cc

Remarks:

P. Bevel

Technician:

BY

Reviewed by: Paul Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: Tetra Tech Canada Inc.
400-161 Portage Ave. E
Winnipeg, MB R3B 0Y4

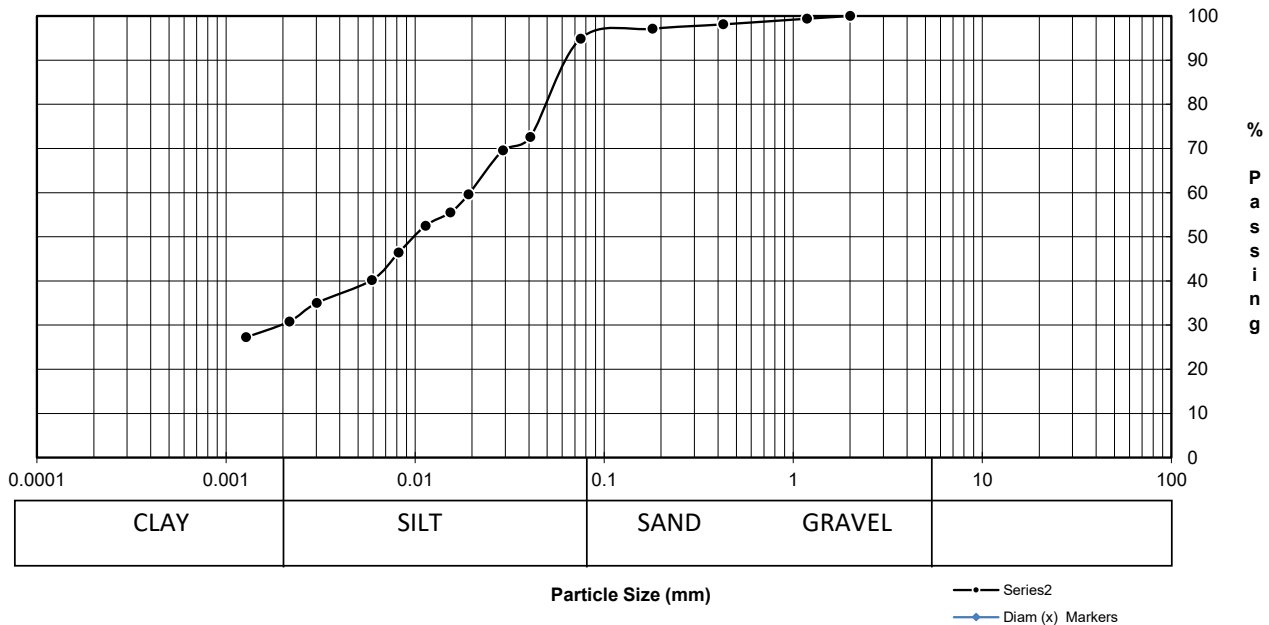
Project No.: 550-2501
PSA Test No.: 9
Lab No.: HM 792

ATTENTION: Jeff Crang

PROJECT: 2026 Local Streets (26-R-03)
Kenneth St, Winnipeg

Date Sampled: 10-Dec-25	Date Received: 10-Dec-25	Sieve Analysis		Hydrometer Analysis	
Sampled By: MK	Date Tested: 17-Dec-25	Sieve (mm)	% Passing	Diameter	% Finer
Material Identification B.H./T.H. No. TH 2 Depth 4-ft Sample Source GS4 Specific Gravity of Material: 2.65		50.00	100.0		
		37.50	100.0		
		25.00	100.0		
		19.00	100.0		
		16.00	100.0		
		12.50	100.0	0.0407	72.6
		9.50	100.0	0.0291	69.6
		4.75	100.0	0.0191	59.6
		2.00	100.0	0.0154	55.5
		1.18	99.4	0.0113	52.5
		0.425	98.1	0.0082	46.4
		0.180	97.1	0.0059	40.2
		0.075	94.9	0.0013	27.2

Grain Size Analysis



% Composition		D10
5.14	Gravel	D30
64.70	Sand	D60
30.16	Silt	Cu
	Clay	Cc

Remarks:

Technician: B. Yung

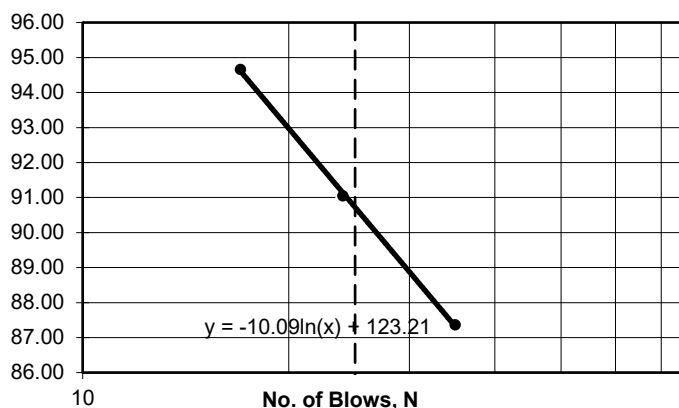
Reviewed by: Paul Bevel

Atterberg Limits (ASTM D4318)

Client: Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4 Attention.: Jeff Crang Project: 2026 Local Streets (26-R-03) Kenneth St, Winnipeg	Project No.: 550-2501 PI Test No.: 10 Lab No.: HM 793 Date Sampled/By: 10-Dec MK Date Received: 10-Dec Date Tested / By: 12-Dec GM
---	---

Liquid Limit Determination					Liquid Limit 25 Blows
Dish No.:	1	2	3		
Wet Soil + Dish:	11.46	13.02	10.98		
Dry Soil + Dish:	8.21	8.95	7.79		
Moisture:	3.25	4.07	3.19		
Dish:	4.49	4.48	4.42		
Dry Soil:	3.72	4.47	3.37		
% Moisture:	87.37	91.05	94.66		
No. of Blows:	35	24	17		
Liquid Limit:					91

Liquid Limit



Material Identification:

Test Hole: **TH 1**
 Grab Sample No: **GS 4**
 Depth: **4-ft**

Liquid Limit, %: **91**
 Plastic Limit, %: **34**
 Plasticity Index: **57**
 (LL-PL)

Plastic Limit Determination					
Dish No.:	1	2	3		
Wet Soil + Dish:	9.52	10.11	9.53		
Dry Soil + Dish:	8.24	8.67	8.23		
Moisture:	1.28	1.44	1.3		
Dish:	4.47	4.43	4.42		
Dry Soil:	3.77	4.24	3.81		
% Moisture:	33.95	33.96	34.12		
				Average:	34

Test Method : ASTM: D4318, D2216

Remarks:

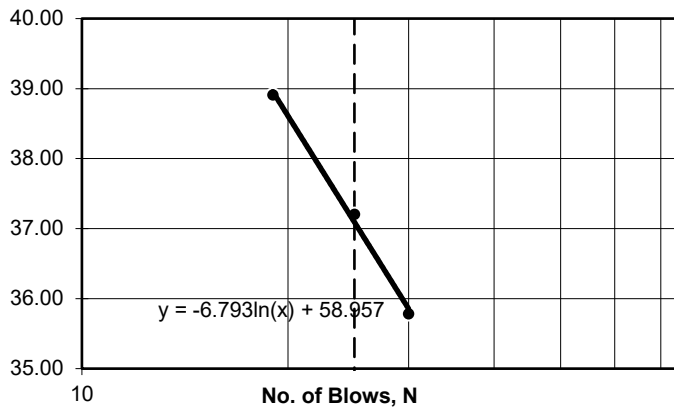
P. Bevel

Reviewed by: Paul Bevel

Atterberg Limits (ASTM D4318)

Client:	Tetra Tech Canada Inc.	Project No.:	550-2501
	400-161 Portage Ave. E	PI Test No.:	8
	Winnipeg, MB R3B 0Y4	Lab No.:	HM 792
Attention.:	Jeff Crang	Date Sampled/By:	10-Dec MK
Project:	2026 Local Streets (26-R-03)	Date Received:	10-Dec
	Kenneth St, Winnipeg	Date Tested / By:	16-Dec GM

Liquid Limit Determination					Liquid Limit 25 Blows
Dish No.:	1	2	3		
Wet Soil + Dish:	12.53	12.05	11.58		
Dry Soil + Dish:	10.39	10.00	9.65		
Moisture:	2.14	2.05	1.93		
Dish:	4.41	4.49	4.69		
Dry Soil:	5.98	5.51	4.96		
% Moisture:	35.79	37.21	38.91		
No. of Blows:	30	25	19		
Liquid Limit:					37

Liquid Limit**Material Identification:**

Test Hole: **TH 2**
Grab Sample No: **GS 4**
Depth: **4-ft**

Liquid Limit, %: **37**
Plastic Limit, %: **15**
Plasticity Index: **22**
(LL-PL)

Plastic Limit Determination					
Dish No.:	1	2	3		
Wet Soil + Dish:	11.71	11.39	11.26		
Dry Soil + Dish:	10.82	10.52	10.38		
Moisture:	0.89	0.87	0.88		
Dish:	4.67	4.7	4.43		
Dry Soil:	6.15	5.82	5.95		
% Moisture:	14.47	14.95	14.79		
				Average:	15

Test Method : ASTM: D4318, D2216

Remarks:

P. Bevel

Reviewed by: Paul Bevel

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No:	550-2501
Attention:	Jeff Crang	Test No.:	5
Project:	2026 Local Streets (26-R-03) Kenneth St, Winnipeg	Lab No.:	HM 792
		Date Sampled / By:	December 10, 2025 MK
		Date Received:	December 10, 2025
		Date Tested / By:	December 11, 2025 Chris Bautista

Test Hole No.	TH-1-GS1	TH-1-GS2	TH-1-GS3	TH-1-GS4	TH-1-GS5
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	GM10	H-11	A15	GM2	A6
Wt Wet Sample + Tare	164.1	195.8	186.8	161.1	158.5
Wt Dry Sample + Tare	147.3	152.5	144.8	127.2	120.8
Wt Water	16.8	43.3	42.0	33.9	37.7
Wt Tare	4.3	4.6	3.9	4.0	4.0
Wt Dry Sample	143.0	147.9	140.9	123.2	116.8
Moisture Content (%)	11.7	29.3	29.8	27.5	32.3
Test Hole No.	TH-1-GS6	TH-1-GS7	TH-1-GS8	TH-1-GS9	TH-1-GS10
Depth	6-ft	7-ft	8-ft	9-ft	10-ft
Tare No.	M41	G13	PS-4	A8	A3
Wt Wet Sample + Tare	162.3	168.2	227.9	209.3	161.6
Wt Dry Sample + Tare	111.4	120.8	188.6	174.1	123.8
Wt Water	50.9	47.4	39.3	35.2	37.8
Wt Tare	4.7	3.7	3.5	4.5	4.0
Wt Dry Sample	106.7	117.1	185.1	169.6	119.8
Moisture Content (%)	47.7	40.5	21.2	20.8	31.6
Test Hole No.	TH-2-GS1	TH-2-GS2	TH-2-GS3	TH-2-GS4	TH-2-GS5
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	4-23	T125	P2	H1	B2
Wt Wet Sample + Tare	193.8	159	227.9	209.3	161.6
Wt Dry Sample + Tare	160.9	127	188.6	174.1	123.8
Wt Water	32.9	32.0	39.3	35.2	37.8
Wt Tare	4.3	3.7	3.5	4.5	4.0
Wt Dry Sample	156.6	123.3	185.1	169.6	119.8
Moisture Content (%)	21.0	26.0	21.2	20.8	31.6
Test Hole No.	TH-2-GS6	TH-2-GS7	TH-2-GS8	TH-2-GS9	TH-2-GS10
Depth	6-ft	7-ft	8-ft	9-ft	10-ft
Tare No.	Y2	A4	A13	A18	B1
Wt Wet Sample + Tare	163.5	171.4	159.1	176.7	215.3
Wt Dry Sample + Tare	119.6	124.3	109.5	127.9	143.8
Wt Water	43.9	47.1	49.6	48.8	71.5
Wt Tare	4.6	3.9	4.0	4.0	4.1
Wt Dry Sample	115.0	120.4	105.5	123.9	139.7
Moisture Content (%)	38.2	39.1	47.0	39.4	51.2

Appendix A - Reconstruction Sites

Picture of Test Holes

KENNETH STREET



TH 1



TH 1 - Site Photo



TH 2



TH 2 - Site Photo

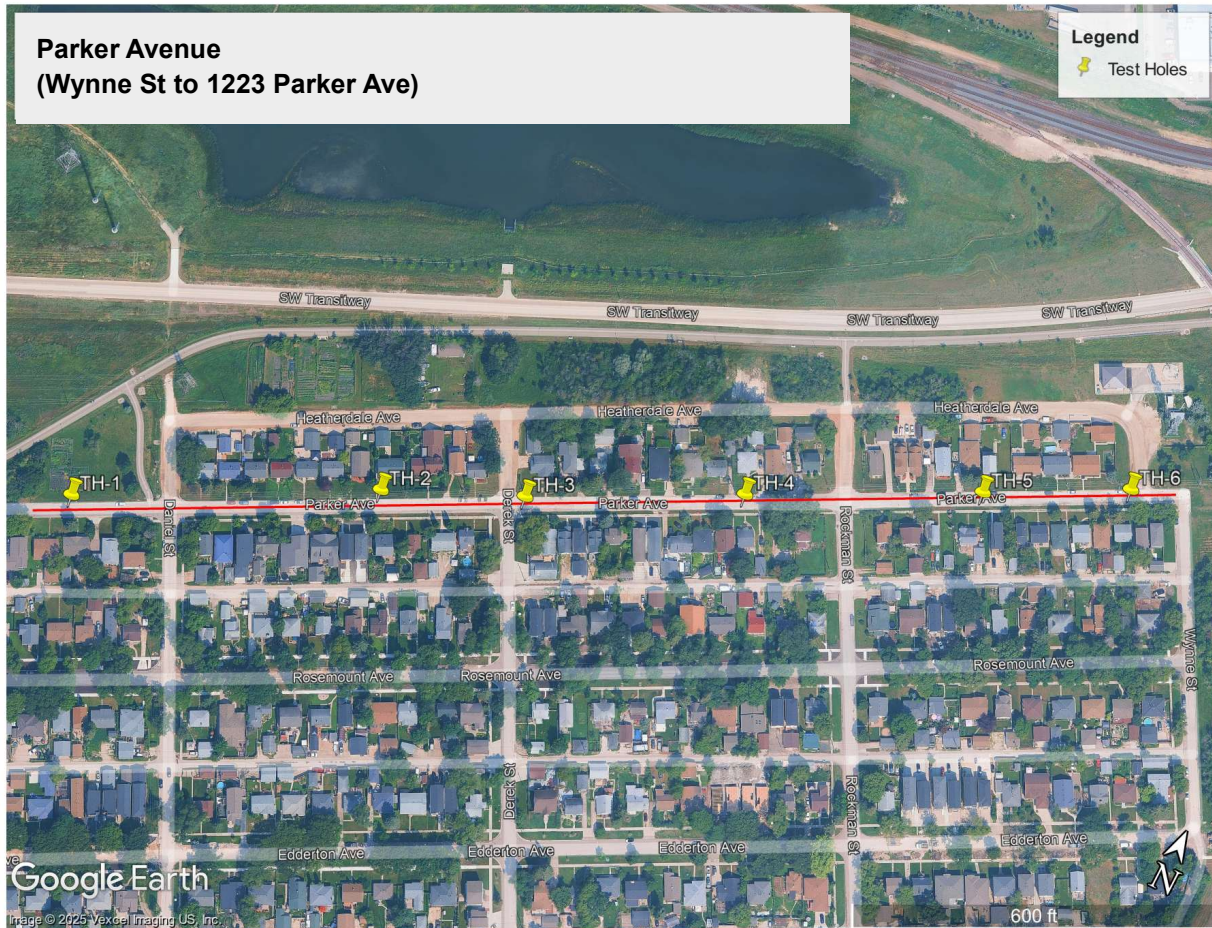
APPENDIX A.3.

PARKER AVENUE

(WYNNE ST TO 1223 PARKER AVE)

Reconstruction Sites

Pavement Coring and Subsurface Drilling Locations



Reconstruction Sites

Pavement Structure Measurement

Test Hole No.	Test Hole Location	Asphalt Thickness (mm)	Concrete Thickness (mm)
Parker Avenue (Wynne St to 1223 Parker Ave)			
TH1	Front of House # 1219 Parker Avenue, WBL 14 U, 6324100 E, 5523417 N	-	200mm
TH2	Front of House # 1170 Parker Avenue, WBL 14 U, 632238 E, 5523494 N	-	180mm
TH3	Front of House # 1150 Parker Avenue, EBL 14 U, 632305 E, 5523526 N	-	193mm
TH4	Front of House # 1115 Parker Avenue, EBL 14 U, 632404 E, 5523581 N	-	221mm
TH5	Front of House # 1095 Parker Avenue, EBL 14 U, 632511 E, 5523640 N	-	245mm
TH6	Front of House # 1061 Parker Avenue, EBL 14 U, 632577 E, 5523677 N	45mm	180mm ^A

Note: ^A - deterioration of concrete pavement at this location

Depth ft m	Symbol	Description	Number	Type	Pocket Penetrometer Test (kPa)		Water Content	
					25 50 75 125 175 225	10 20 30 40 50 60 70 80 90		
0		Ground Surface						
0		Pavement 200mm CONCRETE						
1		Clay Fill silty with trace sand and trace gravel, mixed brown and black, frozen	1	GS				
2		Silt trace clay, low plastic, tan, wet, soft when thawed, frozen	2	GS				
3		Silt and Clay trace silt, high plastic, brown, moist, stiff when thawed frozen to 1.0m	3	GS				
4		(GS4) Lab Report HM 796 Gravel 0%, Sand 2.4%, Silt 56.7%, Clay 40.9% LL - 73, PL - 28, PI - 45	4	GS				
5		CBR at 2.5mm penetration - 2.0%	5	GS				
6		Silt traces of clay inclusion and oxidize mottles below 1.6m	6	GS				
7		soft, sulphate inclusion below 1.8m	7	GS				
8		Clay some silt, high plastic grey brown, firm, moist	8	GS				
9		End of testhole						
10		- No seepage observed - Test hole was backfilled with auger cuttings and topped with crushed limestone and cold patch asphalt - Location: Front of House # 1219 Parker Avenue, WBL, 1.2m from curb						

Drill Method: Auger Drilling

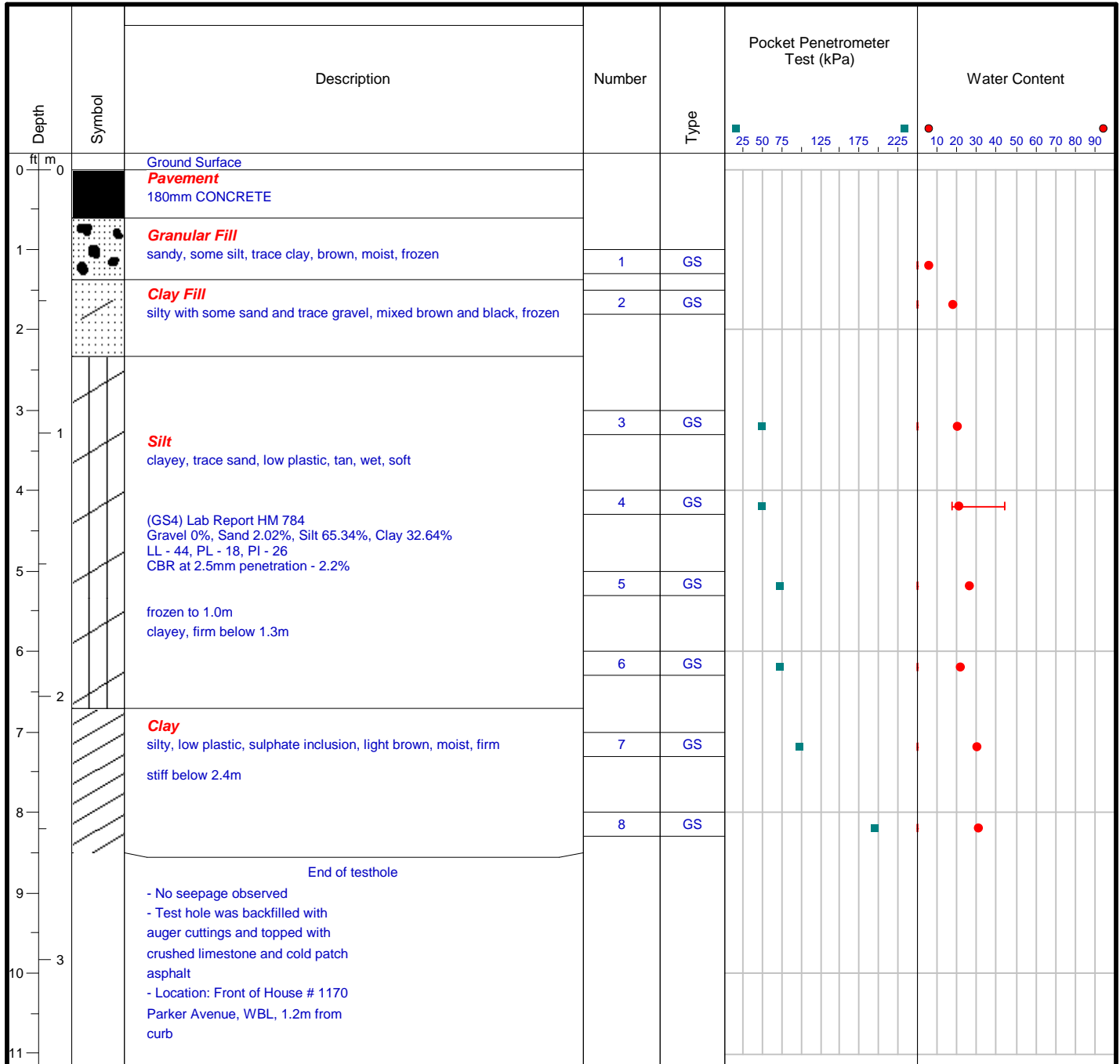
Drill Date: December 16, 2025

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1



Drill Method: Auger Drilling

Drill Date: December 8, 2025

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1

Depth	Symbol	Description	Number	Type	Pocket Penetrometer Test (kPa)	Water Content
0		Ground Surface				
0		Pavement 193mm CONCRETE				
1		Granular Fill sandy, some silt, trace clay, brown, moist, frozen	1	GS		
2		Clay trace silt, low plastic, stratified black and grey, soft to stiff, moist when thawed, frozen	2	GS		
3		Silt stratified with clay, low plastic, tan, moist, soft when thawed, frozen to 1.0m	3	GS		
4			4	GS		
5		Clay silty, high plastic, brown, moist, soft to firm (GS4) Lab Report HM 783 Gravel 0%, Sand 0.7%, Silt 36.4%, 62.9% LL - 90, PL - 30, PI - 60 CBR at 2.5mm penetration - 2.1%	5	GS		
6			6	GS		
7		Silt stratified with clay, high plastic, sulphate inclusion, oxidize mottle, grey-yellow, soft	7	GS		
8			8	GS		
9		Clay silty, high plastic, grey brown, firm, moist	9	GS		
10		End of testhole - No seepage observed - Test hole was backfilled w/ soil cuttings and gravel and asphalt - Location: Front of House # 1150 Parker Avenue, EBL, 1m fr curb				

Drill Method: Auger Drilling

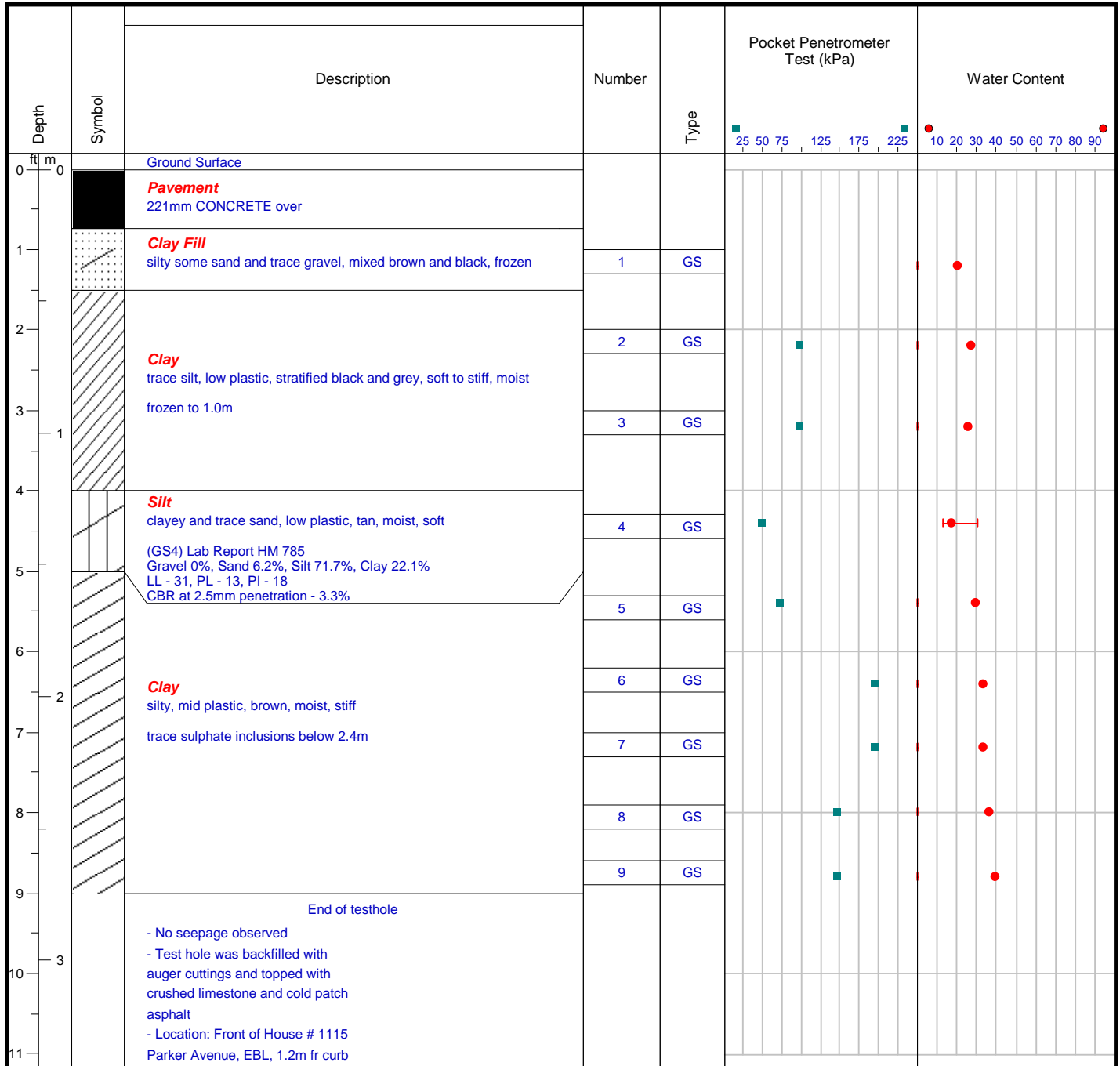
Drill Date: December 8, 2025

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1



Drill Method: Auger Drilling

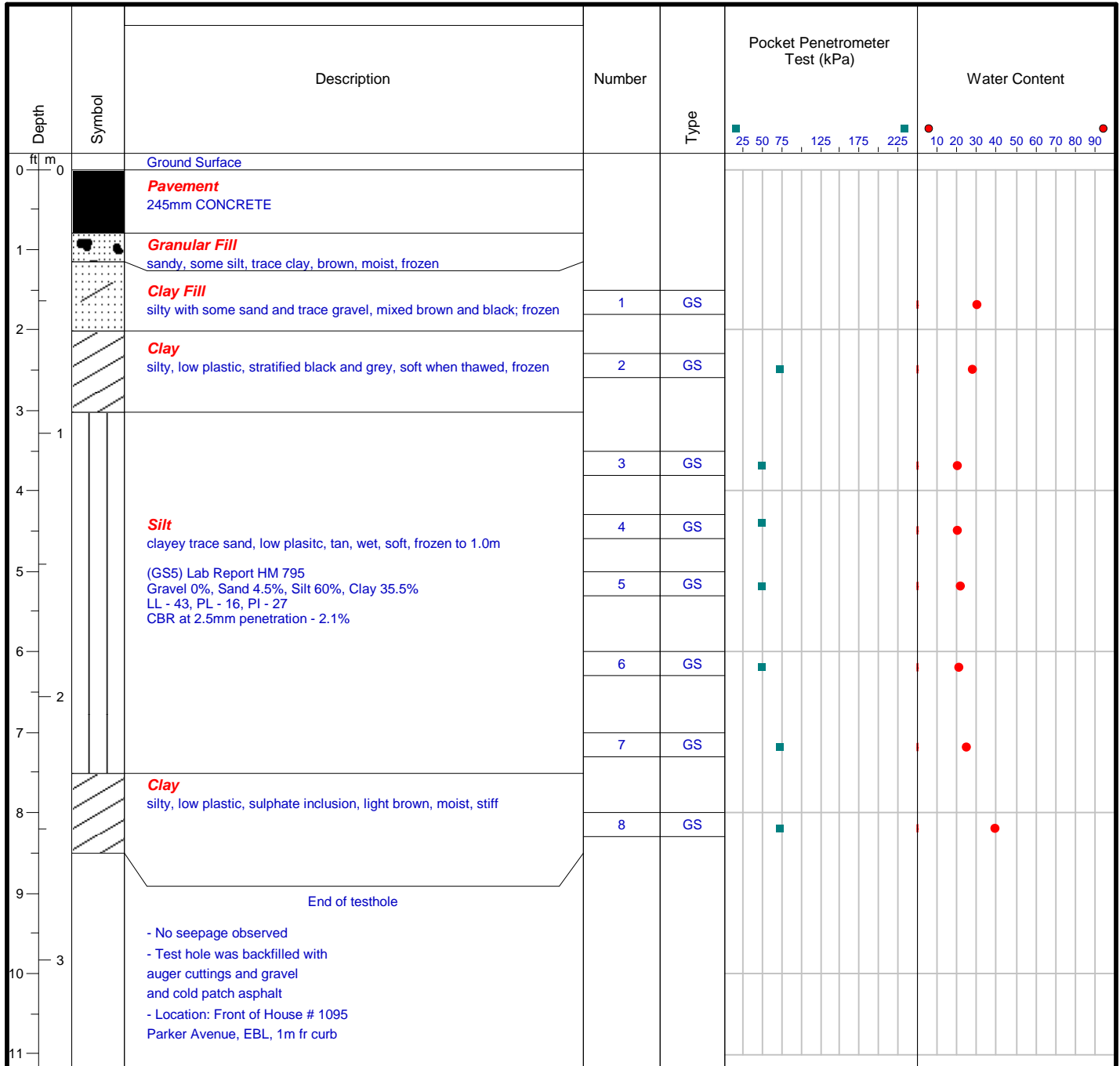
Drill Date: December 8, 2025

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1



Drill Method: Auger Drilling

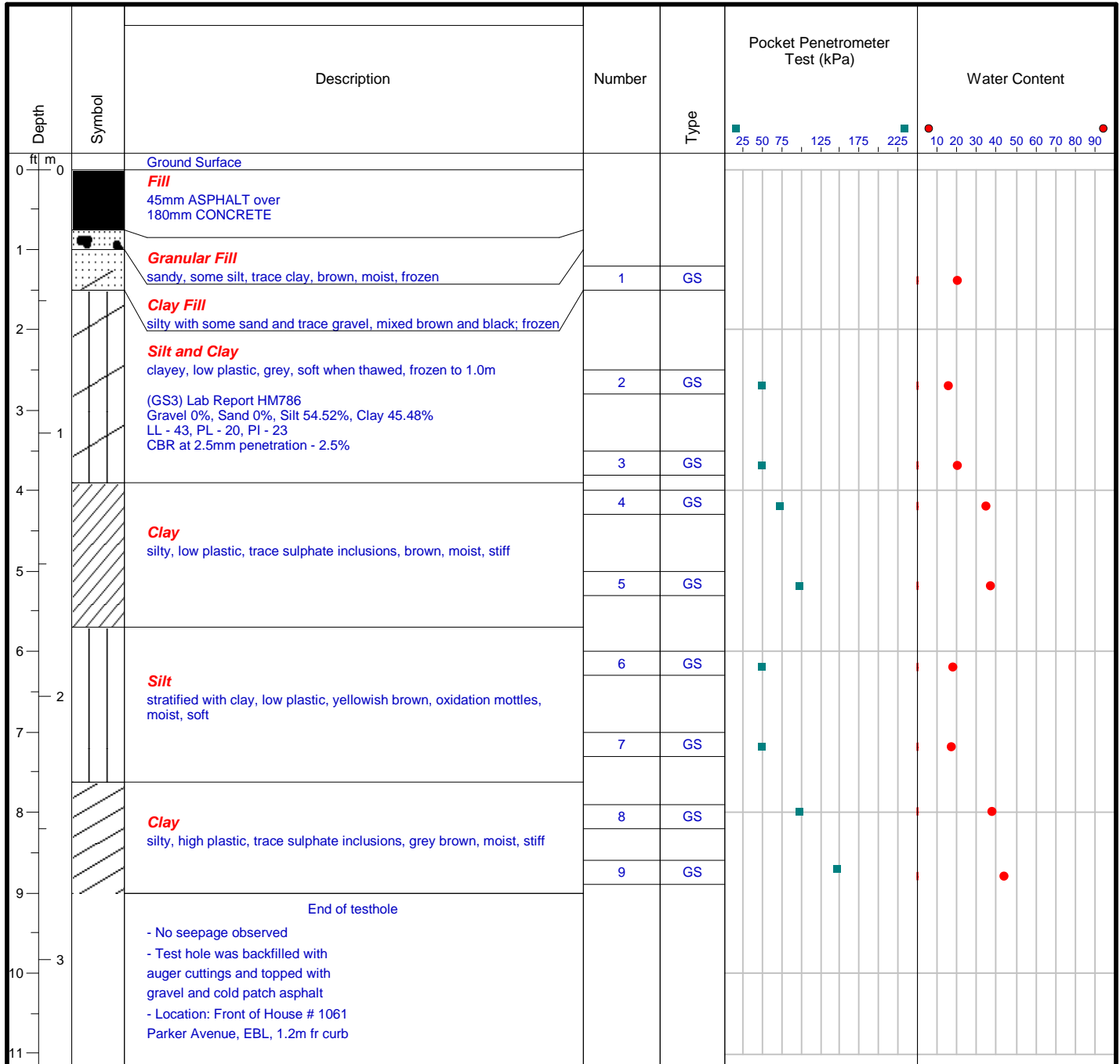
Datum: Existing surface

Drill Date: December 10, 2025

Checked by: Paul Bevel

Hole Size: 5 Inches

Sheet: 1 of 1



Drill Method: Auger Drilling

Drill Date: December 8, 2025

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1

Reconstruction Sites

Summary of Laboratory Testing

Parker Avenue (Wynne St to 1223 Parker Ave)												
TH	GS	PSA				PI			PR		CBR	
		Gravel (%)	Sand (%)	Silt (%)	Clay (%)	LL (%)	PL (%)	PI (%)	MDD (kg/m ³)	OMC (%)	at 2.5mm penetration	at 5.1mm penetration
TH 1	GS 4	0.0	2.4	56.7	40.9	73	28	45	1632	20.7	2.4	1.8
TH 2	GS 4	0.0	2.0	65.3	32.6	44	18	26	1578	24.2	2.2	1.6
TH 3	GS 4	0.0	0.7	36.4	62.9	90	30	60	1480	28.4	2.1	1.7
TH 4	GS 4	0.0	6.2	71.7	22.1	31	13	18	1667	21	3.3	2.4
TH 5	GS 5	0.0	4.5	60.0	35.5	43	16	27	1570	24.2	2.1	1.6

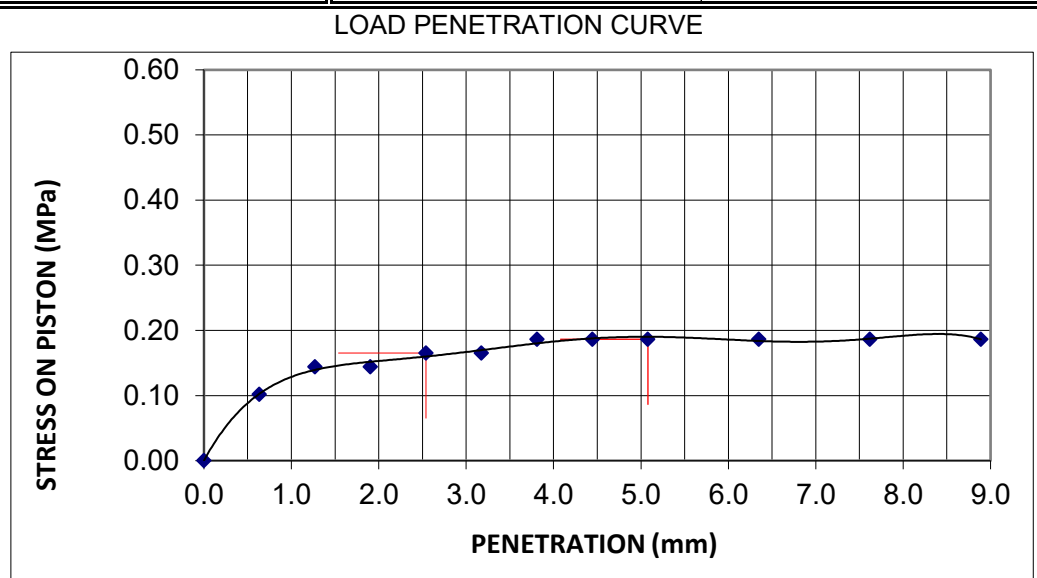
CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: Tetra Tech Canada Inc.
400-161 Portage Ave. E
Winnipeg, MB R3B 0Y4
Attention: Jeff Crang
Project 2026 Local Streets (26-R-03)
Location: Parker Ave, Winnipeg

Project No: 550-2501
Lab No: HM 796
Date sampled/By: 16-Dec-25 MK
Date Received: 16-Dec-25
Date Tested /By: 26-Dec-25 ECS

SAMPLE DATA		SPECIMEN DATA		
Sample Type:	CLAY - Silty with trace sand	DESCRIPTION	Before Soaking	After Testing
Source:	Parker - TH 1 - GS 4	Moisture Content (MC), %	18.9	27.7
Sampled by:	MK	MC of top 25mm layer, %		
Optimum Moisture Content:	20.7 %	Dry Density, kg/m ³	1546	1540
Maximum Dry Density:	1632 kg/cm ³	Compaction, %	95%	
Method of Compaction:	Standard Proctor	CBR at 2.5mm penetration, %	2.4	
Tested by:	ECS	Swell, %	2.1	
	Date Tested: 22-Dec-25			

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.10
1.27	0.14
1.91	0.14
2.54	0.17
3.18	0.17
3.81	0.19
4.45	0.19
5.08	0.19
6.35	0.19
7.62	0.19
8.89	0.19



PENETRATION mm	STANDARD LOAD MPa	TEST LOAD		BEARING RATIO (soaked)	
		ACTUAL MPa	CORRECTED MPa	at 2.5 mm penetration	at 5.1 mm penetration
2.54	6.9	0.17	0.17	2.4	-
5.08	10.3	0.19	0.19	-	1.8

Remarks:

Reviewed by: *P. Bevel*
Paul Bevel

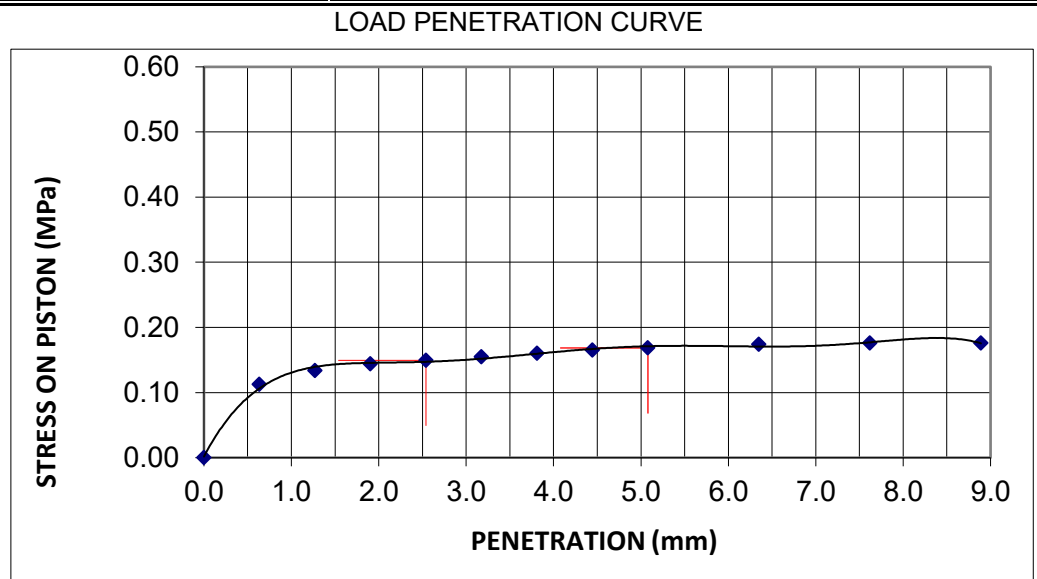
CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: Tetra Tech Canada Inc.
400-161 Portage Ave. E
Winnipeg, MB R3B 0Y4
Attention: Jeff Crang
Project 2026 Local Streets (26-R-03)
Location: Parker Ave, Winnipeg

Project No: 550-2501
Lab No: HM 784
Date sampled/By: 08-Dec-25 MK
Date Received: 08-Dec-25
Date Tested /By: 19-Dec-25 ECS

SAMPLE DATA		SPECIMEN DATA		
Sample Type:	SILT - Clayey	DESCRIPTION	Before Soaking	After Testing
Source:	Parker - TH 2 - GS 4	Moisture Content (MC), %	23.1	26.5
Sampled by:	MK	MC of top 25mm layer, %		
Optimum Moisture Content:	24.2 %	Dry Density, kg/m ³	1497	1501
Maximum Dry Density:	1578 kg/cm ³	Compaction, %	95%	
Method of Compaction:	Standard Proctor	CBR at 2.5mm penetration, %	2.2	
Tested by:	ECS	Swell, %	1.8	
	Date Tested: 15-Dec-25			

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.11
1.27	0.13
1.91	0.14
2.54	0.15
3.18	0.15
3.81	0.16
4.45	0.17
5.08	0.17
6.35	0.17
7.62	0.18
8.89	0.18



PENETRATION mm	STANDARD LOAD MPa	TEST LOAD		BEARING RATIO (soaked)	
		ACTUAL MPa	CORRECTED MPa	at 2.5 mm penetration	at 5.1 mm penetration
2.54	6.9	0.15	0.15	2.2	-
5.08	10.3	0.17	0.17	-	1.6

Remarks:

Reviewed by: *P. Bevel*
Paul Bevel

CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: Tetra Tech Canada Inc.

400-161 Portage Ave. E

Winnipeg, MB R3B 0Y4

Attention: Jeff Crang

Project 2026 Local Streets (26-R-03)

Location: Crowson Bay, Winnipeg

Project No: 550-2501

Lab No: HM 783

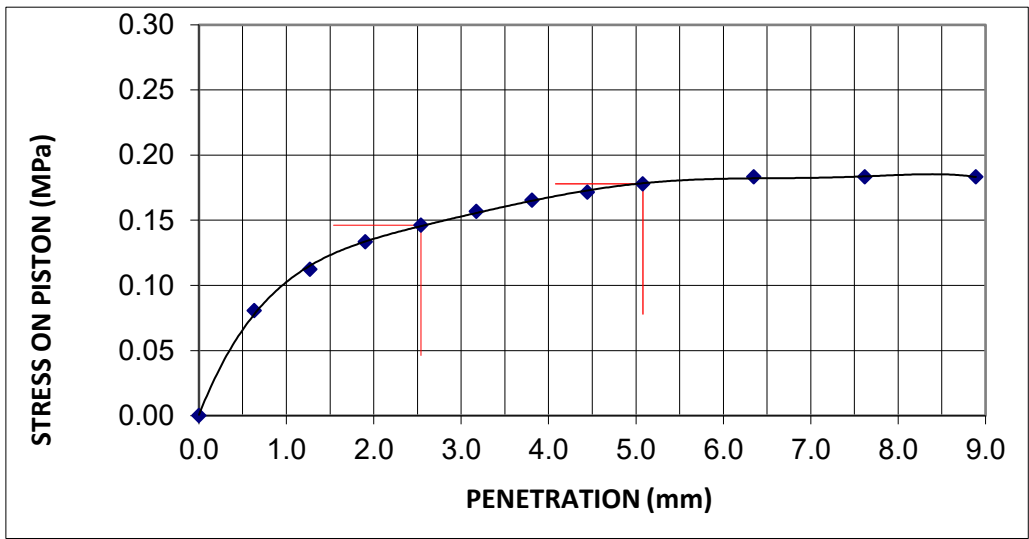
Date sampled/By: 08-Dec-25 MK

Date Received: 08-Dec-25 MK

Date Tested /By: 16-Dec-25 MA

SAMPLE DATA		SPECIMEN DATA		
Sample Type:	CLAY - Silty	DESCRIPTION	Before Soaking	After Testing
Source:	Parker Av - TH 3 - GS 4	Moisture Content (MC), %	27.5	30.2
Sampled by:	MK	MC of top 25mm layer, %		
Optimum Moisture Content:	28.4 %	Dry Density, kg/m ³	1407	1395
Maximum Dry Density:	1480 kg/cm ³	Compaction, %	95%	
Method of Compaction:	Standard Proctor	CBR at 2.5mm penetration, %		2.0
Tested by:	ECS	Swell, %		2.2
	Date Tested: 12-Dec-26			

LOAD DATA		LOAD PENETRATION CURVE	
PENETRATION mm	STRESS MPa		
0	0.00		
0.64	0.08		
1.27	0.11		
1.91	0.13		
2.54	0.15		
3.18	0.16		
3.81	0.17		
4.45	0.17		
5.08	0.18		
6.35	0.18		
7.62	0.18		
8.89	0.18		



PENETRATION mm	STANDARD LOAD MPa	TEST LOAD		BEARING RATIO (soaked)	
		ACTUAL MPa	CORRECTED MPa	at 2.5 mm penetration	at 5.1 mm penetration
2.54	6.9	0.15	0.15	2.1	-
5.08	10.3	0.18	0.18	-	1.7

Remarks:

P. Bevel

Reviewed by: Paul Bevel

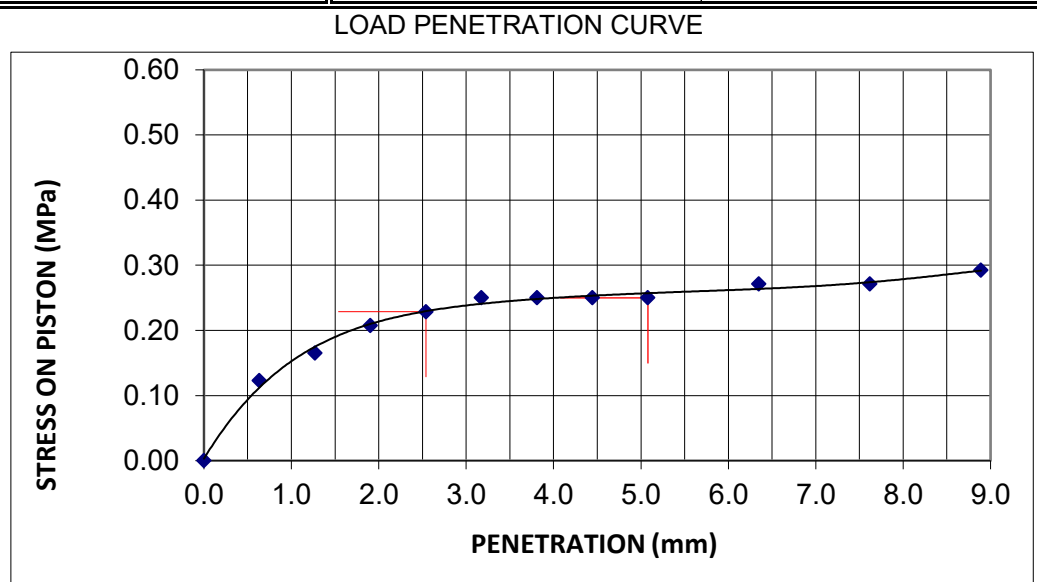
CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: Tetra Tech Canada Inc.
400-161 Portage Ave. E
Winnipeg, MB R3B 0Y4
Attention: Jeff Crang
Project 2026 Local Streets (26-R-03)
Location: Parker Ave, Winnipeg

Project No: 550-2501
Lab No: HM 785
Date sampled/By: 08-Dec-25 MK
Date Received: 08-Dec-25
Date Tested /By: 19-Dec-25 HA

SAMPLE DATA		SPECIMEN DATA		
Sample Type:	SILT - Clayey with trace sand	DESCRIPTION	Before Soaking	After Testing
Source:	Parker Av - TH 4 - GS 4	Moisture Content (MC), %	20.8	21.9
Sampled by:	MK	MC of top 25mm layer, %		
Optimum Moisture Content:	21.0 %	Dry Density, kg/m ³	1619	1613
Maximum Dry Density:	1667 kg/cm ³	Compaction, %	97%	
Method of Compaction:	Standard Proctor	CBR at 2.5mm penetration, %	3.3	
Tested by:	ECS	Swell, %	2.3	
	Date Tested: 15-Dec-26			

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.12
1.27	0.17
1.91	0.21
2.54	0.23
3.18	0.25
3.81	0.25
4.45	0.25
5.08	0.25
6.35	0.27
7.62	0.27
8.89	0.29



PENETRATION mm	STANDARD LOAD MPa	TEST LOAD		BEARING RATIO (soaked)	
		ACTUAL MPa	CORRECTED MPa	at 2.5 mm penetration	at 5.1 mm penetration
2.54	6.9	0.23	0.23	3.3	-
5.08	10.3	0.25	0.25	-	2.4

Remarks:

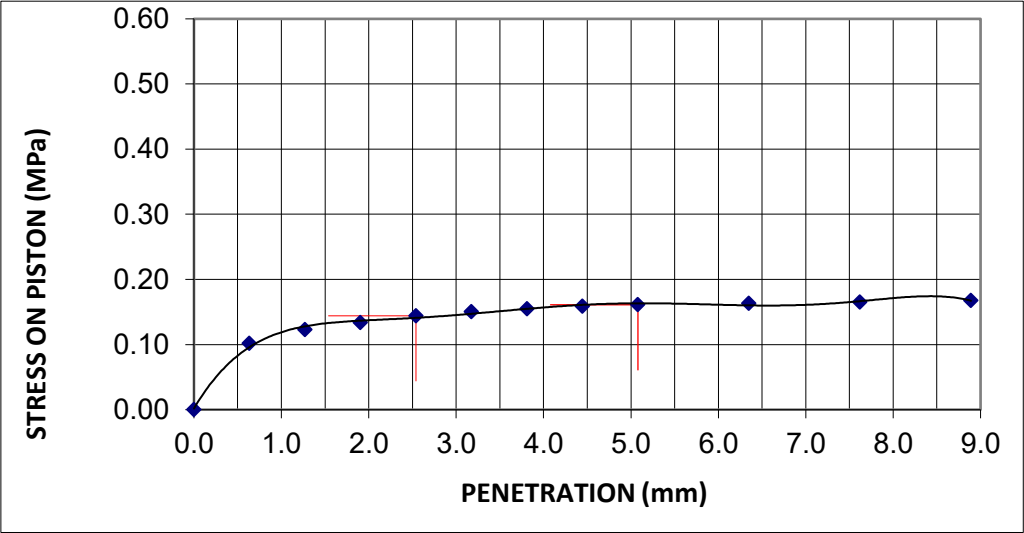
Reviewed by: *P. Bevel*
Paul Bevel

CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: Tetra Tech Canada Inc.
400-161 Portage Ave. E
Winnipeg, MB R3B 0Y4
Attention: Jeff Crang
Project 2026 Local Streets (26-R-03)
Location: Parker Ave, Winnipeg


Project No: 550-2501
Lab No: HM 795
Date sampled/By: 10-Dec-25 MK
Date Received: 10-Dec-25
Date Tested /By: 21-Dec-25 ECS

SAMPLE DATA		SPECIMEN DATA		
Sample Type:	SILT - Clayey trace silt	DESCRIPTION	Before Soaking	After Testing
Source:	Parker - TH 5 - GS 5	Moisture Content (MC), %	24.5	27.4
Sampled by:	MK	MC of top 25mm layer, %		
Optimum Moisture Content:	24.2 %	Dry Density, kg/m ³	1485	1473
Maximum Dry Density:	1570 kg/cm ³	Compaction, %	95%	
Method of Compaction:	Standard Proctor	CBR at 2.5mm penetration, %	2.1	
Tested by:	ECS	Swell, %	1.8	
	Date Tested: 15-Dec-25			

LOAD DATA		LOAD PENETRATION CURVE	
PENETRATION mm	STRESS MPa		
0	0.00		
0.64	0.10		
1.27	0.12		
1.91	0.13		
2.54	0.14		
3.18	0.15		
3.81	0.15		
4.45	0.16		
5.08	0.16		
6.35	0.16		
7.62	0.17		
8.89	0.17		

PENETRATION mm	STANDARD LOAD MPa	TEST LOAD		BEARING RATIO (soaked)	
		ACTUAL MPa	CORRECTED MPa	at 2.5 mm penetration	at 5.1 mm penetration
2.54	6.9	0.14	0.14	2.1	-
5.08	10.3	0.16	0.16	-	1.6

Remarks:

Reviewed by: 
Paul Bevel

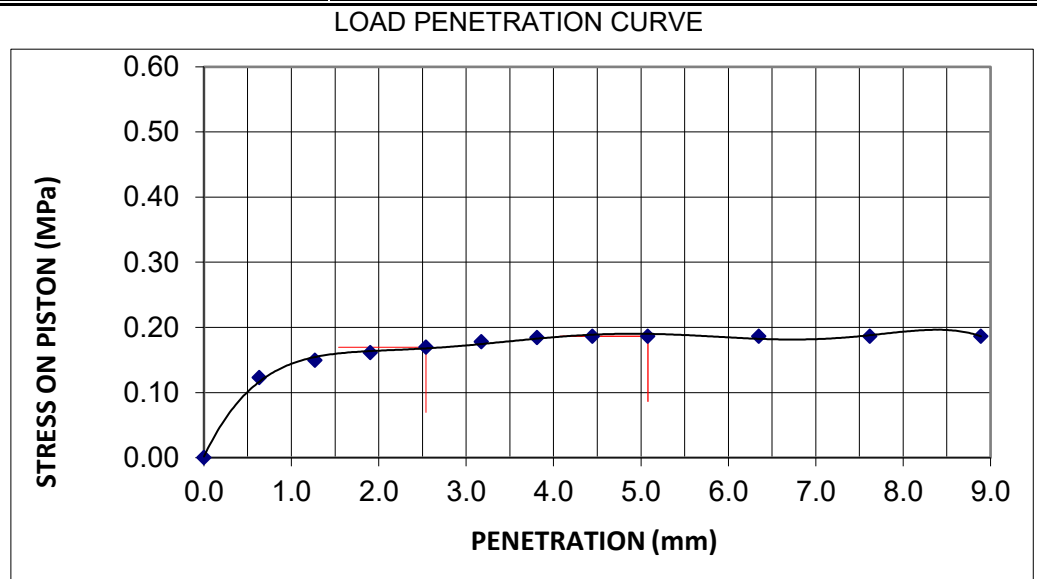
CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: Tetra Tech Canada Inc.
400-161 Portage Ave. E
Winnipeg, MB R3B 0Y4
Attention: Jeff Crang
Project 2026 Local Streets (26-R-03)
Location: Parker Ave, Winnipeg

Project No: 550-2501
Lab No: HM 786
Date sampled/By: 08-Dec-25 MK
Date Received: 08-Dec-25
Date Tested /By: 13-Dec-25 ECS

SAMPLE DATA		SPECIMEN DATA		
Sample Type:	SILT - Clayey	DESCRIPTION	Before Soaking	After Testing
Source:	Parker - TH 6 - GS 3	Moisture Content (MC), %	22.3	29.2
Sampled by:	MK	MC of top 25mm layer, %		
Optimum Moisture Content:	21.2 %	Dry Density, kg/m ³	1558	1505
Maximum Dry Density:	1636 kg/cm ³	Compaction, %	95%	
Method of Compaction:	Standard Proctor	CBR at 2.5mm penetration, %	2.5	
Tested by:	ECS	Swell, %	2.3	
	Date Tested: 09-Dec-25			

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.12
1.27	0.15
1.91	0.16
2.54	0.17
3.18	0.18
3.81	0.18
4.45	0.19
5.08	0.19
6.35	0.19
7.62	0.19
8.89	0.19



PENETRATION mm	STANDARD LOAD MPa	TEST LOAD		BEARING RATIO (soaked)	
		ACTUAL MPa	CORRECTED MPa	at 2.5 mm penetration	at 5.1 mm penetration
2.54	6.9	0.17	0.17	2.5	-
5.08	10.3	0.19	0.19	-	1.8

Remarks:

Reviewed by: *P. Bevel*
Paul Bevel

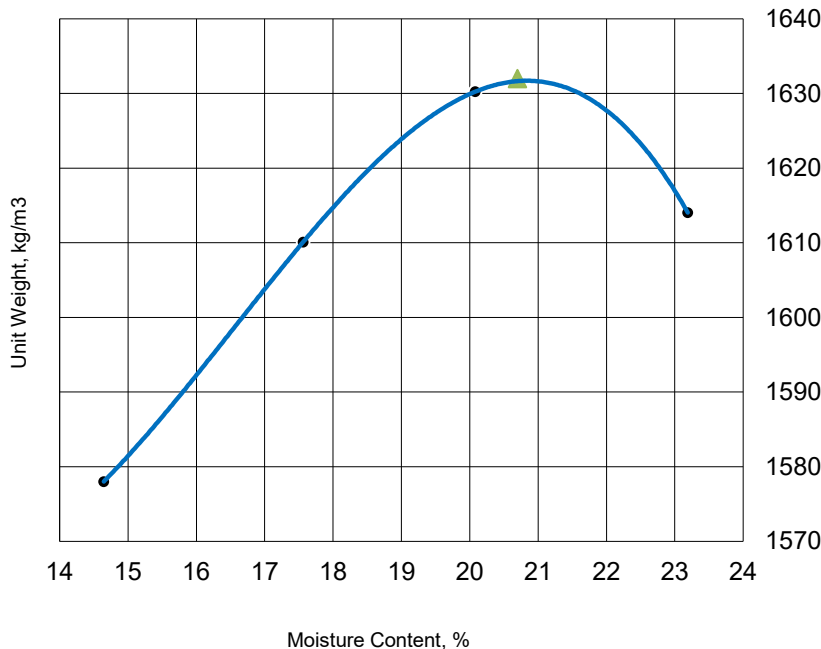
MAXIMUM DRY DENSITY AND MOISTURE CONTENT - Proctor Method (ASTM D698)

CLIENT	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No.:	550-2501
ATTENTION:	Jeff Crang	Lab No.:	HM 796
PROJECT:	2026 Local Streets (26-R-03) Parker Ave, Winnipeg	Proctor Test No.:	13

Date Sampled:	16-Dec-25	Date Received:	16-Dec-25	PROCEDURE	A
Sampled By:	MK	Date Tested:	22-Dec-25	PREPARATION	Dry
MATERIAL INFORMATION Material Type: CLAY - silty with trace sand Material Use: Soil Investigati Maximum Size: 5mm Material Supplier: Not Applicable Material Source: TH 1 - GS 4				COMPACTION METHOD	Manual
				BLOWS PER LAYER	25
				NO. OF LAYERS	3
				MOLD SIZE	100
				MOLD VOLUME	943
				WEIGHT OF HAMMER	2.5 kg

Test No.	1	2	3	4
Wet Density	1809	1893	1958	1988
Moisture Content	14.6	17.6	20.1	23.2
Dry Density	1578	1610	1630	1614

Moisture - Density Relationship



Maximum Dry Density (MDD):
1632 kg/m³
Optimum Moisture Content
20.7 %

STONE CORRECTION (ASTM D 4718)

Retained on 4.75mm sieve:
%
Corrected Moisture:
20.7 %
Corrected Maximum Dry Density:
1632 kg/m³

Remarks:

Tested by: Mehdi Abbasi

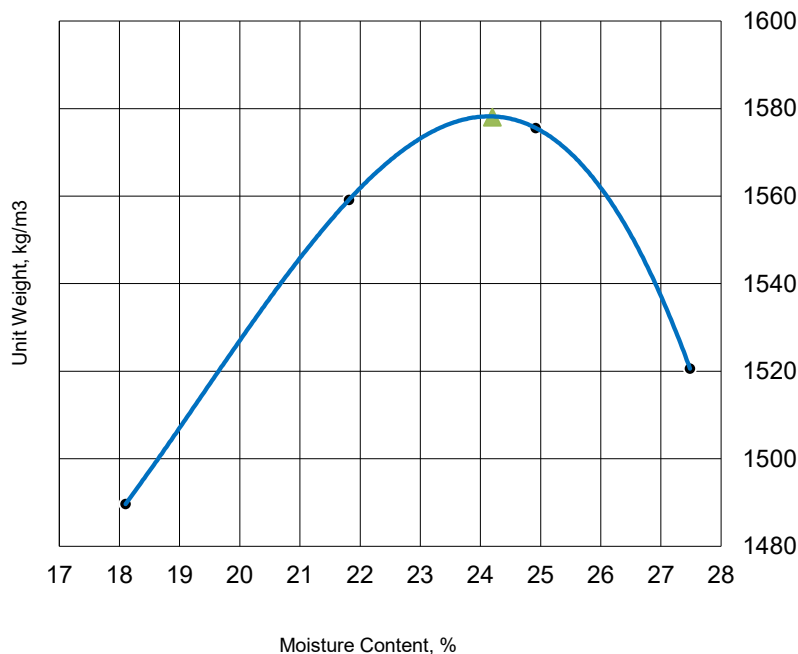
Reviewed by: Paul Bevel

P. Bevel

MAXIMUM DRY DENSITY AND MOISTURE CONTENT - Proctor Method (ASTM D698)

CLIENT	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4			Project No.:	550-2501	
ATTENTION:	Jeff Crang			Lab No.:	HM 784	
PROJECT:	2026 Local Streets (26-R-03) Parker Ave, Winnipeg			Proctor Test No.:	6	
Date Sampled:	08-Dec-25	Date Received:	08-Dec-25	PROCEDURE	A	
Sampled By:	MK	Date Tested:	15-Dec-25	PREPARATION	Dry	
MATERIAL INFORMATION Material Type: SILT - Clayey Material Use: Soil Investigat Maximum Size: 5mm Material Supplier: Not Applicable Material Source: TH 2 - GS 4				COMPACTION METHOD	Manual	
				BLOWS PER LAYER	25	
				NO. OF LAYERS	3	
				MOLD SIZE	100	
				MOLD VOLUME	943	
				WEIGHT OF HAMMER	2.5 kg	
					3	4
				Wet Density	1759	1899
				Moisture Content	18.1	21.8
				Dry Density	1490	1559

Moisture - Density Relationship



Maximum Dry Density (MDD):
1578 kg/m³
Optimum Moisture Content
24.2 %

STONE CORRECTION (ASTM D 4718)

Retained on 4.75mm sieve:
%
Corrected Moisture:
24.2 %
Corrected Maximum Dry Density:
1578 kg/m³

Remarks:

P. Bevel

Tested by: Mehdi Abbasi

Reviewed by: Paul Bevel

MAXIMUM DRY DENSITY AND MOISTURE CONTENT - Proctor Method (ASTM D698)

CLIENT	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No.:	550-2501
ATTENTION:	Jeff Crang	Lab No.:	HM 783
PROJECT:	2026 Local Streets (26-R-03) Parker Ave, Winnipeg	Proctor Test No.:	5

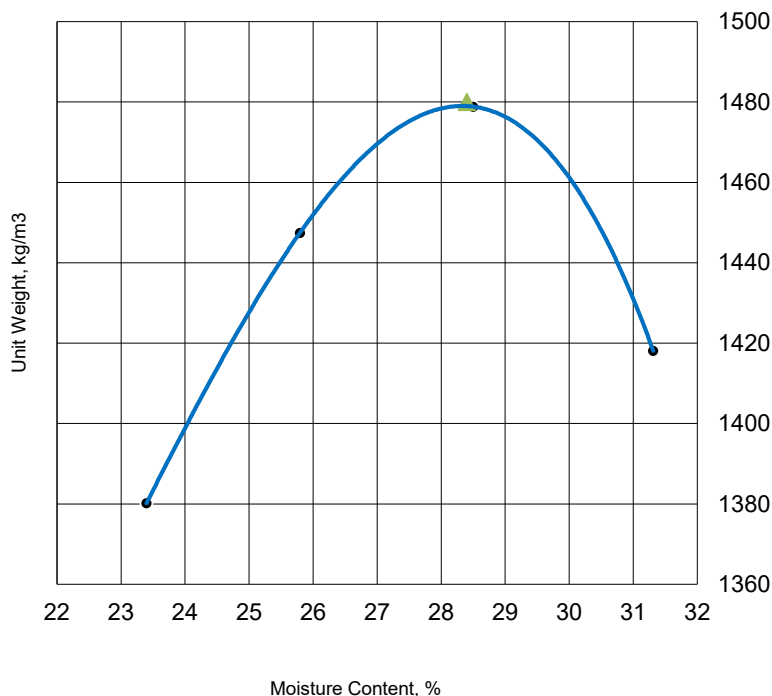
Date Sampled:	08-Dec-25	Date Received:	08-Dec-25	PROCEDURE	A
Sampled By:	MK	Date Tested:	12-Dec-25	PREPARATION	Dry
				COMPACTION METHOD	Manual

MATERIAL INFORMATION

Material Type:	CLAY - Silty					BLOWS PER LAYER	25
Material Use:	Soil Investigat	Material Supplier:	Not Applicable			NO. OF LAYERS	3
Maximum Size:	5mm	Material Source:	Parker - TH 3 - GS 4			MOLD SIZE	100
						MOLD VOLUME	943
						WEIGHT OF HAMMER	2.5 kg

Test No.	1	2	3	4	
Wet Density	1703	1821	1900	1862	
Moisture Content	23.4	25.8	28.5	31.3	
Dry Density	1380	1447	1479	1418	

Moisture - Density Relationship



Maximum Dry Density (MDD):

1480 kg/m³

Optimum Moisture Content

28.4 %

STONE CORRECTION (ASTM D 4718)

Retained on 4.75mm sieve:

%

Corrected Moisture:

28.4 %

Corrected Maximum Dry Density:

1480 kg/m³

Remarks:

P. Bevel

Tested by: Mehdi Abbasi

Reviewed by: Paul Bevel

MAXIMUM DRY DENSITY AND MOISTURE CONTENT - Proctor Method (ASTM D698)

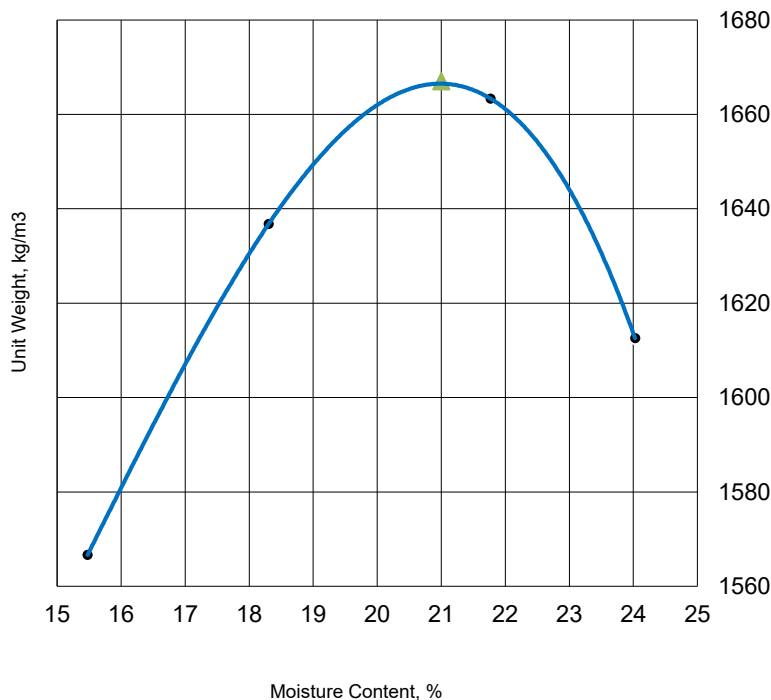
CLIENT	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No.:	550-2501
ATTENTION:	Jeff Crang	Lab No.:	HM 785
PROJECT:	2026 Local Streets (26-R-03) Parker Ave, Winnipeg	Proctor Test No.:	7

Date Sampled:	08-Dec-25	Date Received:	08-Dec-25	PROCEDURE	A
Sampled By:	MK	Date Tested:	15-Dec-25	PREPARATION	Dry

MATERIAL INFORMATION				COMPACTION METHOD	Manual
Material Type:	SILT - Clayey with trace sand			BLOWS PER LAYER	25
Material Use:	Soil Investigat	Material Supplier:	Not Applicable	NO. OF LAYERS	3
Maximum Size:	5mm	Material Source:	Parker - TH 4 - GS 4	MOLD SIZE	100
				MOLD VOLUME	943
				WEIGHT OF HAMMER	2.5 kg

Test No.	1	2	3	4	
Wet Density	1809	1936	2025	2000	
Moisture Content	15.5	18.3	21.8	24.0	
Dry Density	1567	1637	1663	1613	

Moisture - Density Relationship



Maximum Dry Density (MDD):

1667 kg/m³

Optimum Moisture Content

21.0 %

STONE CORRECTION (ASTM D 4718)

Retained on 4.75mm sieve:

%

Corrected Moisture:

21.0 %

Corrected Maximum Dry Density:

1667 kg/m³

Remarks:

Tested by: Mehdi Abbasi

Reviewed by: Paul Bevel

P. Bevel

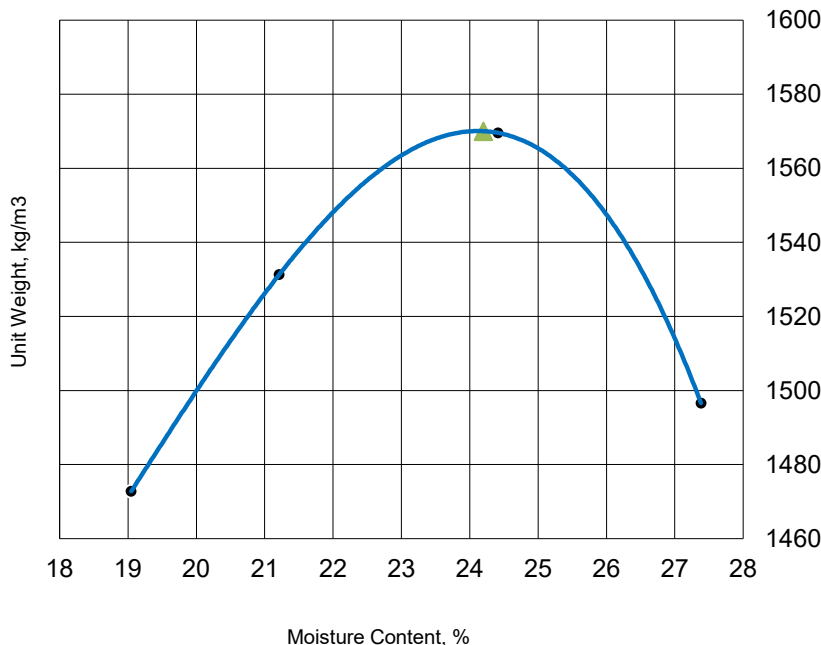
MAXIMUM DRY DENSITY AND MOISTURE CONTENT - Proctor Method (ASTM D698)

CLIENT	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No.:	550-2501
ATTENTION:	Jeff Crang	Lab No.:	HM 795
PROJECT:	2026 Local Streets (26-R-03) Parker Ave, Winnipeg	Proctor Test No.:	12

Date Sampled:	10-Dec-25	Date Received:	10-Dec-25	PROCEDURE	A
Sampled By:	MK	Date Tested:	17-Dec-25	PREPARATION	Dry
MATERIAL INFORMATION Material Type: SILT - Clayey with trace sand Material Use: Soil Investigati Maximum Size: 5mm Material Supplier: Not Applicable Material Source: Parker - TH5 - GS 5				COMPACTION METHOD	Manual
				BLOWS PER LAYER	25
				NO. OF LAYERS	3
				MOLD SIZE	100
				MOLD VOLUME	973
				WEIGHT OF HAMMER	2.5 kg

Test No.	1	2	3	4
Wet Density	1753	1856	1953	1906
Moisture Content	19.0	21.2	24.4	27.4
Dry Density	1473	1531	1570	1497

Moisture - Density Relationship



Maximum Dry Density (MDD):
1570 kg/m³
Optimum Moisture Content
24.2 %

STONE CORRECTION (ASTM D 4718)

Retained on 4.75mm sieve:
Corrected Moisture:
24.2 %
Corrected Maximum Dry Density:
1570 kg/m³

Remarks:

P. Bevel

Tested by: Christopher Bautista

Reviewed by: Paul Bevel

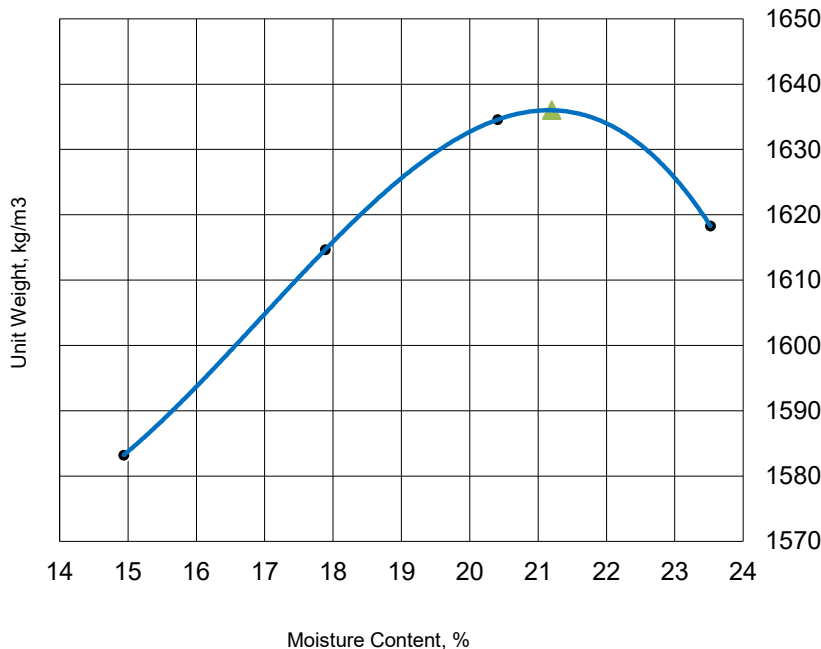
MAXIMUM DRY DENSITY AND MOISTURE CONTENT - Proctor Method (ASTM D698)

CLIENT	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No.:	550-2501
ATTENTION:	Jeff Crang	Lab No.:	HM 786
PROJECT:	2026 Local Streets (26-R-03) Parker Ave, Winnipeg	Proctor Test No.:	8

Date Sampled:	08-Dec-25	Date Received:	08-Dec-25	PROCEDURE	A
Sampled By:	MK	Date Tested:	09-Dec-25	PREPARATION	Dry
MATERIAL INFORMATION Material Type: SILT - Clayey Material Use: Soil Investigati Maximum Size: 5mm Material Supplier: Not Applicable Material Source: TH 6 - GS 3				COMPACTION METHOD	Manual
				BLOWS PER LAYER	25
				NO. OF LAYERS	3
				MOLD SIZE	100
				MOLD VOLUME	943
				WEIGHT OF HAMMER	2.5 kg

Test No.	1	2	3	4
Wet Density	1820	1903	1968	1999
Moisture Content	14.9	17.9	20.4	23.5
Dry Density	1583	1615	1635	1618

Moisture - Density Relationship



Maximum Dry Density (MDD):
1636 kg/m³
Optimum Moisture Content
21.2 %

STONE CORRECTION (ASTM D 4718)

Retained on 4.75mm sieve:
%
Corrected Moisture:
21.2 %
Corrected Maximum Dry Density:
1636 kg/m³

Remarks:

Tested by: Mehdi Abbasi

Reviewed by: Paul Bevel

P. Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: Tetra Tech Canada Inc.
400-161 Portage Ave. E
Winnipeg, MB R3B 0Y4

Project No.: 550-2501

PSA Test No.: 11

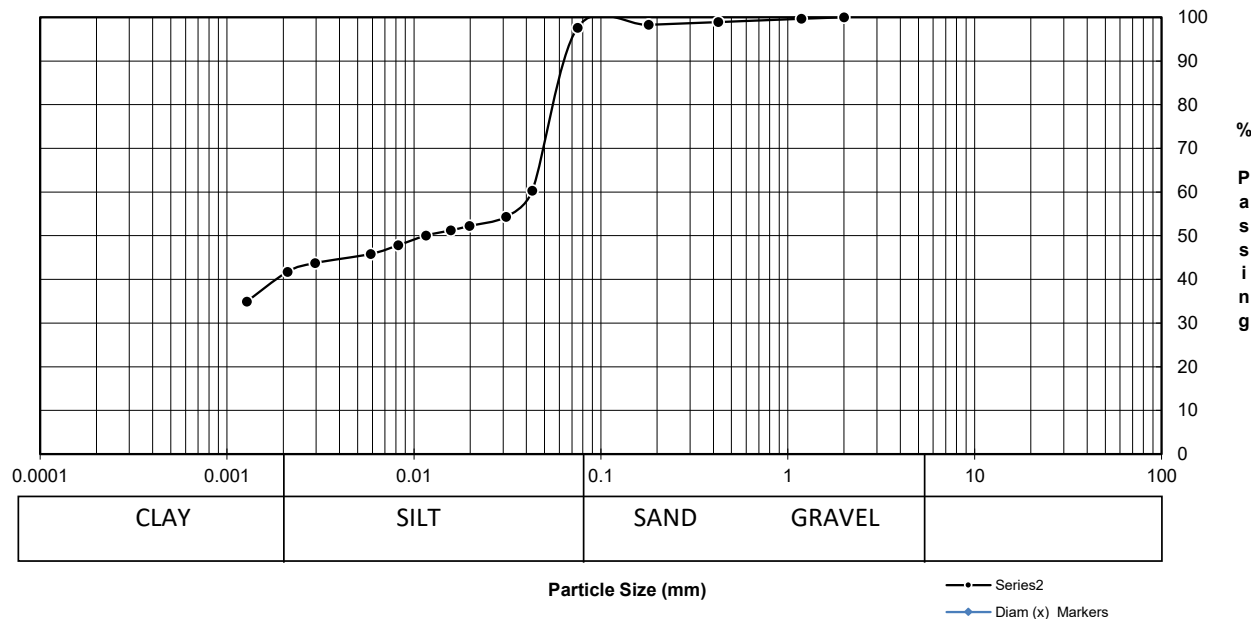
Lab No.: HM 796

ATTENTION: Jeff Crang

PROJECT: 2026 Local Streets (26-R-03)
Parker Ave, Winnipeg

Date Sampled: 16-Dec-26	Date Received: 16-Dec-26	Sieve Analysis		Hydrometer Analysis	
Sampled By: MK	Date Tested: 22-Dec-26	Sieve (mm)	% Passing	Diameter	% Finer
Material Identification B.H./T.H. No. TH 1 Depth 4-ft Sample Source GS 4 Specific Gravity of Material: 2.65		50.00	100.0		
		37.50	100.0		
		25.00	100.0		
		19.00	100.0		
		16.00	100.0		
		12.50	100.0	0.0430	60.3
		9.50	100.0	0.0311	54.3
		4.75	100.0	0.0198	52.2
		2.00	100.0	0.0157	51.2
		1.18	99.7	0.0116	50.0
		0.425	98.9	0.0082	47.8
		0.180	98.3	0.0059	45.8
		0.075	97.6	0.0013	34.9

Grain Size Analysis



% Composition		D10
2.40	Gravel	D30
56.71	Sand	D60
40.89	Silt	Cu
	Clay	Cc

Remarks:

P. Bevel

Technician: E. Santiago

Reviewed by Paul Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: Tetra Tech Canada Inc.
400-161 Portage Ave. E
Winnipeg, MB R3B 0Y4

Project No.: 550-2501

PSA Test No.: 5

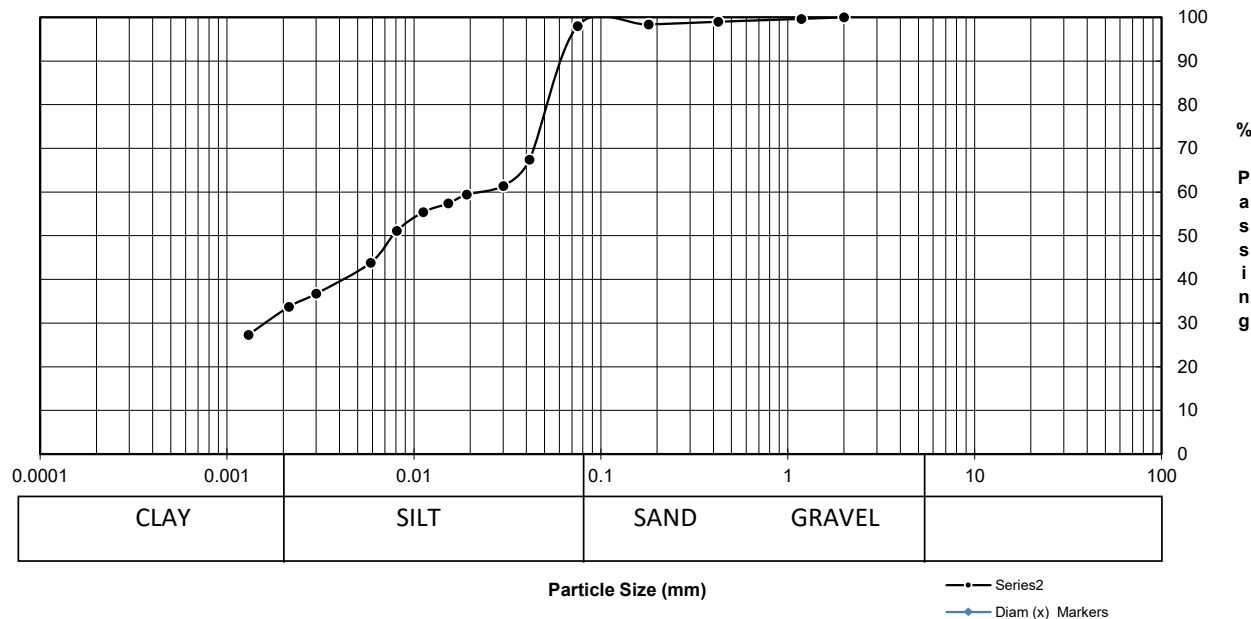
Lab No.: HM 784

ATTENTION: Jeff Crang

PROJECT: 2026 Local Streets (26-R-03)
Parker Ave, Winnipeg

Date Sampled: 08-Dec-25	Date Received: 08-Dec-25	Sieve Analysis		Hydrometer Analysis	
Sampled By: MK	Date Tested: 17-Dec-25	Sieve (mm)	% Passing	Diameter	% Finer
Material Identification B.H./T.H. No. TH 2 Depth 4-ft Sample Source GS 4 Specific Gravity of Material: 2.65		50.00	100.0		
		37.50	100.0		
		25.00	100.0		
		19.00	100.0		
		16.00	100.0		
		12.50	100.0	0.0415	67.4
		9.50	100.0	0.0300	61.4
		4.75	100.0	0.0191	59.4
		2.00	100.0	0.0152	57.4
		1.18	99.6	0.0112	55.4
		0.425	99.0	0.0081	51.1
		0.180	98.4	0.0059	43.8
		0.075	98.0	0.0013	27.3

Grain Size Analysis



		% Composition	D10
		Gravel	D30
		2.02 Sand	D60
		65.34 Silt	Cu
		32.64 Clay	Cc

Remarks:

P. Bevel

Technician:

BY

Reviewed by Paul Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: Tetra Tech Canada Inc.
400-161 Portage Ave. E
Winnipeg, MB R3B 0Y4

Project No.: 550-2501

PSA Test No.: 4

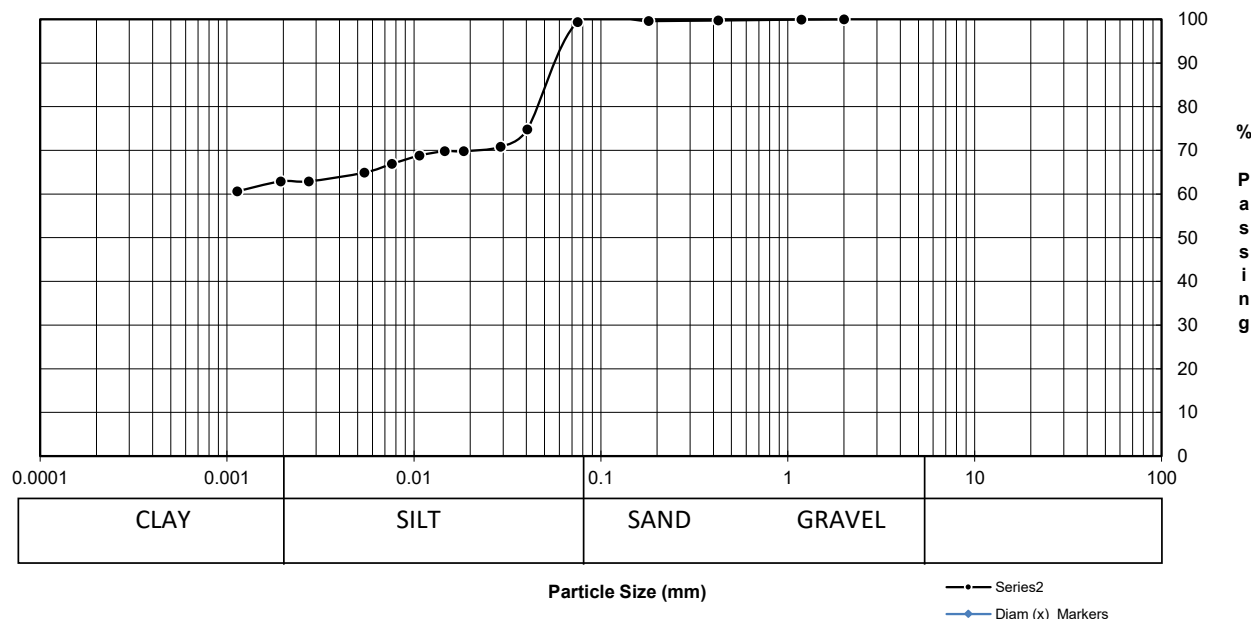
Lab No.: HM 783

ATTENTION: Jeff Crang

PROJECT: 2026 Local Streets (26-R-03)
Parker Ave, Winnipeg

Date Sampled: 08-Dec-25	Date Received: 08-Dec-25	Sieve Analysis		Hydrometer Analysis	
Sampled By: MK	Date Tested: 16-Dec-25	Sieve (mm)	% Passing	Diameter	% Finer
Material Identification B.H./T.H. No. TH 3 Depth 4.5 ft Sample Source GS 4 Specific Gravity of Material: 2.65		50.00	100.0		
		37.50	100.0		
		25.00	100.0		
		19.00	100.0		
		16.00	100.0		
		12.50	100.0	0.0404	74.8
		9.50	100.0	0.0290	70.8
		4.75	100.0	0.0184	69.8
		2.00	100.0	0.0146	69.8
		1.18	99.9	0.0107	68.8
		0.425	99.7	0.0076	66.9
		0.180	99.6	0.0054	64.9
		0.075	99.3	0.0011	60.6

Grain Size Analysis



		% Composition	D10
		Gravel	D30
		0.66 Sand	D60
		36.44 Silt	Cu
		62.90 Clay	Cc

Remarks:

Technician: B. Yung

Reviewed by Paul Bevel

P. Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: Tetra Tech Canada Inc.

Project No.: 550-2501

400-161 Portage Ave. E

PSA Test No.: 6

Winnipeg, MB R3B 0Y4

Lab No.: HM 785

ATTENTION: Jeff Crang

PROJECT: 2026 Local Streets (26-R-03)

Parker Ave, Winnipeg

Date Sampled: 08-Dec-25

Date Received: 08-Dec-25

Sieve Analysis

Hydrometer Analysis

Sampled By: MK

Date Tested: 17-Dec-25

Sieve (mm) % Passing

Diameter % Finer

Material Identification

B.H./T.H. No.

TH 4

Depth

4.5-FT

Sample Source

GS 4

Specific Gravity of Material:

2.65

50.00 100.0

37.50 100.0

25.00 100.0

19.00 100.0

16.00 100.0

12.50 100.0

9.50 100.0

4.75 100.0

2.00 100.0

1.18 99.7

0.425 97.7

0.180 96.7

0.075 93.8

0.0415 67.4

0.0304 58.3

0.0195 54.2

0.0158 47.2

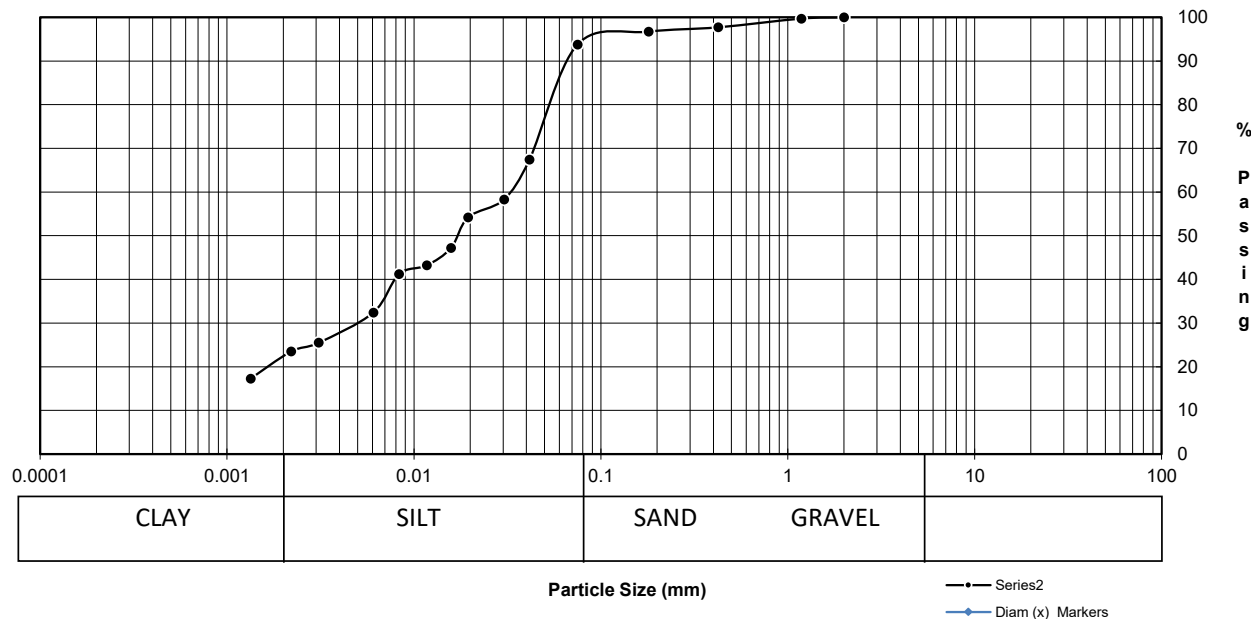
0.0117 43.2

0.0083 41.2

0.0061 32.4

0.0013 17.3

Grain Size Analysis



% Composition

D10

Gravel

D30

6.24

Sand

D60

71.71

Silt

Cu

22.05

Clay

Cc

Remarks:

Technician:

BY

Reviewed by Paul Bevel

P. Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: Tetra Tech Canada Inc.
400-161 Portage Ave. E
Winnipeg, MB R3B 0Y4

Project No.: 550-2501

PSA Test No.: 12

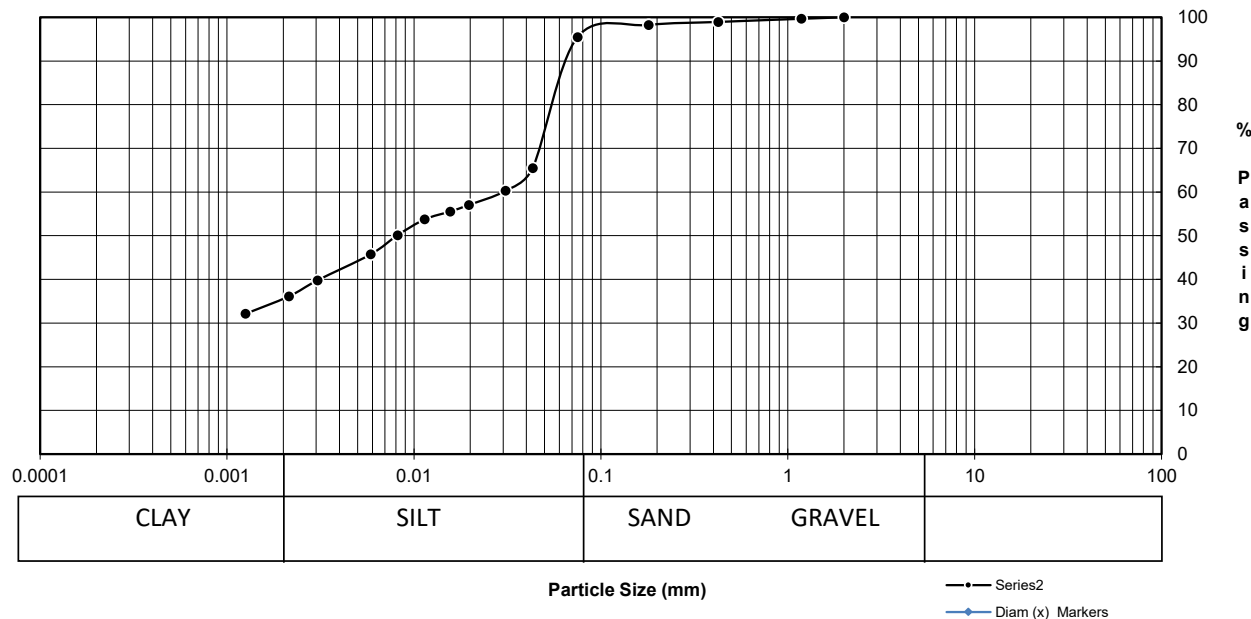
Lab No.: HM 795

ATTENTION: Jeff Crang

PROJECT: 2026 Local Streets (26-R-03)
Parker Ave, Winnipeg

Date Sampled: 10-Dec-25	Date Received: 10-Dec-25	Sieve Analysis		Hydrometer Analysis	
Sampled By: MK	Date Tested: 30-Dec-25	Sieve (mm)	% Passing	Diameter	% Finer
Material Identification B.H./T.H. No. TH 5 Depth 5-ft Sample Source GS 5 Specific Gravity of Material: 2.65		50.00	100.0		
		37.50	100.0		
		25.00	100.0		
		19.00	100.0		
		16.00	100.0		
		12.50	100.0	0.0431	65.5
		9.50	100.0	0.0309	60.3
		4.75	100.0	0.0197	57.0
		2.00	100.0	0.0156	55.5
		1.18	99.7	0.0114	53.7
		0.425	98.9	0.0082	50.1
		0.180	98.2	0.0059	45.7
		0.075	95.5	0.0013	32.1

Grain Size Analysis



	% Composition		D10
	4.54	Gravel	D30
	59.99	Sand	D60
	35.47	Silt	Cu
		Clay	Cc

Remarks:

Technician:

BY

Reviewed by Paul Bevel

P. Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: Tetra Tech Canada Inc.
400-161 Portage Ave. E
Winnipeg, MB R3B 0Y4

Project No.: 550-2501

PSA Test No.: 8

Lab No.: HM 786

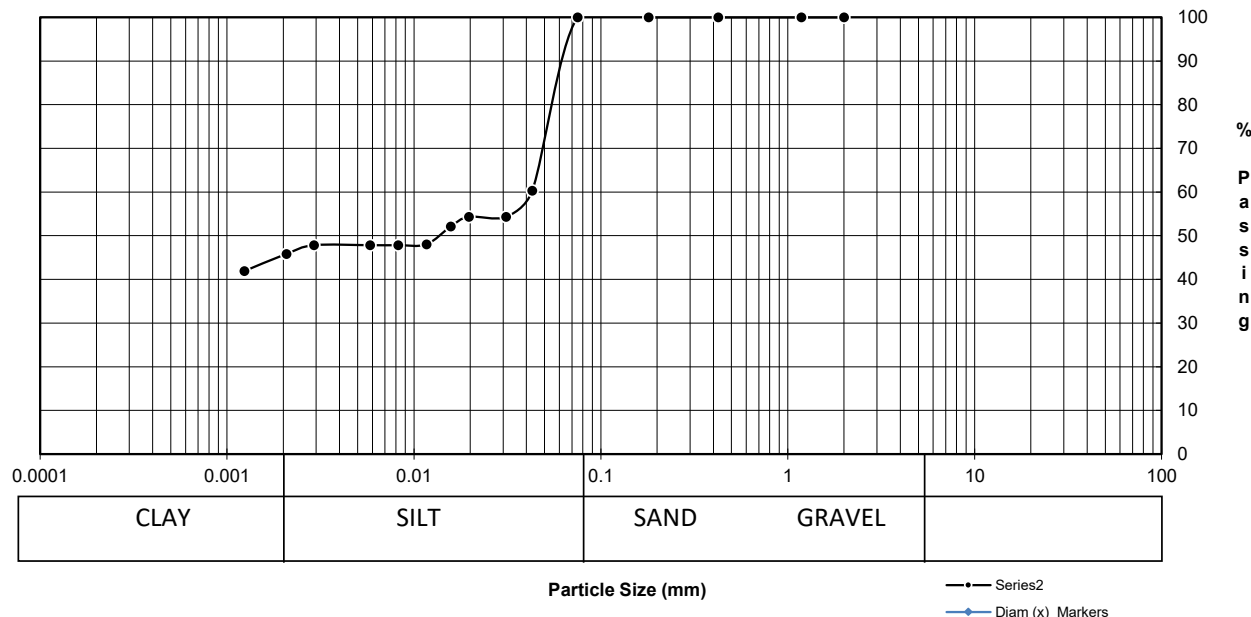
ATTENTION: Jeff Crang

PROJECT: 2026 Local Streets (26-R-03)

Parker Ave, Winnipeg

Date Sampled: 08-Dec-25	Date Received: 08-Dec-25	Sieve Analysis		Hydrometer Analysis	
Sampled By: MK	Date Tested: 22-Dec-25	Sieve (mm)	% Passing	Diameter	% Finer
Material Identification B.H./T.H. No. TH 6 Depth 3.5-ft Sample Source GS 3 Specific Gravity of Material: 2.65		50.00	100.0		
		37.50	100.0		
		25.00	100.0		
		19.00	100.0		
		16.00	100.0		
		12.50	100.0	0.0430	60.3
		9.50	100.0	0.0311	54.3
		4.75	100.0	0.0196	54.3
		2.00	100.0	0.0157	52.1
		1.18	100.0	0.0117	48.0
		0.425	100.0	0.0082	47.8
		0.180	100.0	0.0058	47.8
		0.075	100.0	0.0012	41.9

Grain Size Analysis



		% Composition	D10
		Gravel	D30
		Sand	D60
		54.52 Silt	Cu
		45.48 Clay	Cc

Remarks:

P. Bevel

Technician:

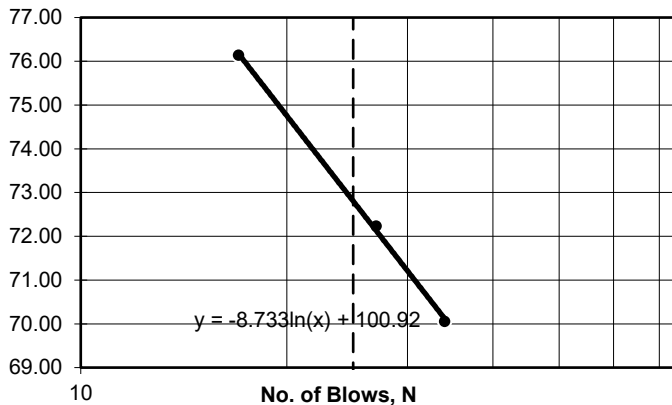
BY

Reviewed by Paul Bevel

Atterberg Limits (ASTM D4318)

Client:	Tetra Tech Canada Inc.	Project No.:	550-2501
	400-161 Portage Ave. E	PI Test No.:	10
	Winnipeg, MB R3B 0Y4	Lab No.:	HM 796
Attention.:	Jeff Crang	Date Sampled/By:	16-Dec-25 MK
Project:	2026 Local Streets (26-R-03)	Date Received:	16-Dec-25
	Parker Ave, Winnipeg	Date Tested / By:	21-Dec-25 GM

Liquid Limit Determination					Liquid Limit 25 Blows
Dish No.:	1	2	3		
Wet Soil + Dish:	10.95	11.78	11.08		
Dry Soil + Dish:	8.26	8.71	8.24		
Moisture:	2.69	3.07	2.84		
Dish:	4.42	4.46	4.51		
Dry Soil:	3.84	4.25	3.73		
% Moisture:	70.05	72.24	76.14		
No. of Blows:	34	27	17		
Liquid Limit:					73

Liquid Limit**Material Identification:**

Test Hole: **TH 1**
Grab Sample No: **GS 4**
Depth: **4-ft**

Liquid Limit, %: **73**
Plastic Limit, %: **28**
Plasticity Index: **45**
(LL-PL)

Plastic Limit Determination					
Dish No.:	1	2	3		
Wet Soil + Dish:	9.65	10.48	10.66		
Dry Soil + Dish:	8.48	9.16	9.35		
Moisture:	1.17	1.32	1.31		
Dish:	4.42	4.48	4.7		
Dry Soil:	4.06	4.68	4.65		
% Moisture:	28.82	28.21	28.17		
				Average:	28

Test Method : ASTM: D4318, D2216

Remarks:

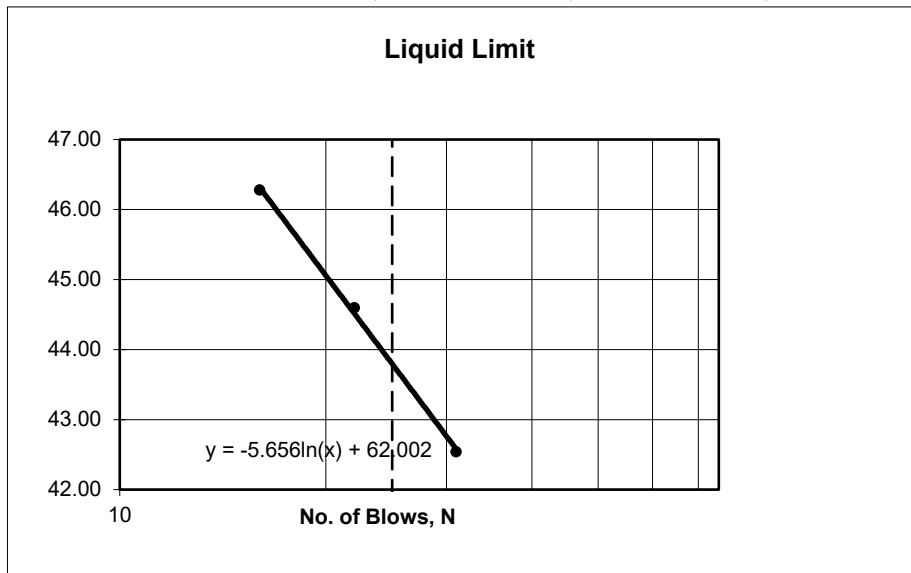
P. Bevel

Reviewed by: Paul Bevel

Atterberg Limits (ASTM D4318)

Client:	Tetra Tech Canada Inc.	Project No.:	550-2501
	400-161 Portage Ave. E	PI Test No.:	5
	Winnipeg, MB R3B 0Y4	Lab No.:	HM 784
Attention.:	Jeff Crang	Date Sampled/By:	08-Dec MK
Project:	2026 Local Streets (26-R-03)	Date Received:	08-Dec
	Parker Ave, Winnipeg	Date Tested / By:	12-Dec GM

Liquid Limit Determination					Liquid Limit 25 Blows
Dish No.:	1	2	3		
Wet Soil + Dish:	12.17	12.82	12.52		
Dry Soil + Dish:	9.86	10.22	9.97		
Moisture:	2.31	2.6	2.55		
Dish:	4.43	4.39	4.46		
Dry Soil:	5.43	5.83	5.51		
% Moisture:	42.54	44.60	46.28		
No. of Blows:	31	22	16		
Liquid Limit:					44

**Material Identification:**

Test Hole: **TH 2**
Grabe Sample No: **GS 4**
Depth: **4-ft**

Liquid Limit, %: **44**
Plastic Limit, %: **18**
Plasticity Index: **26**
(LL-PL)

Plastic Limit Determination					
Dish No.:	1	2	3		
Wet Soil + Dish:	11.14	11.11	10.95		
Dry Soil + Dish:	10.06	10.08	9.97		
Moisture:	1.08	1.03	0.98		
Dish:	4.49	4.42	4.42		
Dry Soil:	5.57	5.66	5.55		
% Moisture:	19.39	18.20	17.66		
				Average:	18

Test Method : ASTM: D4318, D2216

Remarks:

P. Bevel

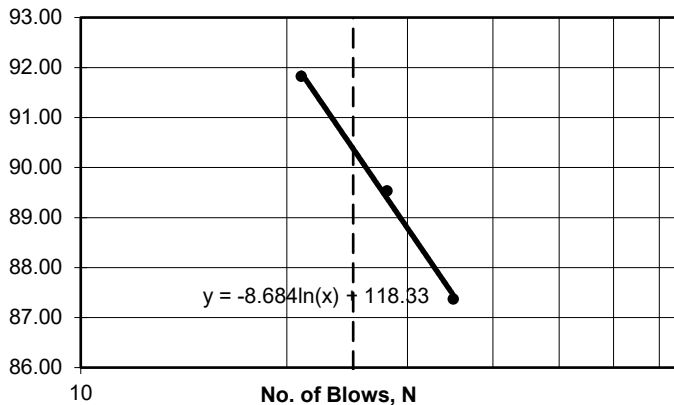
Reviewed by: Paul Bevel

Atterberg Limits (ASTM D4318)

Client:	Tetra Tech Canada Inc.	Project No.:	550-2501
	400-161 Portage Ave. E	PI Test No.:	4
	Winnipeg, MB R3B 0Y4	Lab No.:	HM 783
Attention.:	Jeff Crang	Date Sampled/By:	08-Dec MK
Project:	2026 Local Streets (26-R-03)	Date Received:	08-Dec
	Parker Ave, Winnipeg	Date Tested / By:	15-Dec GM

Liquid Limit Determination

Dish No.:	1	2	3		Liquid Limit 25 Blows
Wet Soil + Dish:	11.17	10.49	10.98		
Dry Soil + Dish:	7.78	7.41	7.61		
Moisture:	3.39	3.08	3.37		
Dish:	3.9	3.97	3.94		
Dry Soil:	3.88	3.44	3.67		
% Moisture:	87.37	89.53	91.83		
No. of Blows:	35	28	21		
Liquid Limit:					90

Liquid Limit**Material Identification:**

Test Hole: **TH 3**
Grab Sample No: **GS 4**
Depth: **4.5-ft**

Liquid Limit, %: **90**
Plastic Limit, %: **30**
Plasticity Index: **60**
(LL-PL)

Plastic Limit Determination

Dish No.:	1	2	3		
Wet Soil + Dish:	9.23	9.32	9.04		
Dry Soil + Dish:	8.03	8.03	7.87		
Moisture:	1.2	1.29	1.17		
Dish:	4.09	3.9	3.91		
Dry Soil:	3.94	4.13	3.96		
% Moisture:	30.46	31.23	29.55		
				Average:	30

Test Method : ASTM: D4318, D2216

Remarks:

P. Bevel

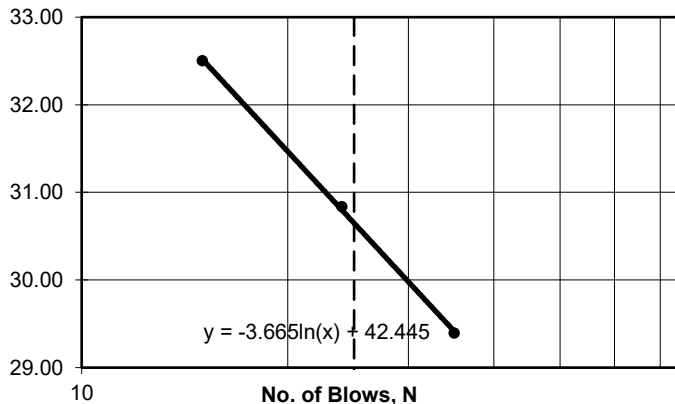
Reviewed by: Paul Bevel

Atterberg Limits (ASTM D4318)

Client:	Tetra Tech Canada Inc.	Project No.:	550-2501
	400-161 Portage Ave. E	PI Test No.:	6
	Winnipeg, MB R3B 0Y4	Lab No.:	HM 785
Attention.:	Jeff Crang	Date Sampled/By:	08-Dec MK
Project:	2026 Local Streets (26-R-03)	Date Received:	08-Dec
	Parker Ave, Winnipeg	Date Tested / By:	17-Dec GM

Liquid Limit Determination

Dish No.:	1	2	3		Liquid Limit 25 Blows
Wet Soil + Dish:	13.23	13.36	13.52		
Dry Soil + Dish:	11.24	11.26	11.3		
Moisture:	1.99	2.1	2.22		
Dish:	4.47	4.45	4.47		
Dry Soil:	6.77	6.81	6.83		
% Moisture:	29.39	30.84	32.50		
No. of Blows:	35	24	15		
Liquid Limit:					31

Liquid Limit**Material Identification:**

Test Hole: **TH 4**
Grabe Sample No: **GS 4**
Depth: **4.5-ft**

Liquid Limit, %: **31**
Plastic Limit, %: **13**
Plasticity Index: **17**
(LL-PL)

Plastic Limit Determination

Dish No.:	1	2	3		
Wet Soil + Dish:	11.11	11.05	11.05		
Dry Soil + Dish:	10.33	10.28	10.28		
Moisture:	0.78	0.77	0.77		
Dish:	4.47	4.43	4.46		
Dry Soil:	5.86	5.85	5.82		
% Moisture:	13.31	13.16	13.23		
				Average:	13

Test Method : ASTM: D4318, D2216

Remarks:

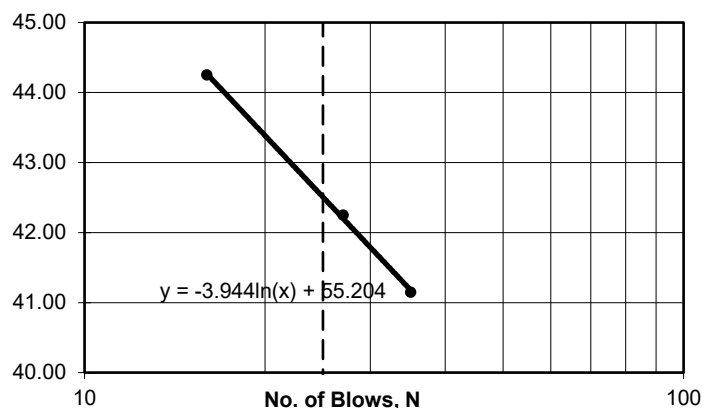
P. Bevel

Reviewed by: Paul Bevel

Atterberg Limits (ASTM D4318)

Client:	Tetra Tech Canada Inc.	Project No.:	550-2501
	400-161 Portage Ave. E	PI Test No.:	12
	Winnipeg, MB R3B 0Y4	Lab No.:	HM 795
Attention.:	Jeff Crang	Date Sampled/By:	10-Dec MK
Project:	2026 Local Streets (26-R-03)	Date Received:	10-Dec
	Parker Ave, Winnipeg	Date Tested / By:	12-Dec GM

Liquid Limit Determination					Liquid Limit 25 Blows
Dish No.:	1	2	3		
Wet Soil + Dish:	10.81	12.05	12.21		
Dry Soil + Dish:	8.95	9.87	9.9		
Moisture:	1.86	2.18	2.31		
Dish:	4.43	4.71	4.68		
Dry Soil:	4.52	5.16	5.22		
% Moisture:	41.15	42.25	44.25		
No. of Blows:	35	27	16		
Liquid Limit:					43

Liquid Limit**Material Identification:**

Test Hole: **TH 5**
Grab Sample No: **GS 5**
Depth: **5-ft**

Liquid Limit, %: **43**
Plastic Limit, %: **16**
Plasticity Index: **27**
(LL-PL)

Plastic Limit Determination					
Dish No.:	1	2	3		
Wet Soil + Dish:	10.62	10.69	10.8		
Dry Soil + Dish:	9.73	9.84	9.91		
Moisture:	0.89	0.85	0.89		
Dish:	4.47	4.47	4.43		
Dry Soil:	5.26	5.37	5.48		
% Moisture:	16.92	15.83	16.24		
				Average:	16

Test Method : ASTM: D4318, D2216

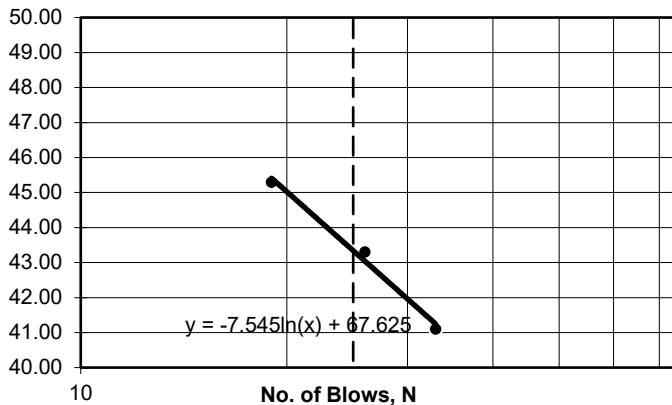
Remarks:

P. Bevel
Reviewed by: Paul Bevel

Atterberg Limits (ASTM D4318)

Client:	Tetra Tech Canada Inc.	Project No.:	550-2501
	400-161 Portage Ave. E	PI Test No.:	8
	Winnipeg, MB R3B 0Y4	Lab No.:	HM 786
Attention.:	Jeff Crang	Date Sampled/By:	08-Dec-25 MK
Project:	2026 Local Streets (26-R-03)	Date Received:	08-Dec-25
	Parker Ave, Winnipeg	Date Tested / By:	22-Dec-25 GM

Liquid Limit Determination					Liquid Limit 25 Blows
Dish No.:	1	2	3		
Wet Soil + Dish:	10.88	11.13	11.60		
Dry Soil + Dish:	9.00	9.12	9.39		
Moisture:	1.88	2.01	2.21		
Dish:	4.43	4.47	4.52		
Dry Soil:	4.57	4.65	4.87		
% Moisture:	41.10	43.30	45.30		
No. of Blows:	33	26	19		
Liquid Limit:					43

Liquid Limit**Material Identification:**

Test Hole: **TH 6**
Grab Sample No: **GS 3**
Depth: **4-ft**

Liquid Limit, %: **43**
Plastic Limit, %: **20**
Plasticity Index: **23**
(LL-PL)

Plastic Limit Determination					
Dish No.:	1	2	3		
Wet Soil + Dish:	10.61	10.91	10.63		
Dry Soil + Dish:	9.57	9.88	9.62		
Moisture:	1.04	1.03	1.01		
Dish:	4.45	4.52	4.41		
Dry Soil:	5.12	5.36	5.21		
% Moisture:	20.30	19.20	19.30		
				Average:	20

Test Method : ASTM: D4318, D2216

Remarks:

P. Bevel

Reviewed by: Paul Bevel

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No:	550-2501
Attention:	Jeff Crang	Test No.:	4
Project:	2026 Local Streets (26-R-03) Parker Ave, Winnipeg	Lab No.:	HM 783
		Date Sampled / By:	December 8, 2025 MK
		Date Received:	December 8, 2025
		Date Tested / By:	December 9, 2025 Chris Bautista

Test Hole No.	TH-1-GS1	TH-1-GS2	TH-1-GS3	TH-1-GS4	TH-1-GS5
Depth	1-ft	1.5-ft	3-ft	4-ft	5-ft
Tare No.	P7	P5	V4	H8	GM2
Wt Wet Sample + Tare	128.4	198.4	209.1	175.2	189
Wt Dry Sample + Tare	96.6	159.5	160	128.7	134.2
Wt Water	31.8	38.9	49.1	46.5	54.8
Wt Tare	4.0	4.0	4.6	4.9	5.2
Wt Dry Sample	92.6	155.5	155.4	123.8	129.0
Moisture Content (%)	34.3	25.0	31.6	37.6	42.5
Test Hole No.	TH-1-GS6	TH-1-GS7	TH-1-GS8		
Depth	6-ft	7-ft	8-ft		
Tare No.	C-08	H18	H14		
Wt Wet Sample + Tare	187.8	165	176.4		
Wt Dry Sample + Tare	135.9	112.2	117.2		
Wt Water	51.9	52.8	59.2		
Wt Tare	4.2	4.8	4.7		
Wt Dry Sample	131.7	107.4	112.5		
Moisture Content (%)	39.4	49.2	52.6		
Test Hole No.	TH-2-GS1	TH-2-GS2	TH-2-GS3	TH-2-GS4	TH-2-GS5
Depth	1-ft	1.75-ft	2.5-ft	4-ft	5-ft
Tare No.	M24	G-23	C1	Z-6	G-18
Wt Wet Sample + Tare	162.2	190	241.9	190.2	171.4
Wt Dry Sample + Tare	153.1	161.2	201	157.1	135.8
Wt Water	9.1	28.8	40.9	33.1	35.6
Wt Tare	4.8	4.7	4.4	4.5	4.6
Wt Dry Sample	148.3	156.5	196.6	152.6	131.2
Moisture Content (%)	6.1	18.4	20.8	21.7	27.1
Test Hole No.	TH-2-GS6	TH-2-GS7	TH-2-GS8		
Depth	6-ft	7-ft	8-ft		
Tare No.	B-4	G20	VZ		
Wt Wet Sample + Tare	167.2	228.5	164.7		
Wt Dry Sample + Tare	137.4	175.9	126.6		
Wt Water	29.8	52.6	38.1		
Wt Tare	4.1	4.7	4.5		
Wt Dry Sample	133.3	171.2	122.1		
Moisture Content (%)	22.4	30.7	31.2		

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No:	550-2501
		Test No.:	4
		Lab No.:	HM 783
Attention:	Jeff Crang	Date Sampled / By:	December 8, 2025 MK
Project:	2026 Local Streets (26-R-03) Parker Ave, Winnipeg	Date Received:	December 8, 2025
		Date Tested / By:	December 9, 2025 Chris Bautista

Test Hole No.	TH-3-GS1	TH-3-GS2	TH-3-GS3	TH-3-GS4	TH-3-GS5
Depth	1-ft	2-ft	3.5-ft	4.5-ft	5-ft
Tare No.	H-17	C-04	CO-6	HM-1	M13
Wt Wet Sample + Tare	171.6	162.7	189.3	184.4	180.7
Wt Dry Sample + Tare	156.9	125.5	156	139.9	135.7
Wt Water	14.7	37.2	33.3	44.5	45.0
Wt Tare	4.7	4.0	4.7	4.2	4.8
Wt Dry Sample	152.2	121.5	151.3	135.7	130.9
Moisture Content (%)	9.7	30.6	22.0	32.8	34.4
Test Hole No.	TH-3-GS6	TH-3-GS7	TH-3-GS8	TH-3-GS9	
Depth	6-ft	7-ft	8-ft	9-ft	
Tare No.	C6	M35	G-19	GM-1	
Wt Wet Sample + Tare	161.4	185.4	182.5	179.4	
Wt Dry Sample + Tare	116.4	135.5	131.7	124	
Wt Water	45.0	49.9	50.8	55.4	
Wt Tare	4.9	4.5	4.7	4.2	
Wt Dry Sample	111.5	131.0	127.0	119.8	
Moisture Content (%)	40.4	38.1	40.0	46.2	
Test Hole No.	TH 4-GS1	TH 4-GS2	TH 4-GS3	TH 4-GS4	TH 4-GS5
Depth	1-ft	2-ft	3-ft	4.5-ft	5.5-ft
Tare No.	KMC	C9	H19 (1.0)	A14	GM9
Wt Wet Sample + Tare	178	229.1	184.6	217.6	190.1
Wt Dry Sample + Tare	148.3	180.7	147.3	185.6	147.6
Wt Water	29.7	48.4	37.3	32.0	42.5
Wt Tare	4.5	4.5	4.3	4.1	3.9
Wt Dry Sample	143.8	176.2	143.0	181.5	143.7
Moisture Content (%)	20.7	27.5	26.1	17.6	29.6
Test Hole No.	TH 4-GS6	TH 4-GS7	TH 4-GS8	TH 4-GS9	
Depth	6-ft	7-ft	8-ft	8.75-ft	
Tare No.	H7 (2.0)	G12 (2.0)	J1 (1.5)	MK1 (1.5)	
Wt Wet Sample + Tare	177.4	194.1	171.8	178.2	
Wt Dry Sample + Tare	133.7	146.4	126.7	128.8	
Wt Water	43.7	47.7	45.1	49.4	
Wt Tare	4.3	3.9	4.6	4.6	
Wt Dry Sample	129.4	142.5	122.1	124.2	
Moisture Content (%)	33.8	33.5	36.9	39.8	

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No:	550-2501
Attention:	Jeff Crang	Test No.:	4
Project:	2026 Local Streets (26-R-03) Parker Ave, Winnipeg	Lab No.:	HM 783
		Date Sampled / By:	December 8, 2025 MK
		Date Received:	December 8, 2025
		Date Tested / By:	December 9, 2025 Chris Bautista

Test Hole No.	TH-5-GS1	TH-5-GS2	TH-5-GS3	TH-5-GS4	TH-5-GS5
Depth	1.75-ft	2.5-ft	3.5-ft	4.5-ft	5-ft
Tare No.	C-01	SE-7	G2	Z-5	M28
Wt Wet Sample + Tare	170.7	157	179.4	190.9	162.5
Wt Dry Sample + Tare	131.3	123.4	149	158.6	133.4
Wt Water	39.4	33.6	30.4	32.3	29.1
Wt Tare	3.9	4.3	4.7	4.6	4.6
Wt Dry Sample	127.4	119.1	144.3	154.0	128.8
Moisture Content (%)	30.9	28.2	21.1	21.0	22.6
Test Hole No.	TH-5-GS6	TH-5-GS7	TH-5-GS8		
Depth	6-ft	7-ft	8-ft		
Tare No.	B5	V1	CO-4		
Wt Wet Sample + Tare	184.2	198.5	210.7		
Wt Dry Sample + Tare	152	159.3	152.3		
Wt Water	32.2	39.2	58.4		
Wt Tare	4.3	4.9	4.7		
Wt Dry Sample	147.7	154.4	147.6		
Moisture Content (%)	21.8	25.4	39.6		
Test Hole No.	TH 6 - GS1	TH 6 - GS2	TH 6 - GS3	TH 6 - GS4	TH 6 - GS5
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	C4	P6	PS3	SE6 (2.0)	2-1 (0.5)
Wt Wet Sample + Tare	166.9	188.2	183.6	182.2	192.4
Wt Dry Sample + Tare	138.54	162.7	152.4	136	141.5
Wt Water	28.4	25.5	31.2	46.2	50.9
Wt Tare	4.3	4.0	4.6	4.8	4.5
Wt Dry Sample	134.2	158.7	147.8	131.2	137.0
Moisture Content (%)	21.1	16.1	21.1	35.2	37.2
Test Hole No.	TH 6 - GS6	TH 6 - GS7	TH 6 - GS8	TH 6 - GS9	
Depth	6-ft	7-ft	8-ft	9-ft	
Tare No.	A-1	G19	M35	GM1	
Wt Wet Sample + Tare	225.5	174.2	193.2	187.1	
Wt Dry Sample + Tare	191.3	149	141	131.1	
Wt Water	34.2	25.2	52.2	56.0	
Wt Tare	4.6	4.7	4.7	4.2	
Wt Dry Sample	186.7	144.3	136.3	126.9	
Moisture Content (%)	18.3	17.5	38.3	44.1	

Appendix A - Reconstruction Sites

Picture of Test Holes

PARKER AVENUE



TH 1



TH 2



TH 3



TH 4

Appendix A - Reconstruction Sites

Picture of Test Holes

PARKER AVENUE



TH 5



TH 6

APPENDIX B.1.

WATERBURY DRIVE

(LINDENWOOD DR E TO LINDENWOOD DR E)

Rehabilitation Sites

Pavement Coring and Subsurface Drilling Locations



Rehabilitation Sites

Pavement Coring and Subsurface Drilling Locations



Rehabilitation Site

Pavement Structure Measurement

Test Hole No.	Test Hole Location	Asphalt Thickness (mm)	Concrete Thickness (mm)
Waterbury Drive (Lindenwood Dr E to Lindenwood Dr E)			
TH1	Front of House # 27 Waterbury Drive, WBL 14 U, 630451 E, 5521667 N	100mm	140mm

Note: ^A - deterioration of concrete pavement at this location

Rehabilitation Sites

Pavement Structure Measurement

Test Hole No.	Test Hole Location	Asphalt Thickness (mm)	Concrete Thickness (mm)
Waterbury Drive (Following Tetra Tech Core Hole Plans) (Lindenwood Dr E to Lindenwood Dr E)			
CH1	Mid Slab; Side of House # 253 Lindenwood Drive E, NBL 14 U, 630276 E, 5521313 N	-	170mm ^A
CH2	Joint; Side of House # 253 Lindenwood Drive E, NBL 14 U, 630275 E, 5521315 N	100mm	60mm ^A
CH3	Mid Slab; Front of House # 95 Waterbury Drive, SBL 14 U, 630252 E, 5521470 N	-	190mm ^A
CH4	Joint; Front of House # 95 Waterbury Drive, SBL 14 U, 630253 E, 5521473 N	25mm	175mm ^A
CH5	Joint; Front of House # 66 Waterbury Drive, NBL 14 U, 630313 E, 5521628 N	-	180mm ^A
CH6	Mid Slab; Front of House # 66 Waterbury Drive, NBL 14 U, 630316 E, 5521630 N	-	170mm ^A
CH7	Joint; Front of House # 27 Waterbury Drive, WBL 14 U, 630449 E, 5521668 N	20mm	62mm ^A
CH8	Mid Slab; Front of House # 27 Waterbury Drive, WBL 14 U, 630451 E, 5521667 N	-	200mm ^A

Note: ^A - deterioration of concrete pavement at this location

Rehabilitation Sites

Pavement Structure Measurement

Test Hole No.	Test Hole Location	Asphalt Thickness (mm)	Concrete Thickness (mm)
Waterbury Drive (Initial Cores Following HMCL Plans) (Lindenwood Dr E to Lindenwood Dr E)			
CH1	Mid Slab; Side of House # 253 Lindenwood Drive E, NBL 14 U, 630275 E, 5521303 N	-	160mm
CH2	Mid Slab; Front of House # 106 Waterbury Drive, NBL 14 U, 630273 E, 5521400 N	-	170mm
CH3	Mid Slab; Front of House # 90 Waterbury Drive, NBL 14 U, 630259 E, 5521496 N	-	160mm
CH4	Mid Slab; Front of House # 60 Waterbury Drive, NBL 14 U, 630325 E, 5521638 N	-	152mm
CH5	Mid Slab; Front of House # 38 Waterbury Drive, EBL 14 U, 630389 E, 5521689 N	-	140mm
CH6	Mid Slab; Front of House # 24 Waterbury Drive, EBL 14 U, 630471 E, 5521660 N	-	185mm
CH7	Mid Slab; Side of House # 153 Lindenwood Drive E, EBL 14 U, 630562 E, 5521645 N	-	172mm

Note: ^A - deterioration of concrete pavement at this location

Depth	Symbol	Description	Number	Type	Pocket Penetrometer Test (kPa)	Water Content
ft m					25 50 75 125 175 225	10 20 30 40 50 60 70 80 90
0		Ground Surface				
		Pavement 100mm Asphalt over 140mm Concrete				
1		Granular Fill sandy, some silt, trace clay, brown, moist, frozen	1	GS		
2		Clay Fill silty with some sand and trace gravel, mixed brown and black, frozen	2	GS		
3		Silt clayey, trace sand, tan, wet, soft when thawed frost to 1.0m moist below 1.5m	3	GS		
4		(GS4) Lab Report HM 782: Gravel 0%, Sand 4.9%, Silt 58.5%, Clay 36.6% LL - 41, PL - 15, PI - 26 CBR at 2.5mm penetration - 8.1%	4	GS		
5			5	GS		
6		Clay silty, low plastic, trace sulphates inclusions, fissured, brown, moist, stiff high plastic, soft to stiff below 2.1m	6	GS		
7			7	GS		
8			8	GS		
9			9	GS		
10		Silt stratified silt with clay, low plastic, grey, moist, soft clayey, light brown, wet below 3.3m	10	GS		
11			11	GS		
12		End of testhole - No seepage observed - Test hole was backfilled with auger cuttings and topped with crushed limestone and cold patch asphalt - Location: Front of House # 27 Waterbury Dr, WBL, 1.2m fr curb				
13						
14						

Drill Method: Auger Drilling

Drill Date: December 8, 2025

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1

Rehabilitation Sites

Summary of Laboratory Testing

Waterbury Drive (Lindenwood Dr E to Lindenwood Dr E)												
TH	GS	PSA				PI			PR		CBR	
		Gravel (%)	Sand (%)	Silt (%)	Clay (%)	LL (%)	PL (%)	PI (%)	MDD (kg/m ³)	OMC (%)	at 2.5mm penetration	at 5.1mm penetration
TH 1	GS 4	0.0	4.9	58.5	36.6	41	15	26	1762	17	8.1	6.3

CH NO.	COMPRESSIVE STRENGTH TEST (MPa)
CH 1	41.7
CH 3	60.3
CH 6	47.2
CH 8	52.8

CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: Tetra Tech Canada Inc.

400-161 Portage Ave. E

Winnipeg, MB R3B 0Y4

Attention: Jeff Crang

Project 2026 Local Streets (26-R-03)

Location: Waterbury Dr, Winnipeg

Project No: 550-2501

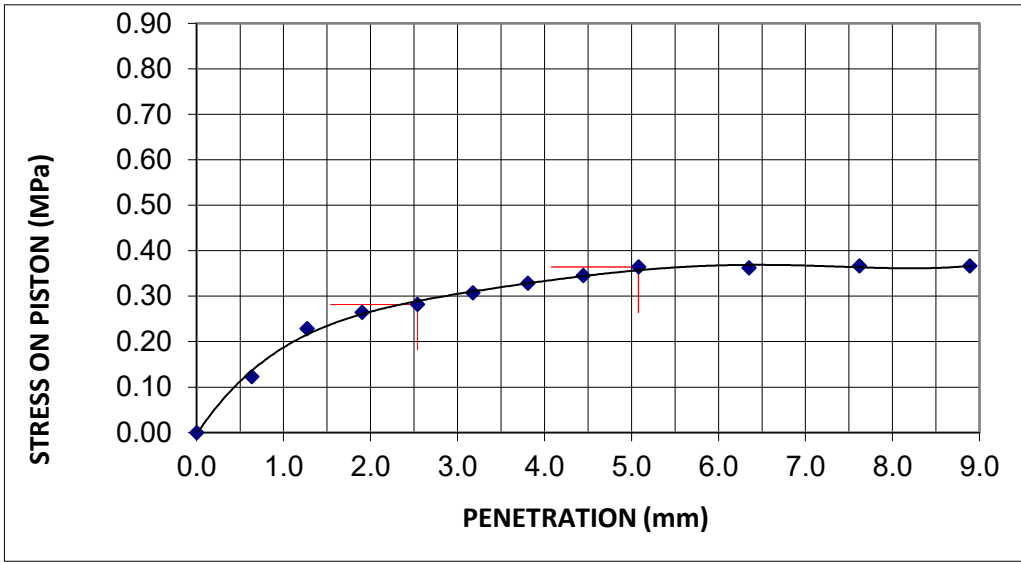
Lab No: HM 782

Date sampled/By: 08-Dec-25 MK

Date Received: 08-Dec-25

Date Tested /By: 29-Dec-25 HA

SAMPLE DATA		SPECIMEN DATA		
Sample Type:	SILT - Clayey with trace silt	DESCRIPTION	Before Soaking	After Testing
Source:	Waterbury - TH 1 - GS 4 & GS 5	Moisture Content (MC), %	16.8	17.6
Sampled by:	MK	MC of top 25mm layer, %		
Optimum Moisture Content:	17.0 %	Dry Density, kg/m ³	1693	1699
Maximum Dry Density:	1762 kg/cm ³	Compaction, %	96%	
Method of Compaction:	Standard Proctor	CBR at 2.5mm penetration, %	4.1	
Tested by:	HA	Swell, %	0.9	
	Date Tested: 02-Jan-26			

LOAD DATA		LOAD PENETRATION CURVE	
PENETRATION mm	STRESS MPa		
0	0.00		
0.64	0.12		
1.27	0.23		
1.91	0.26		
2.54	0.28		
3.18	0.31		
3.81	0.33		
4.45	0.35		
5.08	0.36		
6.35	0.36		
7.62	0.37		
8.89	0.37		

PENETRATION mm	STANDARD LOAD MPa	TEST LOAD		BEARING RATIO (soaked)	
		ACTUAL MPa	CORRECTED MPa	at 2.5 mm penetration	at 5.1 mm penetration
2.54	6.9	0.28	0.28	4.1	-
5.08	10.3	0.36	0.36	-	3.5

Remarks:

P. Bevel

Reviewed by: Paul Bevel

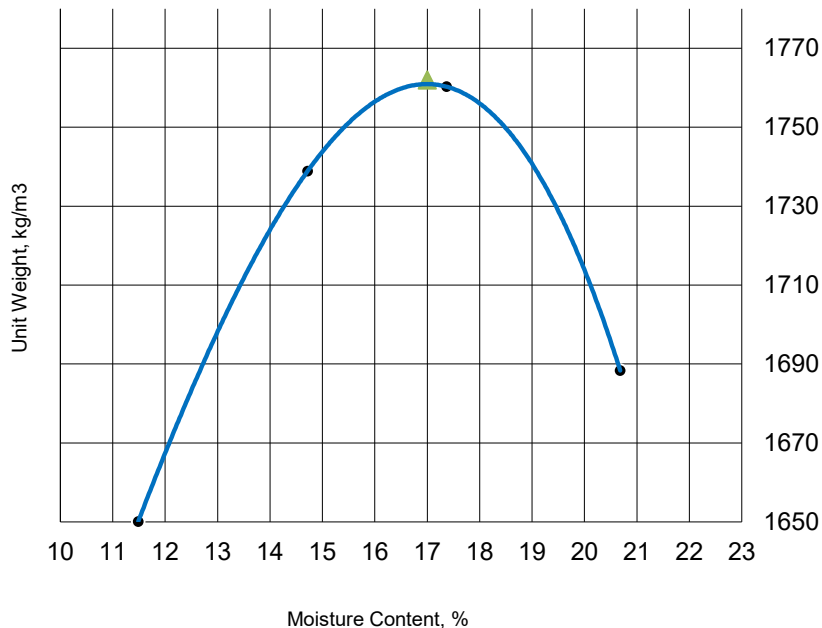
MAXIMUM DRY DENSITY AND MOISTURE CONTENT - Proctor Method (ASTM D698)

CLIENT	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No.:	550-2501
ATTENTION:	Jeff Crang	Lab No.:	HM 782
PROJECT:	2026 Local Streets (26-R-03) Waterbury Dr, Winnipeg	Proctor Test No.:	3

Date Sampled:	08-Dec-25	Date Received:	08-Dec-25	PROCEDURE	A
Sampled By:	MK	Date Tested:	12-Dec-25	PREPARATION	Dry
MATERIAL INFORMATION Material Type: SILT - clayey, with trace sand Material Use: Soil Investigati Material Supplier: Not Applicable Maximum Size: 5mm Material Source: TH 1 GS 5				COMPACTION METHOD	Manual
				BLOWS PER LAYER	25
				NO. OF LAYERS	3
				MOLD SIZE	100
				MOLD VOLUME	2116
				WEIGHT OF HAMMER	2.5 kg

Test No.	1	2	3	4
Wet Density	1840	1995	2066	2038
Moisture Content	11.5	14.7	17.4	20.7
Dry Density	1650	1739	1760	1688

Moisture - Density Relationship



Maximum Dry Density (MDD):
1762 kg/m³
Optimum Moisture Content
17.0 %

STONE CORRECTION (ASTM D 4718)

Retained on 4.75mm sieve:
%
Corrected Moisture:
17.0 %
Corrected Maximum Dry Density:
1762 kg/m³

Remarks:

Tested by: Mehdi Abbasi

Reviewed by:

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: Tetra Tech Canada Inc.
400-161 Portage Ave. E
Winnipeg, MB R3B 0Y4

Project No.: 550-2501

PSA Test No.: 3

Lab No.: HM 782

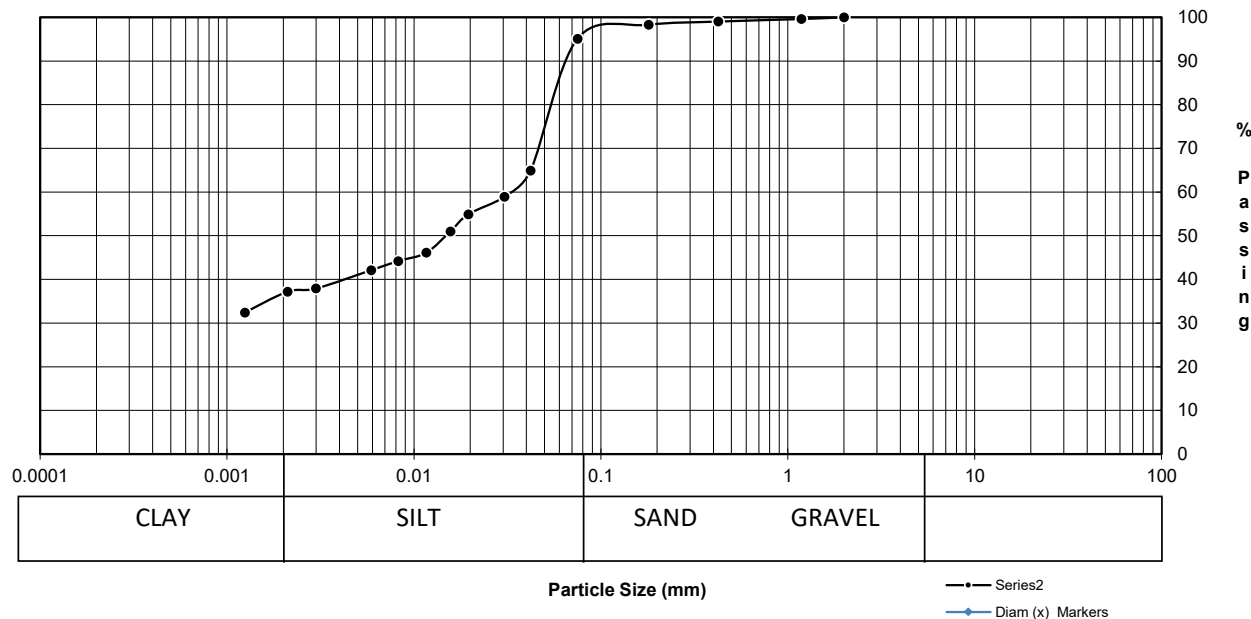
ATTENTION: Jeff Crang

PROJECT: 2026 Local Streets (26-R-03)

Waterbury Dr, Winnipeg

Date Sampled: 08-Dec-26	Date Received: 08-Dec-26	Sieve Analysis		Hydrometer Analysis	
Sampled By: MK	Date Tested: 16-Dec-26	Sieve (mm)	% Passing	Diameter	% Finer
Material Identification B.H./T.H. No. TH 1 Depth 4.5-ft Sample Source GS 4 Specific Gravity of Material: 2.65		50.00	100.0		
		37.50	100.0		
		25.00	100.0		
		19.00	100.0		
		16.00	100.0		
		12.50	100.0	0.0421	64.9
		9.50	100.0	0.0304	58.9
		4.75	100.0	0.0195	54.9
		2.00	100.0	0.0157	51.0
		1.18	99.6	0.0116	46.1
		0.425	99.0	0.0082	44.2
		0.180	98.3	0.0059	42.1
		0.075	95.1	0.0012	32.4

Grain Size Analysis



% Composition		D10
4.90	Gravel	D30
58.50	Sand	D60
36.60	Silt	Cu
	Clay	Cc

Remarks:

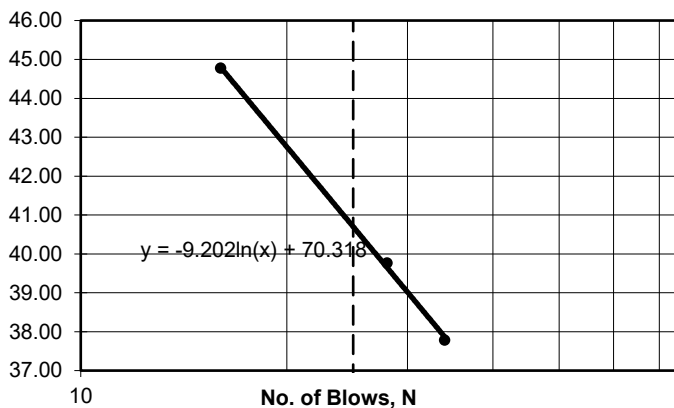
Technician: B. Yung

Reviewed by *P. Bevel*
Paul Bevel

Atterberg Limits (ASTM D4318)

Client:	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No.:	550-2501
Attention.:	Jeff Crang	PI Test No.:	3
Project:	2026 Local Streets (26-R-03) Waterbury Dr, Winnipeg	Lab No.:	HM 782
		Date Sampled/By:	December 1, Mayumi Kawan
		Date Received:	December 8, 2025
		Date Tested / By:	December 1, G. Manalo

Liquid Limit Determination					Liquid Limit 25 Blows
Dish No.:	1	2	3		
Wet Soil + Dish:	13.02	12.5	13.64		
Dry Soil + Dish:	10.53	10.07	10.64		
Moisture:	2.49	2.43	3		
Dish:	3.94	3.96	3.94		
Dry Soil:	6.59	6.11	6.7		
% Moisture:	37.78	39.77	44.78		
No. of Blows:	34	28	16		
Liquid Limit:					41

Liquid Limit**Material Identification:**

Test Hole: **TH 1**
Grab Sample No: **GS 4**
Depth: **4.5-ft**

Liquid Limit, %: **41**
Plastic Limit, %: **15**
Plasticity Index: **26**
(LL-PL)

Plastic Limit Determination					
Dish No.:	1	2	3		
Wet Soil + Dish:	10.69	10.37	10.39		
Dry Soil + Dish:	9.81	9.51	9.51		
Moisture:	0.88	0.86	0.88		
Dish:	3.95	3.93	3.9		
Dry Soil:	5.86	5.58	5.61		
% Moisture:	15.02	15.41	15.69		
				Average:	15

Test Method : ASTM: D4318, D2216

Remarks:

HM 782, Waterbury, TH 1

P. Bevel

Reviewed by: Paul Bevel

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No:	550-2501
Attention:	Jeff Crang	Test No.:	3
Project:	2026 Local Streets (26-R-03) Waterbury Dr, Winnipeg	Lab No.:	HM 782
		Date Sampled / By:	December 8, 2025 MK
		Date Received:	December 8, 2025
		Date Tested / By:	December 9, 2025 Chris Bautista

Test Hole No.	TH 1	TH 1	TH 1	TH 1	TH 1
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	DNL	A8	PS4	GM2	H23
Wt Wet Sample + Tare	154.9	172.4	157.6	162.1	181.9
Wt Dry Sample + Tare	138.6	135.8	128.6	132.2	144.4
Wt Water	16.3	36.6	29.0	29.9	37.5
Wt Tare	4.6	4.0	4.4	4.0	4.6
Wt Dry Sample	134.0	131.8	124.2	128.2	139.8
Moisture Content (%)	12.2	27.8	23.3	23.3	26.8
Test Hole No.	TH 1	TH 1	TH 1	TH 1	TH 1
Depth	6-ft	7-ft	8-ft	9-ft	10-ft
Tare No.	GM8	M10	C8	G4	Z8
Wt Wet Sample + Tare	177.6	167.8	167.8	200	201.1
Wt Dry Sample + Tare	139.6	126.8	123.3	151.4	168.8
Wt Water	38.0	41.0	44.5	48.6	32.3
Wt Tare	4.0	4.6	4.5	4.4	4.5
Wt Dry Sample	135.6	122.2	118.8	147.0	164.3
Moisture Content (%)	28.0	33.6	37.5	33.1	19.7
Test Hole No.	TH 1				
Depth	11-ft				
Tare No.	H1				
Wt Wet Sample + Tare	196.7				
Wt Dry Sample + Tare	143				
Wt Water	53.7				
Wt Tare	4.5				
Wt Dry Sample	138.5				
Moisture Content (%)	38.8				
Test Hole No.					
Depth					
Tare No.					
Wt Wet Sample + Tare					
Wt Dry Sample + Tare					
Wt Water					
Wt Tare					
Wt Dry Sample					
Moisture Content (%)					



1402 Notre Dame Avenue, Winnipeg, MB R3E 3G5
Phone: 204-697-3854 Cell: 204-997-1355 Email: hermie@hmanalo.ca

CONCRETE CORE COMPRESSIVE STRENGTH TEST REPORT (CSA A23.2 14C)

CLIENT:	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	DATE:	17-Dec-25
ATTENTION:	Jeff Crang	FILE NO:	550-2501
PROJECT:	2026 Local Streets (26-R-03) Waterbury Drive (Lindenwood Dr E to Lindenwoods Dr E)	REPORT NO:	25-001
STRUCTURE:	Road Slab	TECHNOLOGIST:	M. Vinas, S. De Guzman, D. Aireyu
		DATE CORES TAKEN:	02-Dec-25 to 10-Dec-25
		DOCUMENT NO:	25-4731
		DATE RECEIVED IN LAB:	02-Dec-25 to 10-Dec-25

Core Location	Length as Drilled (mm)	Core Diameter (mm)	Core Length (mm)	Length / Diameter (mm)	Correction Factor	Mass (kg)	Age at Break (days)	Date of Break	Type of Fracture	Comp. Strength as Calculated (MPa)	Comp. Strength as Corrected (MPa)
Core 1 - Mid Slab; Side of House # 253 Lindenwood Drive E, NBL	152	95	135	1.4	0.950	2.2	-	17-Dec-25	1	43.9	41.7
Core 3 - Mid Slab; Front of House # 90 Waterbury Drive, NBL 14 U, 630259 E, 5521496 N	155	95	100	1.1	0.882	1.7	-	17-Dec-25	1	68.4	60.3
Core 6 - Mid Slab; Front of House # 24 Waterbury Drive, EBL 14 U, 630471 E, 5521660 N	148	95	132	1.4	0.947	2.2	-	17-Dec-25	1	49.8	47.2
Core 8 - Mid Slab; Front of House # 27 Waterbury Drive, WBL 14 U, 630451 E, 5521667 N	167	95	138	1.5	0.954	2.2	-	17-Dec-25	2	55.3	52.8

Remarks:

Reviewed by:

Mayumi Kawano, Supervisor
Field & Lab Testing Services

Approved by:

Paul Bevel, Manager
Field & Lab Testing Services

Appendix B - Rehabilitation Site

Picture of Cores

WATERBURY DRIVE (FINAL CORES)



Core 1 - 6" Mid Slab



Core 1 - 4" Mid Slab



Core 1 - Site Photo



Core 2 - Joint



Core 2 - Joint (Site)

Appendix B - Rehabilitation Site

Picture of Cores

WATERBURY DRIVE (FINAL CORES)



Core 3 - 6" Mid Slab



Core 3 - 4" Mid Slab



Core 3 - Site Photo



Core 4 - Joint



Core 4 - Joint (Site)

Appendix B - Rehabilitation Site

Picture of Cores

WATERBURY DRIVE (FINAL CORES)



Core 5 - Joint



Core 5 - Joint (Site)



Core 6 - 6" Mid Slab



Core 6 - 4" Mid Slab



Core 6 - Site Photo

Appendix B - Rehabilitation Site

Picture of Cores

WATERBURY DRIVE (FINAL CORES)



Core 7 - Joint



Core 7 - Joint (Site)



Core 8 - Mid Slab

APPENDIX B.2.

BOSTON AVENUE

(PEMBINA HWY TO HUDSON ST)

Rehabilitation Sites

Pavement Coring and Subsurface Drilling Locations

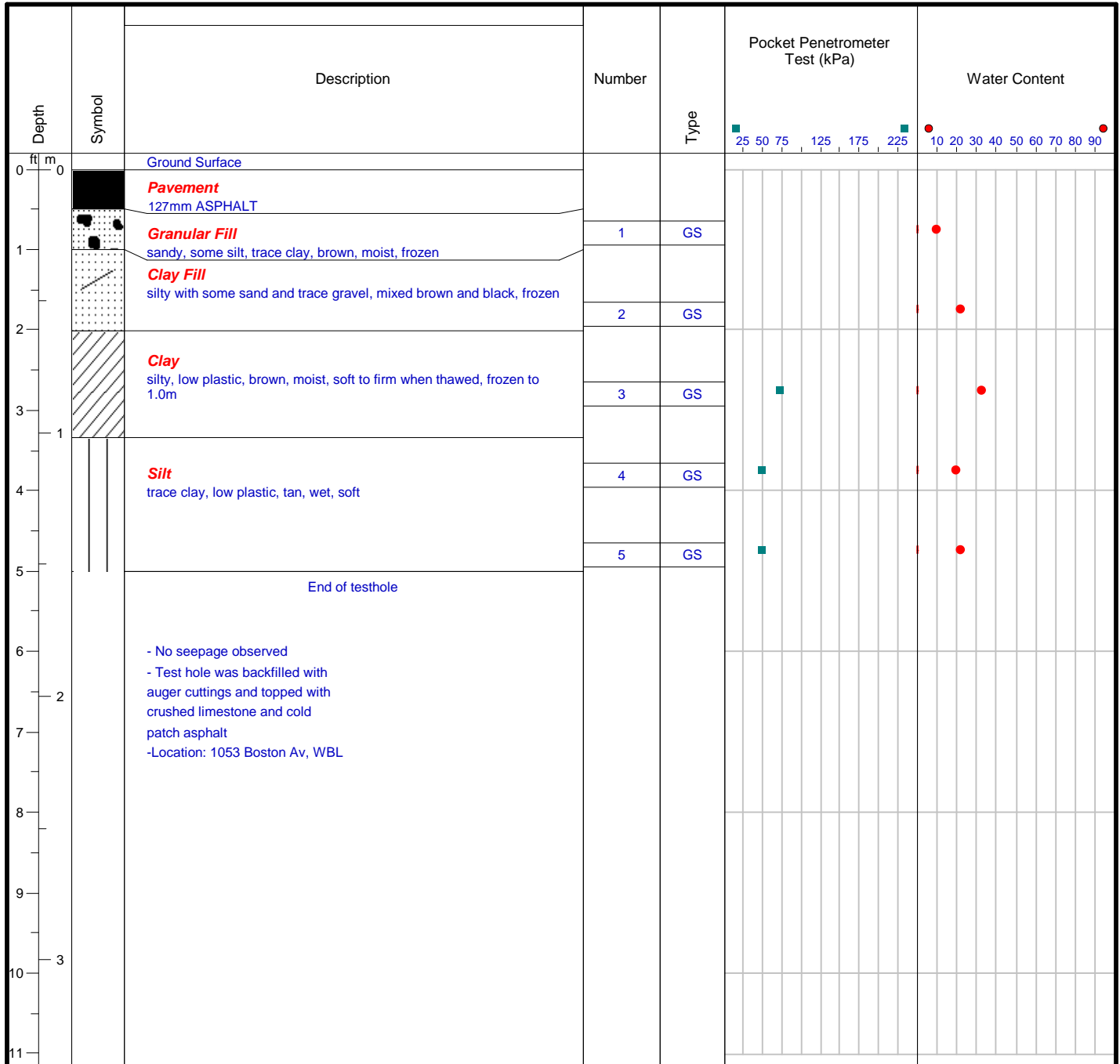


Rehabilitation Sites

Pavement Structure Measurement

Test Hole No.	Test Hole Location	Asphalt Thickness (mm)	Concrete Thickness (mm)
Boston Avenue (Pembina Hwy to Hudson St)			
TH1	Front of House # 1053 Boston Avenue, WBL 14 U, 632755 E, 5521883 N	127mm	-
TH2	Front of House # 1000 Boston Avenue, EBL 14 U, 632923 E, 5521972 N	170mm	-

Note: ^A - deterioration of concrete pavement at this location



Drill Method: Auger Drilling

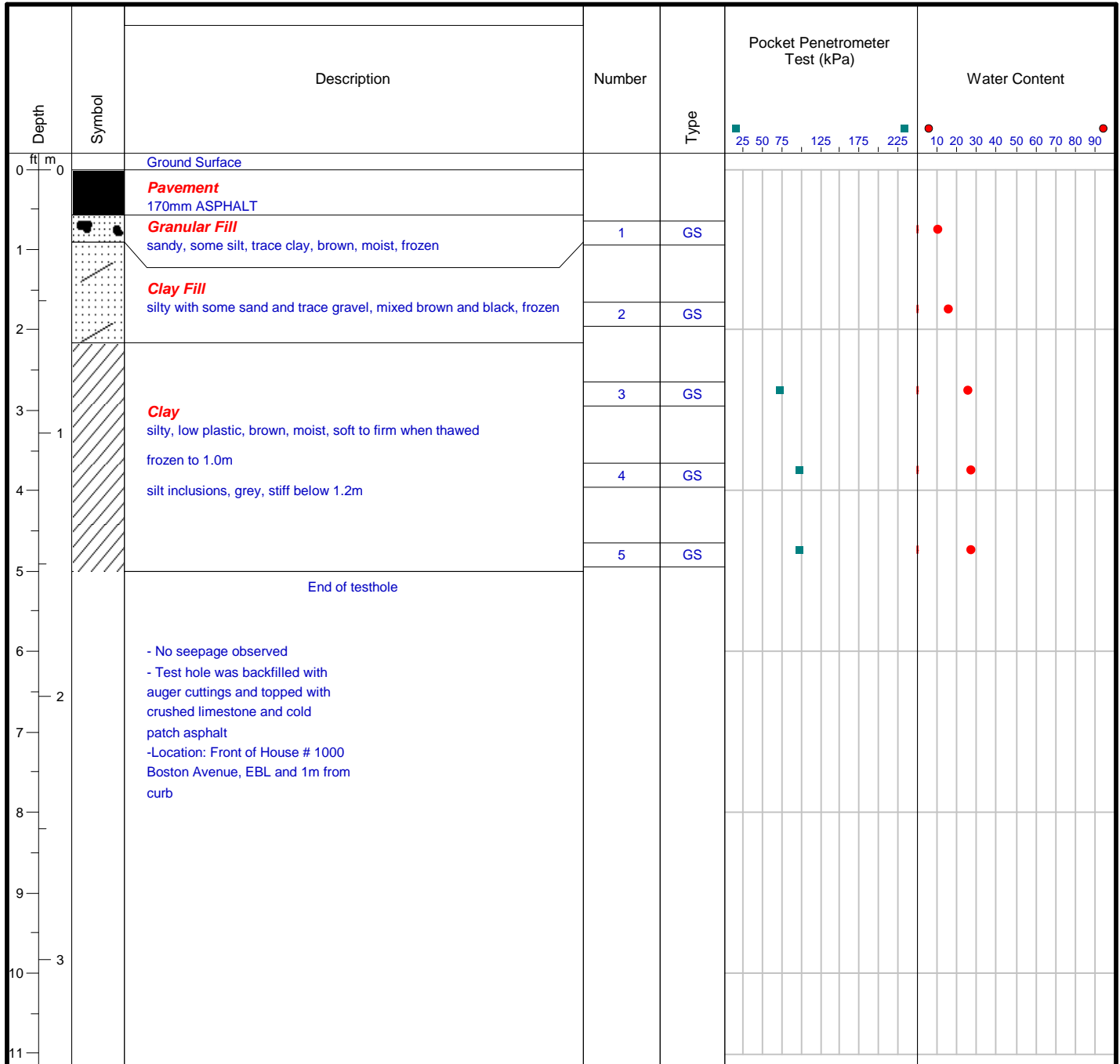
Drill Date: December 8, 2025

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1



Drill Method: Auger Drilling

Drill Date: December 8, 2025

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No:	550-2501
Attention:	Jeff Crang	Test No.:	2
Project:	2026 Local Streets (26-R-03) Boston Ave, Winnipeg	Lab No.:	HM 781
		Date Sampled / By:	December 8, 2025 MK
		Date Received:	December 8, 2025
		Date Tested / By:	December 9, 2025 Chris Bautista

Test Hole No.	TH 1	TH 1	TH 1	TH 1	TH 1
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	A2	H10	C02	C7	H13
Wt Wet Sample + Tare	160.4	155.3	164.9	177.4	260.2
Wt Dry Sample + Tare	146.2	127.5	125.2	148.2	214
Wt Water	14.2	27.8	39.7	29.2	46.2
Wt Tare	4.1	4.9	4.0	4.6	4.5
Wt Dry Sample	142.1	122.6	121.2	143.6	209.5
Moisture Content (%)	10.0	22.7	32.8	20.3	22.1
Test Hole No.	TH 2	TH 2	TH 2	TH 2	TH 2
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	Z1	SE6	C4	PS3	P6
Wt Wet Sample + Tare	175.2	170	190.32	185.9	206.1
Wt Dry Sample + Tare	158.2	146.7	152.3	146.5	162
Wt Water	17.0	23.3	38.0	39.4	44.1
Wt Tare	4.5	4.9	4.7	4.5	4.0
Wt Dry Sample	153.7	141.8	147.6	142.0	158.0
Moisture Content (%)	11.1	16.4	25.8	27.7	27.9
Test Hole No.					
Depth					
Tare No.					
Wt Wet Sample + Tare					
Wt Dry Sample + Tare					
Wt Water					
Wt Tare					
Wt Dry Sample					
Moisture Content (%)					
Test Hole No.					
Depth					
Tare No.					
Wt Wet Sample + Tare					
Wt Dry Sample + Tare					
Wt Water					
Wt Tare					
Wt Dry Sample					
Moisture Content (%)					

Appendix B - Rehabilitation Site

Picture of Cores

BOSTON AVENUE



TH 1



TH 1 - Site Photo



TH 2



TH 2 - Site Photo

APPENDIX B.3.

CRESCENT DRIVE

(PEMBINA HWY TO PARK ENTRANCE)

Rehabilitation Sites

Pavement Coring and Subsurface Drilling Locations



Rehabilitation Sites

Pavement Structure Measurement

Test Hole No.	Test Hole Location	Asphalt Thickness (mm)	Concrete Thickness (mm)
Crescent Drive (Pembina Hwy to Park Entrance)			
TH1	Front of House # 980 Crescent Drive, EBL 14 U, 633046 E, 5521633 N	120mm	110mm
TH2	Front of Property # 916 Crescent Drive, EBL 14 U, 633254 E, 5521748 N	160mm	-
TH3	Front of House # 874 Crescent Drive, EBL 14 U, 633426 E, 5521780 N	110mm	-
TH4	Front of Fort Garry Roman Catholic Cemetery, WBL 14 U, 633545 E, 5521782 N	180mm	-
TH5	Front of House # 800 Crescent Drive, WBL 14 U, 633684 E, 5521759 N	80mm	-
TH 6	Front of House # 758 Crescent Drive, EBL 14 U, 633846 E, 5521712 N	80mm	-

Note: ^A - deterioration of concrete pavement at this location

Depth ft m	Symbol	Description	Number	Type	Pocket Penetrometer Test (kPa)		Water Content	
					25 50 75 125 175 225		10 20 30 40 50 60 70 80 90	
0		Ground Surface						
0		Pavement 120mm ASPHALT 110 mm CONCRETE						
1		Granular Fill sandy, some silt, trace clay, brown, moist, frozen	1	GS				
2		Clay Fill silty with some sand and trace gravel, mixed brown and black, frozen	2	GS				
3		Clay silty, high plastic, stratified, brown, moist, stiff, frozen to 1.0m	3	GS				
4			4	GS				
5			5	GS				
6		End of testhole						
7		- No seepage observed - Test hole was backfilled with auger cuttings and topped with crushed limestone and cold patch asphalt - Location: Front of House # 980 Crescent Drive, EBL, 1m fr curb						
8								
9								
10								
11								

Drill Method: Auger Drilling

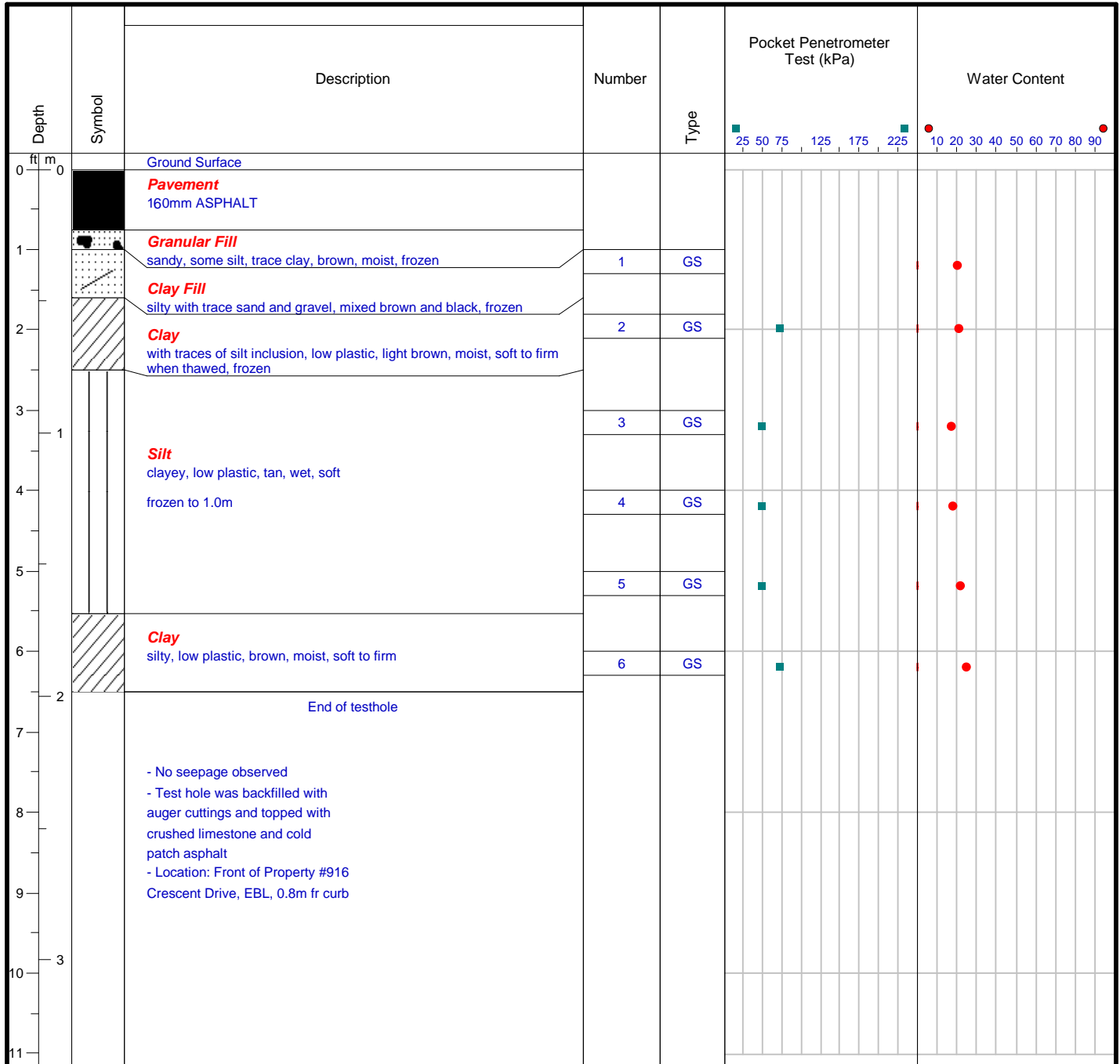
Drill Date: December 10, 2025

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1



Drill Method: Auger Drilling

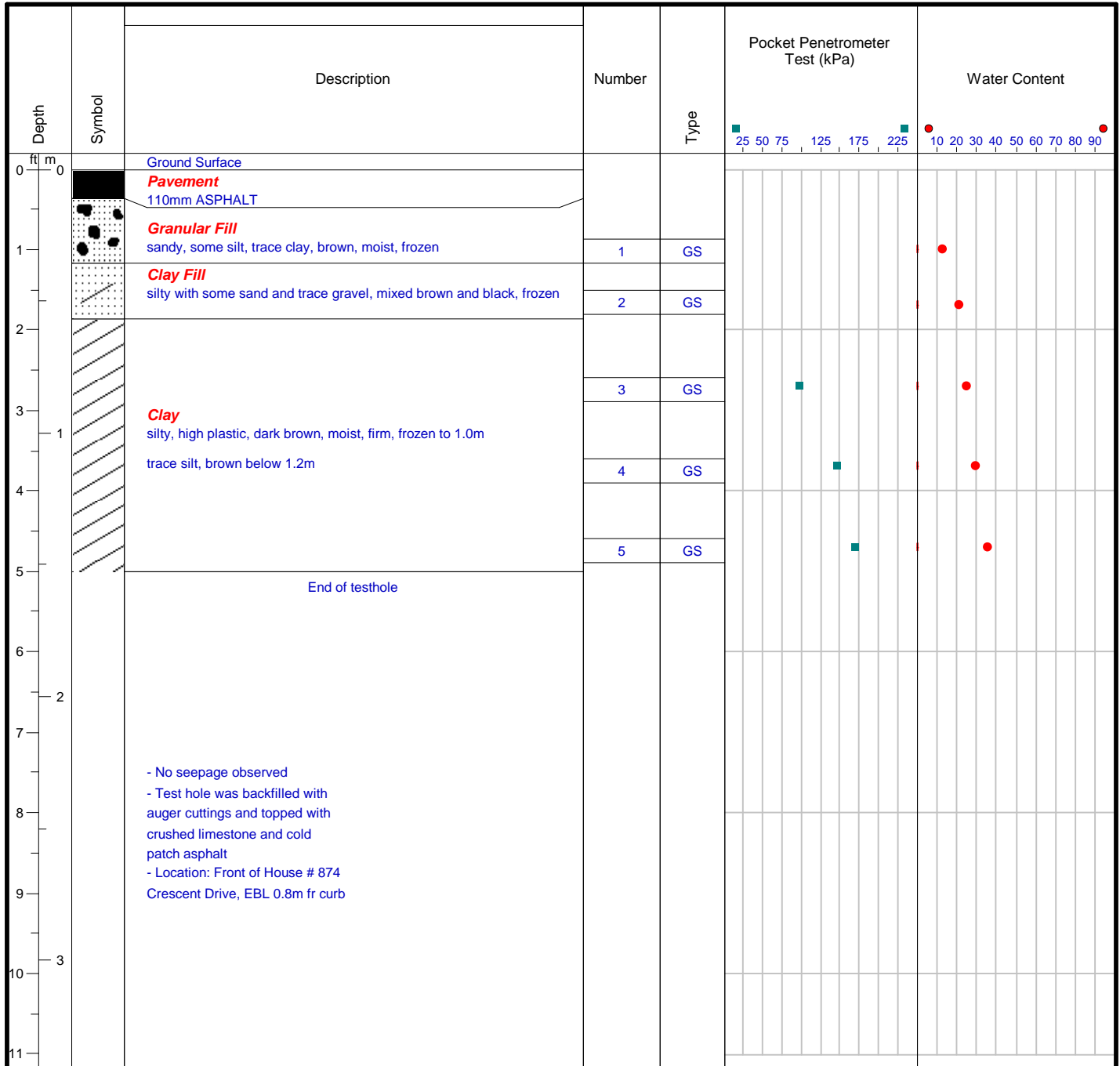
Drill Date: December 10, 2025

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1



Drill Method: Auger Drilling

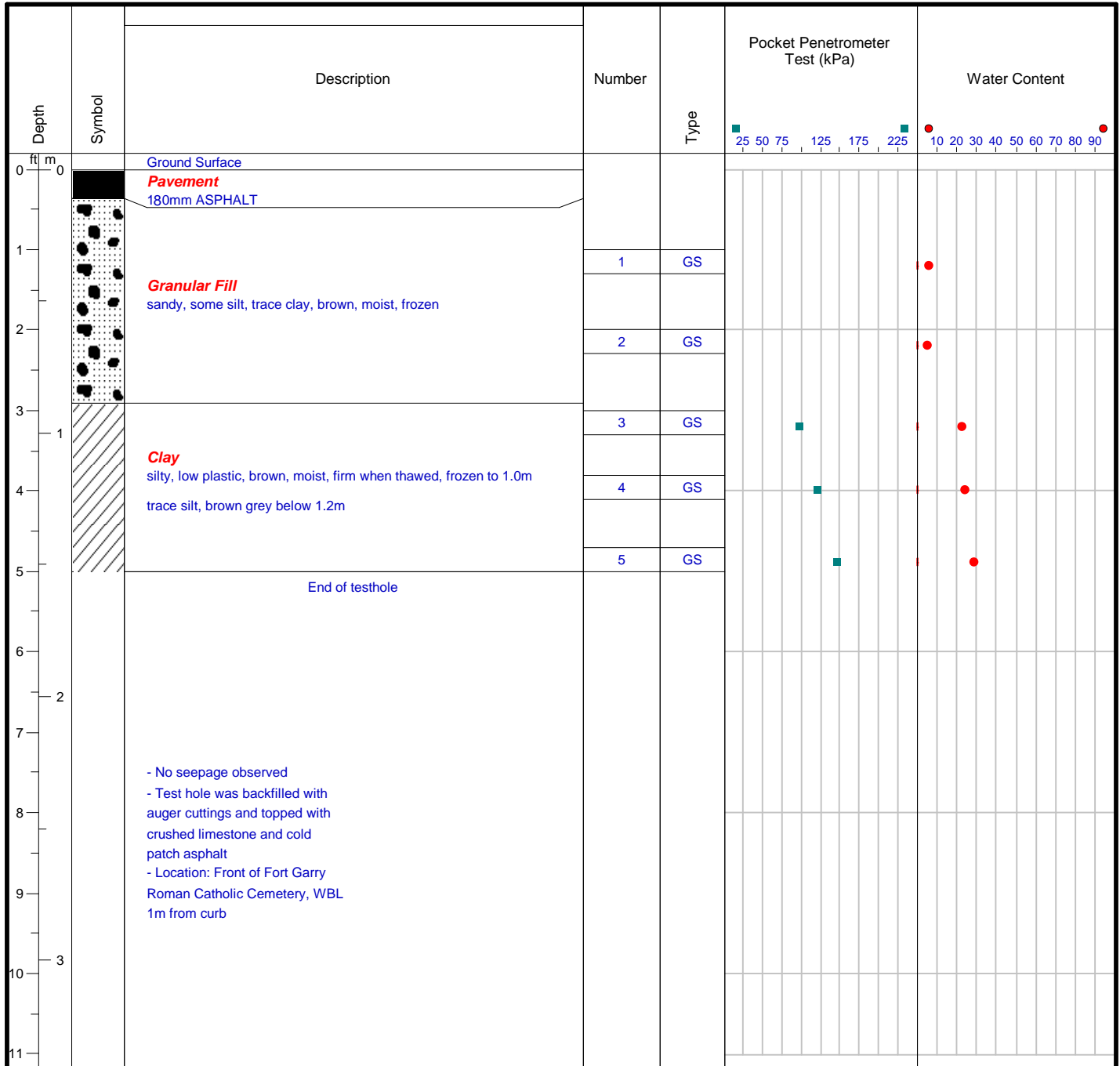
Drill Date: December 10, 2025

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1



Drill Method: Auger Drilling

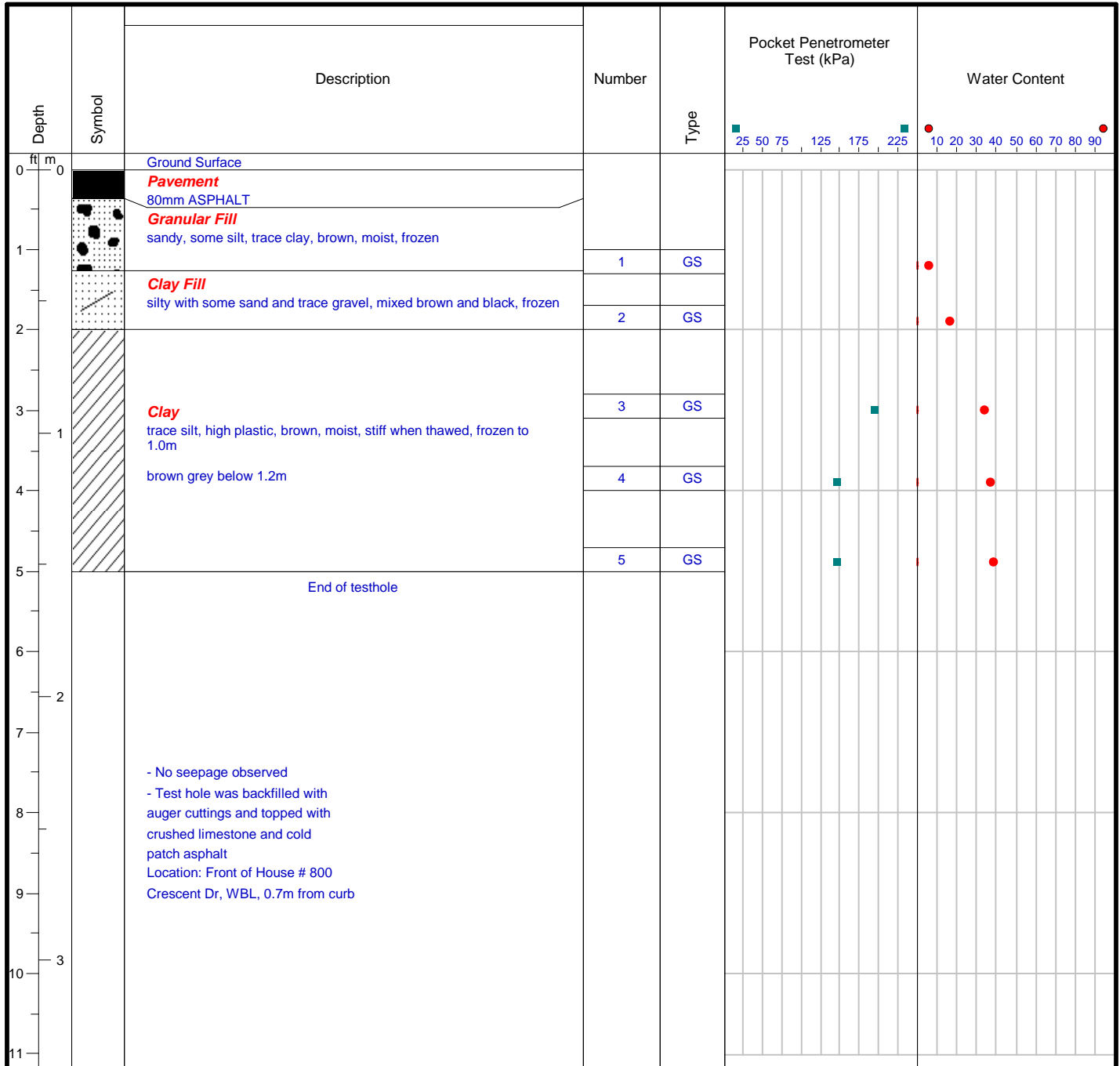
Drill Date: December 10, 2025

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1



Drill Method: Auger Drilling

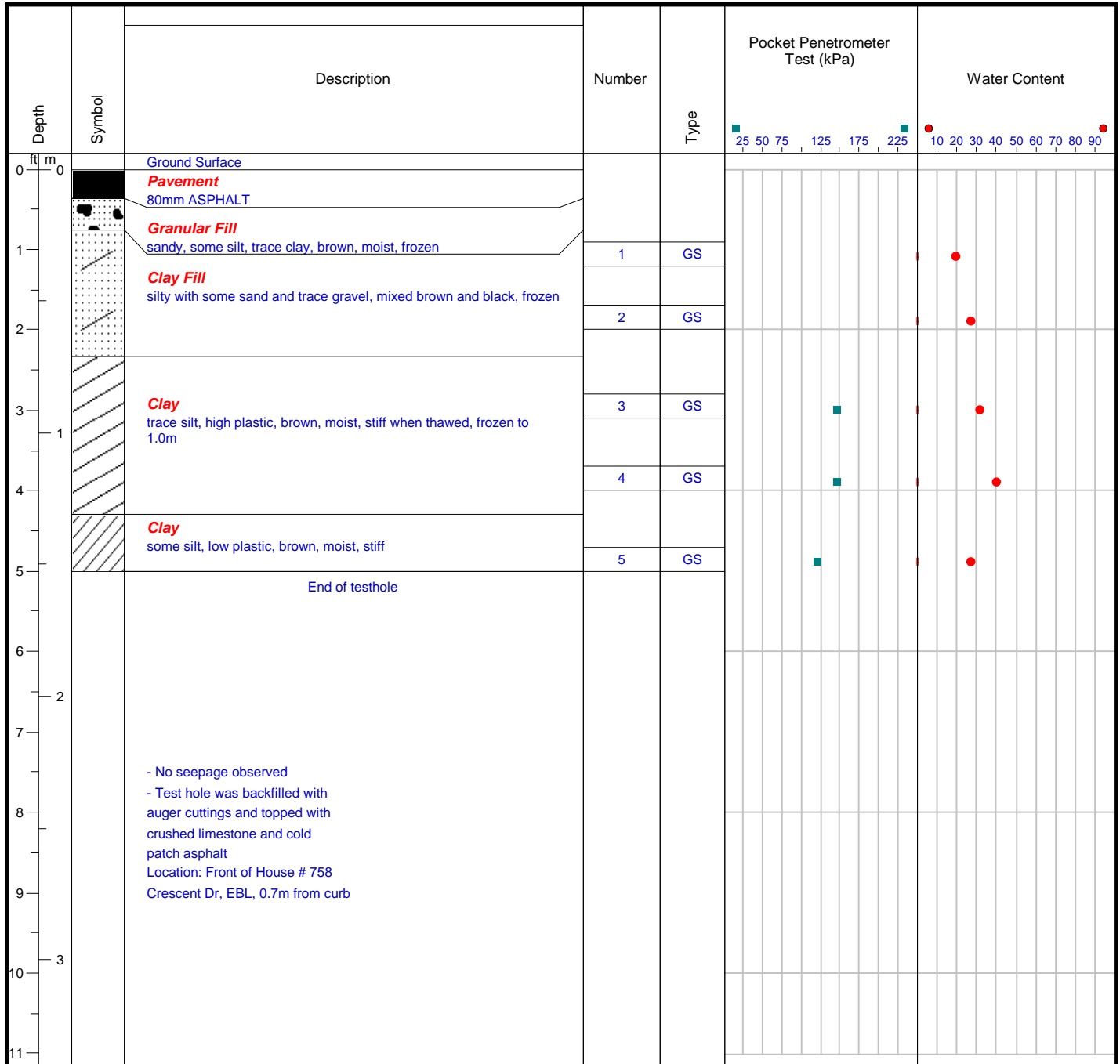
Drill Date: December 10, 2025

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1



Drill Method: Auger Drilling

Drill Date: December 10, 2025

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No:	550-2501
Attention:	Jeff Crang	Test No.:	6
Project:	2026 Local Streets (26-R-03) Crescent Drive, Winnipeg	Lab No.:	HM 794
		Date Sampled / By:	December 10, 2025 MK
		Date Received:	December 10, 2025
		Date Tested / By:	December 11, 2025 Chris Bautista

Test Hole No.	TH-1-GS1	TH-1-GS2	TH-1-GS3	TH-1-GS4	TH-1-GS5
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	T107	C0-2	M47	CO-3	H15
Wt Wet Sample + Tare	171.2	190.4	161.3	172	159.7
Wt Dry Sample + Tare	145.2	155.4	126.5	133	117.4
Wt Water	26.0	35.0	34.8	39.0	42.3
Wt Tare	4.5	41.5	5.0	4.2	4.7
Wt Dry Sample	140.7	113.9	121.5	128.8	112.7
Moisture Content (%)	18.5	30.7	28.6	30.3	37.5
Test Hole No.	TH-2-GS1	TH-2-GS2	TH-2-GS3	TH-2-GS4	TH-2-GS5
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	H10	C7	A-2	G15	H25
Wt Wet Sample	159	173	181.4	196.8	181.5
Wt Dry Sample + Tare	132	142.7	154.4	166.7	149.5
Wt Water	27.0	30.3	27.0	30.1	32.0
Wt Tare	4.7	4.5	4.0	4.8	4.7
Wt Dry Sample	127.3	138.2	150.4	161.9	144.8
Moisture Content (%)	21.2	21.9	18.0	18.6	22.1
Test Hole No.	TH-2-GS6				
Depth	6-ft				
Tare No.	H24				
Wt Wet Sample + Tare	165.8				
Wt Dry Sample + Tare	133.3				
Wt Water	32.5				
Wt Tare	4.6				
Wt Dry Sample	128.7				
Moisture Content (%)	25.3				
Test Hole No.	TH-3-GS1	TH-3-GS2	TH-3-GS3	TH-3-GS4	TH-3-GS5
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	H4	C0-6	M30	H13	318
Wt Wet Sample + Tare	180.5	186.5	161	156.4	164.8
Wt Dry Sample + Tare	159.8	154.3	129.6	121.4	122.3
Wt Water	20.7	32.2	31.4	35.0	42.5
Wt Tare	4.4	4.7	5.1	4.5	4.7
Wt Dry Sample	155.4	149.6	124.5	116.9	117.6
Moisture Content (%)	13.3	21.5	25.2	29.9	36.1

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	Tetra Tech Canada Inc. 400-161 Portage Ave. E Winnipeg, MB R3B 0Y4	Project No:	550-2501
Attention:	Jeff Crang	Test No.:	6
Project:	2026 Local Streets (26-R-03) Crescent Drive, Winnipeg	Lab No.:	HM 794
		Date Sampled / By:	December 10, 2025 MK
		Date Received:	December 10, 2025
		Date Tested / By:	December 11, 2025 Chris Bautista

Test Hole No.	TH-4-GS1	TH-4-GS2	TH-4-GS3	TH-4-GS4	TH-4-GS5
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	TX	KD19	HM06	HM07	CO2
Wt Wet Sample + Tare	164.3	200.8	208.8	159.9	196.1
Wt Dry Sample + Tare	154.4	190.5	170.1	129.2	152.4
Wt Water	9.9	10.3	38.7	30.7	43.7
Wt Tare	4.8	4.5	3.9	3.8	4.0
Wt Dry Sample	149.6	186.0	166.2	125.4	148.4
Moisture Content (%)	6.6	5.5	23.3	24.5	29.4
Test Hole No.	TH-5-GS1	TH-5-GS2	TH-5-GS3	TH-5-GS4	TH-5-GS5
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	GM6	M32	M56	M28	BR17
Wt Wet Sample + Tare	164.5	174.4	175.4	171.7	162.8
Wt Dry Sample + Tare	155.3	149.8	132	125.9	118.4
Wt Water	9.2	24.6	43.4	45.8	44.4
Wt Tare	4.2	4.7	4.8	4.7	4.5
Wt Dry Sample	151.1	145.1	127.2	121.2	113.9
Moisture Content (%)	6.1	17.0	34.1	37.8	39.0
Test Hole No.	TH-6-GS1	TH-6-GS2	TH-6-GS3	TH-6-GS4	TH-6-GS5
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	84	M38	M22	M53	M55
Wt Wet Sample + Tare	171.4	155.2	180.7	165.9	176.7
Wt Dry Sample + Tare	143.9	122.9	137.7	130.1	139.5
Wt Water	27.5	32.3	43.0	35.8	37.2
Wt Tare	4.6	4.5	4.8	41.5	4.6
Wt Dry Sample	139.3	118.4	132.9	88.6	134.9
Moisture Content (%)	19.7	27.3	32.4	40.4	27.6
Test Hole No.					
Depth					
Tare No.					
Wt Wet Sample + Tare					
Wt Dry Sample + Tare					
Wt Water					
Wt Tare					
Wt Dry Sample					
Moisture Content (%)					

Appendix B - Rehabilitation Site

Picture of Cores

CRESCENT DRIVE



TH 1



TH 1 - Site Photo



TH 2



TH 2 - Site Photo

Appendix B - Rehabilitation Site

Picture of Cores

CRESCENT DRIVE



TH 3



TH 3 - Site Photo



TH 4



TH 4 - Site Photo

Appendix B - Rehabilitation Site

Picture of Cores

CRESCENT DRIVE



TH 5



TH 5 - Site Photo



TH 6



TH 6 - Site Photo