

APPENDIX 'A'

GEOTECHNICAL REPORT

Geotechnical Testing Services for the 2026 Local Steet Renewals Tender No. 51-2026

Prepared for:

WSP Canada Inc.
1600 Buffalo Place, Winnipeg,
MB R3T 6B8

February 26, 2026

**2026 Local Street Renewals
Geotechnical Testing Services**

HMCL No: 430-2502

Table of Contents

Introduction 1
Field Work Program 1
Laboratory Analysis and Reporting..... 2

Appendix A – 2026 Local Street Renewals (Rehabilitation Sites)

A.1 Summary of Pavement Measurement and Compressive Strength Test Results 4
A.2 Paufield Drive (Rothesay St to Karen St) 7
A.3 Greenlea Cove (Gilmore Ave to Gilmore Ave) 13
A.4 Kent Rd (Nairn Ave to Talbot Ave) 19
A.5 Kent Rd (Talbot Ave to Beach Ave) 25
A.6 Manhattan Avenue (Keenleyside St to Stapleton St) 30

Appendix B – 2026 Local Street Renewals (Reconstruction Sites)

B.1 Summary of Laboratory Testing 36
B.2 Litz Place (Appleton St to Henderson Hwy) 37
B.3 Johnson Ave E (Gateway Rd to Grey St)..... 56
B.4 Kent Rd (Chalmers Ave E to Keenleyside St) 74

Introduction

On December 5, 2025, H. Manalo Consulting Ltd. (HMCL) was authorized by Richard Hawkins of WSP Canada Inc to proceed with the requested geotechnical investigation. The objective of the investigation was to assess existing road conditions through subsurface soil sampling on 2026 Local Street Renewals - Greenlea Cove, Johnson Avenue E and Various other Locations (Tender No. 51-2026) under the City of Winnipeg Package. The list of streets included in this project is provided in Table 1 below.

Table 1. Location of Local Street Renewals

Location	Treatment
Paufield Drive - Rothesay St to Karen St.	Rehabilitation
Greenlea Cove - Gilmore Ave to Gilmore Ave	Rehabilitation
Kent Road - Nairn Ave to Talbot Ave	Rehabilitation
Kent Road - Talbot Ave to Beach Ave	Rehabilitation
Manhattan Avenue - Keenleyside St to Stapleton St.	Rehabilitation
Litz Place – Appleton St to Henderson Hwy)	Reconstruction
Johnson Ave E – Gateway Rd to St Grey St	Reconstruction
Kent Rd – Chalmers Ave E to Keenleyside St	Reconstruction

Field Work Program

The investigation adhered to the City of Winnipeg’s guidelines provided in the tender, section E3 Site Investigation Requirements. The core locations were designated by WSP Canada Inc. Pavement coring was conducted from December 30, 2025 to January 09, 2026, using a 160 mm diameter coring bit. For local streets scheduled for pavement rehabilitation, pavement cores were extracted at mid-slab to assess pavement condition. Subgrade drilling was carried out to depths of 2.5 m for reconstruction project. Initial soil

classification was performed on site, and samples were collected. At all core and test hole locations, the sections were refilled with aggregates and cold-mix asphalt. All collected samples were sent to the HMCL laboratory for additional review and analysis.

Laboratory Analysis and Reporting

Core samples were brought back to the laboratory for documentation of pavement type and thickness and core sample images were documented for reference. Asphalt pavement thickness ranged from 8 mm to 10 mm, while the concrete pavement thickness varied between 150 mm to 225 mm. It is worth noted that the fill material is frozen and can not determine true maximum size due to auger grinding material to a finer size.

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 for each test hole was completed for reference. The required quantity of testing was determined by the client in accordance with City of Winnipeg requirements.

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

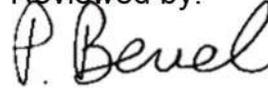
Prepared by:



Mayumi Kawano, EIT

Geotechnical Engineer Intern
Field and Laboratory Supervisor

Reviewed by:



Paul Bevel

Manager, Field and Laboratory Services

APPENDIX A

2026 Local Street Renewals (Rehabilitation Sites)

A.1 Summary of Pavement Measurements and Compressive Strength Test Results

Rehabilitation Sites

PC No.	Core Hole Location	Pavement Structure		
		Asphalt Thickness (mm)	Concrete Thickness (mm)	Compressive Strength (MPa)
Paufield Drive (Rothesay St to Karen St)				
PC11	Front of House # 372 Paufield Dr, EBL; 2m away from the curb 14 U, 638081 E, 5533917 N	-	170	41.55
PC12	Front of House # 405 Paufield Dr, WBL; 3m away from the curb 14 U, 638156 E, 5533879 N	-	163	26.43
PC13	Front of House # 436 Paufield Dr, EBL; 2m away from the curb 14 U, 638250 E, 5533831 N	-	162	-
Greenlea Cove (Gilmore Ave to Gilmore Ave)				
PC14	Near parking entrance of House # 491 Gilmore Ave, NBL; 1.5m away from the curb 14 U, 638870 E, 5534329 N	-	166	40.67
PC15	Front of House # 39 Greenlea Cove, WBL; 1.5m away from the curb 14 U, 638950 E, 5534337 N	-	150	44.28
PC16	Near parking entrance of House # 511 Gilmore Ave, SBL; 1.5m away from the curb 14 U, 638982 E, 5534260 N	-	160	-

A.1 Summary of Pavement Measurements and Compressive Strength Test Results

Rehabilitation Sites

PC No.	Core Hole Location	Pavement Structure		
		Asphalt Thickness (mm)	Concrete Thickness (mm)	Compressive Strength (MPa)
Kent Road (Nairn Ave to Talbot Ave)				
PC23	Side of House # 951 Nairn Ave, NBL; 4.5m away from the curb 14 U, 637604 E, 5529416 N	-	202	49.53
PC24	Side of House # 966 McCalman Ave, SBL; 2.5m away from the curb 14 U, 637615 E, 5529467 N	-	163	41.91
PC25	Front of House # 35 Kent Rd, NBL; 1.5m away from the curb 14 U, 637628 E, 5529511 N	10	165	-
PC26	Side of House # 836 Talbot Ave, SBL; 2m away from the curb 14 U, 637642 E, 5529573 N	-	207	-
Kent Road (Talbot Ave to Beach Ave)				
PC27	Side of House # 841 Talbot Ave, NBL; 1m away from the curb 14 U, 637656 E, 5529621 N	-	168	42.25
PC28	Front of House # 288 Kent Rd, SBL; 3.5m away from the curb 14 U, 637663 E, 5529661 N	8	152	50.45

A.1 Summary of Pavement Measurements and Compressive Strength Test Results

Rehabilitation Sites

PC No.	Core Hole Location	Pavement Structure		
		Asphalt Thickness (mm)	Concrete Thickness (mm)	Compressive Strength (MPa)
Manhattan Avenue (Keenleyside St to Stapleton St)				
PC29	Side of House # 310 Milford St., WBL; 3m away from the curb 14 U, 638032 E, 5529682 N	-	204	53.88
PC30	Front of House # 1000 Manhattan Ave, EBL; 1.5m away from the curb 14 U, 638102 E, 5529661 N	-	155	-
PC31	Side of House # 305 Culver St., WBL; 2.5m away from the curb 14 U, 638182 E, 5529645 N	-	175	54.61

APPENDIX A.2.

PAUFIELD DRIVE (ROTHESAY ST TO KAREN ST)

Rehabilitation Sites

Pavement Coring Locations



Rehabilitation Sites

Pavement Structure Measurement

Core Hole No.	Core Hole Location	Asphalt Thickness (mm)	Concrete Thickness (mm)
Paufield Drive (Rothesay St to Karen St)			
PC11	Front of House # 372 Paufield Dr, EBL; 2m away from the curb 14 U, 638081 E, 5533917 N	-	170
PC12	Front of House # 405 Paufield Dr, WBL; 3m away from the curb 14 U, 638156 E, 5533879 N	-	163
PC13	Front of House # 436 Paufield Dr, EBL; 2m away from the curb 14 U, 638250 E, 5533831 N	-	162

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

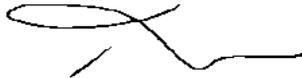
CLIENT:	WSP Canada Inc 1600 Buffalo Place Winnipeg, MB R3T 6B8	DATE:	15-Jan-26
ATTENTION:	Richard Hawkins	FILE NO:	430-2502
PROJECT:	2026 Local Street Renewals – 26 R 07 Various Locations	REPORT NO:	26-001
STRUCTURE:		TECHNOLOGIST:	M.V, S. D.G, D.A
		DATE CORES TAKEN:	30-Dec-25 to 12-Jan-26
		DOCUMENT NO:	25-4932
		DATE RECEIVED IN LAB:	30-Dec-25 to 12-Jan-26

Core Location	Length as Drilled (mm)	Core Diameter (mm)	Tested 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 11 - Paufield Dr	170	95	146	1.5	0.960	2.4	-	15-Jan-26	1	43.28	41.55
Core 12 - Paufield Dr	163	95	149	1.6	0.968	2.4	-	15-Jan-26	1	27.30	26.43

Remarks

The cores were tested in wet condition in accordance with CSA A23.2-14C.

Reviewed by:



Mayumi Kawano, Supervisor
Field & Lab Testing Services

Approved by:



Paul Bevel, Manager
Field & Lab Testing Services

Major Rehabilitation Sites

Picture of Cores

Paufield Dr - Karen St/Rothesay St



PC 11 - Core



PC 11 - Site Photo



PC 12 - Core

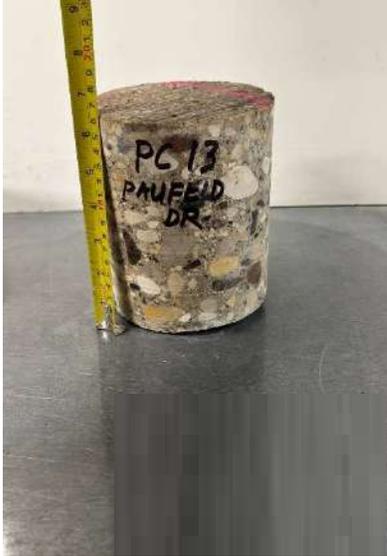


PC 12 - Site Photo

Major Rehabilitation Sites

Picture of Cores

Paufield Dr - Karen St/Rothesay St



PC 13 - Core



PC 13 - Site Photo

APPENDIX A.3.

GREENLEA COVE

(GILMORE AVE TO GILMORE AVE)

Rehabilitation Sites

Pavement Coring Locations



Rehabilitation Sites

Pavement Structure Measurement

Core Hole No.	Core Hole Location	Asphalt Thickness (mm)	Concrete Thickness (mm)
Greenlea Cove (Gilmore Ave to Gilmore Ave)			
PC14	Near parking entrance of House # 491 Gilmore Ave, NBL; 1.5m away from the curb 14 U, 638870 E, 5534329 N	-	166
PC15	Front of House # 39 Greenlea Cove, WBL; 1.5m away from the curb 14 U, 638950 E, 5534337 N	-	150
PC16	Near parking entrance of House # 511 Gilmore Ave, SBL; 1.5m away from the curb 14 U, 638982 E, 5534260 N	-	160

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

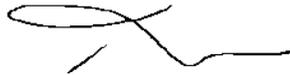
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ATTENTION:	Richard Hawkins	FILE NO:	430-2502
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STRUCTURE:		TECHNOLOGIST:	M. Vinas, S. De Guzman, D. Aireyu
		DATE CORES TAKEN:	30-Dec-25 to 12-Jan-26
		DOCUMENT NO:	25-4932
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Core Location	Length as Drilled (mm)	Core Diameter (mm)	Tested 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 14 - Greenlea Cove	166	95	148	1.6	0.968	2.5	-	15-Jan-26	1	42.01	40.67
Core 15 - Greenlea Cove	150	95	131	1.4	0.948	2.2	-	15-Jan-26	1	46.71	44.28

Remarks

The cores were tested in wet condition in accordance with CSA A23.2-14C.

Reviewed by:



Mayumi Kawano, Supervisor
Field & Lab Testing Services

Approved by:



Paul Bevel, Manager
Field & Lab Testing Services

Major Rehabilitation Sites

Picture of Cores

Greenlea Cv - Gilmore Av/Gilmore Av



PC 14 - Core



PC 15 - Site Photo



PC 15 - Core



PC 15 - Site Photo

Major Rehabilitation Sites

Picture of Cores

Greenlea Cv - Gilmore Av/Gilmore Av



PC 16 - Core



PC 16 - Site Photo

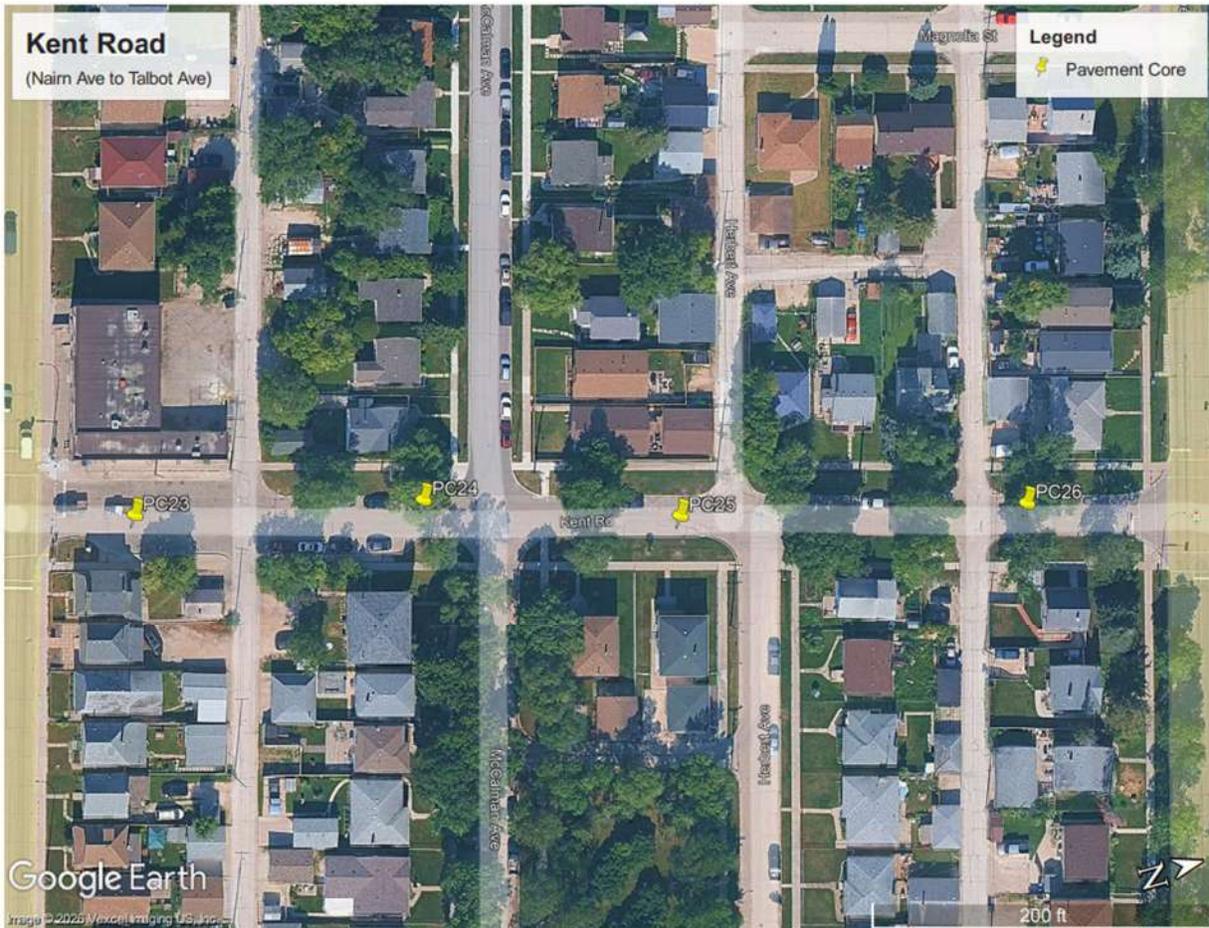
APPENDIX A.4.

KENT ROAD

(NAIRN AVE TO TALBOT AVE)

Rehabilitation Sites

Pavement Coring Locations



Rehabilitation Sites

Pavement Structure Measurement

Core Hole No.	Core Hole Location	Asphalt Thickness (mm)	Concrete Thickness (mm)
Kent Road (Nairn Ave to Talbot Ave)			
PC23	Side of House # 951 Nairn Ave, NBL; 4.5m away from the curb 14 U, 637604 E, 5529416 N	-	202
PC24	Side of House # 966 McCalman Ave, SBL; 2.5m away from the curb 14 U, 637615 E, 5529467 N	-	163
PC25	Front of House # 35 Kent Rd, NBL; 1.5m away from the curb 14 U, 637628 E, 5529511 N	10	165
PC26	Side of House # 836 Talbot Ave, SBL; 2m away from the curb 14 U, 637642 E, 5529573 N	-	207

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Core Location	Length as Drilled (mm)	Core Diameter (mm)	Tested 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 23 - Kent St. at Nairn	202	95	167	1.8	0.984	2.8	-	15-Jan-26	1	50.34	49.53
Core 24 - Kent St. at McCalman	163	95	159	1.7	0.976	2.6	-	15-Jan-26	1	42.94	41.91

Remarks

The cores were tested in wet condition in accordance with CSA A23.2-14C.

Reviewed by:



Mayumi Kawano, Supervisor
Field & Lab Testing Services

Approved by:



Paul Bevel, Manager
Field & Lab Testing Services

Major Rehabilitation Sites

Picture of Cores

Kent Rd - Nairn Av/Talbot Av



PC 23 - Core



PC 23 - Site Photo



PC 24 - Core



PC 24 - Site Photo

Major Rehabilitation Sites

Picture of Cores

Kent Rd - Nairn Av/Talbot Av



PC 25 - Core



PC 25 - Site Photo



PC 26 - Core



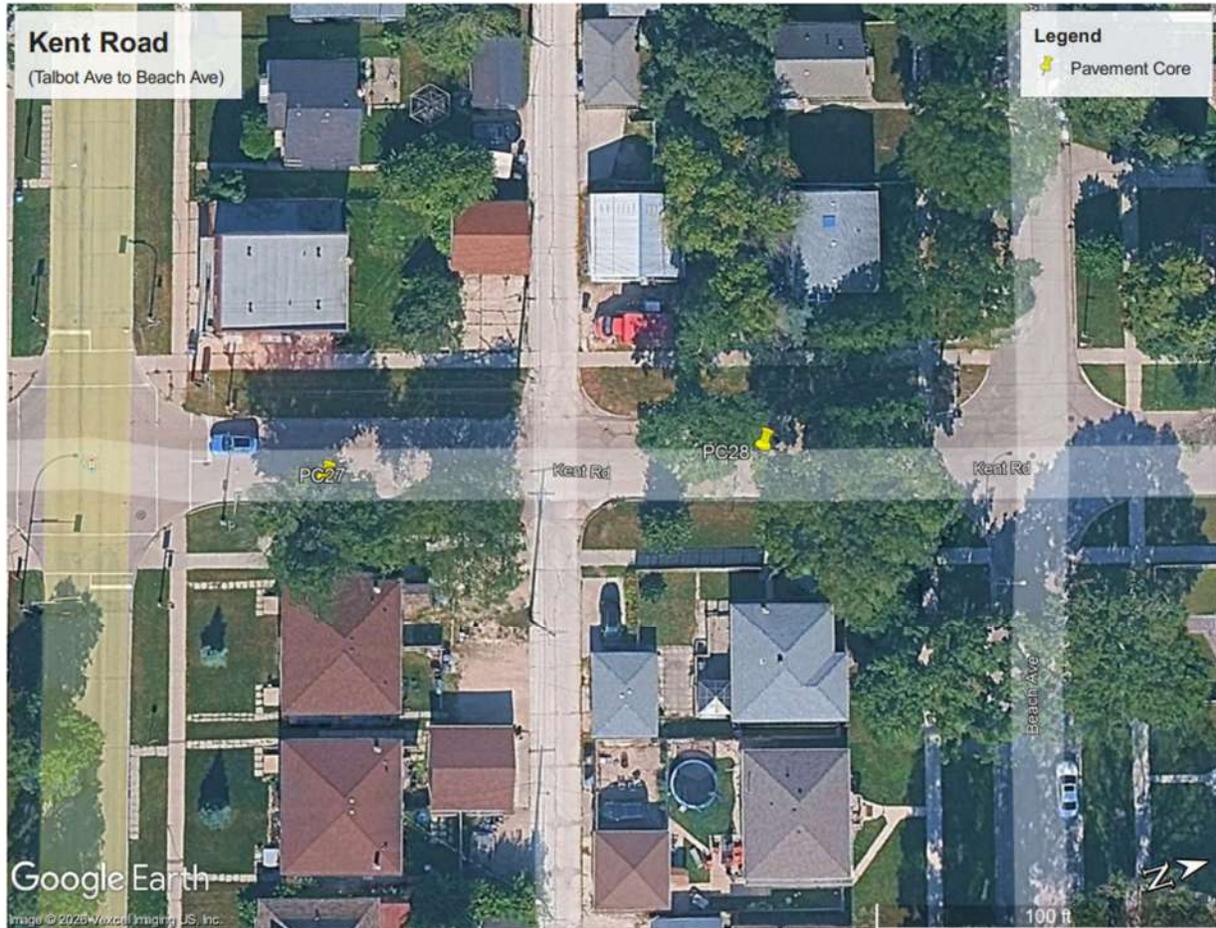
PC 26 - Site Photo

APPENDIX A.5.

KENT ROAD (TALBOT AVE TO BEACH AVE)

Rehabilitation Sites

Pavement Coring Locations



Rehabilitation Sites

Pavement Structure Measurement

PC No.	Core Hole Location	Asphalt Thickness (mm)	Concrete Thickness (mm)
Kent Road (Talbot Ave to Beach Ave)			
PC27	Side of House # 841 Talbot Ave, NBL; 1m away from the curb 14 U, 637656 E, 5529621 N	-	168
PC28	Front of House # 288 Kent Rd, SBL; 3.5m away from the curb 14 U, 637663 E, 5529661 N	8	152

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

CLIENT:	WSP Canada Inc 1600 Buffalo Place Winnipeg, MB R3T 6B8	DATE:	15-Jan-26
ATTENTION:	Richard Hawkins	FILE NO:	430-2502
PROJECT:	2026 Local Street Renewals – 26 R 07 Various Locations	REPORT NO:	26-001
STRUCTURE:		TECHNOLOGIST:	M.V, S. D.G, D.A
		DATE CORES TAKEN:	30-Dec-25 to 12-Jan-26
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Core Location	Length as Drilled (mm)	Core Diameter (mm)	Tested 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 27 - Kent St. at Talbot Ave	168	95	150	1.6	0.968	2.5	-	15-Jan-26	1	43.65	42.25
Core 28 - Kent St. at Beach Ave	152	95	140	1.5	0.960	2.4	-	15-Jan-26	1	52.55	50.45

Remarks

The cores were tested in wet condition in accordance with CSA A23.2-14C.

Reviewed by:



Mayumi Kawano, Supervisor
Field & Lab Testing Services

Approved by:



Paul Bevel, Manager
Field & Lab Testing Services

Major Rehabilitation Sites

Picture of Cores

Kent Rd - Beach Av/Talbot Av



PC 27 - Core



PC 28 - Core



PC 28 - Site Photo

APPENDIX A.6.

MANHATTAN AVENUE (KEENLEYSIDE ST TO STAPLETON ST)

Rehabilitation Sites

Pavement Coring Locations



Rehabilitation Sites

Pavement Structure Measurement

PC No.	Core Hole Location	Asphalt Thickness (mm)	Concrete Thickness (mm)
Manhattan Avenue (Keenleyside St to Stapleton St)			
PC29	Side of House # 310 Milford St., WBL; 3m away from the curb 14 U, 638032 E, 5529682 N	-	204
PC30	Front of House # 1000 Manhattan Ave, EBL; 1.5m away from the curb 14 U, 638102 E, 5529661 N	-	155
PC31	Side of House # 305 Culver St., WBL; 2.5m away from the curb 14 U, 638182 E, 5529645 N	-	175

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

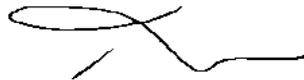
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ATTENTION:	Richard Hawkins	FILE NO:	430-2502
PROJECT:	2026 Local Street Renewals – 26 R 07 Various Locations	REPORT NO:	26-001
STRUCTURE:		TECHNOLOGIST:	M.V, S. D.G, D.A
		DATE CORES TAKEN:	30-Dec-25 to 12-Jan-26
		DOCUMENT NO:	25-4932
		DATE RECEIVED IN LAB:	30-Dec-25 to 12-Jan-26

Core Location	Length as Drilled (mm)	Core Diameter (mm)	Tested 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 29 - Manhattan Ave	204	95	165	1.7	0.976	2.7	-	15-Jan-26	2	55.21	53.88
Core 31 - Manhattan Ave	175	95	150	1.6	0.968	2.5	-	15-Jan-26	1	56.42	54.61

Remarks

The cores were tested in wet condition in accordance with CSA A23.2-14C.

Reviewed by:



Mayumi Kawano, Supervisor
Field & Lab Testing Services

Approved by:



Paul Bevel, Manager
Field & Lab Testing Services

Major Rehabilitation Sites

Picture of Cores

Manhattan Av - Stapleton St/Keenleyside St



PC 29 - Core



PC 30 - Core



PC 31 - Core

APPENDIX B

2026 Local Street Renewals (Reconstruction Sites)

B.1 Summary of Laboratory Testing

Reconstructions Sites

BH	Sample ID	PSA				PI			PR		CBR	
		Gravel (%)	Sand (%)	Silt (%)	Clay (%)	LL (%)	PL (%)	PI (%)	MDD (kg/m ³)	OMC (%)	at 2.5mm penetration	at 5.1mm penetration
LITZ PLACE (APPLETON ST TO HENDERSON HWY)												
BH1	HM 823 GS 4	-	6.6	39.2	54.2	58	20	38	1583	22.8	3.2	2.4
BH3	HM 825 GS 6	-	22.5	60.0	17.6	28	16	12	1778	16.2	3.4	2.9
JOHNSON AVE E (GATEWAY RD TO ST GREY ST)												
BH6	HM 828 GS 4	-	7.6	28.5	63.9	66	25	41	1477	26.3	3.6	2.6
BH7	HM 829 GS 5	-	3.1	85.0	12.0	23	17	6	1886	13.6	3.3	2.8
KENT ROAD (CHALMERS AVE E TO KEENLEYSIDE ST)												
BH8	HM 830 GS 8	-	7.0	81.1	11.8	25	17	8	1891	13.9	4.5	3.5
BH11	HM 832 GS 4	-	2.7	38.4	59.0	71	19	52	1542	23.1	3.3	2.3

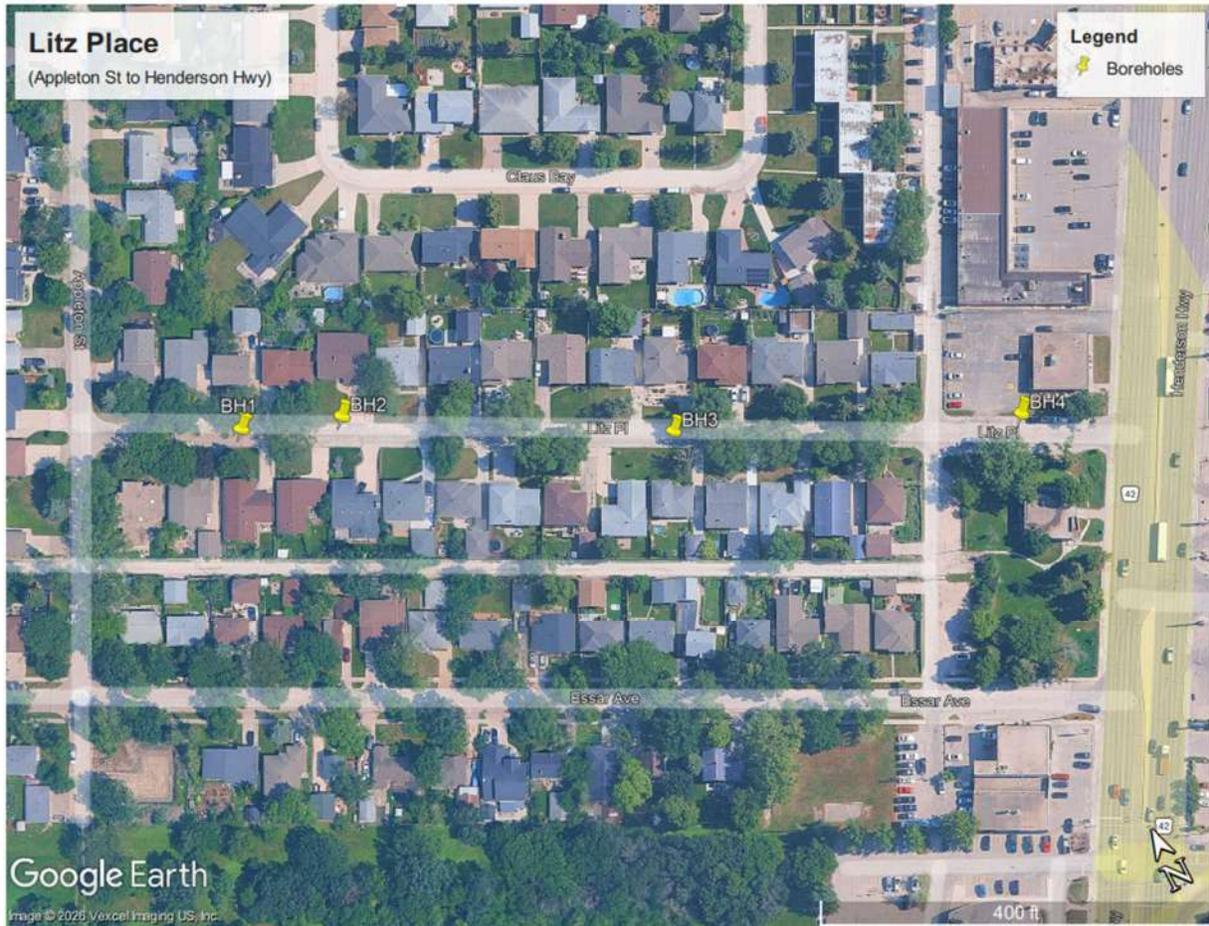
APPENDIX B.2.

LITZ PLACE

(APPLETON ST TO HENDERSON HWY)

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)
Litz Place (Appleton St to Henderson Hwy)			
BH1	Front of House # 6 Litz Place, EBL; 2m away from the curb 14 U, 637016 E, 5534384 N	-	168
BH2	Front of House # 9 Litz Place, WBL; 2m away from the curb 14 U, 637047 E, 5534374 N	-	225 ^A
BH3	Front of House # 22 Litz Place, EBL; 1.5m away from the curb 14 U, 637138 E, 5534325 N	-	150
BH4	Side of Bldg. # 1414 Henderson Hwy, WBL; 2m away from the curb 14 U, 637238 E, 5534283 N	-	200 ^A

Note: ^A - The exact concrete thickness could not be determined due to the deterioration of the concrete.



Project No: 430-2502

Project: 2026 Local Street Renewals – 26-R-07

Client: WSP

Location: Front of House # 6 Litz Place, EBL; 2m away from the curb

TH1

Logged By: MK

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
0		Ground Surface																
		Pavement 168mm CONCRETE																
1		Clay Fill - silty, some sand and trace gravel, low plastic, firm, moist, dark brown, frozen to 0.5m	1	GS														
2			2	GS														
3		Clay - silty with trace sand, low plastic, soft to firm, moist, brown - traces of sulphates, soft below 1.5m	3	GS														
4			4	GS														
5		- Lab Result (HM 823) Gravel - 0%, Sand - 7%, Silt - 39%, Clay - 54% LL - 58, PL - 20, PI - 38 CBR at 2.5mm penetration - 3.2	5	GS														
6			6	GS														
7			7	GS														
8		Silt - clayey with trace sand, soft, moist, tan	8	GS														
9		End of testhole - No seepage observed - Test hole was backfilled with auger cuttings and topped with crushed limestone and cold patch asphalt -UTM: 14 U, 637016 E, 5534384 N																
10																		
11																		

Drill Method: Auger Drilling

Drill Date: January 8, 2026

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1



Project No: 430-2502

Project: 2026 Local Street Renewals – 26-R-07

Client: WSP

Location: Front of House # 9 Litz Place, WBL; 2m away from the curb

TH2

Logged By: MK

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				
		Pavement 225mm CONCRETE				
1		Clay Fill - silty, some sand and trace gravel, low plastic, soft to firm, moist, dark brown, frozen to 0.5m	1	GS		
2			2	GS		
3		Sand - some gravel with trace silt, loose, moist, light brown	3	GS		
4		End of testhole				
5						
6						
7						
8						
9						
10		- Drill can not go through (chance of concrete or boulder) - No seepage observed - Test hole was backfilled with auger cuttings and topped with crushed limestone and cold patch asphalt -UTM: 14 U, 637047 E, 5534374 N				
11						

Drill Method: Auger Drilling

Datum: Existing surface

Drill Date: January 8, 2026

Checked by: Paul Bevel

Hole Size: 5 Inches

Sheet: 1 of 1



Project No: 430-2502

Project: Local Street Renewals 26-R-07

Client: WSP Canada Inc

Location: Front of House # 22 Litz Place, EBL; 1.5m away from the curb

TH3

Logged By: MK

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						
		Pavement 150mm CONCRETE						
1		Clay Fill - silty, some sand and trace gravel, low plastic, soft to firm, moist, light grey, frozen to 0.5m	1	GS				
2		Clay - silty, low plastic, soft to firm, moist, brown	2	GS				
3			3	GS				
4			4	GS				
5			5	GS				
6		Silt - sandy with some clay, soft, moist, tan - Lab Report (HM 825) Gravel - 0%, Sand - 22%, Silt - 60%, Clay - 18% LL - 28, PL - 16, PI - 12 CBR at 2.5mm penetration - 3.4	6	GS				
7			7	GS				
8			8	GS				
9		End of testhole - No seepage observed - Test hole was backfilled with auger cuttings and topped with crushed limestone and cold patch asphalt -UTM: 14 U, 637138 E, 5534325 N						
10								
11								

Drill Method: Auger Drilling

Datum: Existing surface

Drill Date: January 8, 2026

Checked by: Paul Bevel

Hole Size: 5 Inches

Sheet: 1 of 1



Project No: 430-2502

Project: Local Street Renewals 26-R-07

Client: WSP Canada Inc

Location: Side of Bldg. # 1414 Henderson Hwy, WBL; 2m away from the curb

TH4

Logged By: MK

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 Pavement 200mm CONCRETE						
0.5		Granular Fill - silty, some sand and trace gravel, moist, light grey, frozen to 0.5m	1	GS			35	
1.5			2	GS			35	
2.5			3	GS	75		35	
3.5			4	GS	100		35	
4.5		Clay - silty, low plastic, soft to firm, moist, dark brown - light brown below 2.0m - high plastic, soft below 1.8m	5	GS	100		35	
5.5			6	GS	100		35	
6.5			7	GS	100		35	
7.5			8	GS	100		35	
9.0		End of testhole - No seepage observed - Test hole was backfilled with auger cuttings and topped with crushed limestone and cold patch asphalt -UTM: 14 U, 637238 E, 5534283 N						

Drill Method: Auger Drilling

Datum: Existing surface

Drill Date: January 8, 2026

Checked by: Paul Bevel

Hole Size: 5 Inches

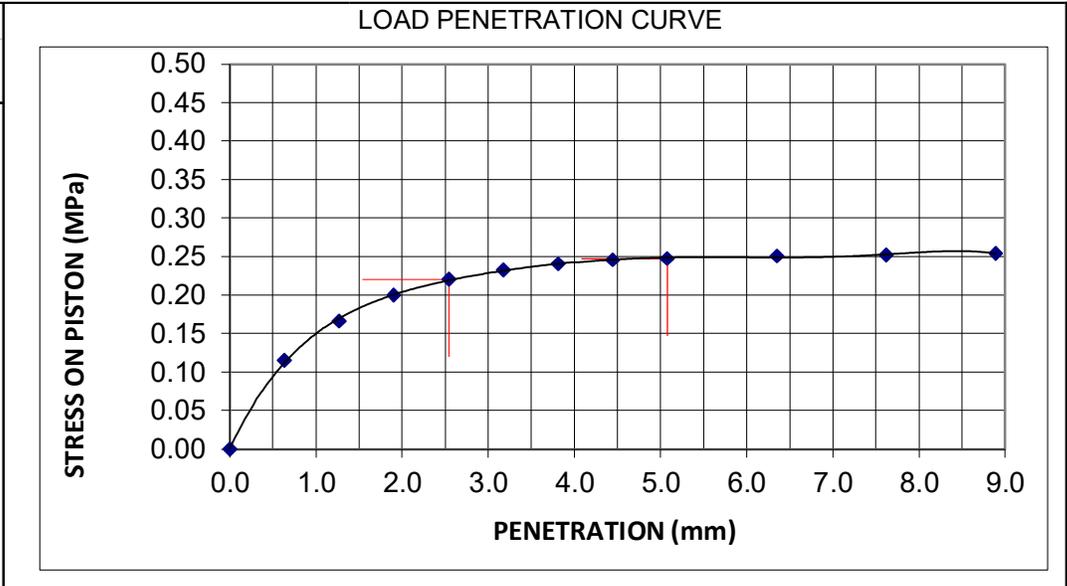
Sheet: 1 of 1

CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No: 430-2502 Lab No: HM 823 Date sampled/By: 8-Jan-26 HA Date Received: 8-Jan-26 HA Date Tested /By: 15-Jan-26 JJ
Attention: Richard Hawkins	
Project 2026 Local Street Renewals – 26-R-07	
Location: Litz Place (Appleton St. to Henderson Hwy)	

SAMPLE DATA		SPECIMEN DATA		
Sample Type: CLAY - silty, with trace sand		DESCRIPTION	Before Soaking	After Testing
Source: Litz Place - BH-1 - GS 4		Moisture Content (MC), %	21.6	25.8
Sampled by: HA		MC of top 25mm layer, %		
Optimum Moisture Content: 22.7 %		Dry Density, kg/m ³	1507	1420
Maximum Dry Density: 1583 kg/cm ³		Compaction, %	95%	
Method of Compaction: Standard Proctor		CBR at 2.5mm penetration, %		3.2
Tested by: MA	Date Tested: 13-Jan-26	Swell, %		2.3

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.12
1.27	0.17
1.91	0.20
2.54	0.22
3.18	0.23
3.81	0.24
4.45	0.25
5.08	0.25
6.35	0.25
7.62	0.25
8.89	0.25



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	0.22	0.22	3.2	-
5.08	10.3	0.25	0.25	-	2.4

Remarks:

P. Bevel

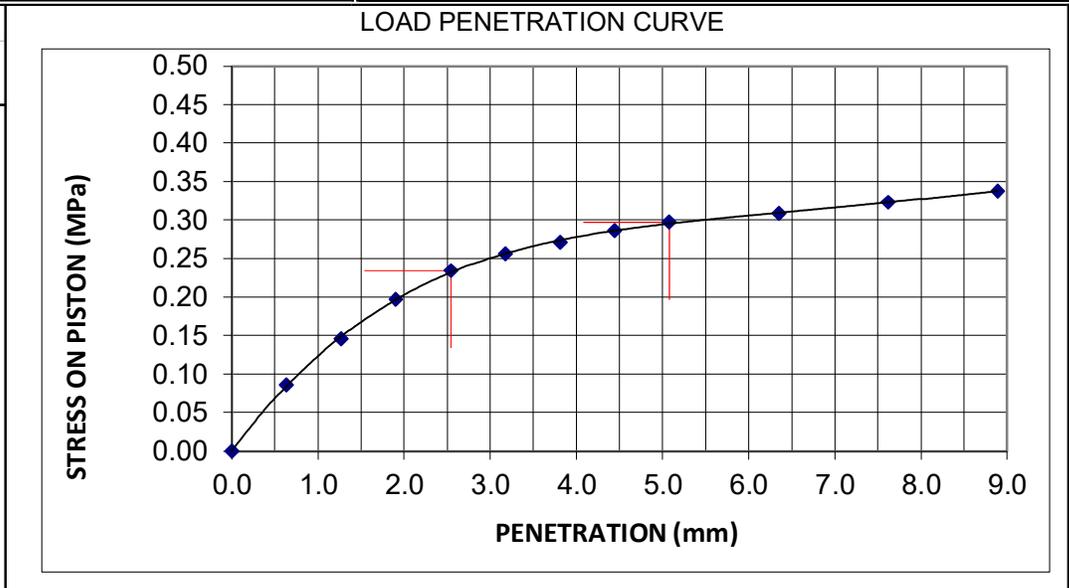
Reviewed by: Paul Bevel

CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No: 430-2502 Lab No: HM 825 Date sampled/By: 8-Jan-26 HA Date Received: 8-Jan-26 HA Date Tested /By: 15-Jan-26 JJ
Attention: Richard Hawkins Project 2026 Local Street Renewals – 26-R-07 Location: Litz Place (Appleton St. to Henderson Hwy)	

SAMPLE DATA		SPECIMEN DATA		
Sample Type: SILT - sandy with some clay		DESCRIPTION	Before Soaking	After Testing
Source: Litz Place - BH-3 - GS 6		Moisture Content (MC), %	15.4	18.9
Sampled by: HA		MC of top 25mm layer, %		
Optimum Moisture Content: 16.2 %		Dry Density, kg/m ³	1691	1629
Maximum Dry Density: 1778 kg/cm ³		Compaction, %	95%	
Method of Compaction: Standard Proctor		CBR at 2.5mm penetration, %		3.4
Tested by: HA	Date Tested: 13-Jan-26	Swell, %		1.8

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.09
1.27	0.15
1.91	0.20
2.54	0.23
3.18	0.26
3.81	0.27
4.45	0.29
5.08	0.30
6.35	0.31
7.62	0.32
8.89	0.34



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	3.4	-
5.08	10.3	0.30	0.30	-	2.9

Remarks:

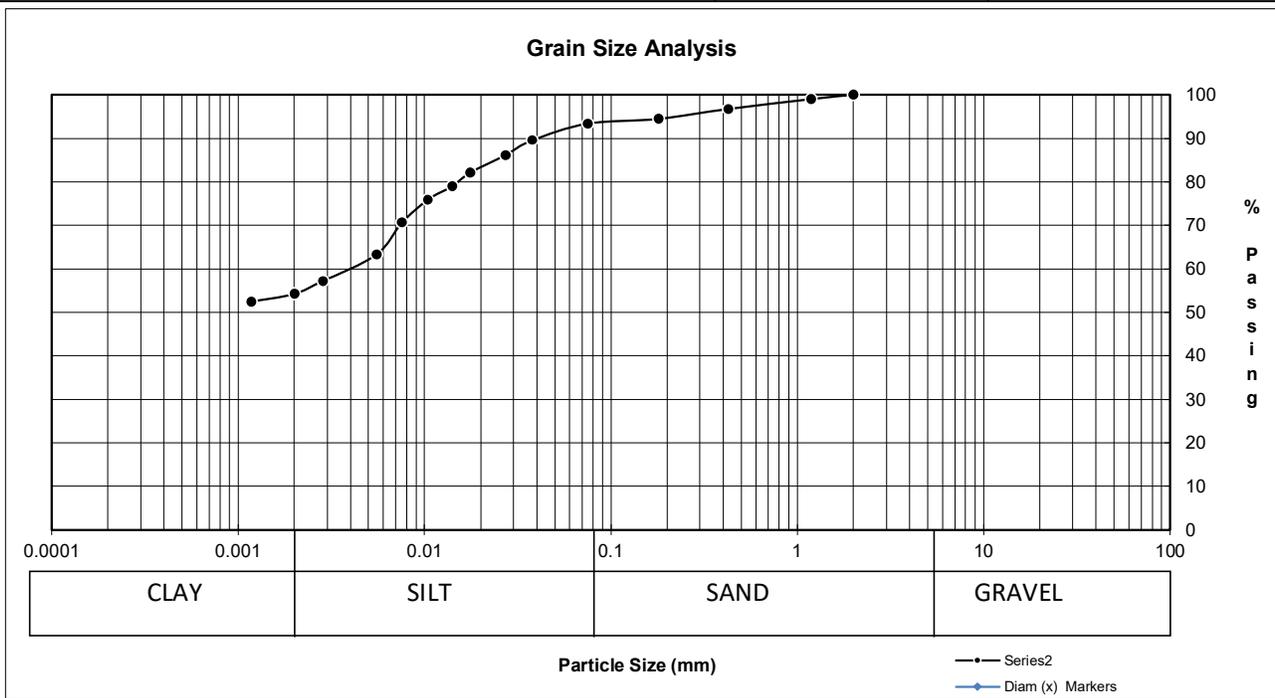
P. Bevel

Reviewed by: Paul Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8 ATTENTION: Richard Hawkins PROJECT: 2026 Local Street Renewals – 26-R-07 Litz Place (Appleton St. to Henderson Hwy)	Project No.: 430-2502 PSA Test No.: 1 Lab No.: HM 823
---	--

Date Sampled:	8-Jan-26	Date Received:	8-Jan-26	Sieve Analysis		Hydrometer Analysis	
Sampled By:	HA	Date Tested:	12-Jan-26 <th>Sieve (mm)</th> <th>% Passing</th> <th>Diameter</th> <th>% Finer</th>	Sieve (mm)	% Passing	Diameter	% Finer
				50.00	100.0		
				37.50	100.0		
				25.00	100.0		
				19.00	100.0		
				16.00	100.0		
Material Identification				12.50	100.0	0.0377	89.6
B.H./T.H. No.	BH 1			9.50	100.0	0.0272	86.1
Depth	4.5-ft			4.75	100.0	0.0175	82.1
Sample Source	GS4			2.00	100.0	0.0140	79.0
Specific Gravity of Material:	2.65			1.18	99.0	0.0104	75.9
				0.425	96.7	0.0075	70.6
				0.180	94.5	0.0055	63.3
				0.075	93.4	0.0012	52.4



	% Composition	D10
	Gravel	D30
	6.60 Sand	D60
	39.19 Silt	Cu
	54.21 Clay	Cc

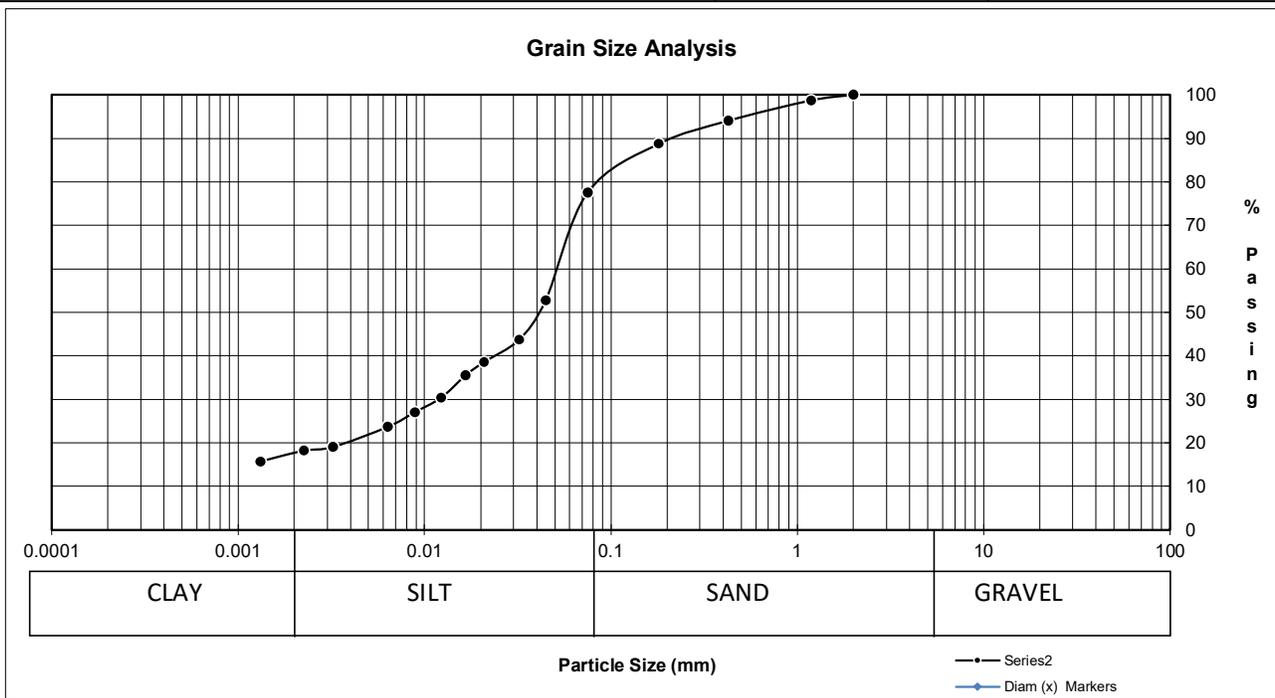
Remarks:

P. Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8 ATTENTION: Richard Hawkins PROJECT: 2026 Local Street Renewals – 26-R-07 Litz Place (Appleton St. to Henderson Hwy)	Project No.: 430-2502 PSA Test No.: 2 Lab No.: HM 825
---	--

Date Sampled:	8-Jan-26	Date Received:	8-Jan-26	Sieve Analysis		Hydrometer Analysis	
Sampled By:	HA	Date Tested:	12-Jan-26	Sieve (mm)	% Passing	Diameter	% Finer
				50.00	100.0		
				37.50	100.0		
				25.00	100.0		
				19.00	100.0		
				16.00	100.0		
Material Identification				12.50	100.0	0.0444	52.7
B.H./T.H. No.	BH 3			9.50	100.0	0.0321	43.7
Depth	6.5-ft			4.75	100.0	0.0207	38.5
Sample Source	GS 6			2.00	100.0	0.0166	35.5
Specific Gravity of Material:	2.65			1.18	98.7	0.0123	30.4
				0.425	94.1	0.0088	26.9
				0.180	88.8	0.0063	23.6
				0.075	77.5	0.0013	15.7



	% Composition	D10
	Gravel	D30
	22.46 Sand	D60
	59.99 Silt	Cu
	17.55 Clay	Cc

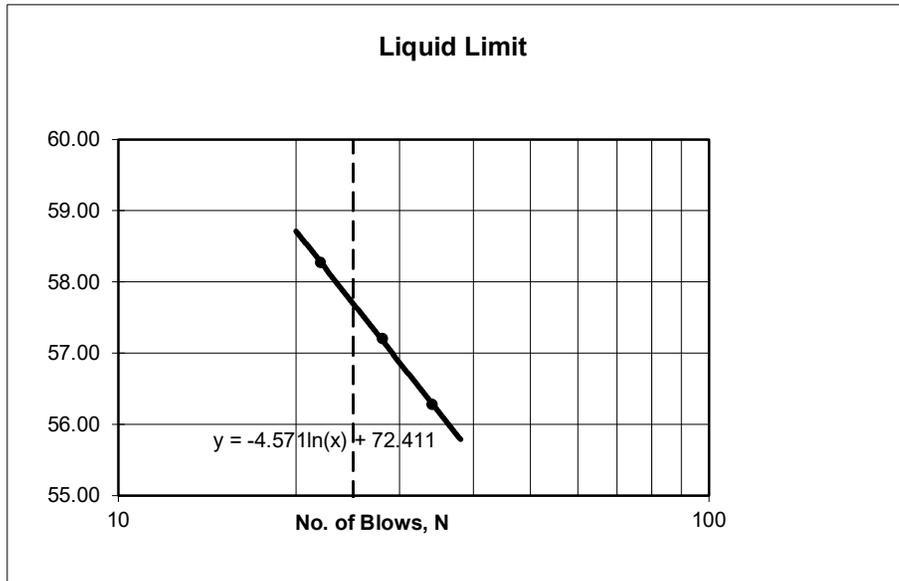
Remarks:

P. Bevel

Atterberg Limits (ASTM D4318)

Client: WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No.: 430-2502 PI Test No.: 1 Lab No.: HM 823
Attention.: Richard Hawkins	Date Sampled/By: 8-Jan-26 HA
Project: 2026 Local Street Renewals – 26-R-07 Litz Place (Appleton St. to Henderson Hwy)	Date Received: 8-Jan-26 Date Tested / By: 15-Jan-26 BY

Liquid Limit Determination				Liquid Limit 25 Blows
Dish No.:	1	2	3	
Wet Soil + Dish:	11.76	10.68	11.87	
Dry Soil + Dish:	9.16	8.39	9.17	
Moisture:	2.6	2.29	2.7	
Dish:	4.54	4.46	4.45	
Dry Soil:	4.62	3.93	4.72	
% Moisture:	56.28	58.27	57.20	
No. of Blows:	34	22	28	
Liquid Limit:				58



Material Identification:

Test Hole:	BH 1
Grab Sample No:	GS 4
Depth:	4.5-ft
Liquid Limit, %:	58
Plastic Limit, %:	20
Plasticity Index:	38
	(LL-PL)

Plastic Limit Determination				
Dish No.:	1	2	3	
Wet Soil + Dish:	6.85	6.27	7.2	
Dry Soil + Dish:	6.63	5.94	6.88	
Moisture:	0.22	0.33	0.32	
Dish:	5.29	4.62	5.11	
Dry Soil:	1.34	1.32	1.77	
% Moisture:	16.42	25.00	18.08	
				Average: 20

Test Method : ASTM: D4318, D2216

Remarks:

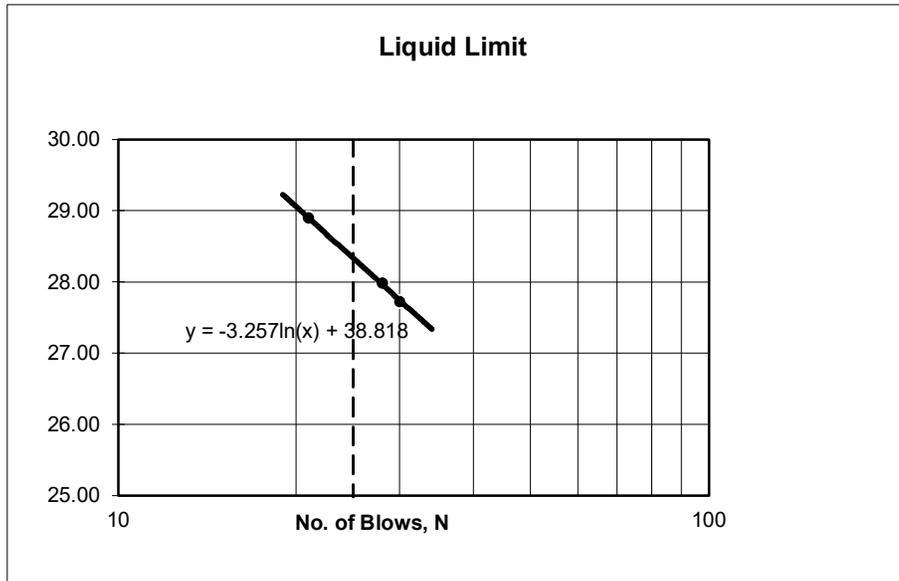
P. Bevel

Reviewed by: Paul Bevel

Atterberg Limits (ASTM D4318)

Client: WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No.: 430-2502
Attention.: Richard Hawkins	PI Test No.: 2
Project: 2026 Local Street Renewals – 26-R-07	Lab No.: HM 825
Litz Place (Appleton St. to Henderson Hwy)	Date Sampled/By: 8-Jan-26 HA
	Date Received: 8-Jan-26
	Date Tested / By: 15-Jan-26 BY

Liquid Limit Determination				Liquid Limit 25 Blows
Dish No.:	1	2	3	
Wet Soil + Dish:	16.72	12.86	10.72	
Dry Soil + Dish:	14.05	11.03	9.33	
Moisture:	2.67	1.83	1.39	
Dish:	4.42	4.49	4.52	
Dry Soil:	9.63	6.54	4.81	
% Moisture:	27.73	27.98	28.90	
No. of Blows:	30	28	21	
Liquid Limit:				28



Material Identification:

Test Hole:	BH 3
Grab Sample No:	GS 6
Depth:	6-ft
Liquid Limit, %:	28
Plastic Limit, %:	16
Plasticity Index:	12
	(LL-PL)

Plastic Limit Determination				
Dish No.:	1	2	3	
Wet Soil + Dish:	9.66	8.74	11.48	
Dry Soil + Dish:	8.57	8.28	10.80	
Moisture:	1.09	0.46	0.68	
Dish:	4.49	4.42	4.4	
Dry Soil:	4.08	3.86	6.4	
% Moisture:	26.72	11.92	10.63	
				Average: 16

Test Method : ASTM: D4318, D2216

Remarks:

P. Bevel

Reviewed by: Paul Bevel

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

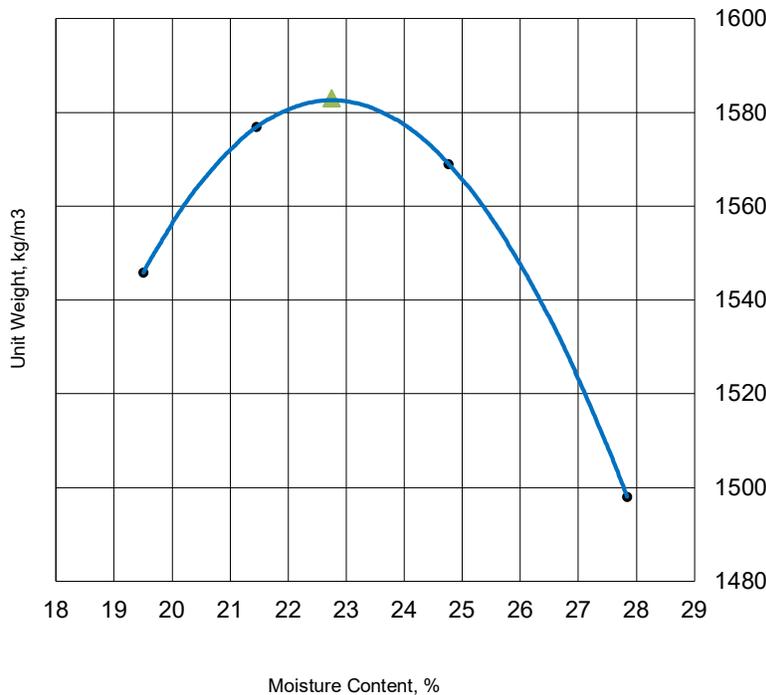
CLIENT	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No.:	430-2502
ATTENTION:	Richard Hawkins	Lab No.:	HM 823
PROJECT:	2026 Local Street Renewals – 26-R-07 Litz Place (Appleton St. to Henderson Hwy)	Proctor Test No.:	1

Date Sampled:	8-Jan-26	Date Received:	8-Jan-26	PROCEDURE	A
Sampled By:	HA	Date Tested:	13-Jan-26	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:	4.75mm	Material Source:	BH 1 - GS 4	MOLD SIZE	100
				MOLD VOLUME	943
				WEIGHT OF HAMMER	2.5 kg

	Test No.	1	2	3	4
	Wet Density	1847	1915	1958	1915
	Moisture Content	19.5	21.5	24.8	27.8
	Dry Density	1546	1577	1569	1498

Moisture - Density Relationship



Maximum Dry Density (MDD):
1583 kg/m³
Optimum Moisture Content
22.8 %

STONE CORRECTION (ASTM D 4718)

Retained on 4.75mm sieve:
 %
Corrected Moisture:
22.8 %
Corrected Maximum Dry Density:
1583 kg/m³

Remarks:

P. Bevel

Tested by: Mehdi Abbasi

Reviewed by: Paul Bevel

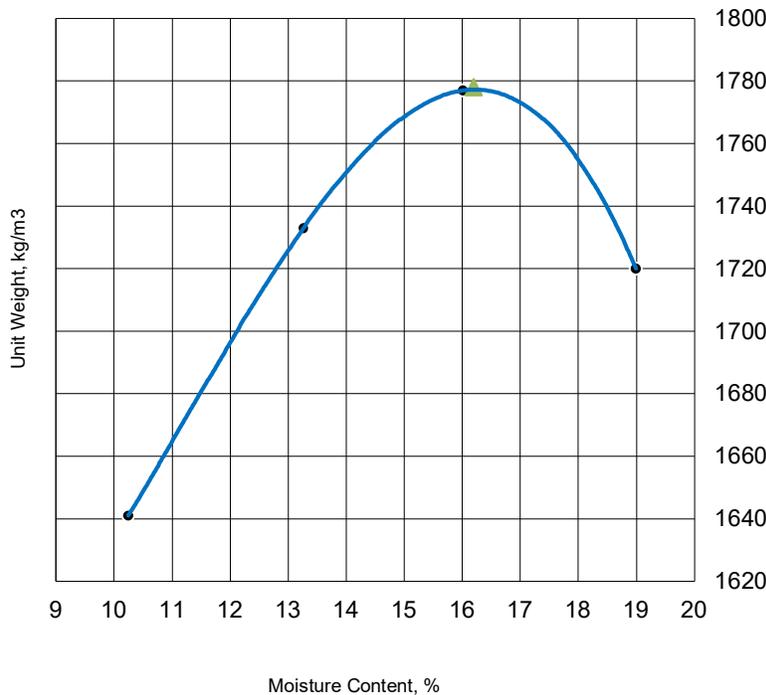
MAXIMUM DRY DENSITY AND MOISTURE CONTENT - Proctor Method (ASTM D698)

CLIENT	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No.:	430-2502
ATTENTION:	Richard Hawkins	Lab No.:	HM 825
PROJECT:	2026 Local Street Renewals – 26-R-07 Litz Place (Appleton St. to Henderson Hwy)	Proctor Test No.:	2

Date Sampled:	8-Jan-26	Date Received:	8-Jan-26	PROCEDURE	A	
Sampled By:	HA	Date Tested:	13-Jan-26		PREPARATION	Dry
MATERIAL INFORMATION					COMPACTION METHOD	Manual
Material Type:	SILT - sandy with some clay				BLOWS PER LAYER	25
Material Use:	Soil Investigat	Material Supplier:	Not Applicable	NO. OF LAYERS	3	
Maximum Size:	4.75mm	Material Source:	BH 3 - GS 6	MOLD SIZE	100	
				MOLD VOLUME	943	
				WEIGHT OF HAMMER	2.5 kg	

	Test No.	1	2	3	4
Wet Density		1809	1963	2062	2047
Moisture Content		10.2	13.3	16.0	19.0
Dry Density		1641	1733	1777	1720

Moisture - Density Relationship



Maximum Dry Density (MDD):
1778 kg/m³
Optimum Moisture Content
16.2 %

STONE CORRECTION (ASTM D 4718)

Retained on 4.75mm sieve:
 %
Corrected Moisture:
16.2 %
Corrected Maximum Dry Density:
1778 kg/m³

Remarks:

P. Bevel

Tested by: Hamid Abedinzadeh

Reviewed by: Paul Bevel

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No:	430-2502
Attention:	Richard Hawkins	Test No.:	1
Project:	2026 Local Street Renewals – 26-R-07 Litz Place, BH1	Lab No.:	HM 823
		Date Sampled / By:	January 8, 2026 Hamid A.
		Date Received:	January 8, 2026
		Date Tested / By:	January 12, 2026/Chris Bautista

Test Hole No.	BH 1-1	BH 1-2	BH 1-3	BH 1-4	BH 1-5
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	CO-2	PM-1	M38	A13	318
Wt Wet Sample + Tare	199.8	181.8	187.5	195.6	165
Wt Dry Sample + Tare	158.7	146.7	144.9	152.3	132.1
Wt Water	41.1	35.1	42.6	43.3	32.9
Wt Tare	4.7	4.0	4.6	4.0	4.7
Wt Dry Sample	154.0	142.7	140.3	148.3	127.4
Moisture Content (%)	26.7	24.6	30.4	29.2	25.8

Test Hole No.	BH 1-6	BH 1-7	BH 1-8		
Depth	6-ft	7-ft	8-ft		
Tare No.	M 56	H 17	Z5		
Wt Wet Sample + Tare	175.9	222.6	241.4		
Wt Dry Sample + Tare	136.9	159.7	195.6		
Wt Water	39.0	62.9	45.8		
Wt Tare	4.9	4.7	4.6		
Wt Dry Sample	132.0	155.0	191.0		
Moisture Content (%)	29.5	40.6	24.0		

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 (%)					

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No:	430-2502
Attention:	Richard Hawkins	Test No.:	2
Project:	2026 Local Street Renewals – 26-R-07 Litz Place, BH2	Lab No.:	HM 824
		Date Sampled / By:	January 8, 2026 HamidA.
		Date Received:	January 8, 2026
		Date Tested / By:	January 12, 2026/Chris B.

Test Hole No.	BH 2-1	BH 2-2	BH 2-3		
Depth	1-ft	2-ft	3-ft		
Tare No.	Z-6	T125	B2		
Wt Wet Sample + Tare	188.2	191.9	171.2		
Wt Dry Sample + Tare	147.9	150.6	151.6		
Wt Water	40.3	41.3	19.6		
Wt Tare	4.5	4.2	3.9		
Wt Dry Sample	143.4	146.4	147.7		
Moisture Content (%)	28.1	28.2	13.3		
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 (%)					
Test Hole No.					
Depth					
Tare No.					
Wt Wet Sample + Tare					
Wt Dry Sample + Tare					
Wt Water					
Wt Tare					
Wt Dry Sample					
Moisture Content (%)					

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No:	430-2502
Attention:	Richard Hawkins	Test No.:	3
Project:	2026 Local Street Renewals – 26-R-07 Litz Place, BH3	Lab No.:	HM 825
		Date Sampled / By:	January 8, 2026 Hamid A.
		Date Received:	January 8, 2026
		Date Tested / By:	January 12, 2026/Chris B.

Test Hole No.	BH 3-1	BH 3-2	BH 3-3	BH 3-4	BH 3-5
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	A3	SE7	CO4	A8	V1
Wt Wet Sample + Tare	159.1	174.6	173.3	165.7	186.1
Wt Dry Sample + Tare	137.5	135.8	137.8	130	149.8
Wt Water	21.6	38.8	35.5	35.7	36.3
Wt Tare	4.7	4.3	4.7	4.0	4.8
Wt Dry Sample	132.8	131.5	133.1	126.0	145.0
Moisture Content (%)	16.3	29.5	26.7	28.3	25.0
Test Hole No.	BH 3-6	BH 3-7	BH 3-8		
Depth	6-ft	7-ft	8-ft		
Tare No.	B5	S23	A23		
Wt Wet Sample + Tare	223.6	166.8	170.6		
Wt Dry Sample + Tare	184.2	144.2	147.2		
Wt Water	39.4	22.6	23.4		
Wt Tare	4.2	4.7	4.7		
Wt Dry Sample	180.0	139.5	142.5		
Moisture Content (%)	21.9	16.2	16.4		
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 (%)					

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No:	430-2502
Attention:	Richard Hawkins	Test No.:	4
Project:	2026 Local Street Renewals – 26-R-07 Litz Place, BH4	Lab No.:	HM 826
		Date Sampled / By:	January 8, 2026 Hamid A.
		Date Received:	January 8, 2026
		Date Tested / By:	January 12, 2026 / Chris B.

Test Hole No.	BH 4-1	BH 4-2	BH 4-3	BH 4-4	BH 4-5
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	H25	M55	M53	C3	M25
Wt Wet Sample + Tare	191	170	168.2	179	179.2
Wt Dry Sample + Tare	146	131.9	128.1	141.9	141.8
Wt Water	45.0	38.1	40.1	37.1	37.4
Wt Tare	4.8	4.5	4.5	4.9	4.7
Wt Dry Sample	141.2	127.4	123.6	137.0	137.1
Moisture Content (%)	31.9	29.9	32.4	27.1	27.3
Test Hole No.	BH 4-6	BH 4-7	BH 4-8		
Depth	6-ft	7-ft	8-ft		
Tare No.	M47	KMC	PS-2		
Wt Wet Sample + Tare	168.1	180.9	174.1		
Wt Dry Sample + Tare	122.9	124.5	129.8		
Wt Water	45.2	56.4	44.3		
Wt Tare	5.2	4.6	4.6		
Wt Dry Sample	117.7	119.9	125.2		
Moisture Content (%)	38.4	47.0	35.4		
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 (%)					

Reconstruction Sites

Picture of Cores

Litz PI - Henderson Hwy/Appleton St



BH 1 - Core



BH 1 - Site Photo



BH 2 - Core



BH 2 - Site Photo

Reconstruction Sites

Picture of Cores

Litz Pl - Henderson Hwy/Appleton St



BH 3 - Core



BH 3 - Site Photo



BH 4 - Core



BH 4 - Site Photo

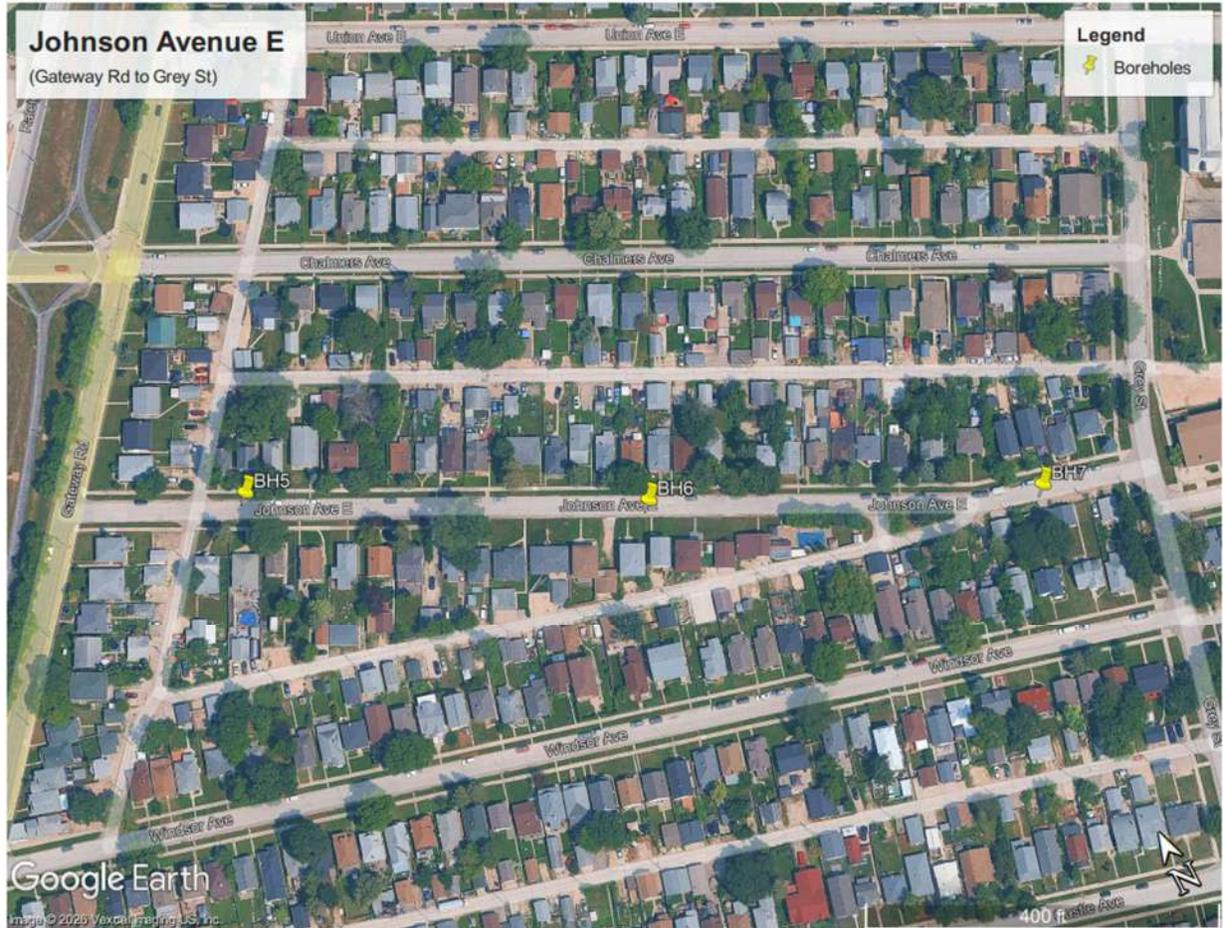
APPENDIX B.3.

JOHNSON AVE E

(GATEWAY RD TO ST GREY ST)

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)
Johnson Ave E (Gateway Rd to St Grey St)			
BH5	Front of House # 539 Johnson Ave E, WBL; 1.5m away from the curb 14 U, 636693 E, 5530173 N	30	195 ^A
BH6	Front of House # 574 Johnson Ave E, EBL; 3m away from the curb 14 U, 636819 E, 5530109 N	40	187
BH7	Front of House # 633 Johnson Ave E, WBL; 2m away from the curb 14 U, 636946 E, 5530052 N	26 ^A	175 ^A

Note: ^A - The exact concrete thickness could not be determined due to the deterioration of the concrete.



Project No: 430-2502

Project: Local Street Renewals 26-R-07

Client: WSP Canada Inc

Location: Front of House # 539 Johnson Ave E, WBL; 1.5m away from the curb

TH5

Logged By: MK

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
0		Ground Surface																
		Pavement 195mm CONCRETE 30mm ASPHALT																
1		Granular Fill - silty, some sand and trace gravel, loose, moist, grey, frozen to 0.5m	1	GS														
2		Clay - silty, low plastic, soft to firm, moist, dark brown	2	GS														
3			3	GS														
4			4	GS														
5			5	GS														
6		Silt - clayey, low plastic, soft, moist, tan - wet below 2.5m	6	GS														
7			7	GS														
8			8	GS														
9		End of testhole - No seepage observed - Test hole was backfilled with auger cuttings and topped with crushed limestone and cold patch asphalt -UTM: 14 U, 636693.00 m E, 5530173.00 m N																
10																		
11																		

Drill Method: Auger Drilling

Datum: Existing surface

Drill Date: January 8, 2026

Checked by: Paul Bevel

Hole Size: 5 Inches

Sheet: 1 of 1



Project No: 430-2502

Project: Local Street Renewals 26-R-07

Client: WSP Canada Inc

Location: Front of House # 574 Johnson Ave E, EBL; 3m away from the curb

TH6

Logged By: MK

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
0		Ground Surface																
		Pavement 187mm CONCRETE 40mm ASPHALT																
1		Granular Fill - silty, some sand and trace gravel, loose, moist, light brown, frozen to 0.5m	1	GS														
2		Clay - silty with trace sand, low plastic, soft to firm, moist, dark brown	2	GS														
3		- Lab Report (HM 828) Gravel - 0%, Sand - 7%, Silt - 29%, Clay - 64% LL - 66, PL - 25, PI - 41 CBR at 2.5mm penetration - 3.6	3	GS														
4			4	GS														
5			5	GS														
6		Silt - clayey with trace sand, low plastic, soft, moist, tan	6	GS														
7			7	GS														
8			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 -UTM: 14 U, 636819.48 m E, 5530108.94 m N																

Drill Method: Auger Drilling

Datum: Existing surface

Drill Date: January 8, 2026

Checked by: Paul Bevel

Hole Size: 5 Inches

Sheet: 1 of 1



Project No: 430-2502

Project: Local Street Renewals 26-R-07

Client: WSP Canada Inc

Location: Front of House # 633 Johnson Ave E, WBL; 2m away from the curb

TH7

Logged By: MK

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
0		Ground Surface																
		Pavement 175mm CONCRETE 26mm ASPHALT																
1		Clay Fill - silty, some sand and trace gravel, low plastic, soft to firm, moist, dark grey, frozen to 0.5m	1	GS														
2			2	GS														
3			3	GS														
4		Clay - silty, low plastic, soft to firm, moist, dark brown	4	GS														
5			5	GS														
6		Silt - clayey with trace sand, soft, moist, tan - Lab Report (HM 829) Gravel - 0%, Sand - 3%, Silt - 85%, Clay - 12% LL - 23, PL - 17, PI - 6 CBR at 2.5mm penetration - 3.3	6	GS														
7			7	GS														
8			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 -UTM: 14 U, 636945.98 m E, 5530051.65 m N																
11																		

Drill Method: Auger Drilling

Drill Date: January 8, 2026

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

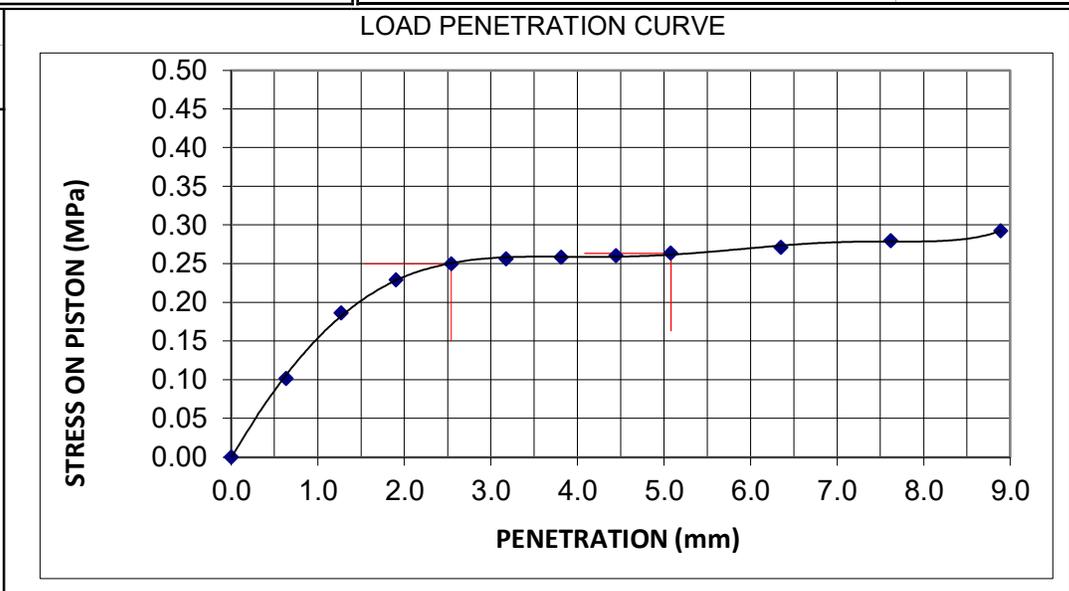
Sheet: 1 of 1

CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No: 430-2502 Lab No: HM 828 Date sampled/By: 8-Jan-26 HA Date Received: 8-Jan-26 HA Date Tested /By: 15-Jan-26 JJ
Attention: Richard Hawkins Project 2026 Local Street Renewals – 26-R-07 Location: Johnson Ave E (Gateway Rd to Grey St)	

SAMPLE DATA		SPECIMEN DATA		
Sample Type: CLAY - Silty with trace sand		DESCRIPTION	Before Soaking	After Testing
Source: Johnson Ave E - BH-6 - GS 4		Moisture Content (MC), %	26.6	29.3
Sampled by: HA		MC of top 25mm layer, %		
Optimum Moisture Content: 26.3 %		Dry Density, kg/m ³	1410	1362
Maximum Dry Density: 1477 kg/cm ³		Compaction, %	95%	
Method of Compaction: Standard Proctor		CBR at 2.5mm penetration, %		3.6
Tested by: MA	Date Tested: 13-Jan-26	Swell, %		1.8

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.10
1.27	0.19
1.91	0.23
2.54	0.25
3.18	0.26
3.81	0.26
4.45	0.26
5.08	0.26
6.35	0.27
7.62	0.28
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	0.25	0.25	3.6	-
5.08	10.3	0.26	0.26	-	2.6

Remarks:

P. Bevel

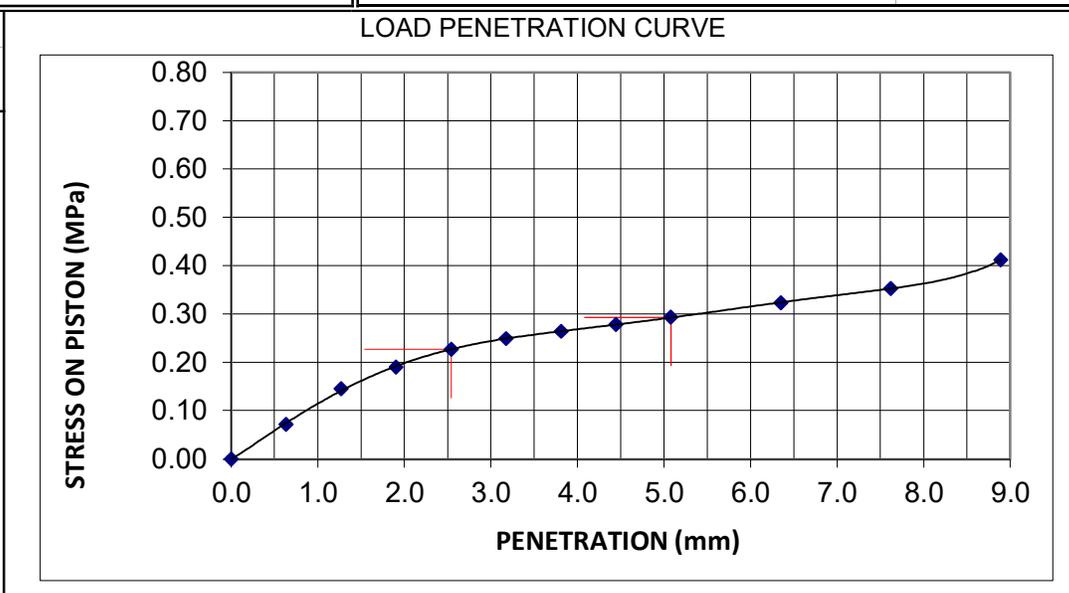
Reviewed by: Paul Bevel

CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No: 430-2502 Lab No: HM 829 Date sampled/By: 8-Jan-26 HA
Attention: Richard Hawkins	Date Received: 8-Jan-26 HA
Project 2026 Local Street Renewals – 26-R-07	Date Tested /By: 15-Jan-26 JJ
Location: Johnson Ave E (Gateway Rd to Grey St)	

SAMPLE DATA		SPECIMEN DATA		
Sample Type: SILT - some clay with trace sand		DESCRIPTION	Before Soaking	After Testing
Source: Johnson Ave E - BH-7 - GS 5		Moisture Content (MC), %	13.7	15.6
Sampled by: HA		MC of top 25mm layer, %		
Optimum Moisture Content: 13.6 %		Dry Density, kg/m ³	1782	1737
Maximum Dry Density: 1886 kg/cm ³		Compaction, %	95%	
Method of Compaction: Standard Proctor		CBR at 2.5mm penetration, %		3.3
Tested by: HA	Date Tested: 13-Jan-26	Swell, %		0.2

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.07
1.27	0.15
1.91	0.19
2.54	0.23
3.18	0.25
3.81	0.26
4.45	0.28
5.08	0.29
6.35	0.32
7.62	0.35
8.89	0.41



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	0.29	0.29	-	2.8

Remarks:

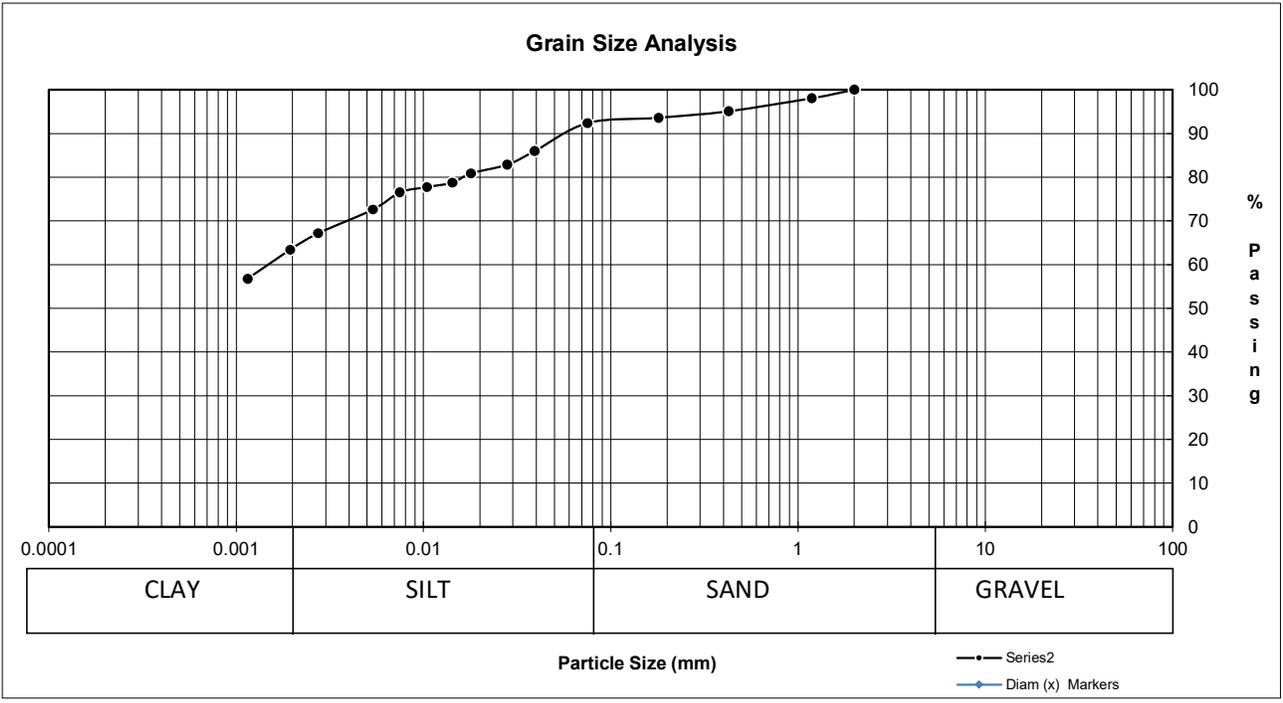
P. Bevel

Reviewed by: Paul Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8 ATTENTION: Richard Hawkins PROJECT: 2026 Local Street Renewals – 26-R-07 Johnson Ave E (Gateway Rd to Grey St)	Project No.: 430-2502 PSA Test No.: 3 Lab No.: HM 828
--	--

Date Sampled:	8-Jan-26	Date Received:	8-Jan-26	Sieve Analysis	Hydrometer Analysis		
Sampled By:	HA	Date Tested:	12-Jan-26	Sieve (mm) % Passing	Diameter % Finer		
Material Identification B.H./T.H. No. BH 6 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	0.0392	85.9
				9.50	100.0	0.0280	82.8
				4.75	100.0	0.0178	80.8
				2.00	100.0	0.0142	78.7
				1.18	98.1	0.0104	77.8
0.425	95.1	0.0075	76.6				
0.180	93.6	0.0054	72.6				
0.075	92.4	0.0012	56.7				



	% Composition	D10
	Gravel	D30
	7.60 Sand	D60
	28.47 Silt	Cu
	63.93 Clay	Cc

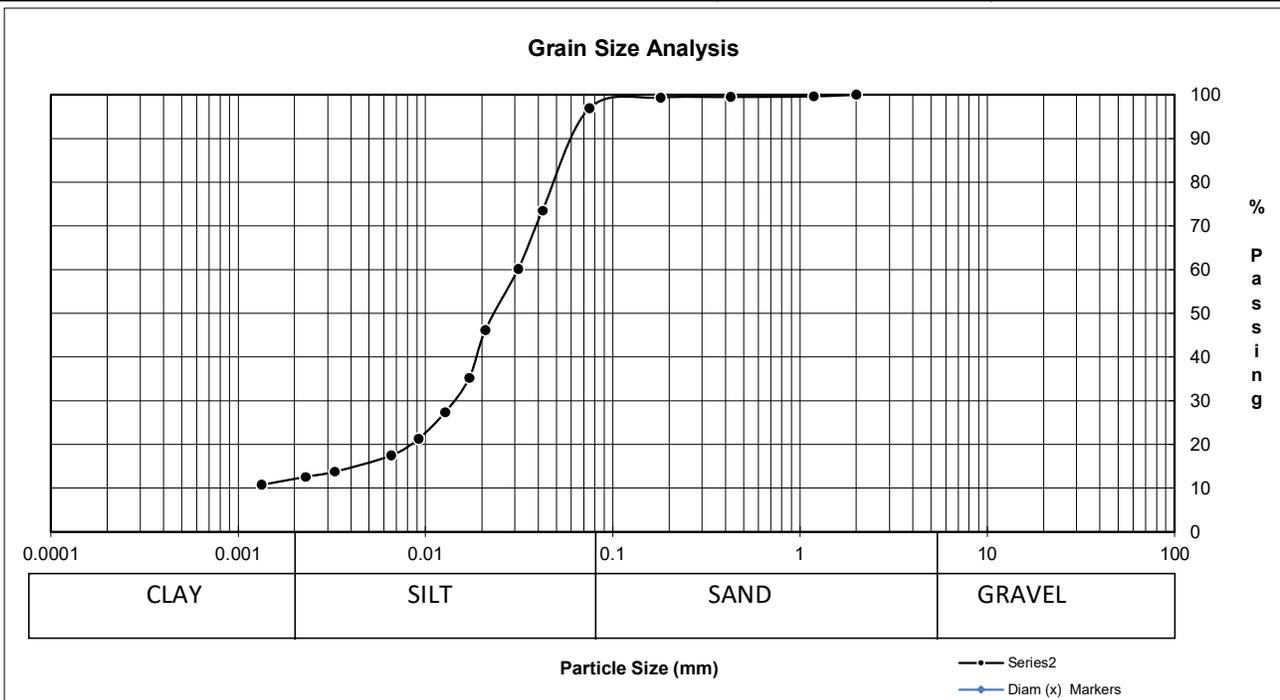
Remarks:

P. Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8 ATTENTION: Richard Hawkins PROJECT: 2026 Local Street Renewals – 26-R-07 Johnson Ave E (Gateway Rd to Grey St)	Project No.: 430-2502 PSA Test No.: 4 Lab No.: HM 829
--	--

Date Sampled:	8-Jan-26	Date Received:	8-Jan-26	Sieve Analysis	Hydrometer Analysis		
Sampled By:	HA	Date Tested:	12-Jan-26	Sieve (mm) % Passing	Diameter % Finer		
Material Identification B.H./T.H. No. BH 7 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	0.0421	73.5
				9.50	100.0	0.0313	60.2
				4.75	100.0	0.0208	46.2
				2.00	100.0	0.0171	35.2
				1.18	99.6	0.0127	27.3
	0.425	99.5	0.0092	21.3			
	0.180	99.3	0.0066	17.5			
	0.075	96.9	0.0013	10.7			



	% Composition	D10
	Gravel	D30
	3.08 Sand	D60
	84.95 Silt	Cu
	11.97 Clay	Cc

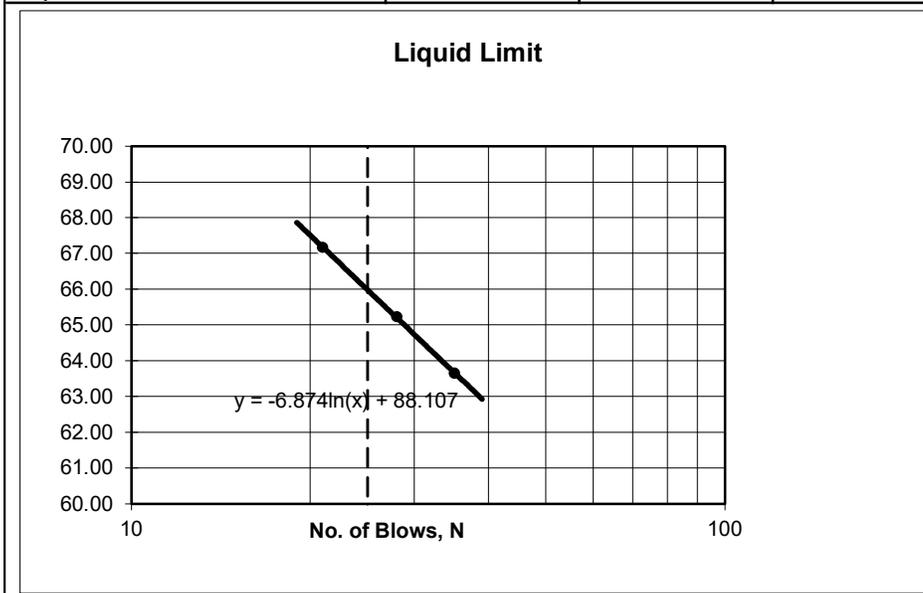
Remarks:

P. Bevel

Atterberg Limits (ASTM D4318)

Client: WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No.: 430-2502 PI Test No.: 3 Lab No.: HM 828
Attention.: Richard Hawkins	Date Sampled/By: 8-Jan-26 HA
Project: 2026 Local Street Renewals – 26-R-07 Johnson Ave E (Gateway Rd to Grey St)	Date Received: 8-Jan-26 Date Tested / By: 13-Jan-26 BY

Liquid Limit Determination					Liquid Limit 25 Blows
Dish No.:	1	2	3		
Wet Soil + Dish:	14.17	12.99	13.48		
Dry Soil + Dish:	10.44	9.65	9.9		
Moisture:	3.73	3.34	3.58		
Dish:	4.58	4.53	4.57		
Dry Soil:	5.86	5.12	5.33		
% Moisture:	63.65	65.23	67.17		
No. of Blows:	35	28	21		
Liquid Limit:					66



Material Identification:

Test Hole:	BH 6
Grab Sample No:	GS 4
Depth:	4-ft
Liquid Limit, %:	66
Plastic Limit, %:	25
Plasticity Index:	41
(LL-PL)	

Plastic Limit Determination					Average:
Dish No.:	1	2	3		
	7.13	7.23	7.27		
Dry Soil + Dish:	6.63	6.69	6.69		
Moisture:	0.5	0.54	0.58		
Dish:	4.52	4.47	4.47		
Dry Soil:	2.11	2.22	2.22		
% Moisture:	23.70	24.32	26.13		
					25

Test Method : ASTM: D4318, D2216

Remarks:

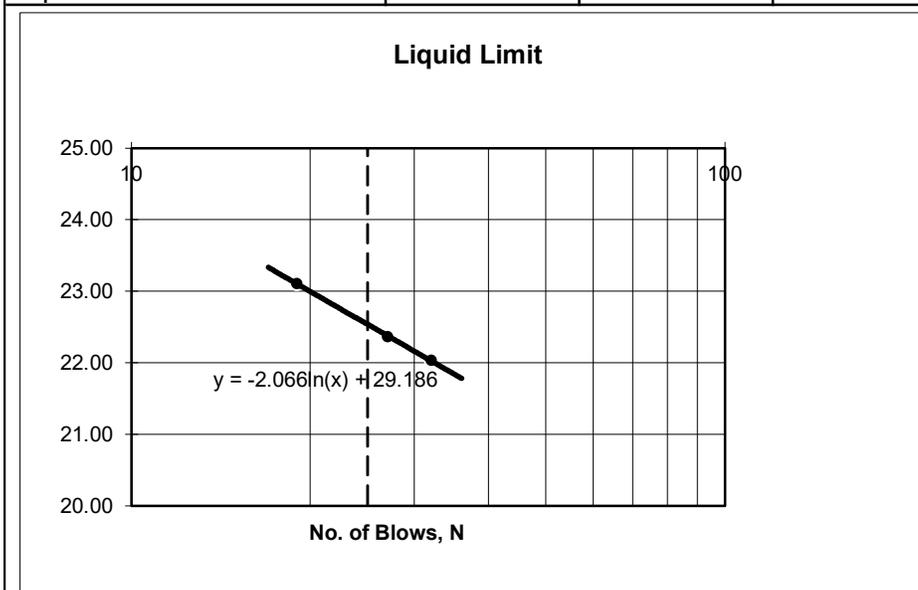
P. Bevel

Reviewed by: Paul Bevel

Atterberg Limits (ASTM D4318)

Client:	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No.:	430-2502
Attention.:	Richard Hawkins	PI Test No.:	4
Project:	2026 Local Street Renewals – 26-R-07 Johnson Ave E (Gateway Rd to Grey St)	Lab No.:	HM 829
		Date Sampled/By:	8-Jan-26 HA
		Date Received:	8-Jan-26
		Date Tested / By:	20-Jan-26 BY

Liquid Limit Determination					Liquid Limit 25 Blows
Dish No.:	1	2	3		
Wet Soil + Dish:	13.21	13.12	13.50		
Dry Soil + Dish:	11.63	11.53	11.79		
Moisture:	1.58	1.59	1.71		
Dish:	4.46	4.42	4.39		
Dry Soil:	7.17	7.11	7.4		
% Moisture:	22.04	22.36	23.11		
No. of Blows:	32	27	19		
Liquid Limit:					



Material Identification:

Test Hole: **BH 7**
 Grab Sample No: **GS 5**
 Depth: **5-ft**

Liquid Limit, %: **23**
 Plastic Limit, %: **17**
 Plasticity Index: **6**
 (LL-PL)

Plastic Limit Determination					Average: 17
Dish No.:	1	2	3		
Wet Soil + Dish:	9.54	11.43	8.19		
Dry Soil + Dish:	8.78	10.47	7.66		
Moisture:	0.76	0.96	0.53		
Dish:	4.38	4.72	4.66		
Dry Soil:	4.4	5.75	3		
% Moisture:	17.27	16.70	17.67		

Test Method : ASTM: D4318, D2216

Remarks:

P. Bevel

Reviewed by: Paul Bevel

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

CLIENT	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No.:	430-2502
ATTENTION:	Richard Hawkins	Lab No.:	HM 828
PROJECT:	2026 Local Street Renewals – 26-R-07 Johnson Ave E (Gateway Rd to Grey St)	Proctor Test No.:	3

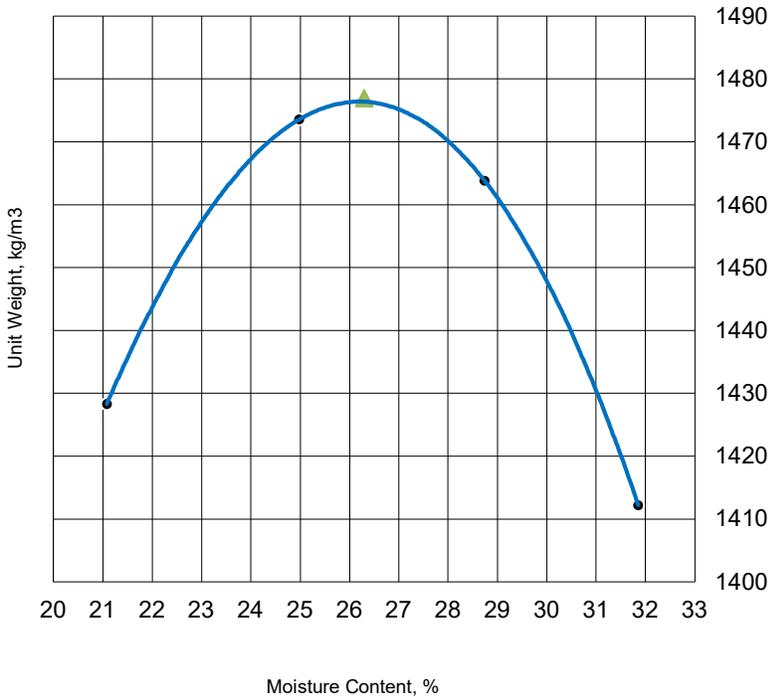
Date Sampled:	8-Jan-26	Date Received:	8-Jan-26	PROCEDURE	A
Sampled By:	HA	Date Tested:	13-Jan-26	PREPARATION	Dry
				COMPACTION METHOD	Manual

MATERIAL INFORMATION

Material Type:	CLAY - silty with trace sand		BLOWS PER LAYER	25
Material Use:	Soil Investigati	Material Supplier:	NO. OF LAYERS	3
Maximum Size:	4.75mm	Material Source:	MOLD SIZE	100
			MOLD VOLUME	935
			WEIGHT OF HAMMER	2.5 kg

Test No.	1	2	3	4
Wet Density	1729	1842	1884	1862
Moisture Content	21.1	25.0	28.7	31.9
Dry Density	1428	1474	1464	1412

Moisture - Density Relationship



Maximum Dry Density (MDD):
1477 kg/m³
Optimum Moisture Content
26.3 %

STONE CORRECTION (ASTM D 4718)

Retained on 4.75mm sieve:
 %
Corrected Moisture:
26.3 %
Corrected Maximum Dry Density:
1477 kg/m³

Remarks:

P. Bevel

Tested by: Mehdi Abbasi

Reviewed by: Paul Bevel

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

CLIENT	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No.:	430-2502
ATTENTION:	Richard Hawkins	Lab No.:	HM 829
PROJECT:	2026 Local Street Renewals – 26-R-07 Johnson Ave E (Gateway Rd to Grey St)	Proctor Test No.:	4

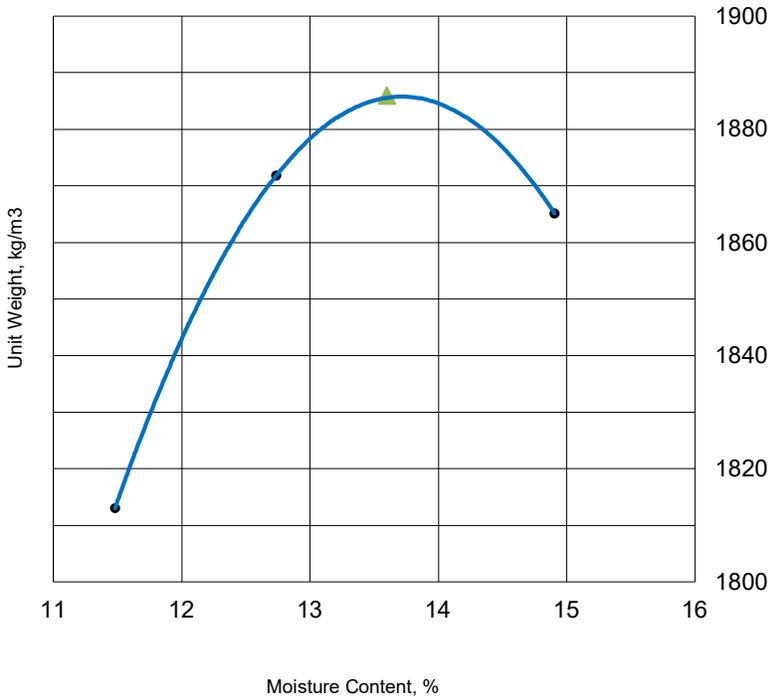
Date Sampled:	8-Jan-26	Date Received:	8-Jan-26	PROCEDURE	A
Sampled By:	HA	Date Tested:	13-Jan-26	PREPARATION	Dry
				COMPACTION METHOD	Manual

MATERIAL INFORMATION

Material Type:	SILT - some clay trace sand		BLOWS PER LAYER	25	
Material Use:	Soil Investigati	Material Supplier:	Not Applicable	NO. OF LAYERS	3
Maximum Size:	4.75mm	Material Source:	BH 7 - GS 5	MOLD SIZE	100
				MOLD VOLUME	943
				WEIGHT OF HAMMER	2.5 kg

	Test No.	1	2	3	4
	Wet Density	2021	2110	2143	
	Moisture Content	11.5	12.7	14.9	
	Dry Density	1813	1872	1865	

Moisture - Density Relationship



Maximum Dry Density (MDD):
1886 kg/m³
Optimum Moisture Content
13.6 %

STONE CORRECTION (ASTM D 4718)

Retained on 4.75mm sieve:
 %
Corrected Moisture:
13.6 %
Corrected Maximum Dry Density:
1886 kg/m³

Remarks:

P. Bevel

Tested by: Hamid Abedinzadeh

Reviewed by: Paul Bevel

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No:	430-2502
Attention:	Richard Hawkins	Test No.:	6
Project:	2026 Local Street Renewals – 26-R-07 Johnson Ave-East, BH6	Lab No.:	HM 828
		Date Sampled / By:	January 8, 2026 Hamid A.
		Date Received:	January 8, 2026
		Date Tested / By:	January 12, 2026 / Chris B.

Test Hole No.	BH 6-1	BH 6-2	BH 6-3	BH 6-4	BH 6-5
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	PS-3	Z1	SE6	C7	P6
Wt Wet Sample + Tare	200.9	166	159.4	162.1	166.9
Wt Dry Sample + Tare	173.6	128.1	122.1	124.8	131.7
Wt Water	27.3	37.9	37.3	37.3	35.2
Wt Tare	4.6	4.6	4.8	4.6	4.1
Wt Dry Sample	169.0	123.5	117.3	120.2	127.6
Moisture Content (%)	16.2	30.7	31.8	31.0	27.6
Test Hole No.	BH 6-6	BH 6-7	BH 6-8		
Depth	6-ft	7-ft	8-ft		
Tare No.	MK1	C4	G12		
Wt Wet Sample + Tare	272.8	161.5	198		
Wt Dry Sample + Tare	220.9	130.2	159.7		
Wt Water	51.9	31.3	38.3		
Wt Tare	4.6	4.6	4.0		
Wt Dry Sample	216.3	125.6	155.7		
Moisture Content (%)	24.0	24.9	24.6		
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 (%)					

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No:	430-2502
Attention:	Richard Hawkins	Test No.:	7
Project:	2026 Local Street Renewals - 26-R-07 Johnson Ave. - East, BH7	Lab No.:	HM 829
		Date Sampled / By:	January 8, 2026 Hamid A.
		Date Received:	January 8, 2026
		Date Tested / By:	January 12, 2026 /Chris B.

Test Hole No.	BH 7-1	BH 7-2	BH 7-3	BH 7-4	BH 7-5
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	V2	G2	C03	P4	GM9
Wt Wet Sample + Tare	186.4	172.3	201.2	192.8	157.98
Wt Dry Sample + Tare	141.1	132.1	154.1	145.1	128.7
Wt Water	45.3	40.2	47.1	47.7	29.3
Wt Tare	4.6	4.7	4.3	4.2	4.0
Wt Dry Sample	136.5	127.4	149.8	140.9	124.7
Moisture Content (%)	33.2	31.6	31.4	33.9	23.5
Test Hole No.	BH 7-6	BH 7-7	BH 7-8		
Depth	6-ft	7-ft	8-ft		
Tare No.	GM5	J910	J900		
Wt Wet Sample + Tare	211.8	273.9	169.8		
Wt Dry Sample + Tare	171.1	221.9	135.9		
Wt Water	40.7	52.0	33.9		
Wt Tare	4.0	4.4	4.5		
Wt Dry Sample	167.1	217.5	131.4		
Moisture Content (%)	24.4	23.9	25.8		
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 (%)					

Reconstruction Sites

Picture of Cores

Johnson Av E - Gateway Rd/Grey St



BH 5 - Core



BH 5 - Site Photo



BH 6 - Core



BH 6 - Site Photo

Reconstruction Sites

Picture of Cores

Johnson Av E - Gateway Rd/Grey St



BH 7 - Core



BH 7 - Site Photo

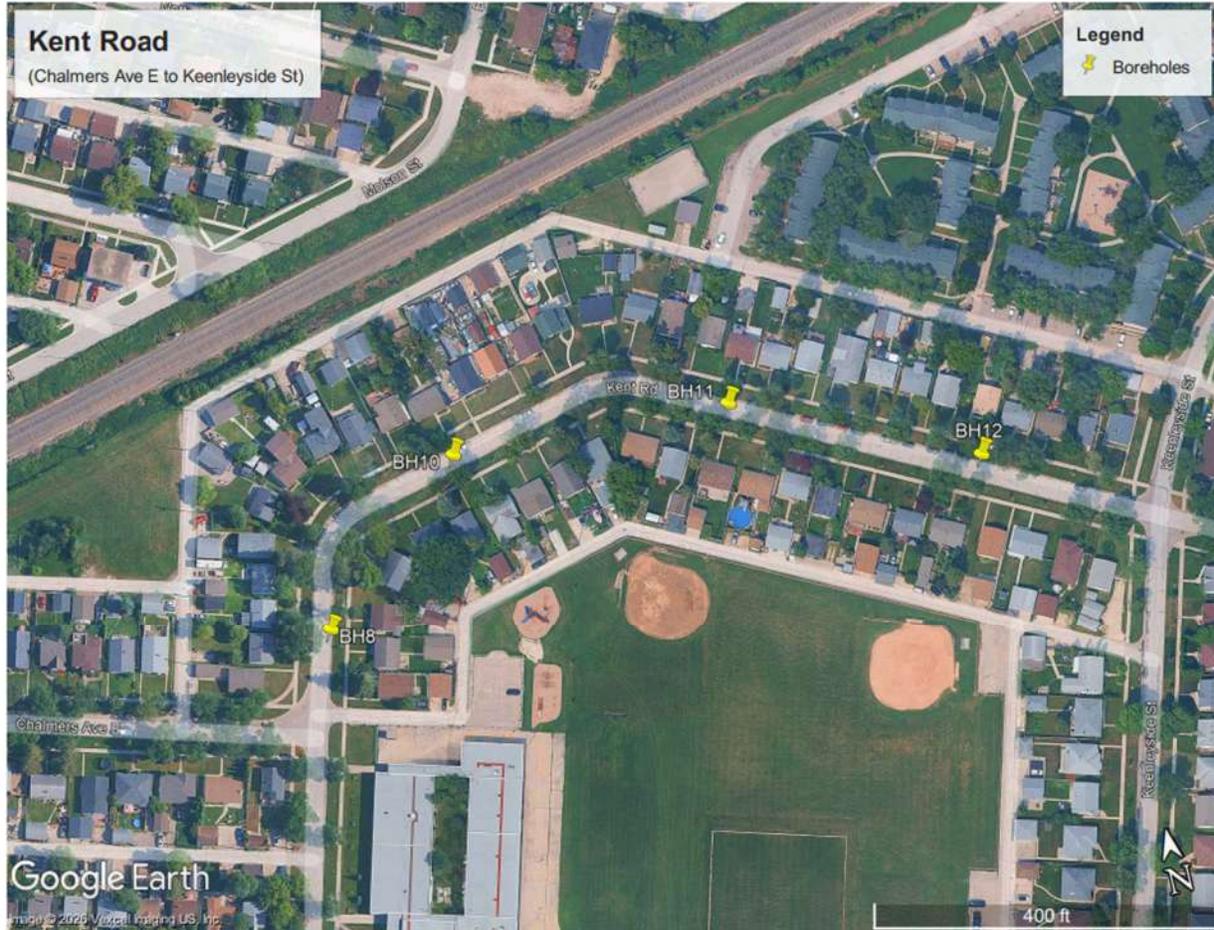
APPENDIX B.4.

KENT ROAD

(CHALMERS AVE E TO KEENLEYSIDE ST)

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)
Kent Road (Chalmers Ave E to Keenleyside St)			
BH8	Front of House # 389 Kent Rd, NBL; 1.5m away from the curb 14 U, 637720 E, 5529881 N	42	199
BH10	Front of House # 402 Kent Rd, WBL; 1.5m away from the curb 14 U, 637775 E, 5529933 N	-	175
BH11	Front of House # 447 Kent Rd, EBL; 3m away from the curb 14 U, 637874 E, 5529931 N	-	185
BH12	Front of House # 470 Kent Rd, WBL; 1.5m away from the curb 14 U, 637958 E, 5529895 N	-	215



Project No: 430-2502

Project: Local Street Renewals 26-R-07

Client: WSP Canada Inc

Location: Front of House # 389 Kent Rd, NBL; 1.5m away from the curb

TH8

Logged By: MK

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 Pavement 199mm CONCRETE 42mm ASPHALT						
1		Clay Fill - silty, some sand and trace gravel, low plastic, soft to firm, moist, dark grey, frozen to 0.5m	1	GS				
2			2	GS				
3		Clay - silty, low plastic, soft to firm, moist, dark brown	3	GS				
4			4	GS				
5		Silt - some clay with trace sand, soft, moist, tan - Lab Report (HM 830) Gravel - 0%, Sand - 7%, Silt - 81%, Clay - 12% LL - 25, PL - 17, PI - 8 CBR at 2.5mm penetration - 4.5	5	GS				
6			6	GS				
7		Clay - silty trace sand, high plastic, stiff, moist, brown	7	GS				
8			8	GS				
9		End of testhole - No seepage observed - Test hole was backfilled with auger cuttings and topped with crushed limestone and cold patch asphalt -UTM: 14 U, 637720.00 m E, 5529881.00 m N						
10								
11								

Drill Method: Auger Drilling

Datum: Existing surface

Drill Date: January 8, 2026

Checked by: Paul Bevel

Hole Size: 5 Inches

Sheet: 1 of 1



Project No: 430-2502

Project: Local Street Renewals 26-R-07

Client: WSP Canada Inc

Location: Front of House # 402 Kent Rd, WBL; 1.5m away from the curb

TH10

Logged By: MK

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						
		Pavement 175mm CONCRETE						
1		Clay Fill - silty, some sand and trace gravel, low plastic, soft to firm, moist, grey, frozen to 0.5m	1	GS				
2		Clay - silty, low plastic, soft to firm, moist, brown	2	GS				
3			3	GS				
4			4	GS				
5		Silt - some clay with trace sand, soft, wet, tan	5	GS				
6			6	GS				
7		Clay - silty trace sand, high plastic, firm, moist, brown	7	GS				
8			8	GS				
9		End of testhole - No seepage observed - Test hole was backfilled with auger cuttings and topped with crushed limestone and cold patch asphalt -UTM: 14 U, 637775.00 m E, 5529933.00 m N						
10								
11								

Drill Method: Auger Drilling

Datum: Existing surface

Drill Date: January 8, 2026

Checked by: Paul Bevel

Hole Size: 5 Inches

Sheet: 1 of 1



Project No: 430-2502

Project: Local Street Renewals 26-R-07

Client: WSP Canada Inc

Location: Front of House # 447 Kent Rd, EBL; 3m away from the curb

TH11

Logged By: MK

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																	
		Pavement 185mm CONCRETE																	
1		Gravel Fill - silty, some sand and trace gravel, loose, moist, light brown, frozen to 0.5m	1	GS															
2		Clay - silty, medium plastic, soft to firm, moist, dark brown - Lab Report (HM 832) Gravel - 0%, Sand - 3%, Silt - 38%, Clay - 59% LL - 71, PL - 19, PI - 52 CBR at 2.5mm penetration - 3.3	2	GS															
3	3		GS																
4	4		GS																
5	5		GS																
6		Silt - some clay with trace sand, soft, wet, tan	6	GS															
7	7		GS																
8	8		GS																
9		End of testhole - No seepage observed - Test hole was backfilled with auger cuttings and topped with crushed limestone and cold patch asphalt -UTM: 14 U, 637874.00 m E, 5529931.00 m N																	
10																			
11																			

Drill Method: Auger Drilling

Drill Date: January 8, 2026

Hole Size: 5 Inches

Datum: Existing surface

Checked by: Paul Bevel

Sheet: 1 of 1



Project No: 430-2502

Project: Local Street Renewals 26-R-07

Client: WSP Canada Inc

Location: Front of House # 470 Kent Rd, WBL; 1.5m away from the curb

TH12

Logged By: MK

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						
		Pavement 215mm CONCRETE						
1		Clay - silty trace sand, medium plastic, soft to firm, moist, black - stiff, dark brown below 1.4m	1	GS				
2			2	GS				
3			3	GS				
4			4	GS				
5		Silt - some clay with trace sand, soft, wet, tan	5	GS				
6			6	GS				
7		Clay - silty, high plastic, firm, moist, brown - stiff below 2.5m	7	GS				
8			8	GS				
9		End of testhole - No seepage observed - Test hole was backfilled with auger cuttings and topped with crushed limestone and cold patch asphalt -UTM: 14 U, 637958.00 m E, 5529895.00 m N						
10								
11								

Drill Method: Auger Drilling

Datum: Existing surface

Drill Date: January 8, 2026

Checked by: Paul Bevel

Hole Size: 5 Inches

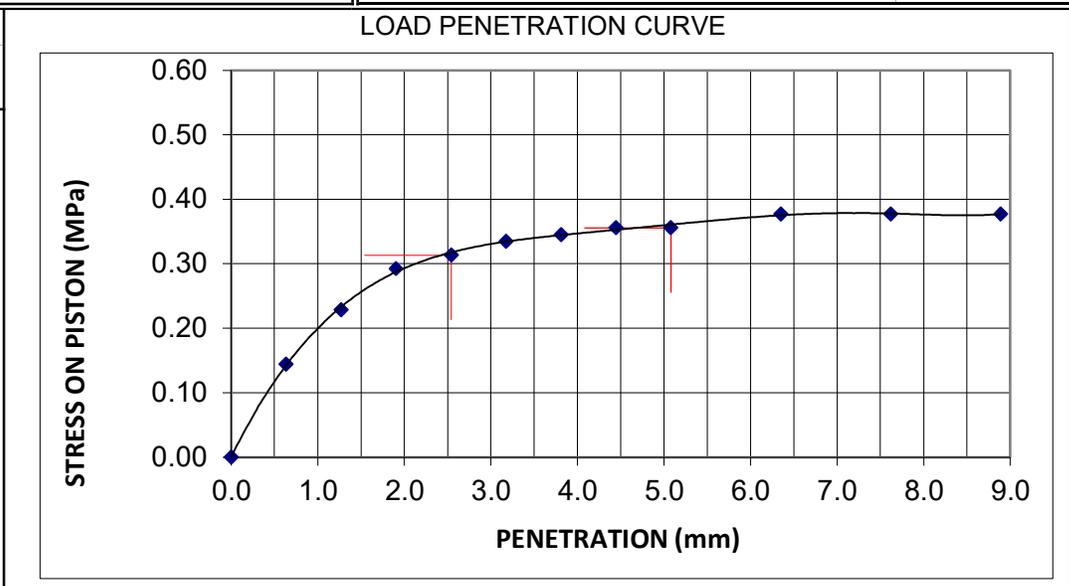
Sheet: 1 of 1

CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No: 430-2502 Lab No: HM 830 Date sampled/By: 8-Jan-26 HA Date Received: 8-Jan-26 HA Date Tested /By: 15-Jan-26 JJ
Attention: Richard Hawkins Project 2026 Local Street Renewals – 26-R-07 Location: Kent Street (Chalmers Ave E to Keenleyside St)	

SAMPLE DATA		SPECIMEN DATA		
Sample Type: SILT - some clay and trace sand		DESCRIPTION	Before Soaking	After Testing
Source: Kent Street - BH-8 - GS 5		Moisture Content (MC), %	12.3	15.4
Sampled by: HA		MC of top 25mm layer, %		
Optimum Moisture Content: 13.9 %		Dry Density, kg/m ³	1796	1796
Maximum Dry Density: 1891 kg/cm ³		Compaction, %	95%	
Method of Compaction: Standard Proctor		CBR at 2.5mm penetration, %		4.5
Tested by: HA	Date Tested: 13-Jan-26	Swell, %		0.2

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.14
1.27	0.23
1.91	0.29
2.54	0.31
3.18	0.33
3.81	0.35
4.45	0.36
5.08	0.36
6.35	0.38
7.62	0.38
8.89	0.38



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	0.31	0.31	4.5	-
5.08	10.3	0.36	0.36	-	3.5

Remarks:

P. Bevel

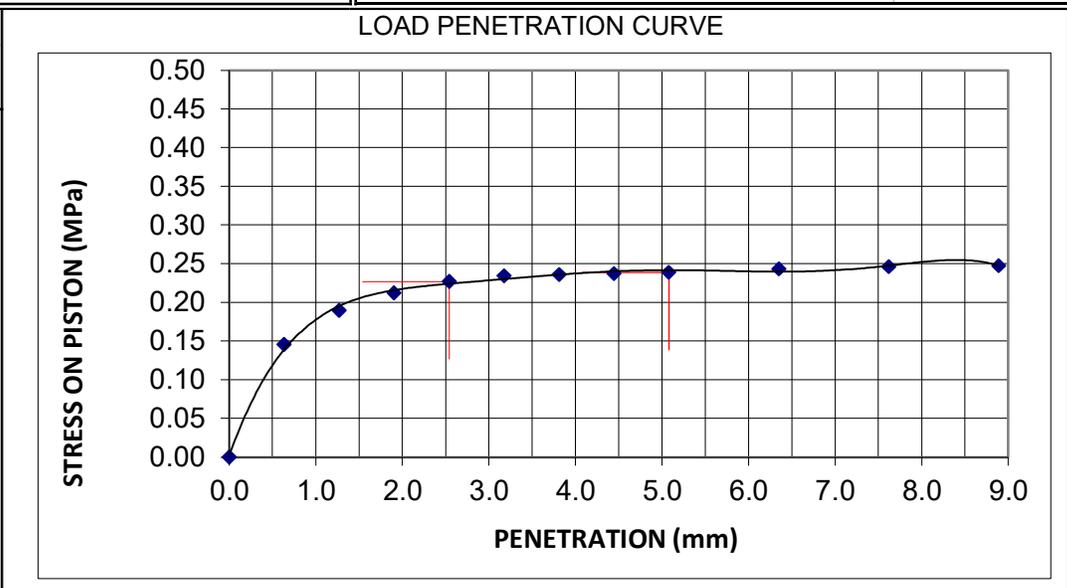
Reviewed by: Paul Bevel

CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No: 430-2502 Lab No: HM 832 Date sampled/By: 8-Jan-26 HA Date Received: 8-Jan-26 HA Date Tested /By: 15-Jan-26 JJ
Attention: Richard Hawkins Project 2026 Local Street Renewals – 26-R-07 Location: Kent Street (Chalmers Ave E to Keenleyside St)	

SAMPLE DATA		SPECIMEN DATA		
Sample Type: CLAY - Silty with trace sand	Source: Kent Street - BH-11 - GS 4	DESCRIPTION	Before Soaking	After Testing
Sampled by: HA	Optimum Moisture Content: 23.1 %	Moisture Content (MC), %	26.3	28.3
Maximum Dry Density: 1542 kg/cm ³	Method of Compaction: Standard Proctor	MC of top 25mm layer, %		
Tested by: HA	Date Tested: 13-Jan-26	Dry Density, kg/m ³	1462	1428
		Compaction, %	95%	
		CBR at 2.5mm penetration, %		3.3
		Swell, %		2.1

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.15
1.27	0.19
1.91	0.21
2.54	0.23
3.18	0.23
3.81	0.24
4.45	0.24
5.08	0.24
6.35	0.24
7.62	0.25
8.89	0.25



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	0.24	0.24	-	2.3

Remarks:

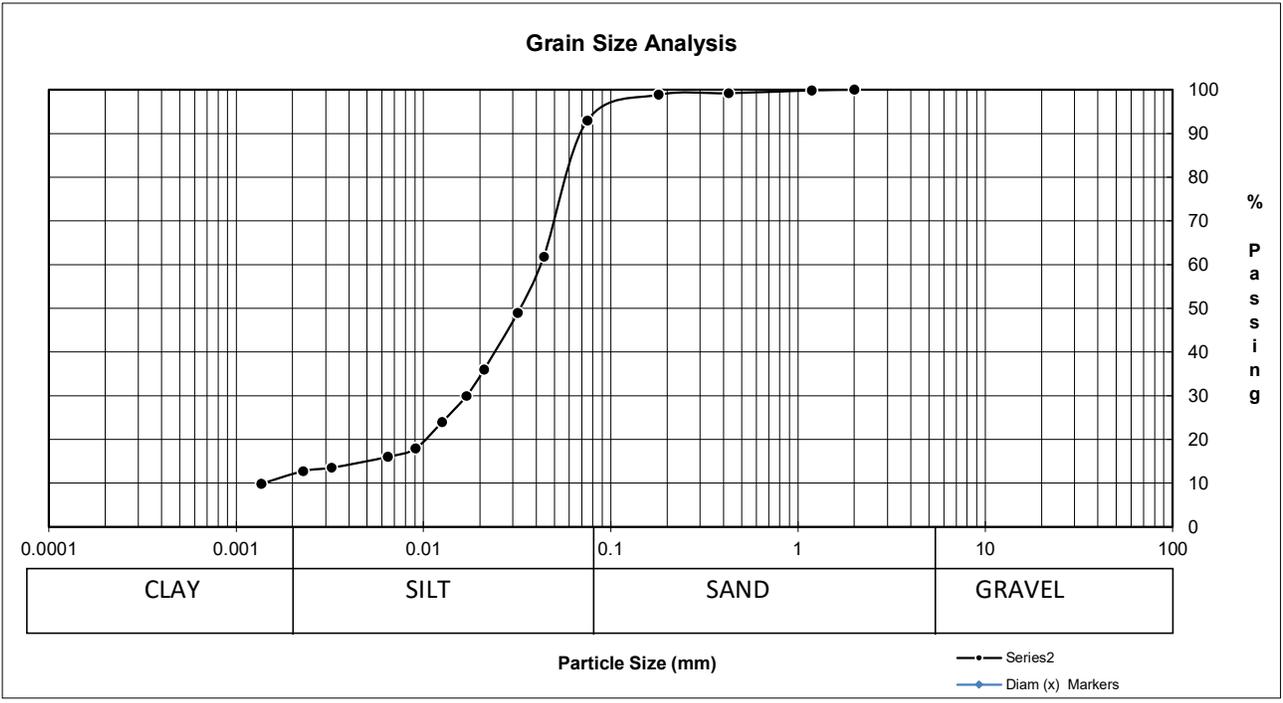
P. Bevel

Reviewed by: Paul Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8 ATTENTION: Richard Hawkins PROJECT: 2026 Local Street Renewals – 26-R-07 Kent Street (Chalmers Ave E to Keenleyside St)	Project No.: 430-2502 PSA Test No.: 5 Lab No.: HM 830
---	--

Date Sampled:	January 8, 2026	Date Received:	8-Jan-26	Sieve Analysis		Hydrometer Analysis	
Sampled By:	HA	Date Tested:	13-Jan-26	Sieve (mm)	% Passing	Diameter	% Finer
Material Identification B.H./T.H. No. BH 8 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	0.0439	61.8
				9.50	100.0	0.0318	48.9
				4.75	100.0	0.0210	35.9
				2.00	100.0	0.0169	29.9
				1.18	99.8	0.0126	23.9
0.425	99.2	0.0091	17.9				
0.180	98.9	0.0064	16.0				
0.075	93.0	0.0014	9.8				



	% Composition	D10
	Gravel	D30
	7.04 Sand	D60
	81.14 Silt	Cu
	11.82 Clay	Cc

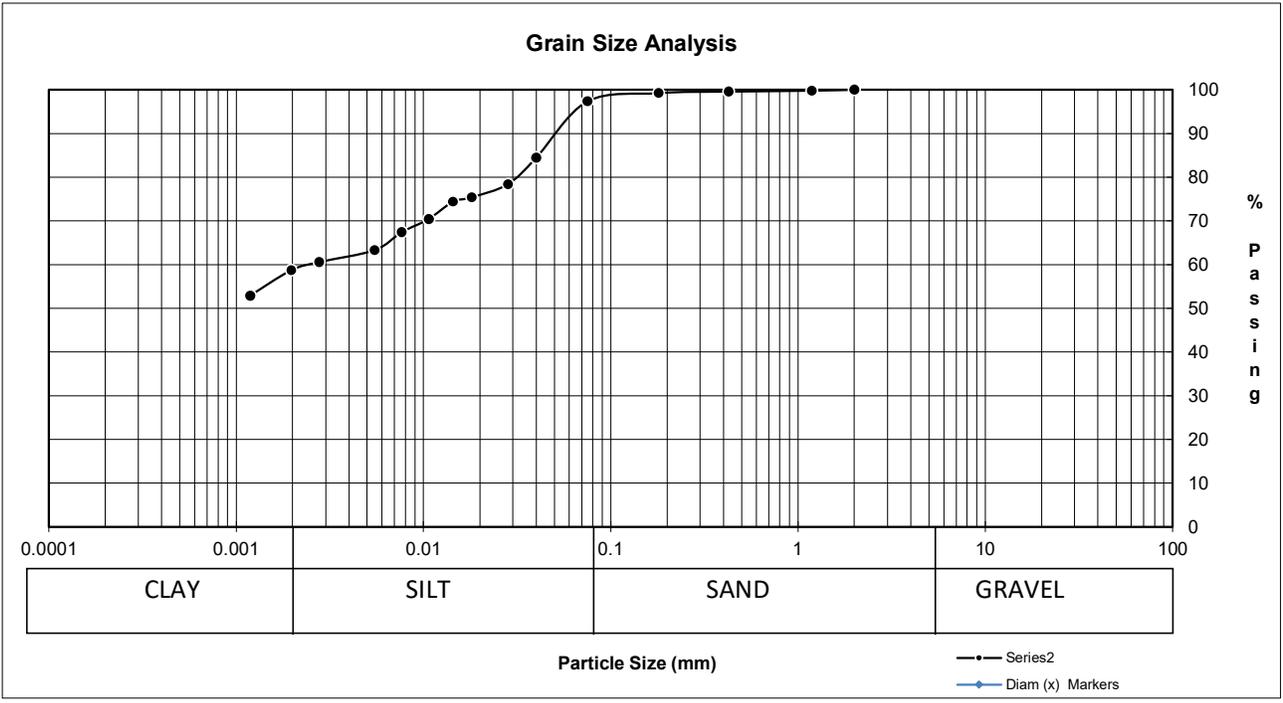
Remarks:

P. Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8 ATTENTION: Richard Hawkins PROJECT: 2026 Local Street Renewals – 26-R-07 Kent Street (Chalmers Ave E to Keenleyside St)	Project No.: 430-2502 PSA Test No.: 6 Lab No.: HM 832
---	--

Date Sampled:	Date Received:	Sieve Analysis		Hydrometer Analysis	
Sampled By:	Date Tested:	Sieve (mm)	% Passing	Diameter	% Finer
8-Jan-26	8-Jan-26	50.00	100.0		
HA	13-Jan-26	37.50	100.0		
		25.00	100.0		
		19.00	100.0		
		16.00	100.0		
Material Identification		12.50	100.0	0.0399	84.4
B.H./T.H. No.	BH 11	9.50	100.0	0.0282	78.4
Depth	4-ft	4.75	100.0	0.0181	75.4
Sample Source	GS 4	2.00	100.0	0.0144	74.4
Specific Gravity of Material:	2.65	1.18	99.8	0.0107	70.4
		0.425	99.6	0.0076	67.4
		0.180	99.2	0.0055	63.3
		0.075	97.3	0.0012	52.9



	% Composition	D10
	Gravel	D30
	2.66 Sand	D60
	38.37 Silt	Cu
	58.97 Clay	Cc

Remarks:

P. Bevel

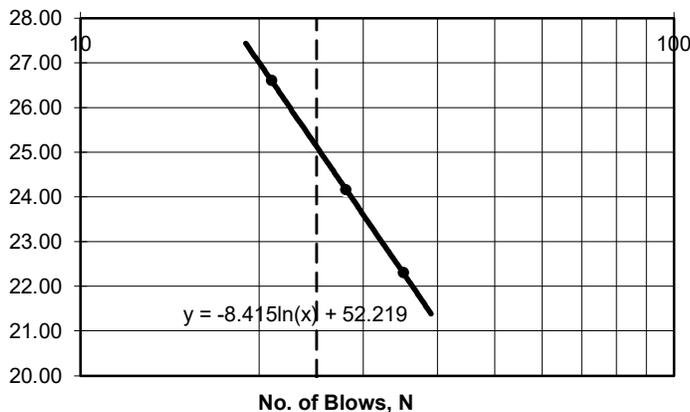
Atterberg Limits (ASTM D4318)

Client:	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No.:	430-2502
Attention.:	Richard Hawkins	PI Test No.:	5
Project:	2026 Local Street Renewals – 26-R-07 Kent Street (Chalmers Ave E to Keenleysid	Lab No.:	HM 830
		Date Sampled/By:	8-Jan-26 HA
		Date Received:	8-Jan-26
		Date Tested / By:	20-Jan-26 BY

Liquid Limit Determination

Dish No.:	1	2	3		Liquid Limit 25 Blows
Wet Soil + Dish:	12.26	11.88	11.51		
Dry Soil + Dish:	10.83	10.44	10.06		
Moisture:	1.43	1.44	1.45		
Dish:	4.42	4.48	4.61		
Dry Soil:	6.41	5.96	5.45		
% Moisture:	22.31	24.16	26.61		
No. of Blows:	35	28	21		
Liquid Limit:					25

Liquid Limit



Material Identification:

Test Hole: **BH 8**
 Grab Sample No: **GS5**
 Depth: **5-ft**

Liquid Limit, %: **25**
 Plastic Limit, %: **17**
 Plasticity Index: **8**
 (LL-PL)

Plastic Limit Determination

Dish No.:	1	2	3		
Wet Soil + Dish:	8.9	8.81	10.23		
Dry Soil + Dish:	8.24	8.21	9.29		
Moisture:	0.66	0.60	0.94		
Dish:	3.94	4.42	4.77		
Dry Soil:	4.3	3.79	4.52		
% Moisture:	15.35	15.83	20.80		
				Average:	17

Test Method : ASTM: D4318, D2216

Remarks:

P. Bevel

Reviewed by: Paul Bevel

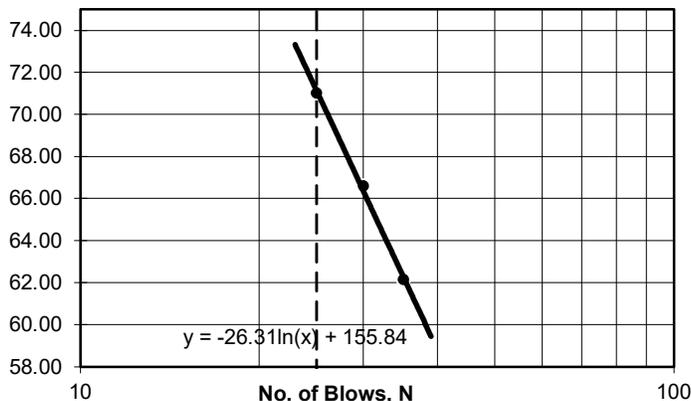
Atterberg Limits (ASTM D4318)

Client:	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No.:	430-2502
Attention.:	Richard Hawkins	PI Test No.:	6
Project:	2026 Local Street Renewals – 26-R-07 Kent Street (Chalmers Ave E to Keenleysid	Lab No.:	HM 832
		Date Sampled/By:	8-Jan-26 HA
		Date Received:	8-Jan-26
		Date Tested / By:	20-Jan-26 BY

Liquid Limit Determination

Dish No.:	1	2	3		Liquid Limit 25 Blows
Wet Soil + Dish:	12.04	12.79	11.29		
Dry Soil + Dish:	9.15	9.52	8.52		
Moisture:	2.89	3.27	2.77		
Dish:	4.5	4.61	4.62		
Dry Soil:	4.65	4.91	3.9		
% Moisture:	62.15	66.60	71.03		
No. of Blows:	35	30	25		
Liquid Limit:					71

Liquid Limit



Material Identification:

Test Hole: **BH 11**
 Grab Sample No: **GS4**
 Depth: **4-ft**

Liquid Limit, %: **71**
 Plastic Limit, %: **19**
 Plasticity Index: **52**
 (LL-PL)

Plastic Limit Determination

Dish No.:	1	2	3		
Wet Soil + Dish:	8	8.25	8.27		
Dry Soil + Dish:	7.51	7.52	7.65		
Moisture:	0.49	0.73	0.62		
Dish:	4.42	4.43	4.34		
Dry Soil:	3.09	3.09	3.31		
% Moisture:	15.86	23.62	18.73		
				Average:	19

Test Method : ASTM: D4318, D2216

Remarks:

P. Bevel

Reviewed by: Paul Bevel

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

CLIENT	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No.:	430-2502
ATTENTION:	Richard Hawkins	Lab No.:	HM 830
PROJECT:	2026 Local Street Renewals – 26-R-07 Kent Street (Chalmers Ave E to Keenleyside St)	Proctor Test No.:	5

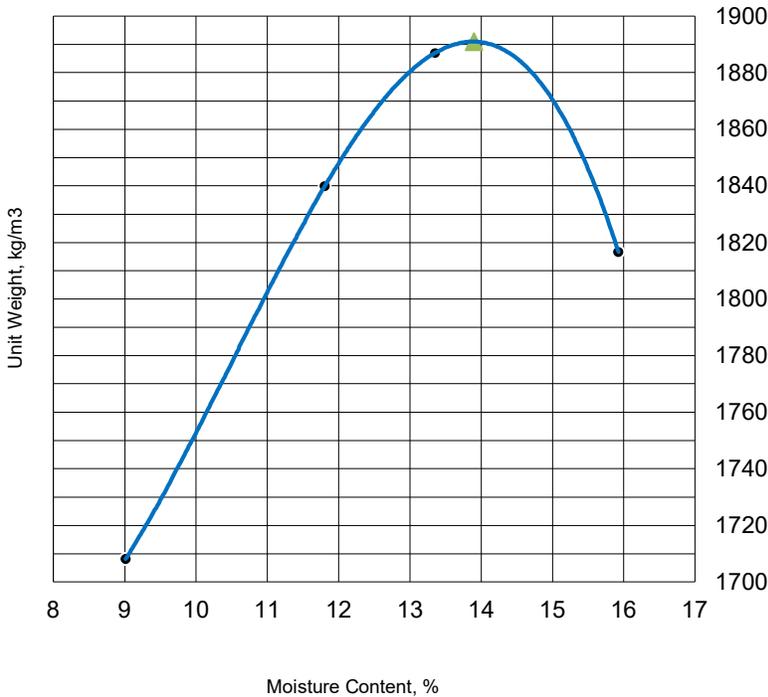
Date Sampled:	8-Jan-26	Date Received:	8-Jan-26	PROCEDURE	A
Sampled By:	HA	Date Tested:	13-Jan-26	PREPARATION	Dry
				COMPACTION METHOD	Manual

MATERIAL INFORMATION

Material Type:	CLAY - some silt with trace sand		NO. OF LAYERS	3
Material Use:	Soil Investigati	Material Supplier:	MOLD SIZE	100
Maximum Size:	4.75mm	Material Source:	MOLD VOLUME	943
			WEIGHT OF HAMMER	2.5 kg

Test No.	1	2	3	4
Wet Density	1862	2057	2139	2106
Moisture Content	9.0	11.8	13.4	15.9
Dry Density	1708	1840	1887	1817

Moisture - Density Relationship



Maximum Dry Density (MDD):
1891 kg/m³
Optimum Moisture Content
13.9 %

STONE CORRECTION (ASTM D 4718)

Retained on 4.75mm sieve:
 %
Corrected Moisture:
13.9 %
Corrected Maximum Dry Density:
1891 kg/m³

Remarks:

P. Bevel

Tested by: Hamid Abedinzadeh

Reviewed by: Paul Bevel

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

CLIENT	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No.:	430-2502
ATTENTION:	Richard Hawkins	Lab No.:	HM 832
PROJECT:	2026 Local Street Renewals – 26-R-07 Kent Street (Chalmers Ave E to Keenleyside St)	Proctor Test No.:	6

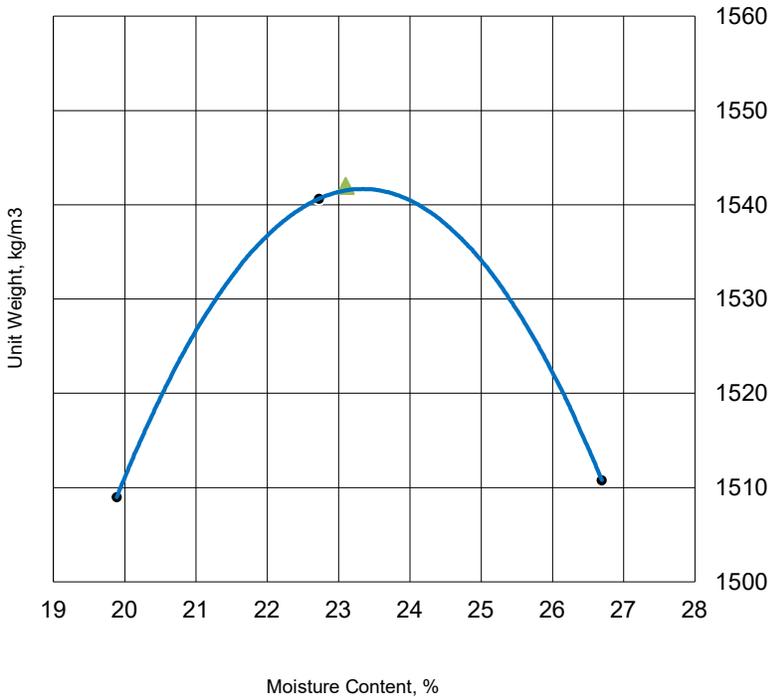
Date Sampled:	8-Jan-26	Date Received:	8-Jan-26	PROCEDURE	A
Sampled By:	HA	Date Tested:	13-Jan-26	PREPARATION	Dry
				COMPACTION METHOD	Manual

MATERIAL INFORMATION

Material Type:	CLAY - silty trace sand		BLOWS PER LAYER	25
Material Use:	Soil Investigati	Material Supplier:	NO. OF LAYERS	3
Maximum Size:	4.75mm	Material Source:	MOLD SIZE	100
			MOLD VOLUME	943
			WEIGHT OF HAMMER	2.5 kg

	Test No.	1	2	3	4
	Wet Density	1809	1891	1914	1874
	Moisture Content	19.9	22.7	26.7	0.0
	Dry Density	1509	1541	1511	0

Moisture - Density Relationship



Maximum Dry Density (MDD):
1542 kg/m³
Optimum Moisture Content
23.1 %

STONE CORRECTION (ASTM D 4718)

Retained on 4.75mm sieve:
 %
Corrected Moisture:
23.1 %
Corrected Maximum Dry Density:
1542 kg/m³

Remarks:

P. Bevel

Tested by: Hamid Abedinzadeh

Reviewed by: Paul Bevel

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No:	430-2502
Attention:	Richard Hawkins	Test No.:	8
Project:	2026 Local Street Renewals – 26-R-07 Kent Street, BH8	Lab No.:	HM 830
		Date Sampled / By:	January 8, 2026 Hamid A.
		Date Received:	January 8, 2026
		Date Tested / By:	January 12, 2026 / Chris B.

Test Hole No.	BH 8-1	BH 8-2	BH 8-3	BH 8-4	BH 8-5
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	J905	J925	J920	A2	H24
Wt Wet Sample + Tare	187.1	175.6	185	178.5	161.6
Wt Dry Sample + Tare	147.2	134.2	136.2	132.3	126
Wt Water	39.9	41.4	48.8	46.2	35.6
Wt Tare	4.6	4.6	4.5	4.0	4.6
Wt Dry Sample	142.6	129.6	131.7	128.3	121.4
Moisture Content (%)	28.0	31.9	37.1	36.0	29.3
Test Hole No.	BH 8-6	BH 8-7	BH 8-8		
Depth	6-ft	7-ft	8-ft		
Tare No.	C1	GM6	J1		
Wt Wet Sample + Tare	214.2	176.1	169.1		
Wt Dry Sample + Tare	173	126.2	116		
Wt Water	41.2	49.9	53.1		
Wt Tare	4.7	4.2	5.1		
Wt Dry Sample	168.3	122.0	110.9		
Moisture Content (%)	24.5	40.9	47.9		
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 (%)					

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No:	430-2502
Attention:	Richard Hawkins	Test No.:	9
Project:	2026 Local Street Renewals – 26-R-07 Kent Street, BH 10	Lab No.:	HM 831
		Date Sampled / By:	January 8, 2026 Hamid A.
		Date Received:	January 8, 2026
		Date Tested / By:	January 12, 2026 / Chris B.

Test Hole No.	BH 10-1	BH 10-2	BH 10-3	BH 10-4	BH 10-5
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	A14	M13	H10	Z8	G11
Wt Wet Sample + Tare	158.6	157.9	185.1	178	173.7
Wt Dry Sample + Tare	124.8	119.6	141.8	139.2	141.8
Wt Water	33.8	38.3	43.3	38.8	31.9
Wt Tare	4.1	5.1	4.7	4.7	4.6
Wt Dry Sample	120.7	114.5	137.1	134.5	137.2
Moisture Content (%)	28.0	33.4	31.6	28.8	23.3
Test Hole No.	BH 10-6	BH 10-7	BH 10-8		
Depth	6-ft	7-ft	8-ft		
Tare No.	M24	M32	B1		
Wt Wet Sample + Tare	196.6	218.1	210.4		
Wt Dry Sample + Tare	160.5	160.1	148		
Wt Water	36.1	58.0	62.4		
Wt Tare	4.8	4.8	4.1		
Wt Dry Sample	155.7	155.3	143.9		
Moisture Content (%)	23.2	37.3	43.4		
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 (%)					

MOISTURE CONTENT OF SOIL (ASTM D2216)

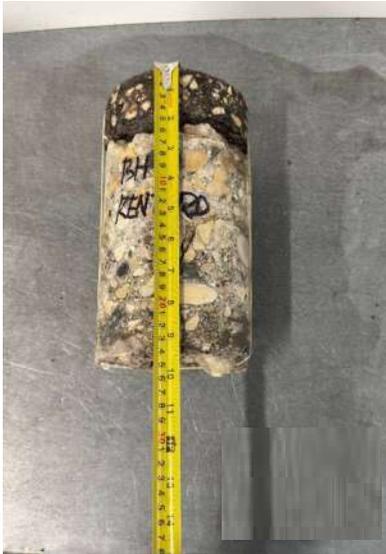
Client:	WSP Canada Inc. 1600 Buffalo Place Winnipeg, MB R3T 6B8	Project No:	430-2502
Attention:	Richard Hawkins	Test No.:	10
Project:	2026 Local Street Renewals – 26-R-07 Kent Street, BH 11	Lab No.:	HM 832
		Date Sampled / By:	January 8, 2026 Hamid A.
		Date Received:	January 8, 2026
		Date Tested / By:	January 12, 2026 /Chris B.

Test Hole No.	BH 11-1	BH 11-2	BH 11-3	BH 11-4	BH 11-5
Depth	1-ft	2-ft	3-ft	4-ft	5-ft
Tare No.	A3	G20	HM02	C8	H7
Wt Wet Sample + Tare	177.3	180.8	183.8	182.9	245.4
Wt Dry Sample + Tare	168.1	139.1	141.5	144.5	200.1
Wt Water	9.2	41.7	42.3	38.4	45.3
Wt Tare	4.0	4.7	4.0	4.6	4.6
Wt Dry Sample	164.1	134.4	137.5	139.9	195.5
Moisture Content (%)	5.6	31.0	30.8	27.4	23.2
Test Hole No.	BH 11-6	BH 11-7	BH 11-8		
Depth	6-ft	7-ft	8-ft		
Tare No.	G1	CO-6	TX		
Wt Wet Sample + Tare	183.1	237.2	162.6		
Wt Dry Sample + Tare	148.6	193.5	130.4		
Wt Water	34.5	43.7	32.2		
Wt Tare	4.4	4.8	5.0		
Wt Dry Sample	144.2	188.7	125.4		
Moisture Content (%)	23.9	23.2	25.7		
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 (%)					

Reconstruction Sites

Picture of Cores

Kent Rd - Keenleyside St/Chalmers Av E



BH 8 - Core



BH 8 - Site Photo



BH 10 - Core



BH 10 - Site Photo

Reconstruction Sites

Picture of Cores

Kent Rd - Keenleyside St/Chalmers Av E



BH 11 - Core



BH 11 - Site Photo



BH 12 - Core



BH 12 - Site Photo