APPENDIX 'A'

GEOTECHNICAL REPORT

ENG-TECH CONSULTING LIMITED

420 Turenne Street, Winnipeg, Manitoba R2J 3W8
Phone: (204) 233-1694 Fax: (204) 235-1579
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www.eng-tech.ca

Table 1
Summary of Pavement Structure

File No.: 17-035-02

East and West bound Lanes on Chevrier Boulevard

Core Number	Core Location	GPS Coordinates		Pavement Surface	
		14U	UTM	Type	Thickness (mm)
PC01	18.94 m (2.5 m south off the curve) East of northeast corner of Gamble Street – Westbound lane of Chevrier Boulevard	5520518	0631023	Asphalt	153
				Concrete	208
PC02	95.98 m (2.5 m north off the curve) East of core PC01 Eastbound lane of Chevrier Boulevard	5520564	0631111	Asphalt	225
				Concrete	130
PC03	99.45 m (2.5 m south off the curve) East of core PC02 Westbound lane of Chevrier Boulevard	5520620	0631194	Asphalt	197
				Concrete	132
PC04	97.25 m (2.5 m north off the curve) East of PC03 Eastbound lane of Chevrier Boulevard	5520656	0631282	Asphalt	213
				Concrete	145
PC05	117.25 m (2.5 m south off the curve) East of PC04– Westbound lane of Chevrier Boulevard	5520725	0631378	Asphalt	174
				Concrete	157
PC06	92.54 m (2.5 m north off the curve) East of PC05 Eastbound lane of Chevrier Boulevard	5520750	0631453	Asphalt	235
				Concrete	130
PC07	107.97 m (2.5 m south off the curve) East of PC06 Westbound lane of Chevrier Boulevard	5520829	0631544	Asphalt	273
				Concrete	160
PC08	114.77 m (2.5 m north off the curve) East of PC07 Eastbound lane of Chevrier Boulevard	5520866	0631645	Asphalt	235
				Concrete	120

Core Number	Core Location	GPS Coordinates		Pavement Surface	
		14U	UTM	Type	Thickness (mm)
PC09	114.77 m (2.5 m south off the curve) East of PC08- Westbound lane of Chevrier Boulevard	5520913	0631723	Asphalt	235
				Concrete	120
PC10	114.96 m (2.5 m north off the curve) East of PC11 Eastbound lane of Chevrier Boulevard, 90.38 m West of Northwest corner of Hamelin Street	5520962	0631825	Asphalt	228
				Concrete	142
PC11	98.35 m (2.5 m south off the curve) East of PC10 Westbound lane of Chevrier Boulevard, Middle of intersection of Hamelin Street and Chevrier Boulevard	5520995	0631901	Asphalt	190
				Concrete	127
PC12	24.84 m (2.5 m north off the curve) East of Northwest corner of Trottier Bay, 51.86 m East of PC11. Westbound lane of Chevrier Boulevard.	5521048	0631983	Asphalt	135
				Concrete	195
PC13	106.31 m (2.5 m south off the curve) East of PC12, 31.11 m West of Southeast corner of Trottier Bay - Eastbound lane of Chevrier Boulevard.	5521104	0632076	Asphalt	188
				Concrete	150

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Table 3
Summary of Pavement Structure

File No.: 17-035-02

Chevrier Boulevard: From Trottier Street to Pembina Highway

Test Hole	GPS Coordinates		Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Depth (m)	Moisture Content (%)	Hydrometer Analysis				Atterberg Limits		
	UTM	14U	Type	Thickness (mm)	Type	Thickness (mm)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Index
1	5521136	06322154	Asphalt	195	Gravel Fill (20 mm)	150	Gravel Fill	0.1	18.2							
							Silty Clay Fill	0.4	21.6							
								0.7	26.7	1.8	6.7	31.3	60.1	67	22	45
			Concrete	122			Clay	1.0	21.7							
								1.3	20.6							
								1.6	29.0							
								1.9	23.4							
2	5521201	0632252	Asphalt	57	Gravel Fill (20 mm)	200	Gravel Fill	0.1	42.8							
							Clay Fill	0.4	27.2							
								0.7	28.5	0.0	1.5	27.8	70.7	72	22	50
			Concrete	157			Clay	1.0	28.7							
								1.3	31.3							
								1.6	33.9							
								1.9	39.8							

Notes:

- No water seepage was encountered in the test holes.

Test Hole	Test Hole Location		Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Depth (m)	Moisture Content (%)	Hydrometer Analysis				Atterberg Limits		
	UTM	14U	Type	Thickness (mm)	Type	Thickness (mm)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Index
3	5521242	0632347	Asphalt	49	Gravel Fill (20 mm)	150	Gravel Fill	0.1	25.4							
							Clay Fill	0.4	13.7							
								0.7	23.3							
							Clay	1.0	27.4	0.0	4.6	29.7	65.7	62	21	41
			Concrete	140				1.3	33.7							
								1.6	37.2							
								1.9	44.6							
4	05521320	0632471	Asphalt	83	Gravel Fill (20 mm)	200	Gravel Fill	0.1	19.6							
							Clay Fill	0.4	30.0							
								0.7	28.5	0.0	2.1	28.2	69.7	72	22	50
			Concrete	142			Clay	1.0	29.1							
								1.3	28.4							
								1.6	29.1							
								1.9	30.3							

Notes:

- No water seepage was encountered in the test holes.

Table 3 - Summary of Pavement Structure
Chevrier Boulevard: From Trottier Boulevard to Pembina Highway

Test Hole	Test Hole Location		Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Depth (m)	Moisture Content (%)	Hydrometer Analysis				Atterberg Limits		
	UTM	14U	Type	Thickness (mm)	Type	Thickness (mm)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Index
5	5521361	0632549	Asphalt	53	Gravel Fill (20 mm)	200	Gravel Fill	0.1	8.3							
							Silty Clay Fill	0.4	31.4							
								0.7	25.3							
								1.0	31.4	0.0	1.5	36.5	62.0	62	19	43
			Concrete	139			Clay	1.3	35.6	0.0	0.8	16.8	82.4	88	27	61
								1.6	40.1							
								1.9	42.3							
6	5521412	0632624	Asphalt	44	Gravel Fill (20 mm)	200	Gravel Fill	0.1	7.7							
							Silty Clay Fill	0.4	32.6							
								0.7	28.7							
								1.0	26.5	0.4	11.1	42.0	46.4	62	22	40
			Concrete	142				1.3	34.7							
							Clayey Silt	1.6	22.3							
								1.9	24.6							

Notes:

- No water seepage was encountered in the test holes.

Test Hole	GPS Coordinates		Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Depth (m)	Moisture Content (%)	Hydrometer Analysis				Atterberg Limits		
	UTM	14U	Type	Thickness (mm)	Type	Thickness (mm)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Index
7	5521436	0632687	Asphalt	28	Gravel Fill (20 mm)	250	Gravel Fill	0.1	8.3							
							Silty Clay Fill	0.4	27.7							
								0.7	33.3	0.0	5.9	41.0	53.1	72	24	48
			Concrete	144			Clay	1.0	29.1							
								1.3	29.1							
								1.6	29.0							
								1.9	31.1							
8	5521487	0632769	Asphalt	35	Gravel Fill (20 mm)	50	Clay Fill	0.1	23.8							
								0.4	29.6							
								0.7	29.0	0.0	3.2	27.7	69.1	76	22	54
			Concrete	143			Clay	1.0	30.1							
								1.3	31.0							
								1.6	35.9							
								1.9	41.3							

Notes:

- No water seepage was encountered in the test holes.

Test Hole	Test Hole Location		Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Depth (m)	Moisture Content (%)	Hydrometer Analysis				Atterberg Limits		
	UTM	14U	Type	Thickness (mm)	Type	Thickness (mm)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Index
9	5521529	0632855	Asphalt	46	Gravel Fill (20 mm)	50	Clay	0.1	7.0							
								0.4	36.0							
								0.7	29.2							
								1.0	28.4	1.8	14.5	25.4	58.3	70	21	49
			Concrete	139				1.3	33.7							
								1.6	33.0							
								1.9	33.0							
10	5521676	0632924	Asphalt	43	Gravel Fill (20 mm)	50	Clayey Silt Fill	0.1	23.6							
								0.4	28.3							
								0.7	23.7	0.0	2.3	66.4	31.3	42	17	25
							Clayey Silt	1.0	21.3							
			Concrete	149			Clay	1.3	20.9							
								1.6	32.5							
								1.9	22.2							

Notes:

- No water seepage was encountered in the test holes.

LEGEND

PC01 — PAVEMENT CORES

TH1C — TEST HOLE

TEST HOLE LOCATION TABLE

HOLE #	GPS COORDINATES OF TEST HOLES	
	UTM	14U
TH1C	632154	0632154
TH2C	5521201	0632252
TH3C	5521252	0632354
TH4C	5521317	0632462
TH5C	5521367	0632562
TH6C	5521404	0632618
TH7C	5521436	0632687
TH8C	5521487	0632769
TH9C	5521529	0632855
TH10C	5521581	0632936

TEST HOLE LOCATION TABLE

HOLE #	OFFSET OF TEST HOLE
TH1C	1.5 m NORTH OF SOUTH CURB
TH2C	1.5 m SOUTH OF NORTH CURB
TH3C	1.5 m NORTH OF SOUTH CURB
TH4C	1.5 m SOUTH OF NORTH CURB
TH5C	1.5 m NORTH OF SOUTH CURB
TH6C	1.5 m SOUTH OF NORTH CURB
TH7C	1.5 m NORTH OF SOUTH CURB
TH8C	1.5 m SOUTH OF NORTH CURB
TH9C	1.5 m NORTH OF SOUTH CURB
TH10C	1.5 m SOUTH OF NORTH CURB

NO.	DATE	ISSUE / REVISION
0	Feb. 2018	report

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ENG. STAMP:

ENGINEERS GEOSCIENTISTS MANITOBA
Certificate of Authorization
ENG-TECH Consulting Limited
No.2475

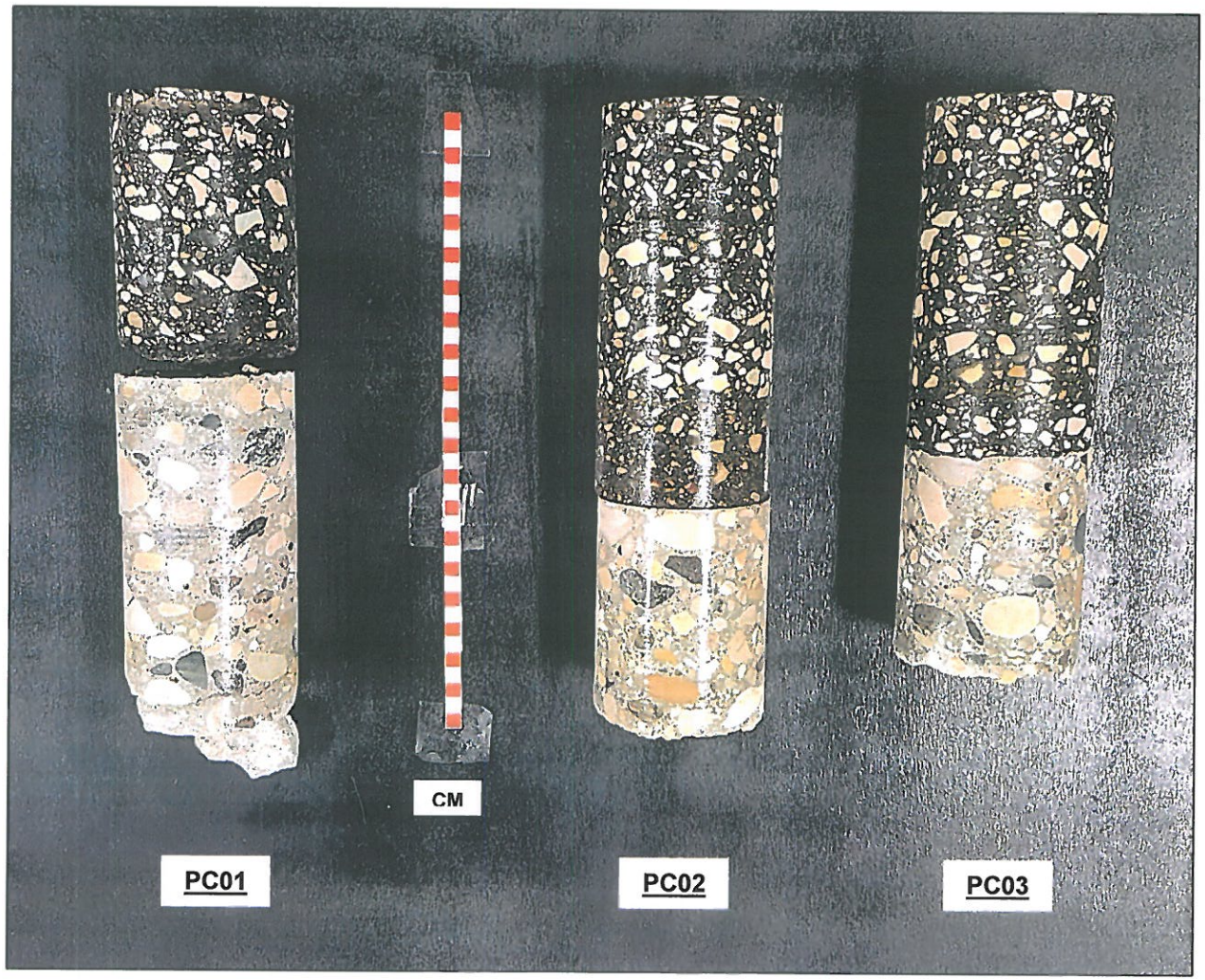
CLIENT:
WSP CANADA GROUP LIMITED

PROJECT:
GEOTECHNICAL INVESTIGATION - INDUSTRIAL STREETS PACKAGE
WINNIPEG, MANITOBA

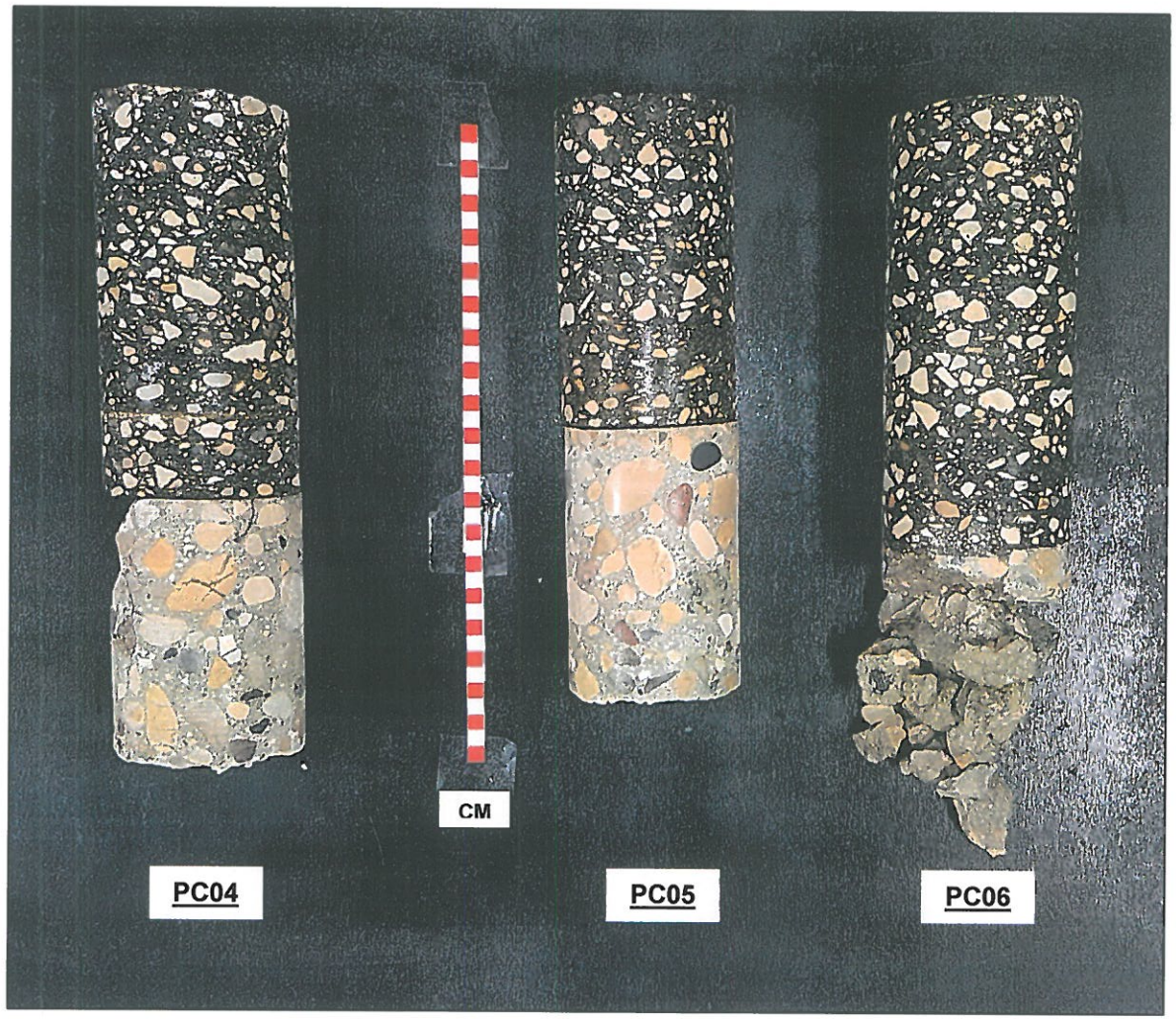
DWG DESCRIPTION:
PAVEMENT CORE AND TEST HOLE LOCATION PLAN - CHEVRIER BLVD

SCALE:
NTS

DRAWN BY:	DATE:
TDR	FEBRUARY 2018
FILE No.: 17-035-02	CLIENT DWG/FIG. No.:
ENG-TECH DWG/FIG. No.: 1	NO.:



CHEVRIER BOULEVARD



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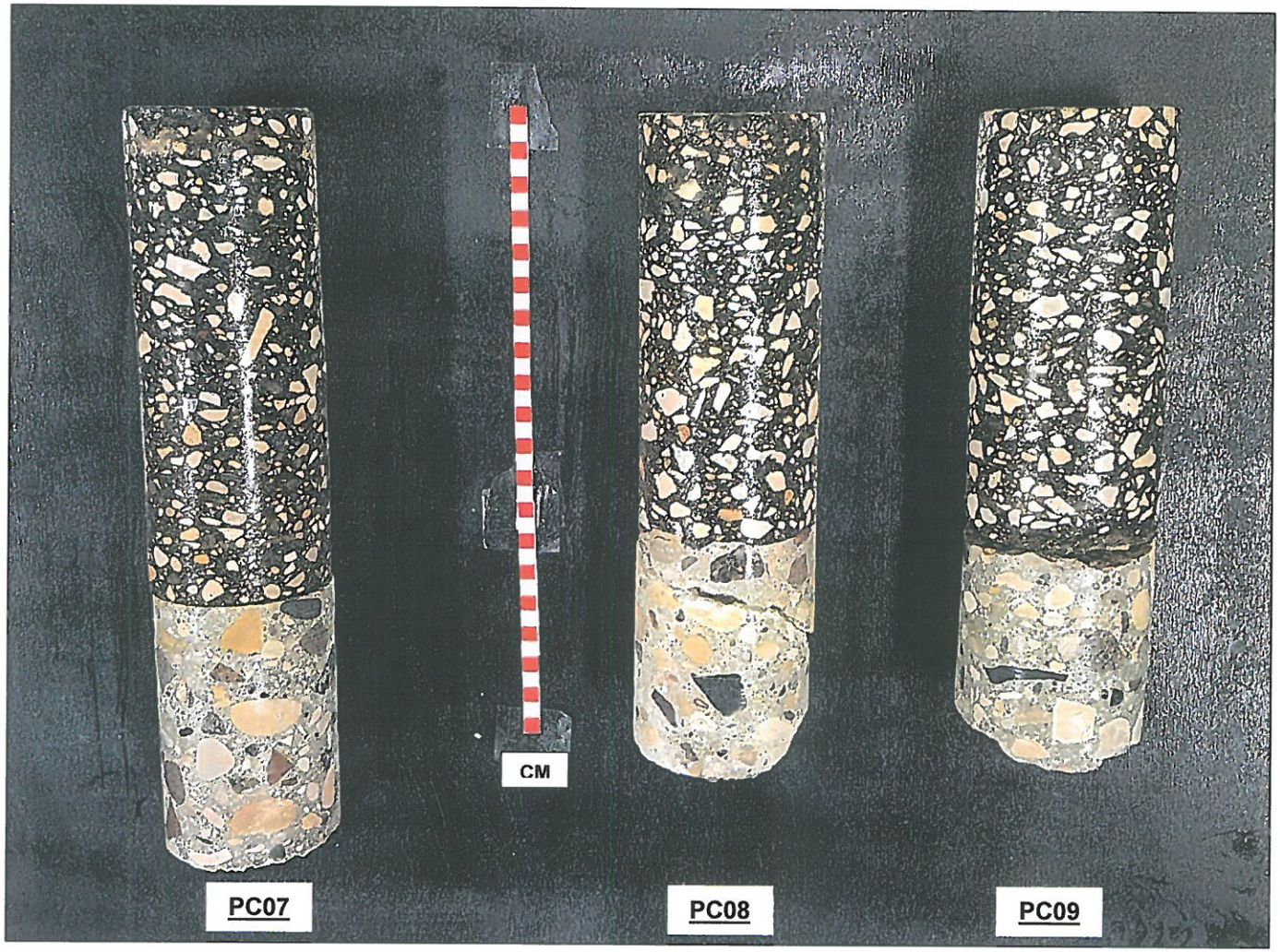

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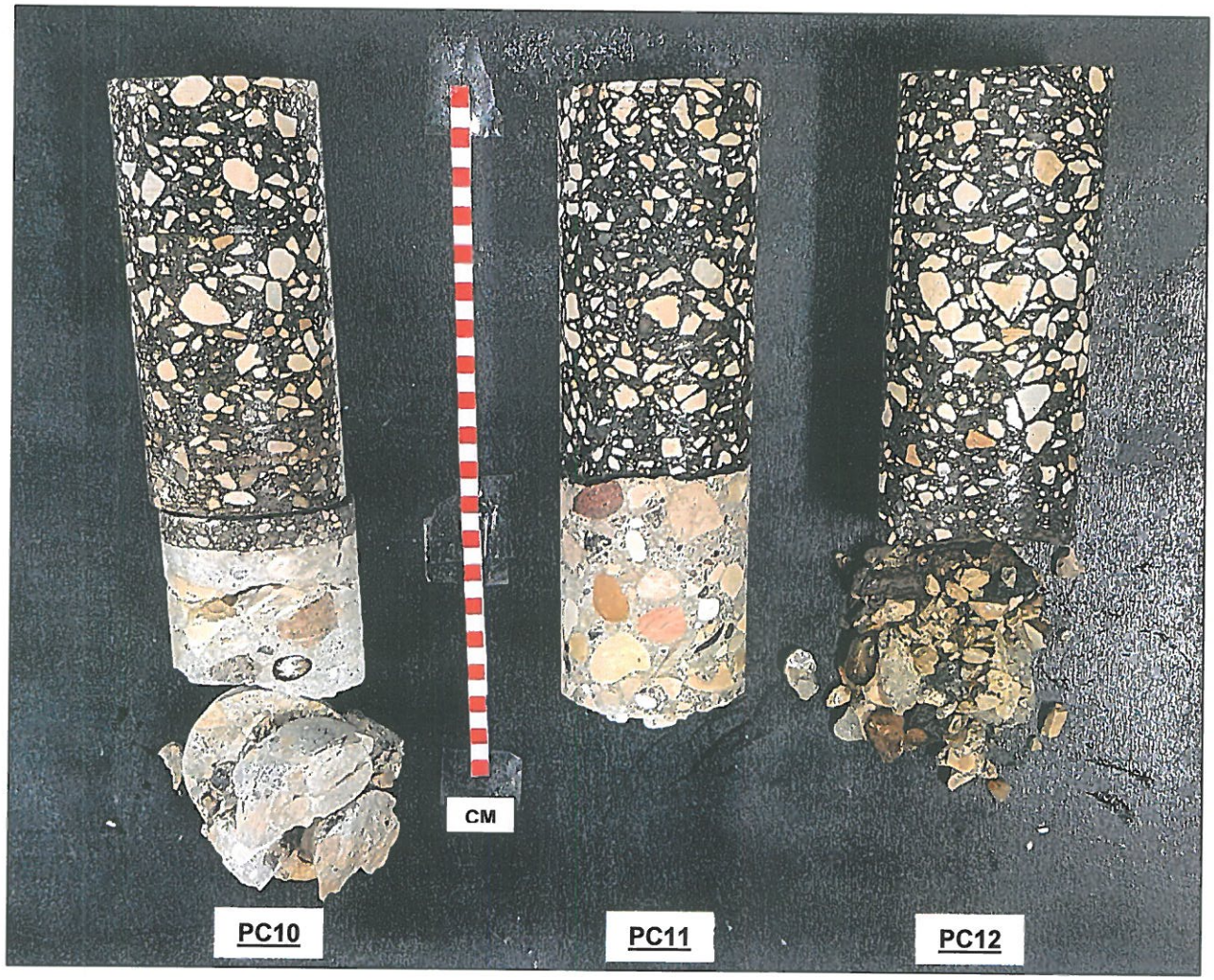
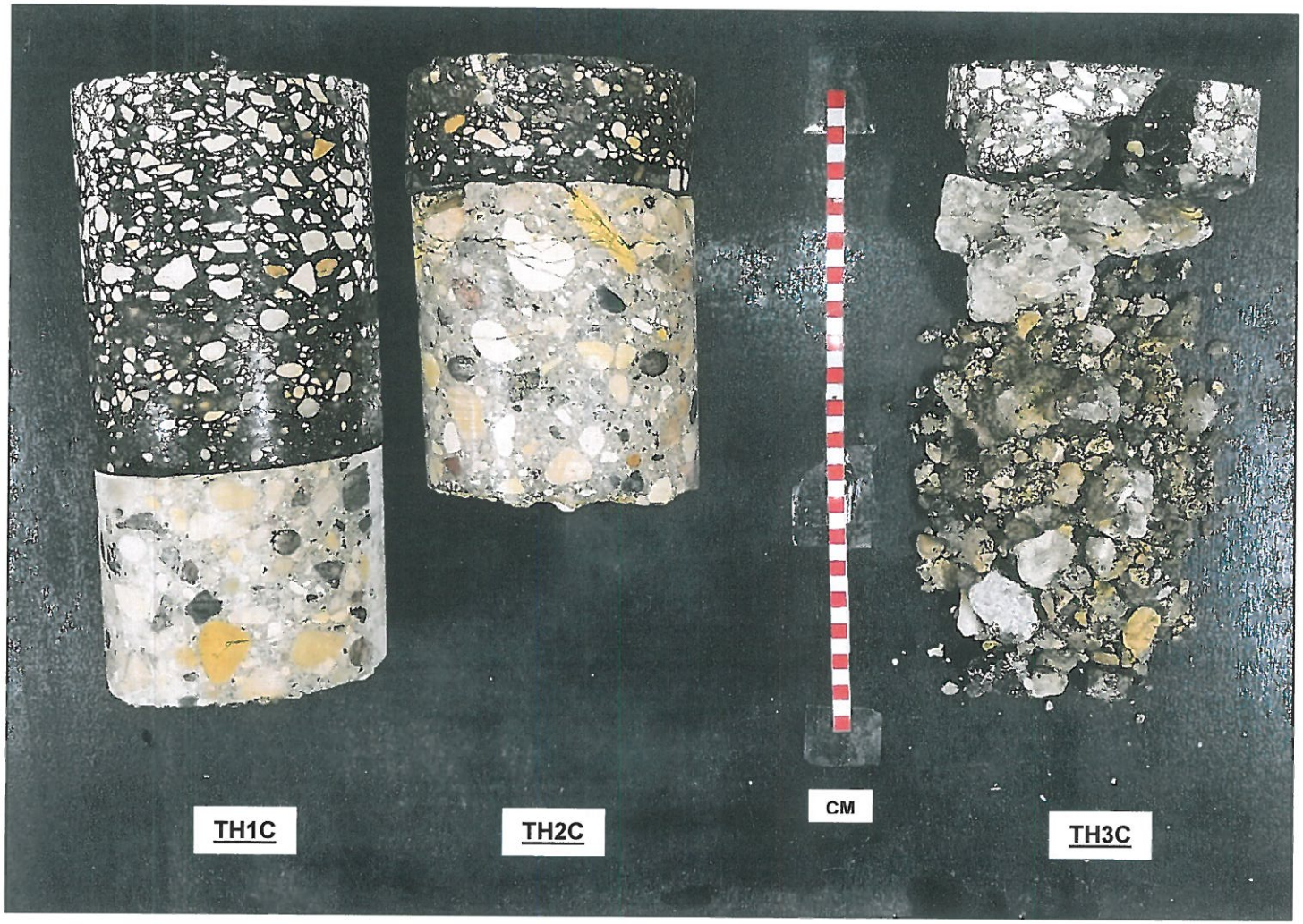
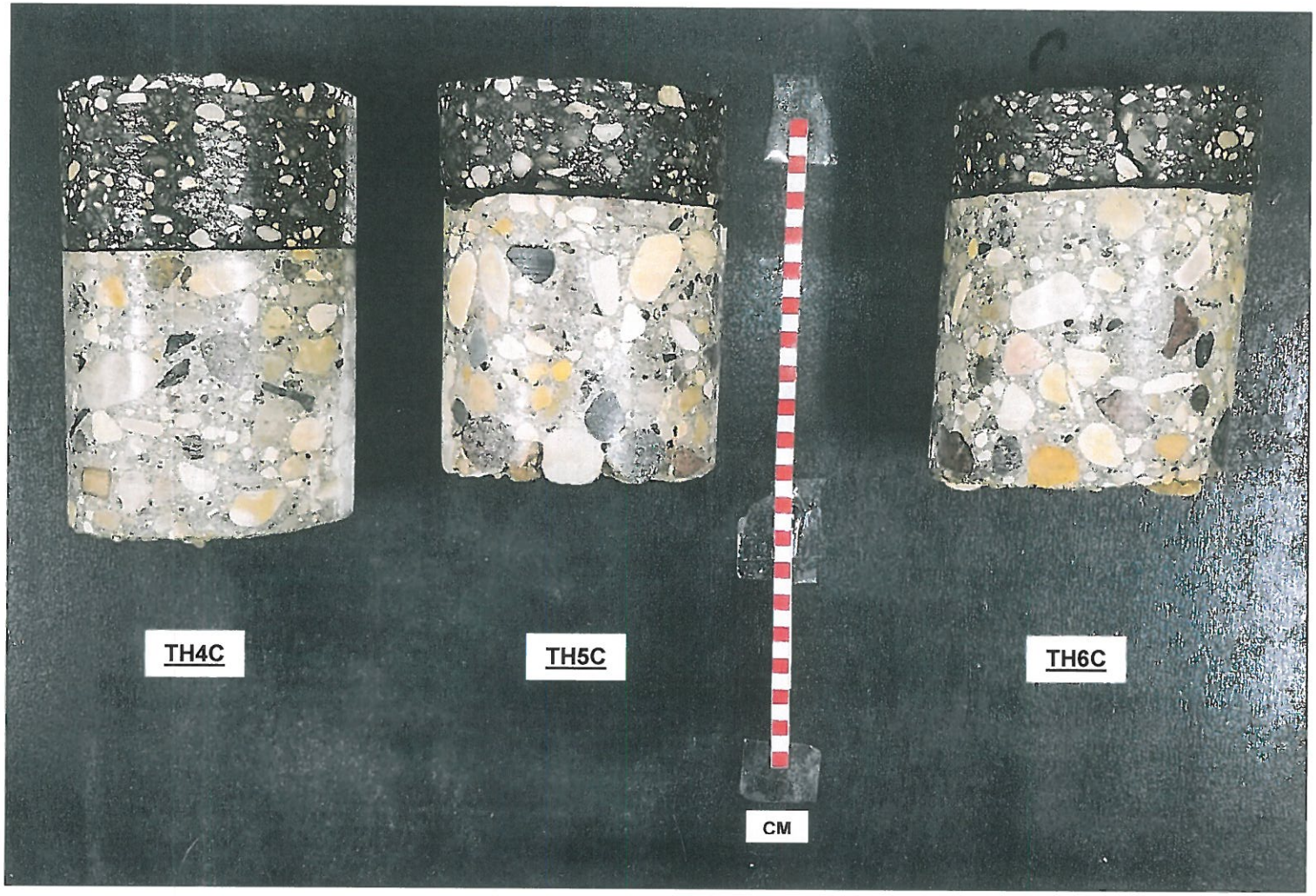


CHEVRIER BOULEVARD

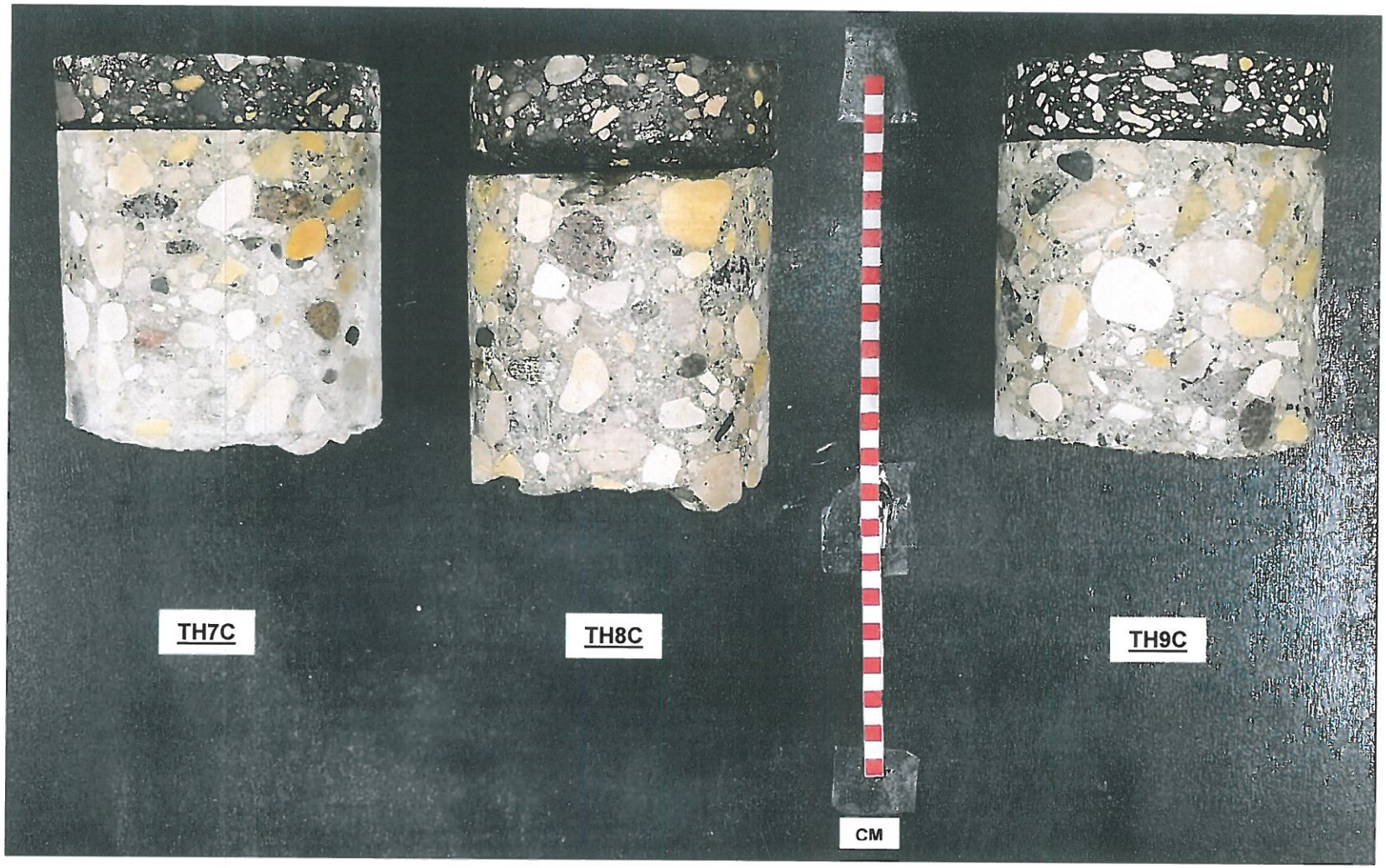
CHEVRIER BOULEVARD



CHEVRIER BLVD



CHEVRIER BLVD



CHEVRIER BLVD

CHEVRIER BLVD

MODIFIED UNIFIED CLASSIFICATION SYSTEM FOR SOILS

MAJOR DIVISION			GROUP SYMBOL	GRAPH SYMBOL	TYPICAL DESCRIPTION	LABORATORY CLASSIFICATION CRITERIA
COARSE GRAINED SOILS (MORE THAN HALF BY WEIGHT LARGER THAN 75 µm)	GRAVELS MORE THAN HALF THE COARSE FRACTION LARGER THAN 4.75 mm	CLEAN GRAVELS (TRACE OR NO FINES)	GW		WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	$C_U = \frac{D_{60}}{D_{10}} > 4$; $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}} = 1$ TO 3
			GP		POORLY GRADED GRAVELS, GRAVEL- SAND MIXTURES, LITTLE OR NO FINES	NOT MEETING ABOVE REQUIREMENTS
		DIRTY GRAVELS (WITH SOME OR MORE FINES)	GM		SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES	ATTERBERG LIMITS BELOW "A" LINE OR P.I. LESS THAN 4
			GC		CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES	ATTERBERG LIMITS ABOVE "A" LINE AND P.I. MORE THAN 7
	SANDS MORE THAN HALF THE COARSE FRACTION SMALLER THAN 4.75 mm	CLEAN SANDS (TRACE OR NO FINES)	SW		WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	$C_U = \frac{D_{60}}{D_{10}} > 6$; $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}} = 1$ TO 3
			SP		POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	NOT MEETING ABOVE REQUIREMENTS
		DIRTY SANDS (WITH SOME OR MORE FINES)	SM		SILTY SANDS, SAND-SILT MIXTURES	ATTERBERG LIMITS BELOW "A" LINE OR P.I. LESS THAN 4
			SC		CLAYEY SANDS, SAND-CLAY MIXTURES	ATTERBERG LIMITS ABOVE "A" LINE AND P.I. MORE THAN 7
FINE GRAINED SOILS (MORE THAN HALF BY WEIGHT SMALLER THAN 75 µm)	SILTS BELOW "A" LINE NEGLIGIBLE ORGANIC CONTENT	LL ≤ 50%	ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY SANDS OF SLIGHTY PLASTICITY	CLASSIFICATION IS BASED UPON PLASTICITY CHART (SEE BELOW)
		LL > 50%	MH		INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS, FINE SANDY OR SILTY SOILS	
	CLAYS ABOVE "A" LINE NEGLIGIBLE ORGANIC CONTENT	LL ≤ 30%	CL		INORGANIC CLAYS OF LOW PLASTICITY, GRAVELLY, SANDY OR SILTY CLAYS, LEAN CLAYS	
		30% < LL ≤ 50%	CI		INORGANIC CLAYS OF MEDIUM PLASTICITY, SILTY CLAYS	
		LL > 50%	CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
	ORGANIC SILTS & CLAYS BELOW "A" LINE	LL < 50%	OL		ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
		LL > 50%	OH		ORGANIC CLAYS OF HIGH PLASTICITY	
HIGHLY ORGANIC SOILS			Pt		PEAT AND OTHER HIGHLY ORGANIC SOILS	STRONG COLOUR OR ODOUR, AND OFTEN FIBROUS TEXTURE

ADDITIONAL SYMBOLS

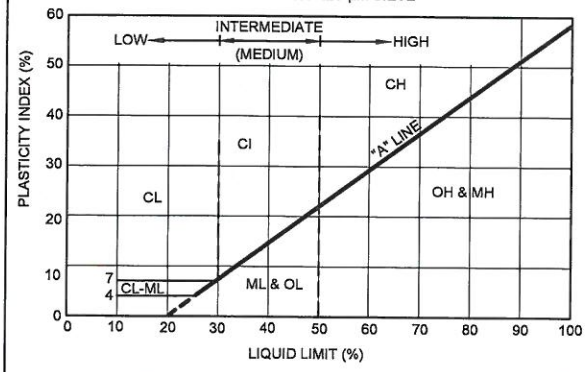
TILL, SANDSTONE, GRANITE, FILL, TOPSOIL, CONCRETE, SHALE, LIMESTONE

PLASTIC SOILS

MOISTURE	PLASTICITY	INTRUSIONS	CONSISTENCY	POCKET PEN (TSF)	(N)
DRY	LOW	ROOTLETS	VERY SOFT		< 2
DAMP	MEDIUM	OXIDES	SOFT	0 - 0.5	2 - 4
MOIST	HIGH	MICA	FIRM	0.5 - 1.0	4 - 8
WET		GYPSUM	STIFF	1.0 - 2.0	8 - 15
		ETC.	VERY STIFF	2.0 - 4.0	15 - 30
			HARD	> 4.0	> 30

TSF x 95.8 = kPa (q_U) $S_U = \frac{1}{2} \times q_U$

PLASTICITY CHART FOR SOILS PASSING 425 µm SIEVE



SOIL DESCRIPTIONS

TRACE:	0 - 10%	BOULDERS:	> 200 mm	COARSE SAND:	2 - 4.75 mm
SOME:	10 - 20%	COBBLES:	75 - 200 mm	MEDIUM SAND:	0.425 - 2 mm
WITH:	20 - 35%	COURSE GRAVEL:	19 - 75 mm	FINE SAND:	0.075 - 0.425 mm
AND:	35 - 50%	FINE GRAVEL	4.75 - 19 mm	FINES:	< 0.075 mm

GRANULAR SOILS

MOISTURE	DENSITY	GRADATION	INTRUSIONS	SPT (N)
DRY	VERY LOOSE	POORLY	ROOTLETS	0 - 4
DAMP	LOOSE	WELL	OXIDES	4 - 10
MOIST	MED. DENSE		MICA	10 - 30
WET	DENSE		FINES	30 - 50
	VERY DENSE		ETC.	> 50

DEFINITIONS

LL = LIQUID LIMIT
P.I. = PLASTICITY INDEX
C_U = COEFFICIENT OF UNIFORMITY
q_U = UNCONFINED COMPRESSIVE STRENGTH
S_U = UNDRAINED SHEAR STRENGTH
C_C = COMPRESSION INDEX
PL = PLASTIC LIMIT

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ENG-TECH CONSULTING LIMITED

Engineering And Testing Solutions That Work For You

Test Hole #: TH1C

Client: WSP Canada Inc.
Site: Chevrier Boulevard, Winnipeg, MB
Location: See Figure 1
Project: Geotechnical Investigation - Industrial Streets Package 18-RL-02

File No.: 17-035-02
Date Drilled: December 19, 2017
Grade Elevation: 100.0 m
Water Elevation: - -

Depth (m)	Description	Elevation (m)	Sample No.	Moisture Content (%)
0.0	Ground Surface	100.0		
	Asphalt (195 mm)			
	Concrete (122 mm)			
	Gravel Fill (150 mm) - dark brown, moist, frozen, poorly graded, fine grained, trace clay.		S1	18.2
	Silty Clay Fill (CH) - dark brown to black, moist, frozen, highly plastic, trace gravel and sand, and clay.		S2	21.6
1.0		99.0	S3	26.7
	Clay (CH) dark brown to black, moist, frozen, highly plastic, trace silt and gravel.		S4	21.7
			S5	20.6
2.0		98.0	S6	29.0
			S7	23.4
3.0	*End of Test Hole* - end of test hole at 3.0 m below grade. - no sloughing or seepage was encountered upon completion of drilling. - test hole backfiled with bentonite and soil cuttings upon completion of drilling. Pavement was patched with concrete grout upon completion of drilling.	97.0		
4.0		96.0		
5.0		95.0		

Moisture Content (%): PL I----------X----------I LL (20, 40, 60, 80)

SHEAR STRENGTH (kPa): P. Pen | Torvane | UC

ENG- TECH Consulting Limited

Logged by: TDR

Reviewed by: CH

Drilled By: Subterranean (Manitoba) Ltd.
Drill Rig: CME 75
Auger Size: 125 mm Solid Stem

Completion Depth: 3.0 m
Completion Elevation: 97.0 m
Sheet: 1 of 1

SAMPLE TYPE: SPLIT BARREL | SHELBY TUBE | AUGER CUTTINGS | SPLIT SPOON

ENG-TECH Consulting Limited

Engineering And Testing Solutions That Work For You

Test Hole #: TH2C

Client: WSP Canada Inc.
Site: Chevrier Boulevard, Winnipeg, MB
Location: See Figure 1
Project: Geotechnical Investigation - Industrial Streets Package 18-RL-02

File No.: 17-035-02
Date Drilled: December 19, 2017
Grade Elevation: 100.0 m
Water Elevation: - -

Depth (m)	Description	Elevation (m)
0.0	Ground Surface	100.0
	Asphalt (57 mm)	
	Concrete (157 mm)	
	Gravel Fill (200 mm) - dark brown, moist, frozen, poorly graded, fine grained, trace clay.	
1.0	***Clay Fill (CH)*** - dark brown to black, moist, frozen, medium plastic, trace silt and gravel.	99.0
	Clay (CH) - dark brown, moist, stiff, highly plastic, trace silt.	
2.0		98.0
3.0	***Silt (ML)*** - tan, moist, soft, low plastic, trace clay.	97.0
	End of Test Hole - end of test hole at 3.0 m below grade. - no sloughing or seepage was encountered upon completion of drilling. - test hole backfiled with bentonite and soil cuttings upon completion of drilling. Pavement was patched with concrete grout upon completion of drilling.	
4.0		96.0
5.0		95.0
6.0		94.0

Sample No.	Sample Type	Moisture Content (%)	Blows/300 mm
S1		42.8	
S2		27.2	
S3		28.5	
S4		28.7	
S5		31.3	
S6		33.9	
S7		39.8	

Moisture Content (%): PL I----------X----------I LL (20, 40, 60, 80)

SHEAR STRENGTH (kPa): P. Pen | Torvane | UC

ENG- TECH Consulting Limited

Logged by: TDR

Reviewed by: CHA

Drilled By: Subterranean (Manitoba) Ltd.
Drill Rig: CME 75
Auger Size: 125 mm Solid Stem

Completion Depth: 3.0 m
Completion Elevation: 97.0 m
Sheet: 1 of 1

SAMPLE TYPE: SPLIT BARREL | SHELBY TUBE | AUGER CUTTINGS | SPLIT SPOON

ENG-TECH CONSULTING LIMITED

Engineering And Testing Solutions That Work For You

Test Hole #: TH3C

Client: WSP Canada Inc.
Site: Chevrier Boulevard, Winnipeg, MB
Location: See Figure 1
Project: Geotechnical Investigation - Industrial Streets Package 18-RL-02

File No.: 17-035-02
Date Drilled: December 19, 2017
Grade Elevation: 100.0 m
Water Elevation: - -

Depth (m)	Description	Elevation (m)	Sample No.	Moisture Content (%)
0.0	Ground Surface	100.0		
	Asphalt (49mm)			
	Concrete (140 mm)			
	Gravel Fill (150 mm) - dark brown, moist, frozen, poorly graded, fine grained, trace clay.		S1	25.4
			S2	13.7
1.0	*Clay Fill (CI)* - dark brown, moist, frozen, medium plastic, trace silt and gravel.	99.0	S3	23.3
			S4	27.4
	Clay (CH) - medium brown, moist, stiff, highly plastic, trace silt.		S5	33.7
			S6	37.2
2.0		98.0	S7	44.6
3.0		97.0		
	End of Test Hole - end of test hole at 3.0 m below grade. - no sloughing or seepage was encountered upon completion of drilling. - test hole backfiled with bentonite and soil cuttings upon completion of drilling. Pavement was patched with concrete grout upon completion of drilling.			
4.0		96.0		
5.0		95.0		
6.0		94.0		

Moisture Content (%): PL I----------X----------I LL (20, 40, 60, 80)

SHEAR STRENGTH (kPa): P. Pen, Torvane, UC

ENG- TECH Consulting Limited

Logged by: TDR

Reviewed by: CH

Drilled By: Subterranean (Manitoba) Ltd.
Drill Rig: CME 75
Auger Size: 125 mm Solid Stem

Completion Depth: 3.0 m
Completion Elevation: 97.0 m
Sheet: 1 of 1

SAMPLE TYPE: SPLIT BARREL | SHELBY TUBE | AUGER CUTTINGS | SPLIT SPOON

ENG-TECH CONSULTING LIMITED

Engineering And Testing Solutions That Work For You

Test Hole #: TH4C

Client: WSP Canada Inc.
Site: Chevrier Boulevard, Winnipeg, MB
Location: See Figure 1
Project: Geotechnical Investigation - Industrial Streets Package 18-RL-02

File No.: 17-035-02
Date Drilled: December 19, 2017
Grade Elevation: 100.0 m
Water Elevation: - -

Depth (m)	Soil Symbol	Description	Elevation (m)
0.0		Ground Surface	100.0
		Asphalt (83 mm)	
		Concrete (142 mm)	
		Gravel Fill (200 mm) - dark brown, moist, frozen, poorly graded, fine grained, trace clay.	
1.0		*Clay Fill (CH)* - dark brown, moist, frozen, highly plastic, trace silt and gravel.	99.0
		Clay (CH) - medium brown, moist, stiff, highly plastic, trace silt.	
2.0			98.0
3.0		*End of Test Hole* - end of test hole at 3.0 m below grade. - no sloughing or seepage was encountered upon completion of drilling. - test hole backfiled with bentonite and soil cuttings upon completion of drilling. Pavement was patched with concrete grout upon completion of drilling.	97.0
4.0			96.0
5.0			95.0
6.0			94.0

Sample No.	Sample Type	Moisture Content (%)	Blows/300 mm
S1		19.6	
S2		30.0	
S3		28.5	
S4		29.1	
S5		28.4	
S6		29.1	
S7		30.3	

Moisture Content (%)

PL I----------X----------I LL
20 40 60 80

SHEAR STRENGTH (kPa)

P. Pen	Torvane	UC

ENG- TECH Consulting Limited

Logged by: TDR

Reviewed by: CA

Drilled By: Subterranean (Manitoba) Ltd.
Drill Rig: CME 75
Auger Size: 125 mm Solid Stem

Completion Depth: 3.0 m
Completion Elevation: 97.0 m
Sheet: 1 of 1

SAMPLE TYPE — SPLIT BARREL — SHELBY TUBE — AUGER CUTTINGS — SPLIT SPOON

ENG-TECH CONSULTING LIMITED

Engineering And Testing Solutions That Work For You

Test Hole #: TH5C

Client: WSP Canada Inc.
Site: Chevrier Boulevard, Winnipeg, MB
Location: See Figure 1
Project: Geotechnical Investigation - Industrial Streets Package 18-RL-02

File No.: 17-035-02
Date Drilled: December 19, 2017
Grade Elevation: 100.0 m
Water Elevation: - -

Depth (m)	Description	Elevation (m)	Sample No.	Moisture Content (%)
0.0	Ground Surface	100.0		
	Asphalt (53 mm)			
	Concrete (139 mm)			
	Gravel Fill (200 mm) - medium brown, moist, frozen, poorly graded, fine grained, trace clay.		S1	8.3
	Silty Clay Fill (CH) - dark brown, moist, frozen to 0.5 m, highly plastic, trace silt, and gravel.		S2	31.4
1.0		99.0	S3	25.3
	Clay (CH) - dark brown, moist, stiff, highly plastic, trace silt.		S4	31.4
			S5	35.6
	- below 1.8 m, light brown.		S6	40.1
2.0		98.0	S7	42.3
3.0	*End of Test Hole* - end of test hole at 3.0 m below grade. - no sloughing or seepage was encountered upon completion of drilling. - test hole backfiled with bentonite and soil cuttings upon completion of drilling. Pavement was patched with concrete grout upon completion of drilling.	97.0		
4.0		96.0		
5.0		95.0		

Moisture Content (%): PL I----------X----------I LL (20, 40, 60, 80)

SHEAR STRENGTH (kPa): P. Pen, Torvane, UC

ENG- TECH Consulting Limited

Logged by: TDR

Reviewed by: CH

Drilled By: Subterranean (Manitoba) Ltd.
Drill Rig: CME 75
Auger Size: 125 mm Solid Stem

Completion Depth: 3.0 m
Completion Elevation: 97.0 m
Sheet: 1 of 1

SAMPLE TYPE: SPLIT BARREL | SHELBY TUBE | AUGER CUTTINGS | SPLIT SPOON

ENG-TECH CONSULTING LIMITED

Engineering And Testing Solutions That Work For You

Test Hole #: TH6C

Client: WSP Canada Inc.
Site: Chervier Boulevard, Winnipeg, MB
Location: See Figure 1.
Project: Geotechnical Investigation - Industrial Street Package 18-RL-02

File No.: 17-035-02
Date Drilled: December 19, 2017
Grade Elevation: 100.0 m
Water Elevation: - -

Depth (m)	Description	Elevation (m)
0.0	Ground Surface	100.0
	Asphalt (44 mm)	
	Concrete (139 mm)	
	Gravel Fill (200 mm) - medium brown, moist, frozen, poorly graded, fine grained, trace clay.	
	Silty Clay (CH) - black, moist, firm, medium plastic, trace sand, and clay.	
1.0		99.0
	Clayey Silt (Cl) - grey, moist, soft, medium plastic, trace silt.	
2.0		98.0
3.0	*End of Test Hole* - end of test hole at 3.0 m below grade. - no sloughing or seepage was encountered upon completion of drilling. - test hole backfiled with bentonite and soil cuttings upon completion of drilling. Pavement was patched with concrete grout upon completion of drilling.	97.0
4.0		96.0
5.0		95.0

Sample No.	Sample Type	Moisture Content (%)	Blows/300 mm
S1	Auger Cuttings	7.7	
S2	Auger Cuttings	32.6	
S3	Auger Cuttings	28.7	
S4	Auger Cuttings	26.5	
S5	Auger Cuttings	34.7	
S6	Auger Cuttings	22.3	
S7	Auger Cuttings	24.6	

Moisture Content (%): PL I----------X----------I LL (20, 40, 60, 80)

SHEAR STRENGTH (kPa): P. Pen | Torvane | UC

ENG- TECH Consulting Limited

Logged by: TDR

Reviewed by:

Drilled By: Subterranean (Manitoba) Ltd.
Drill Rig: CME 75
Auger Size: 125 mm Solid Stem

Completion Depth: 3.0 m
Completion Elevation: 97.0 m
Sheet: 1 of 1

SAMPLE TYPE: SPLIT BARREL | SHELBY TUBE | AUGER CUTTINGS | SPLIT SPOON

ENG-TECH CONSULTING LIMITED

Engineering And Testing Solutions That Work For You

Test Hole #: TH7C

Client: WSP Canada Inc.
Site: Chevrier Boulevard, Winnipeg, MB
Location: See Figure 1
Project: Geotechnical Investigation - Industrial Streets Package 18-RL-02

File No.: 17-035-02
Date Drilled: December 19, 2017
Grade Elevation: 100.0 m
Water Elevation: - -

Depth (m)	Description	Elevation (m)	Sample No.	Moisture Content (%)
0.0	Ground Surface	100.0		
	Asphalt (28 mm)			
	Concrete (144 mm)		S1	8.3
	Gravel Fill (250 mm) - medium brown, moist, frozen, poorly graded, fine grained, trace clay.		S2	27.7
	Silty Clay Fill (CH) - black, moist, firm, medium plastic, trace sand, and clay.		S3	33.3
1.0	*Clay (CH)* - medium brown,moist, firm, highly plastic, trace silt.	99.0	S4	29.1
			S5	29.1
			S6	29.0
2.0		98.0	S7	31.1
3.0	*End of Test Hole* - end of test hole at 3.0 m below grade. - no sloughing or seepage was encountered upon completion of drilling. - test hole backfiled with bentonite and soil cuttings upon completion of drilling. Pavement was patched with concrete grout upon completion of drilling.	97.0		
4.0		96.0		
5.0		95.0		

Moisture Content (%): PL I----------X----------I LL (20, 40, 60, 80)

SHEAR STRENGTH (kPa): P. Pen, Torvane, UC

ENG- TECH Consulting Limited

Logged by: TDR

Reviewed by: CA

Drilled By: Subterranean (Manitoba) Ltd.
Drill Rig: CME 75
Auger Size: 125 mm Solid Stem

Completion Depth: 3.0 m
Completion Elevation: 97.0 m
Sheet: 1 of 1

SAMPLE TYPE: SPLIT BARREL | SHELBY TUBE | AUGER CUTTINGS | SPLIT SPOON

ENG-TECH CONSULTING LIMITED

Engineering And Testing Solutions That Work For You

Test Hole #: TH8C

Client: WSP Canada Inc.
Site: Chevrier Boulevard, Winnipeg, MB
Location: See Figure 1
Project: Geotechnical Investigation - Industrial Streets Package 18-RL-02

File No.: 17-035-02
Date Drilled: December 19, 2017
Grade Elevation: 100.0 m
Water Elevation: - -

Depth (m)	Description	Elevation (m)
0.0	Ground Surface	100.0
	Asphalt (35 mm)	
	Concrete (143 mm)	
	Gravel Fill (50 mm) - medium brown, moist, frozen, poorly graded, fine grained, trace clay.	
	Clay Fill (CH) - dark brown, moist, firm, highly plastic, trace gravel, and clay.	
1.0		99.0
	Clay (CH) - medium brown,moist, stiff, highly plastic, trace silt.	
2.0		98.0
	Clayey Silt (Cl) - medium brown, moist, firm, medium plastic, trace clay.	
3.0		97.0
	End of Test Hole - end of test hole at 3.0 m below grade. - no sloughing or seepage was encountered upon completion of drilling. - test hole backfiled with bentonite and soil cuttings upon completion of drilling. Pavement was patched with concrete grout upon completion of drilling.	
4.0		96.0
5.0		95.0

Sample No.	Sample Type	Moisture Content (%)	Blows/300 mm
S1	Auger Cuttings	23.8	
S2	Auger Cuttings	29.6	
S3	Auger Cuttings	29.0	
S4	Auger Cuttings	30.1	
S5	Auger Cuttings	31.0	
S6	Auger Cuttings	35.9	
S7	Auger Cuttings	41.3	

Moisture Content (%): PL I----------X----------I LL (20, 40, 60, 80)

Shear Strength (kPa): P. Pen, Torvane, UC

ENG- TECH Consulting Limited

Logged by: TDR

Reviewed by: CA

Drilled By: Subterranean (Manitoba) Ltd.
Drill Rig: CME 75
Auger Size: 125 mm Solid Stem

Completion Depth: 3.0 m
Completion Elevation: 97.0 m
Sheet: 1 of 1

SAMPLE TYPE: SPLIT BARREL | SHELBY TUBE | AUGER CUTTINGS | SPLIT SPOON

ENG-TECH CONSULTING LIMITED

Engineering And Testing Solutions That Work For You

Test Hole #: TH9C

Client: WSP Canada Inc.
Site: Chevrier Boulevard, Winnipeg, MB
Location: See Figure 1
Project: Geotechnical Investigation - Industrial Streets Package 18-RL-02

File No.: 17-035-02
Date Drilled: December 19, 2017
Grade Elevation: 100.0 m
Water Elevation: - -

Depth (m)	Description	Elevation (m)
0.0	Ground Surface	100.0
	Asphalt (46 mm)	
	Concrete (139 mm)	
	Gravel Fill (50 mm) - medium brown, moist, frozen, poorly graded, fine grained, trace clay.	
	Clay (CH) - dark brown, moist, soft, medium plastic, trace silt and gravel.	
1.0		99.0
	Clay (CH) - medium brown, moist, firm, highly plastic, trace silt.	
2.0		98.0
3.0	*End of Test Hole* - end of test hole at 3.0 m below grade. - no sloughing or seepage was encountered upon completion of drilling. - test hole backfiled with bentonite and soil cuttings upon completion of drilling. Pavement was patched with concrete grout upon completion of drilling.	97.0
4.0		96.0
5.0		95.0

Sample No.	Sample Type	Moisture Content (%)	Blows/300 mm
S1	Auger Cuttings	7.0	
S2	Auger Cuttings	36.0	
S3	Auger Cuttings	29.2	
S4	Auger Cuttings	28.4	
S5	Auger Cuttings	33.7	
S6	Auger Cuttings	33.0	
S7	Auger Cuttings	33.0	

Moisture Content (%): PL I----------X----------I LL (20, 40, 60, 80)

SHEAR STRENGTH (kPa): P. Pen | Torvane | UC

ENG- TECH Consulting Limited

Logged by: TDR

Reviewed by: CLS

Drilled By: Subterranean (Manitoba) Ltd.
Drill Rig: CME 75
Auger Size: 125 mm Solid Stem

Completion Depth: 3.0 m
Completion Elevation: 97.0 m
Sheet: 1 of 1

SAMPLE TYPE: SPLIT BARREL | SHELBY TUBE | AUGER CUTTINGS | SPLIT SPOON

ENG-TECH CONSULTING LIMITED

Engineering And Testing Solutions That Work For You

Test Hole #: TH10C

Client: WSP Canada Inc.

Site: Chevrier Boulevard, Winnipeg, MB

Location: See Figure 1

Project: Geotechnical Investigation - Industrial Streets Package 18-RL-02

File No.: 17-035-02

Date Drilled: December 19, 2017

Grade Elevation: 100.0 m

Water Elevation: - -

Depth (m)	Description	Elevation (m)	Sample No.	Moisture Content (%)
0.0	Ground Surface	100.0		
	Asphalt (43 mm)			
	Concrete (149 mm)			
	Gravel Fill (50 mm) - black, moist, frozen, poorly graded, fine grained, trace clay.		S1	23.6
	Clayey Silt Fill (Cl) - medium brown, moist, soft, medium plastic, trace gravel, with clay.		S2	28.3
1.0	*Clayey Silt (Cl)* - light brown, moist, soft, medium plastic, trace clay.	99.0	S3	23.7
			S4	21.3
	Clay (Cl) - medium brown, moist, soft to firm, medium plastic, trace silt.		S5	20.9
2.0	*Silty Clay (Cl)* - medium brown, moist, soft to firm, medium plastic, trace silt.	98.0	S6	32.5
			S7	22.2
3.0	*End of Test Hole* - end of test hole at 3.0 m below grade. - no sloughing or seepage was encountered upon completion of drilling. - test hole backfiled with bentonite and soil cuttings upon completion of drilling. Pavement was patched with concrete grout upon completion of drilling.	97.0		
4.0		96.0		
5.0		95.0		

Moisture Content (%): PL I----------X----------I LL; 20 40 60 80

SHEAR STRENGTH (kPa): P. Pen | Torvane | UC

ENG- TECH Consulting Limited

Logged by: TDR

Reviewed by: CAS

Drilled By: Subterranean (Manitoba) Ltd.

Drill Rig: CME 75

Auger Size: 125 mm Solid Stem

Completion Depth: 3.0 m

Completion Elevation: 97.0 m

Sheet: 1 of 1

SAMPLE TYPE: SPLIT BARREL | SHELBY TUBE | AUGER CUTTINGS | SPLIT SPOON

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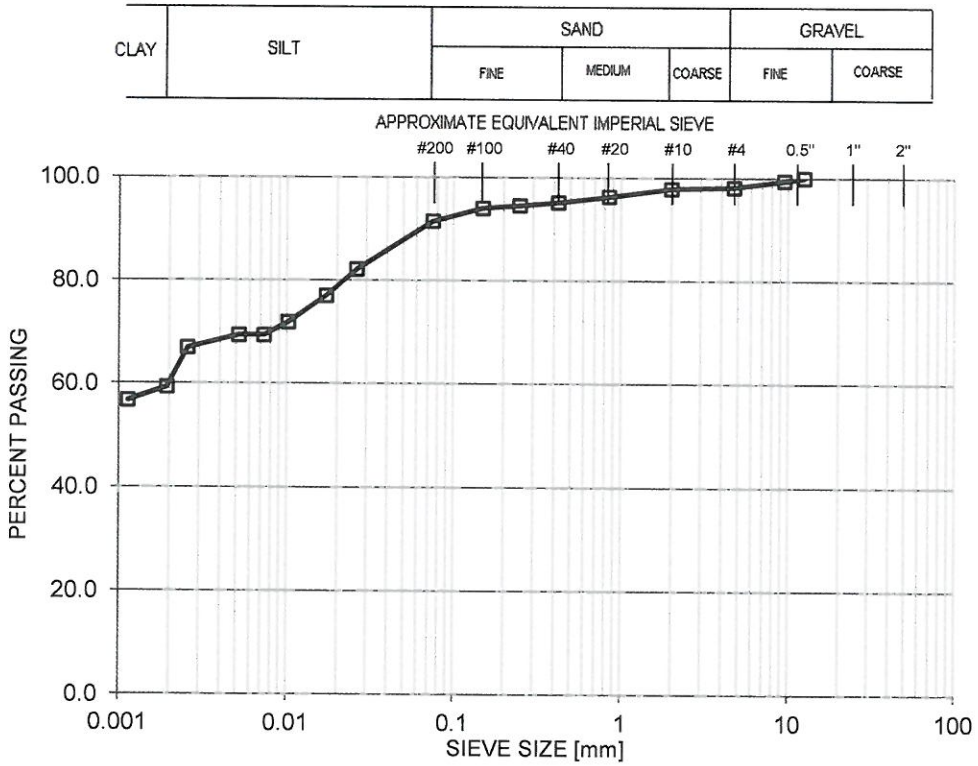
PARTICLE SIZE ANALYSIS

WSP Canada Inc.
111 - 93 Lombard Avenue
Winnipeg, Manitoba
R3B 3B1

File No.: 17-035-02
Ref. No.: 17-35-2-16

Attention: Joel Piwniuk, E.I.T.
Project: GEOTECHNICAL INVESTIGATION - INDUSTRIAL STREETS PACKAGE 18-RL-02

Test Hole No. TH1C **Sample No.** 3 **Depth:** 0.7 m
Sample By: ENG-TECH (Trevor Robertson) **Type of Sample:** Auger cutting **Source:** Chevrier Boulevard
Date Sampled: Dec 19/17 **Date Received:** Dec 19/17 **Date Tested:** Jan 3/18
Dispersion Device: Apparatus A: Humboldt Mechanical Analysis Stirrer **Dispersion Time (min.):** 1



SIEVE SIZE (mm)	PERCENT PASSING
12.5	100.0
9.5	99.5
4.75	98.2
2.0	97.9
0.850	96.3
0.425	95.2
0.250	94.5
0.150	94.1
0.075	91.5
0.026	82.1
0.017	77.0
0.010	71.9
0.007	69.4
0.005	69.4
0.003	66.9
0.002	59.3
0.001	56.7

Percent of: GRAVEL (1.8 %), SAND (6.7 %), SILT (31.3 %), CLAY (60.1 %)
Sample Description:
Comments: Insitu Moisture content is 26.7%.

ENG-TECH Consulting Limited

Per _____
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PARTICLE SIZE ANALYSIS

WSP Canada Inc.
111 - 93 Lombard Avenue
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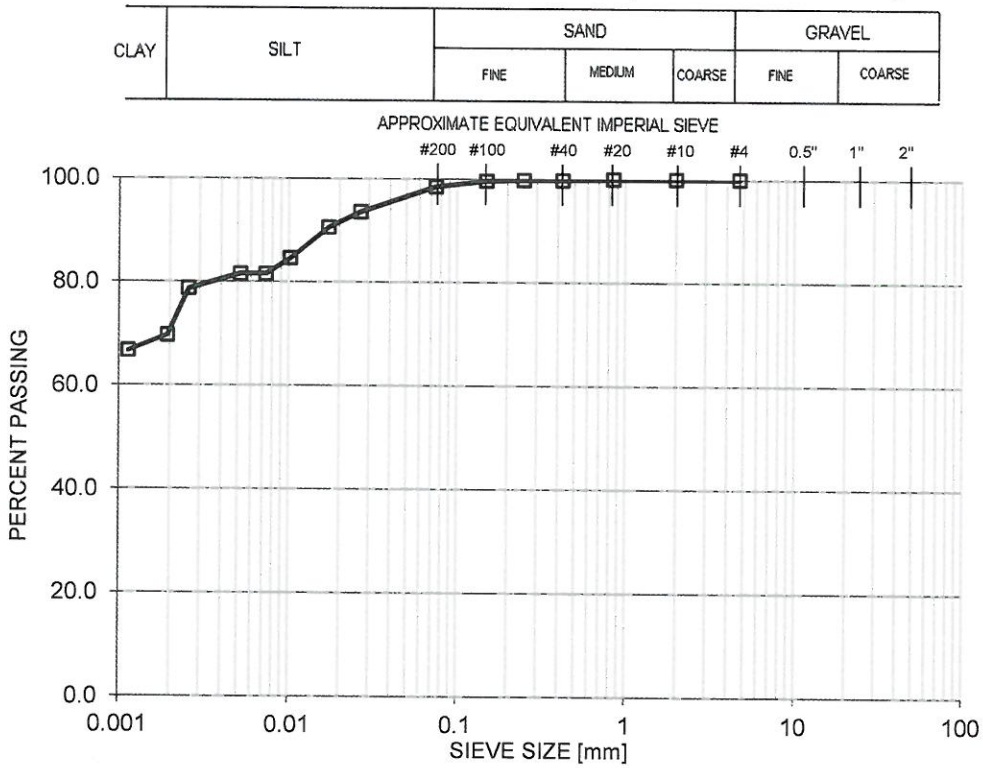
File No.: 17-035-02
Ref. No.: 17-35-2-18

Attention: Joel Piwniuk, E.I.T.
Project: GEOTECHNICAL INVESTIGATION - INDUSTRIAL STREETS PACKAGE 18-RL-02

Test Hole No.	TH2C	**Sample No.**	3	**Depth:**	0.7 m
Sample By:	ENG-TECH (Trevor Robertson)	**Type of Sample:**	Auger cutting	**Source:**	Chevrier Boulevard
Date Sampled:	Dec 19/17	**Date Received:**	Dec 19/17	**Date Tested:**	Jan 3/18

Dispersion Device: Apparatus A: Humboldt Mechanical Analysis Stirrer **Dispersion Time (min.):** 1



SIEVE SIZE (mm)	PERCENT PASSING
4.75	100.0
2.0	100.0
0.850	100.0
0.425	99.8
0.250	99.8
0.150	99.6
0.075	98.5
0.027	93.5
0.017	90.5
0.010	84.5
0.007	81.5
0.005	81.5
0.003	78.7
0.002	69.7
0.001	66.7

Percent of: GRAVEL (0.0 %), SAND (1.5 %), SILT (27.8 %), CLAY (70.7 %)
Sample Description:
Comments: Insitu Moisture content is 28.5%.

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PARTICLE SIZE ANALYSIS

WSP Canada Inc.
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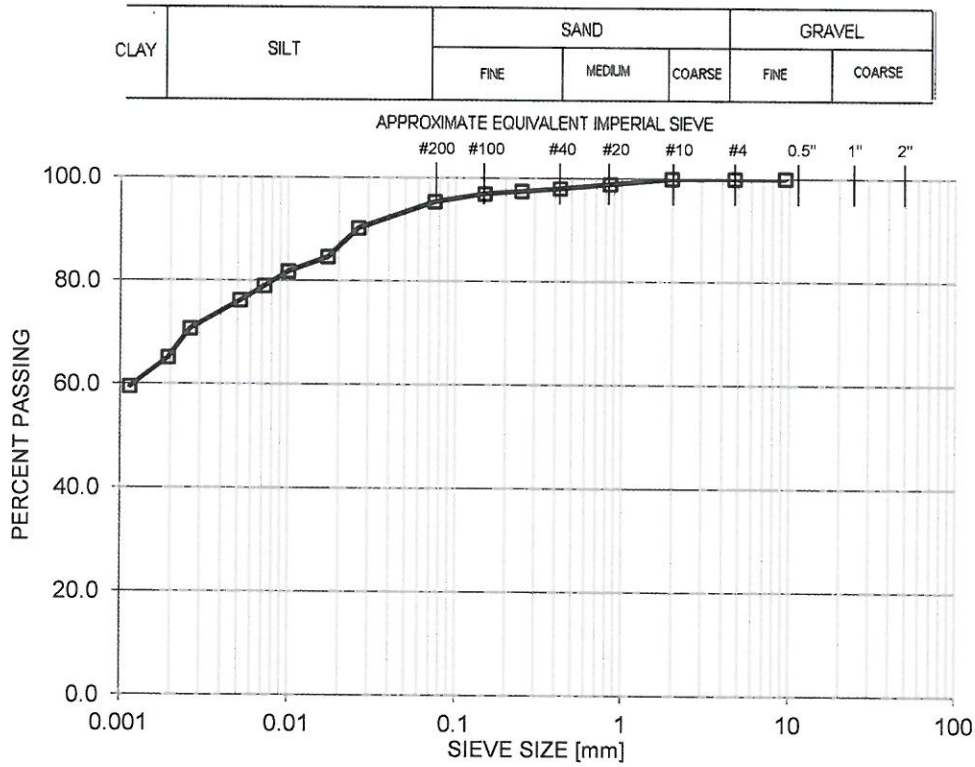
File No.: 17-035-02
Ref. No.: 17-35-2-20

Attention: Joel Piwniuk, E.I.T.
Project: GEOTECHNICAL INVESTIGATION - INDUSTRIAL STREETS PACKAGE 18-RL-02

Test Hole No. TH3C **Sample No.** 4 **Depth:** 1.0 m
Sample By: ENG-TECH (Trevor Robertson) **Type of Sample:** Auger cutting **Source:** Chevrier Boulevard
Date Sampled: Dec 19/17 **Date Received:** Dec 19/17 **Date Tested:** Jan 3/18

Dispersion Device: Apparatus A: Humboldt Mechanical Analysis Stirrer **Dispersion Time (min.):** 1



SIEVE SIZE (mm)	PERCENT PASSING
9.5	100.0
4.75	100.0
2.0	99.9
0.850	98.9
0.425	98.0
0.250	97.5
0.150	96.9
0.075	95.3
0.026	90.2
0.017	84.6
0.010	81.8
0.007	79.0
0.005	76.2
0.003	70.7
0.002	65.1
0.001	59.5

Percent of: GRAVEL (0.0 %), SAND (4.6 %), SILT (29.7 %), CLAY (65.7 %)
Sample Description:
Comments: Insitu Moisture content is 27.4%.

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PARTICLE SIZE ANALYSIS

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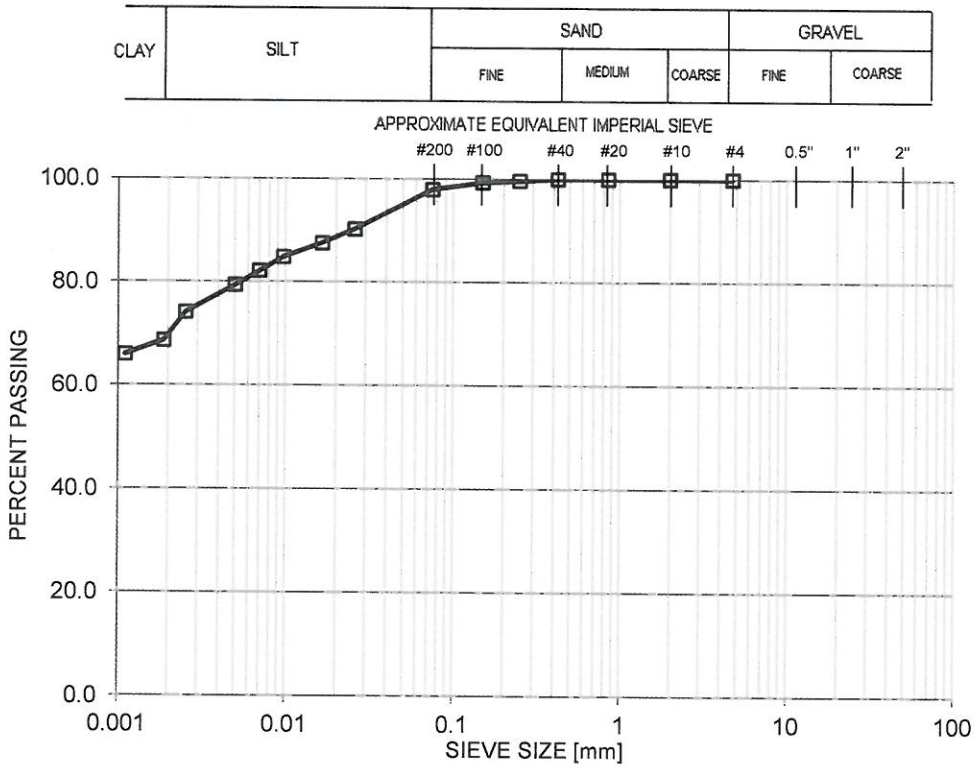
File No.: 17-035-02
Ref. No.: 17-35-2-22

Attention: Joel Piwniuk, E.I.T.
Project: GEOTECHNICAL INVESTIGATION - INDUSTRIAL STREETS PACKAGE 18-RL-02

Test Hole No. TH4C **Sample No.** 3 **Depth:** 0.7 m
Sample By: ENG-TECH (Trevor Robertson) **Type of Sample:** Auger cutting **Source:** Chevrier Boulevard
Date Sampled: Dec 19/17 **Date Received:** Dec 19/17 **Date Tested:** Jan 3/18
Dispersion Device: Apparatus A: Humboldt Mechanical Analysis Stirrer **Dispersion Time (min.):** 1



SIEVE SIZE (mm)	PERCENT PASSING
4.75	100.0
2.0	100.0
0.850	100.0
0.425	100.0
0.250	99.7
0.150	99.3
0.075	97.9
0.026	90.3
0.017	87.5
0.010	84.8
0.007	82.1
0.005	79.4
0.003	74.1
0.002	68.6
0.001	65.9

Percent of: GRAVEL (0.0 %), SAND (2.1 %), SILT (28.2 %), CLAY (69.7 %)
Sample Description:
Comments: Insitu Moisture content is 28.5%.

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PARTICLE SIZE ANALYSIS

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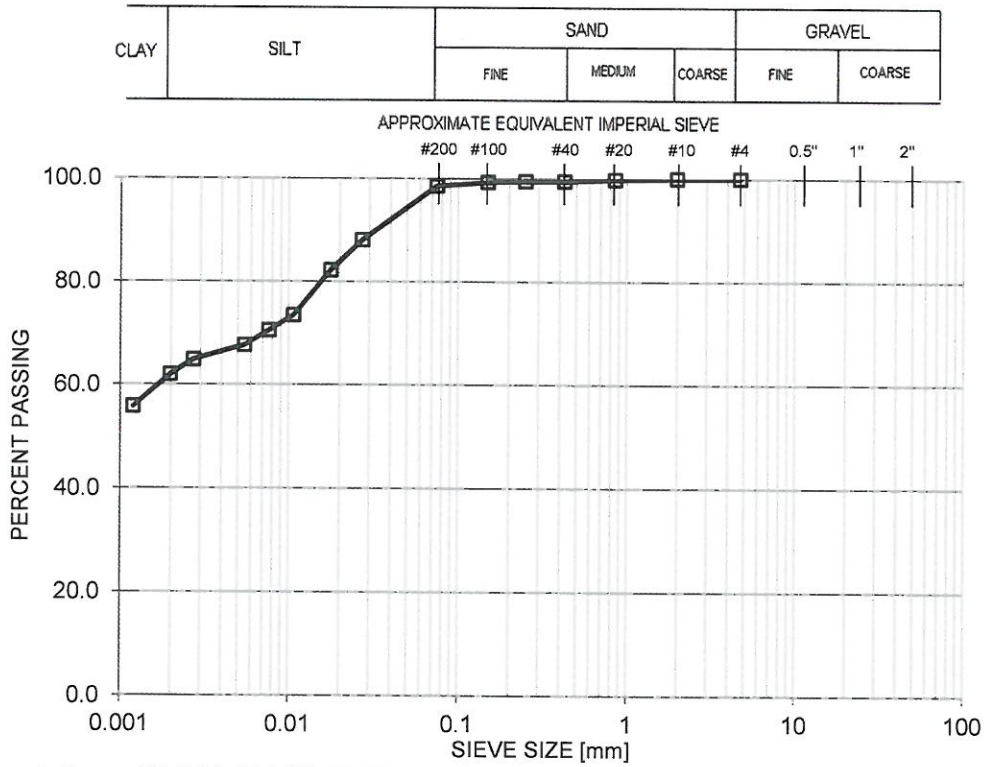
File No.: 17-035-02
Ref. No.: 17-35-2-24

Attention: Joel Piwniuk, E.I.T.
Project: GEOTECHNICAL INVESTIGATION - INDUSTRIAL STREETS PACKAGE 18-RL-02

Test Hole No. TH5C **Sample No.** 4 **Depth:** 1.0 m
Sample By: ENG-TECH (Trevor Robertson) **Type of Sample:** Auger cutting **Source:** Chevrier Boulevard
Date Sampled: Dec 19/17 **Date Received:** Dec 19/17 **Date Tested:** Jan 4/18

Dispersion Device: Apparatus A: Humboldt Mechanical Analysis Stirrer **Dispersion Time (min.):** 1



SIEVE SIZE (mm)	PERCENT PASSING
4.75	100.0
2.0	100.0
0.850	99.8
0.425	99.4
0.250	99.4
0.150	99.3
0.075	98.5
0.027	88.0
0.018	82.2
0.011	73.4
0.008	70.5
0.005	67.6
0.003	64.8
0.002	61.9
0.001	55.8

Percent of: GRAVEL (0.0 %), SAND (1.5 %), SILT (36.5 %), CLAY (62.0 %)
Sample Description:
Comments: Insitu Moisture content is 31.4%.

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PARTICLE SIZE ANALYSIS

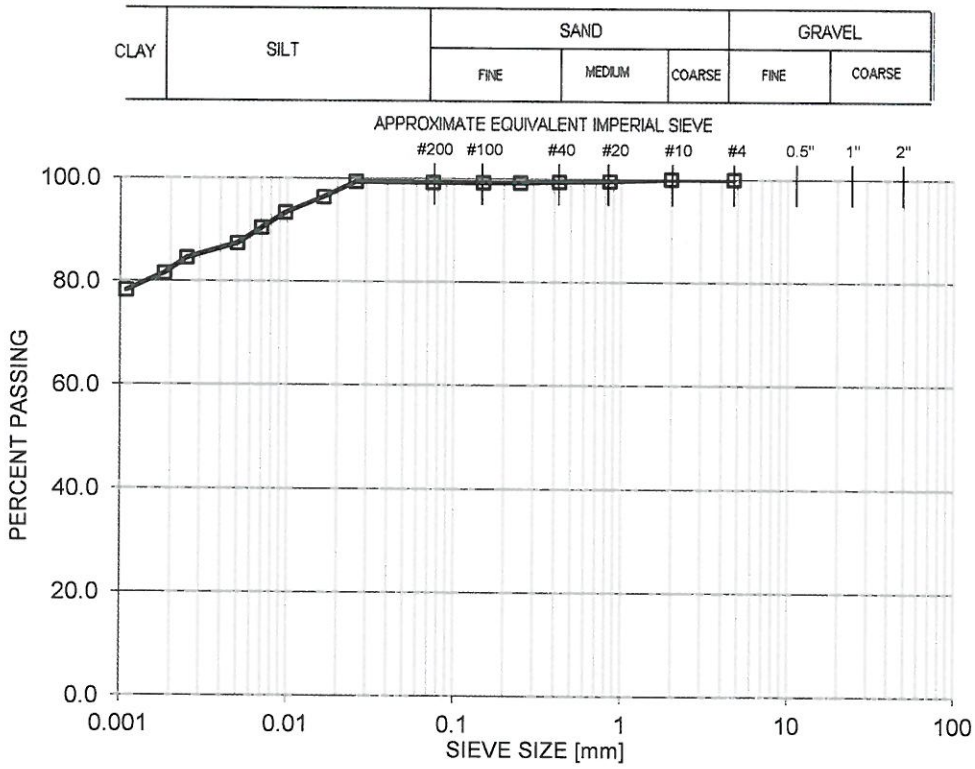
WSP Canada Inc.
111 - 93 Lombard Avenue
Winnipeg, Manitoba
R3B 3B1

File No.: 17-035-02
Ref. No.: 17-35-2-26

Attention: Joel Piwniuk, E.I.T.
Project: GEOTECHNICAL INVESTIGATION - INDUSTRIAL STREETS PACKAGE 18-RL-02

Test Hole No. TH5C **Sample No.** 5 **Depth:** 1.3 m
Sample By: ENG-TECH (Trevor Robertson) **Type of Sample:** Auger cutting **Source:** Chevrier Boulevard
Date Sampled: Dec 19/17 **Date Received:** Dec 19/17 **Date Tested:** Jan 4/18

Dispersion Device: Apparatus A: Humboldt Mechanical Analysis Stirrer **Dispersion Time (min.):** 1



SIEVE SIZE (mm)	PERCENT PASSING
4.75	100.0
2.0	100.0
0.850	99.6
0.425	99.4
0.250	99.2
0.150	99.2
0.075	99.2
0.026	99.4
0.017	96.4
0.010	93.4
0.007	90.4
0.005	87.4
0.003	84.5
0.002	81.5
0.001	78.2

Percent of: GRAVEL (0.0 %), SAND (0.8 %), SILT (16.8 %), CLAY (82.4 %)
Sample Description:
Comments: Insitu Moisture content is 35.6%.

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PARTICLE SIZE ANALYSIS

WSP Canada Inc.
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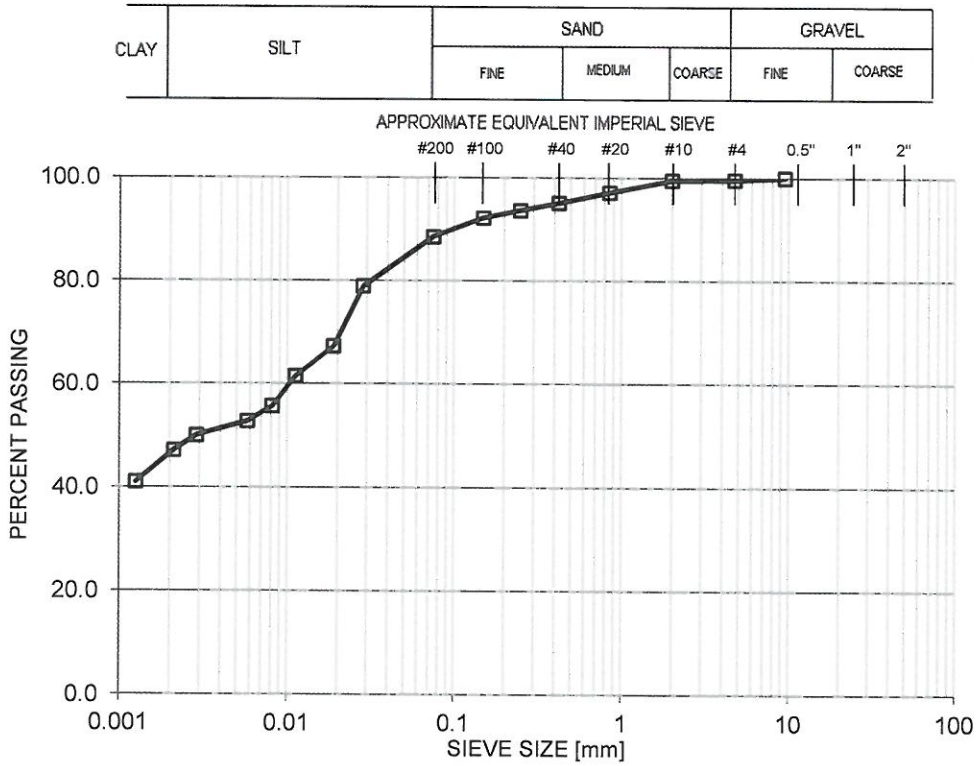
R3B 3B1

File No.: 17-035-02
Ref. No.: 17-35-2-28

Attention: Joel Piwniuk, E.I.T.
Project: GEOTECHNICAL INVESTIGATION - INDUSTRIAL STREETS PACKAGE. 18-RL-02

Test Hole No. TH6C **Sample No.** 4 **Depth:** 1.0 m
Sample By: ENG-TECH (Trevor Robertson) **Type of Sample:** Auger cutting **Source:** Chevrier Boulevard
Date Sampled: Dec 19/17 **Date Received:** Dec 19/17 **Date Tested:** Jan 4/18
Dispersion Device: Apparatus A: Humboldt Mechanical Analysis Stirrer **Dispersion Time (min.):** 1



SIEVE SIZE (mm)	PERCENT PASSING
9.5	100.0
4.75	99.6
2.0	99.5
0.850	97.1
0.425	95.1
0.250	93.7
0.150	92.2
0.075	88.5
0.028	78.9
0.019	67.3
0.011	61.5
0.008	55.6
0.006	52.7
0.003	50.0
0.002	47.1
0.001	41.0

Percent of: GRAVEL (0.4 %), SAND (11.1 %), SILT (42.0 %), CLAY (46.4 %)
Sample Description:
Comments: Insitu Moisture content is 26.5%.

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PARTICLE SIZE ANALYSIS

WSP Canada Inc.
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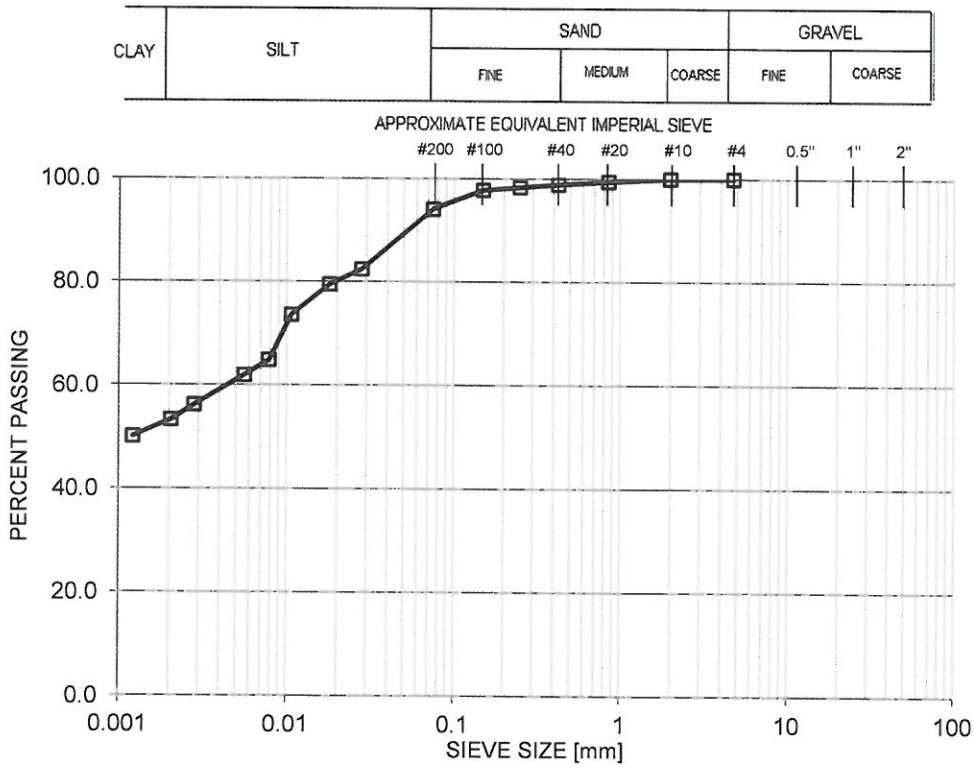
File No.: 17-035-02
Ref. No.: 17-35-2-30

Attention: Joel Piwniuk, E.I.T.
Project: GEOTECHNICAL INVESTIGATION - INDUSTRIAL STREETS PACKAGE 18-RL-02

Test Hole No. TH7C **Sample No.** 3 **Depth:** 0.7 m
Sample By: ENG-TECH (Trevor Robertson) **Type of Sample:** Auger cutting **Source:** Chevrier Boulevard
Date Sampled: Dec 19/17 **Date Received:** Dec 19/17 **Date Tested:** Jan 4/18

Dispersion Device: Apparatus A: Humboldt Mechanical Analysis Stirrer **Dispersion Time (min.):** 1



SIEVE SIZE (mm)	PERCENT PASSING
4.75	100.0
2.0	100.0
0.850	99.4
0.425	98.9
0.250	98.3
0.150	97.8
0.075	94.1
0.028	82.4
0.018	79.5
0.011	73.6
0.008	64.8
0.006	61.9
0.003	56.2
0.002	53.3
0.001	50.1

Percent of: GRAVEL (0.0 %), SAND (5.9 %), SILT (41.0 %), CLAY (53.1 %)
Sample Description:
Comments: Insitu Moisture content is 33.3%.

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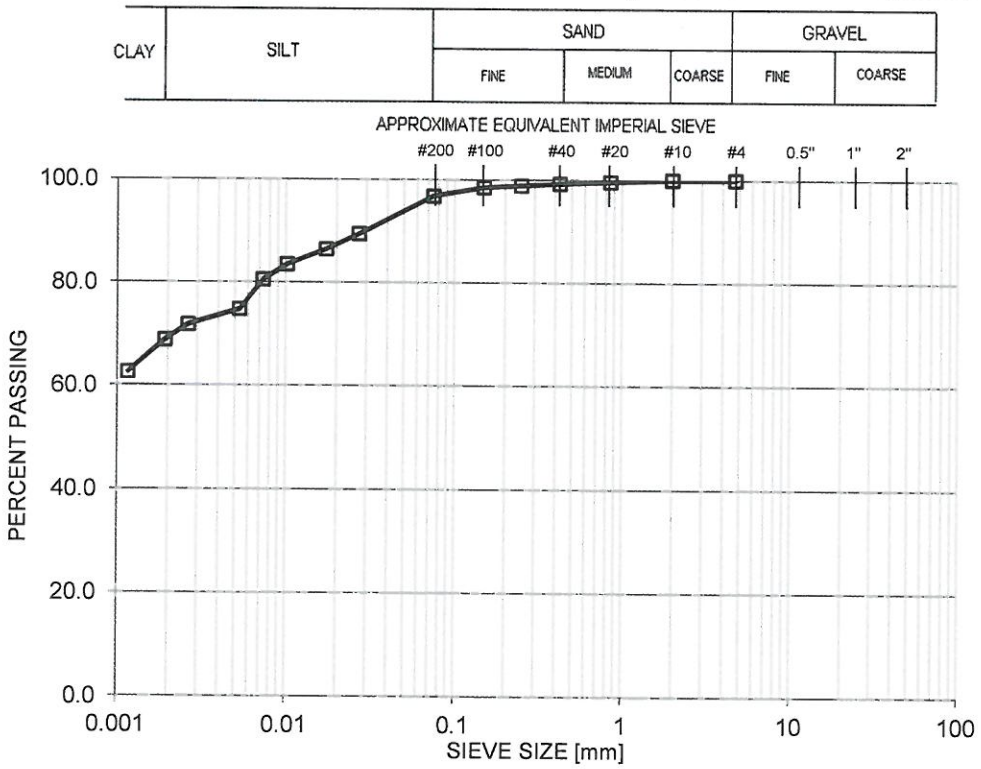
File No.: 17-035-02
Ref. No.: 17-35-2-32

Attention: Joel Piwniuk, E.I.T.
Project: GEOTECHNICAL INVESTIGATION - INDUSTRIAL STREETS PACKAGE 18-RL-02

Test Hole No. TH8C **Sample No.** 3 **Depth:** 0.7 m
Sample By: ENG-TECH (Trevor Robertson) **Type of Sample:** Auger cutting **Source:** Chevrier Boulevard
Date Sampled: Dec 19/17 **Date Received:** Dec 19/17 **Date Tested:** Jan 4/18

Dispersion Device: Apparatus A: Humboldt Mechanical Analysis Stirrer **Dispersion Time (min.):** 1



SIEVE SIZE (mm)	PERCENT PASSING
4.75	100.0
2.0	100.0
0.850	99.6
0.425	99.3
0.250	98.9
0.150	98.5
0.075	96.8
0.027	89.4
0.017	86.5
0.010	83.5
0.007	80.5
0.005	74.7
0.003	71.8
0.002	68.8
0.001	62.6

Percent of: GRAVEL (0.0 %), SAND (3.2 %), SILT (27.7 %), CLAY (69.1 %)
Sample Description:
Comments: Insitu Moisture content is 29.0%.

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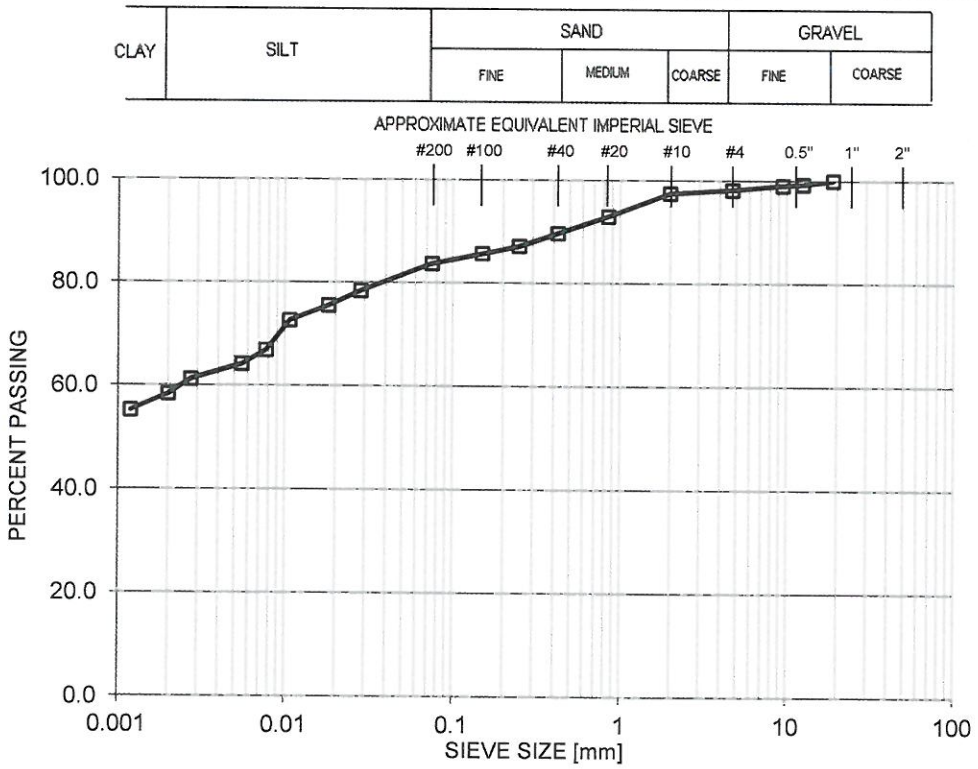
File No.: 17-035-02
Ref. No.: 17-35-2-34

Attention: Joel Piwniuk, E.I.T.
Project: GEOTECHNICAL INVESTIGATION - INDUSTRIAL STREETS PACKAGE 18-RL-02

Test Hole No. TH9C **Sample No.** 4 **Depth:** 1.0 m
Sample By: ENG-TECH (Trevor Robertson) **Type of Sample:** Auger cutting **Source:** Chevrier Boulevard
Date Sampled: Dec 19/17 **Date Received:** Dec 19/17 **Date Tested:** Jan 4/18
Dispersion Device: Apparatus A: Humboldt Mechanical Analysis Stirrer **Dispersion Time (min.):** 1



SIEVE SIZE (mm)	PERCENT PASSING
19.0	100.0
12.5	99.3
9.5	99.1
4.75	98.2
2.0	97.5
0.850	92.9
0.425	89.7
0.250	87.1
0.150	85.7
0.075	83.7
0.028	78.4
0.018	75.5
0.011	72.6
0.008	66.8
0.006	64.1
0.003	61.2
0.002	58.3
0.001	55.1

Percent of: GRAVEL (1.8 %), SAND (14.5 %), SILT (25.4 %), CLAY (58.3 %)
Sample Description:
Comments: Insitu Moisture content is 28.4%.

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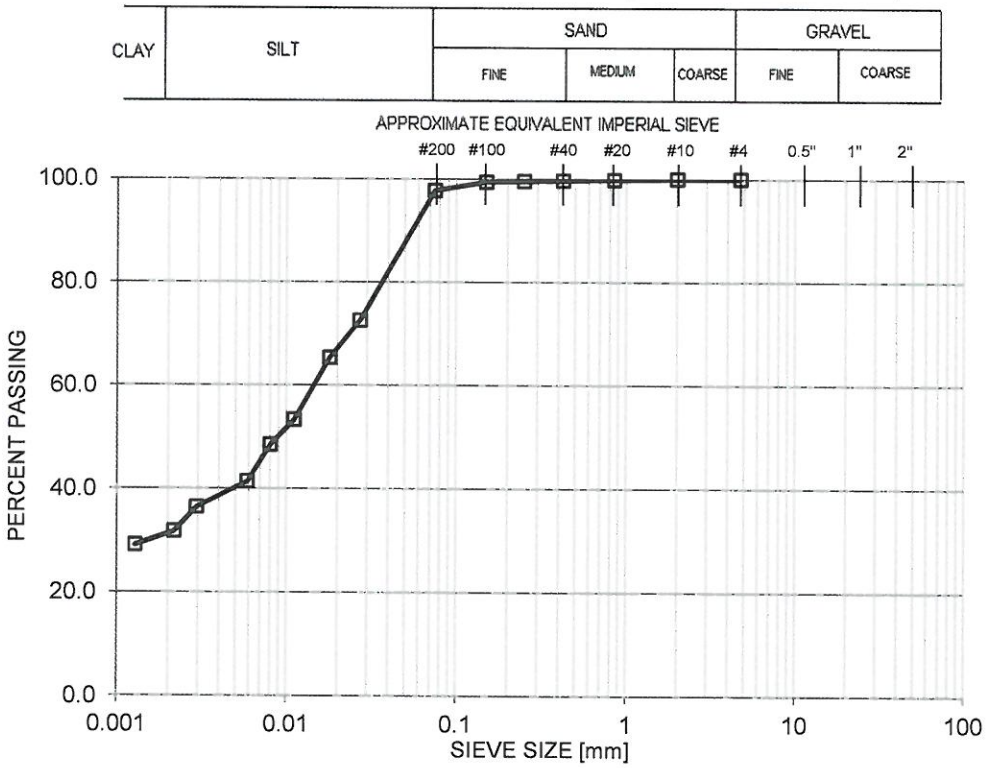
File No.: 17-035-02
Ref. No.: 17-35-2-36

Attention: Joel Piwniuk, E.I.T.
Project: GEOTECHNICAL INVESTIGATION - INDUSTRIAL STREETS PACKAGE 18-RL-02

Test Hole No. TH10C **Sample No.** 3 **Depth:** 0.7 m
Sample By: ENG-TECH (Trevor Robertson) **Type of Sample:** Auger cutting **Source:** Chevrier Boulevard
Date Sampled: Dec 19/17 **Date Received:** Dec 19/17 **Date Tested:** Jan 4/18

Dispersion Device: Apparatus A: Humboldt Mechanical Analysis Stirrer **Dispersion Time (min.):** 1



SIEVE SIZE (mm)	PERCENT PASSING
4.75	100.0
2.0	100.0
0.850	99.8
0.425	99.7
0.250	99.5
0.150	99.4
0.075	97.7
0.027	72.5
0.018	65.3
0.011	53.3
0.008	48.5
0.006	41.4
0.003	36.4
0.002	31.7
0.001	29.1

Percent of: GRAVEL (0.0 %), SAND (2.3 %), SILT (66.4 %), CLAY (31.3 %)
Sample Description:
Comments: Insitu Moisture content is 23.7%.

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