



**P.MACHIBRODA**  
**ENGINEERING LTD.**

**TEST PIT**

23-2

**DRAWING NUMBER:** 20564-3

**PROJECT:** AGGREGATE ASSESSMENT

**LOCATION:** SW 13-52-03 W3M, NEAR SHELLBROOK, SK

**NORTHING (m):** 5926873

**EASTING (m):** 412377

**ELEVATION (m):** 466.1 (+/-1.0)

**DATE DRILLED:** JULY 14/23

**SAMPLE TYPE:** ☒ CUTTINGS

☒ SPLIT SPOON

☐ SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m <sup>3</sup> )	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/m <sup>2</sup> )	DEPTH (m)
0		TOPSOIL									0
1		SAND, some silt, trace gravel, compact, well graded, fine to coarse grained, moist, mottled grey and brown.									1
2		GRAVEL AND SAND, some silt, dense, well graded, fine to coarse grained, wet, brown, cobbles and boulders, seepage, sloughing.									2
3											3
4											4
5											5
6											6

**NOTE**

1. Test Pit Terminated at 2.5 m due to large cobbles and boulders.



**P.M. MACHIBRODA**  
**ENGINEERING LTD.**

**TEST PIT**

23-3

**DRAWING NUMBER:** 20564-4

**PROJECT:** AGGREGATE ASSESSMENT

**LOCATION:** SW 13-52-03 W3M, NEAR SHELLBROOK, SK

**NORTHING (m):** 5926945

**EASTING (m):** 412375


**ELEVATION (m):** 465.3 (+/-1.0)

**DATE DRILLED:** JULY 14/23

**SAMPLE TYPE:** ☒ CUTTINGS

☒ SPLIT SPOON

☐ SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	WATER LEVELS	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m <sup>3</sup> )	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/cm <sup>2</sup> )	DEPTH (m)
		<input type="checkbox"/> After Drilling <input type="checkbox"/> During Drilling										
0			TOPSOIL									0
1			SAND, some silt, trace gravel, compact, well graded, fine to coarse grained, moist, mottled grey and brown. wet, seepage, sloughing below 1.0 m.									1
2			GRAVEL AND SAND, some silt, dense, well graded, fine to coarse grained, wet, brown, cobbles, boulders, seepage, sloughing.									2
3												3
4												4
5												5
6												6

**NOTE:**

1. Test Pit Terminated at 2.5 m due to excessive sloughing.

SHEET 1 OF 1



**P.M. MACHIBRODA**  
**ENGINEERING LTD.**

**TEST PIT**

23-4

**DRAWING NUMBER:** 20564-5

**PROJECT:** AGGREGATE ASSESSMENT

**LOCATION:** SW 13-52-03 W3M, NEAR SHELLBROOK, SK

**NORTHING (m):** 5926996

**EASTING (m):** 412375


**ELEVATION (m):** 465.5 (+/-1.0)

**DATE DRILLED:** JULY 14/23

**SAMPLE TYPE:** ☒ CUTTINGS

☒ SPLIT SPOON

☐ SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	WATER LEVELS ▼ After Drilling ▽ During Drilling	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m <sup>3</sup> )	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/cm <sup>2</sup> )	DEPTH (m)
0			TOPSOIL									0
1			SAND, silty, dense, poorly graded, fine grained, moist, mottled grey and brown.									1
2			GRAVEL AND SAND, some silt, dense, well graded, fine to coarse grained, moist, brown, cobbles, boulders. wet, seepage, sloughing below 2.0 m.									2
3												3
4												4
5												5
6												6

**NOTE:**

1. Test Pit Terminated at 2.0 m due to large cobbles and boulders and excessive sloughing.

SHEET 1 OF 1



**P.M. MACHIBRODA**  
**ENGINEERING LTD.**

**TEST PIT**

23-5

**DRAWING NUMBER:** 20564-6

**PROJECT:** AGGREGATE ASSESSMENT

**LOCATION:** SW 13-52-03 W3M, NEAR SHELLBROOK, SK

**NORTHING (m):** 5927020

**EASTING (m):** 412353

**ELEVATION (m):** 465.9(+/-1.0)

**DATE DRILLED:** JULY 14/23

**SAMPLE TYPE:** ☒ CUTTINGS

☒ SPLIT SPOON

☐ SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m <sup>3</sup> )	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/cm <sup>2</sup> )	DEPTH (m)
0		TOPSOIL									0
1		SAND, some silt, some gravel, dense, well graded, fine to coarse grained, moist, brown.									1
2		gravelly, cobbles and boulders below 1.5 m.									2
3		wet, seepage, sloughing below 2.0 m.									3
4											4
5											5
6											6

**NOTE:**

1. Test Pit Terminated at 2.0 m due to large cobbles and boulders.



**P.M. MACHIBRODA**  
**ENGINEERING LTD.**

**TEST PIT**

23-6

**DRAWING NUMBER:** 20564-7

**PROJECT:** AGGREGATE ASSESSMENT

**LOCATION:** SW 13-52-03 W3M, NEAR SHELLBROOK, SK

**NORTHING (m):** 5927099

**EASTING (m):** 412361


**ELEVATION (m):** 465.2(+/-1.0)

**DATE DRILLED:** JULY 14/23

**SAMPLE TYPE:** ☒ CUTTINGS

☒ SPLIT SPOON

☐ SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m <sup>3</sup> )	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/cm <sup>2</sup> )	DEPTH (m)
0		TOPSOIL									0
1		SAND, some silt, trace gravel, dense, well graded, fine to coarse grained, moist, grey.									1
2		SAND, gravelly, trace silt, very dense, well graded, fine to coarse grained, moist, brown, cobbles and boulders.									2
3		GLACIAL TILL									3
4											4
5											5
6											6



**P.MACHIBRODA  
ENGINEERING LTD.**

**TEST PIT**

23-7

**DRAWING NUMBER:** 20564-8

**PROJECT:** AGGREGATE ASSESSMENT

**LOCATION:** SW 13-52-03 W3M, NEAR SHELLBROOK, SK

**NORTHING (m):** 5927174

**EASTING (m):** 412378

**ELEVATION (m):** 465.2(+/-1.0)

**DATE DRILLED:** JULY 14/23

**SAMPLE TYPE:** ☒ CUTTINGS ☒ SPLIT SPOON ☐ SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	WATER LEVELS ▼ After Drilling ▽ During Drilling	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m <sup>3</sup> )	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/cm <sup>2</sup> )	DEPTH (m)
0			TOPSOIL									0
1			SAND, gravelly, some silt, very dense, well graded, fine to coarse grained, moist, brown, cobbles and boulders.									1
2			SAND, some silt, dense, poorly graded, fine grained, moist, whitish brown.									2
3			SAND, gravelly, some silt, very dense, well graded, fine to coarse grained, moist, brown, cobbles and boulders, sloughing.									3
4												4
5												5
6												6

**NOTE:**

1. Test Pit Terminated at 2.5 m due to large cobbles and boulders and sloughing.

SHEET 1 OF 1



**P.M.MACHIBRODA**  
**ENGINEERING LTD.**

**TEST PIT**

23-8

**DRAWING NUMBER:** 20564-9

**PROJECT:** AGGREGATE ASSESSMENT

**LOCATION:** SW 13-52-03 W3M, NEAR SHELLBROOK, SK

**NORTHING (m):** 5927288

**EASTING (m):** 412361


**ELEVATION (m):** 464.9(+/-1.0)

**DATE DRILLED:** JULY 14/23

**SAMPLE TYPE:** ☒ CUTTINGS

☒ SPLIT SPOON

☐ SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	WATER LEVELS	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m³)	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/cm²)	DEPTH (m)
		<input checked="" type="checkbox"/> After Drilling <input checked="" type="checkbox"/> During Drilling									
0		TOPSOIL									0
1		SAND, some silt, dense, poorly graded, fine to medium grained, moist, whitish brown.									1
2		SAND, gravelly, trace silt, dense, well graded, fine to coarse grained, moist, brown, cobbles and boulders. wet, seepage, sloughing below 2.0 m.									2
3											3
4											4
5											5
6											6

**NOTE:**

1. Test Pit Terminated at 2.5 m due to large cobbles and boulders and sloughing.



**P.MACHIBRODA**  
**ENGINEERING LTD.**

**TEST PIT**

23-9

**DRAWING NUMBER:** 20564-10

**PROJECT:** AGGREGATE ASSESSMENT

**LOCATION:** SW 13-52-03 W3M, NEAR SHELLBROOK, SK

**NORTHING (m):** 5927409

**EASTING (m):** 412360


**ELEVATION (m):** 464.1(+/-1.0)

**DATE DRILLED:** JULY 14/23

**SAMPLE TYPE:** ☒ CUTTINGS

☒ SPLIT SPOON

☐ SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	WATER LEVELS ▼ After Drilling ▽ During Drilling	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m <sup>3</sup> )	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/cm <sup>2</sup> )	DEPTH (m)
0			TOPSOIL									0
1			SAND, some silt, dense, poorly graded, fine to medium grained, moist, mottled grey and brown.									1
2			some gravel, cobbles and boulders, wet, seepage, sloughing below 2.0 m.									2
3												3
4												4
5												5
6												6

**NOTE:**

1. Test Pit Terminated at 2.5 m due to large cobbles and boulders and sloughing.



**P.MACHIBRODA**  
**ENGINEERING LTD.**

**TEST PIT**

23-10

**DRAWING NUMBER:** 20564-11

**PROJECT:** AGGREGATE ASSESSMENT

**LOCATION:** SW 13-52-03 W3M, NEAR SHELLBROOK, SK

**NORTHING (m):** 5927469

**EASTING (m):** 412293

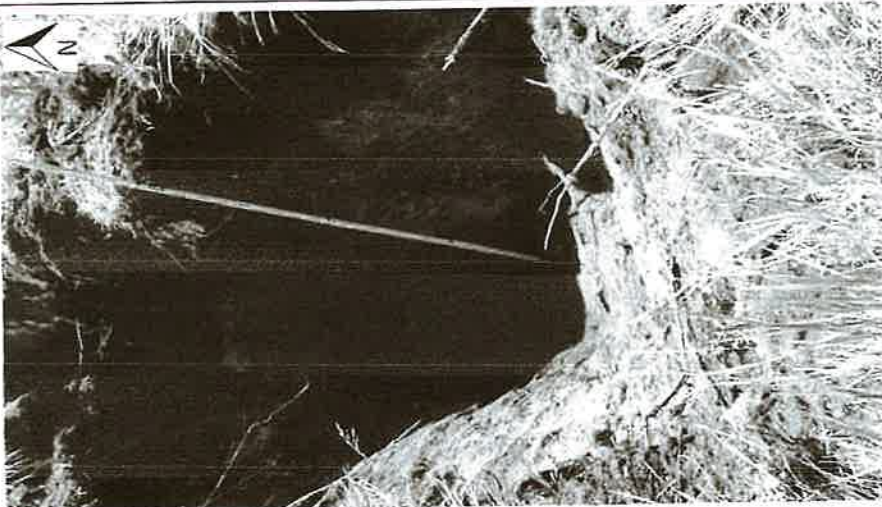
**ELEVATION (m):** 465.5(+/-1.0)

**DATE DRILLED:** JULY 14/23

**SAMPLE TYPE:** ☒ CUTTINGS

☒ SPLIT SPOON

☐ SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	WATER LEVELS	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m³)	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/cm²)	DEPTH (m)
		▼ After Drilling ▽ During Drilling									
0	TOPSOIL										0
	SAND, silty, dense, poorly graded, fine grained, moist, mottled grey and brown.										
1	some silt, trace gravel, cobbles and boulders below 1.0 m.										1
2	some gravel, trace silt below 2.0 m.										2
	wet, seepage, sloughing at 2.7 m.										
3	GLACIAL TILL										3
4											4
5											5
6											6



**P.M. MACHIBRODA**  
**ENGINEERING LTD.**

**TEST PIT**

23-11

**DRAWING NUMBER:** 20564-12

**PROJECT:** AGGREGATE ASSESSMENT

**LOCATION:** SW 13-52-03 W3M, NEAR SHELLBROOK, SK

**NORTHING (m):** 5927445

**EASTING (m):** 412208

**ELEVATION (m):** 465.9 (+/-1.0)

**DATE DRILLED:** JULY 14/23

**SAMPLE TYPE:** ☒ CUTTINGS

☒ SPLIT SPOON

☐ SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	WATER LEVELS ▼ After Drilling ▽ During Drilling	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m³)	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/cm²)	DEPTH (m)
0			GRAVEL, sandy, trace silt, very dense, well graded, fine to coarse grained, moist, brown, cobbles and boulders.									0
1												1
2												2
3												3
4												4
5												5
6												6

**NOTE:**

1. Test Pit Terminated at 2.5 m due to large cobbles and boulders.



**P.MACHIBRODA**  
**ENGINEERING LTD.**

**TEST PIT**

23-12

**DRAWING NUMBER:** 20564-13

**PROJECT:** AGGREGATE ASSESSMENT

**LOCATION:** SW 13-52-03 W3M, NEAR SHELLBROOK, SK

**NORTHING (m):** 5927324

**EASTING (m):** 412204


**ELEVATION (m):** 467.2 (+/-1.0)

**DATE DRILLED:** JULY 14/23

**SAMPLE TYPE:** ☒ CUTTINGS

☒ SPLIT SPOON

☐ SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m <sup>3</sup> )	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/cm <sup>2</sup> )	DEPTH (m)
0		GRAVEL, sandy, trace silt, very dense, well graded, fine to coarse grained, moist, brown, cobbles and boulders.									0
1											1
2		wet, seepage at 1.8 m. GLACIAL TILL									2
3											3
4											4
5											5
6											6



**P.MACHIBRODA**  
**ENGINEERING LTD.**

**TEST PIT**

23-13

**DRAWING NUMBER:** 20564-14

**PROJECT:** AGGREGATE ASSESSMENT

**LOCATION:** SW 13-52-03 W3M, NEAR SHELLBROOK, SK

**NORTHING (m):** 5927269

**EASTING (m):** 412256

**ELEVATION (m):** 466.3 (+/-1.0)

**DATE DRILLED:** JULY 14/23

**SAMPLE TYPE:** ☒ CUTTINGS

☒ SPLIT SPOON

☐ SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m <sup>3</sup> )	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/cm <sup>2</sup> )	DEPTH (m)
0	TOPSOIL	GRAVEL, sandy, trace silt, very dense, well graded, fine to coarse grained, moist, brown, cobbles and boulders, sloughing.									0
1											1
2											2
3											3
4											4
5											5
6											6

**NOTE:**

1. Test Pit Terminated at 3.0 m due to sloughing.

SHEET 1 OF 1



**P.MACHIBRODA**  
ENGINEERING LTD.

**TEST PIT**

23-14

**DRAWING NUMBER:** 20564-15

**PROJECT:** AGGREGATE ASSESSMENT

**LOCATION:** SW 13-52-03 W3M, NEAR SHELLBROOK, SK

**NORTHING (m):** 5927176

**EASTING (m):** 412252

**ELEVATION (m):** 467.9 (+/-1.0)

**DATE DRILLED:** JULY 14/23

**SAMPLE TYPE:** ☒ CUTTINGS

☒ SPLIT SPOON

☐ SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m <sup>3</sup> )	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/cm <sup>2</sup> )	DEPTH (m)
0		<b>WATER LEVELS</b> ▼ After Drilling ▽ During Drilling									0
0		<b>TOPSOIL</b> GRAVEL, sandy, trace silt, dense, well graded, fine to coarse grained, moist, brown, cobbles and boulders.									0
1											1
2											2
3											3
4											4
5											5
6											6

**NOTE:**

1. Test Pit Terminated at 2.0 m due to large cobbles and boulders.



**P.MACHIBRODA**  
**ENGINEERING LTD.**

**TEST PIT**

23-15

**DRAWING NUMBER:** 20564-16

**PROJECT:** AGGREGATE ASSESSMENT

**LOCATION:** SW 13-52-03 W3M, NEAR SHELLBROOK, SK

**NORTHING (m):** 5927075

**EASTING (m):** 412210

**ELEVATION (m):** 470.4 (+/-1.0)

**DATE DRILLED:** JULY 14/23

**SAMPLE TYPE:** ☒ CUTTINGS

☒ SPLIT SPOON

☐ SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m³)	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/cm²)	DEPTH (m)
0		<b>WATER LEVELS</b> ▼ After Drilling ▽ During Drilling									0
0		<b>TOPSOIL</b> GRAVEL, sandy, trace silt, dense, well graded, fine to coarse grained, moist, brown, cobbles and boulders.									0
1											1
2											2
3											3
4											4
5											5
6											6

**NOTE:**

1. Test Pit Terminated at 2.0 m due to very large cobbles and boulders.



**P.MACHIBRODA**  
**ENGINEERING LTD.**

**TEST PIT**

23-16

**DRAWING NUMBER:** 20564-17

**PROJECT:** AGGREGATE ASSESSMENT

**LOCATION:** SW 13-52-03 W3M, NEAR SHELLBROOK, SK

**NORTHING (m):** 5926966

**EASTING (m):** 412190


**ELEVATION (m):** 470.7 (+/-1.0)

**DATE DRILLED:** JULY 14/23

**SAMPLE TYPE:** ☒ CUTTINGS

☒ SPLIT SPOON

☐ SHELBY TUBE

DEPTH (m)	STRATIGRAPHY	DESCRIPTION	SAMPLE TYPE	SPT (N) BLOWS/ 300 mm	WATER CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	UNIT WEIGHT (kN/m <sup>3</sup> )	COMPRESSIVE STRENGTH (kPa)	POCKET PEN. (kg/cm <sup>2</sup> )	DEPTH (m)
0		<b>WATER LEVELS</b> ▼ After Drilling ▽ During Drilling									0
		<b>TOPSOIL</b>									
		GRAVEL, sandy, trace silt, very dense, well graded, fine to coarse grained, moist, brown, cobbles and boulders.									
1											1
2											2
3		wet, seepage, sloughing below 3.0 m.									3
4											4
5											5
6											6

**NOTE:**

1. Test Pit Terminated at 3.0 m due to excessive sloughing.



# P.M. MACHIBRODA ENGINEERING LTD.

## ASTM C136: GRAIN SIZE ANALYSIS

Project: Aggregate Assessment  
Location: Near Shellbrook, SK  
Project No.: 20564  
Source: 23-11  
Sample No.: 14  
Depth(m): 0 - 2.5

### Specification:

#### Sieve Analysis:

U.S. Alternative	Standard mm	% Finer	Specification	
			Max	Min
8 in.	200.000	100		
4 in.	100.000	100		
3 in.	75.000	96		
2 in.	50.000	88		
1 in.	25.000	72		
3/4 in.	19.000	67		
1/2 in.	12.500	60		
3/8 in.	9.500	55		
No. 4	4.750	44		
No. 10	2.000	34		
No. 20	0.850	18		
No. 40	0.425	8.1		
No. 60	0.250	5.6		
No. 100	0.150	4.5		
No. 200	0.075	3.5		

#### Other Laboratory Test:

Laboratory Determination of Water (Moisture) Content of Soil and Rock  
by Mass (ASTM D2216)

Moisture Content (As Received): 2.7%

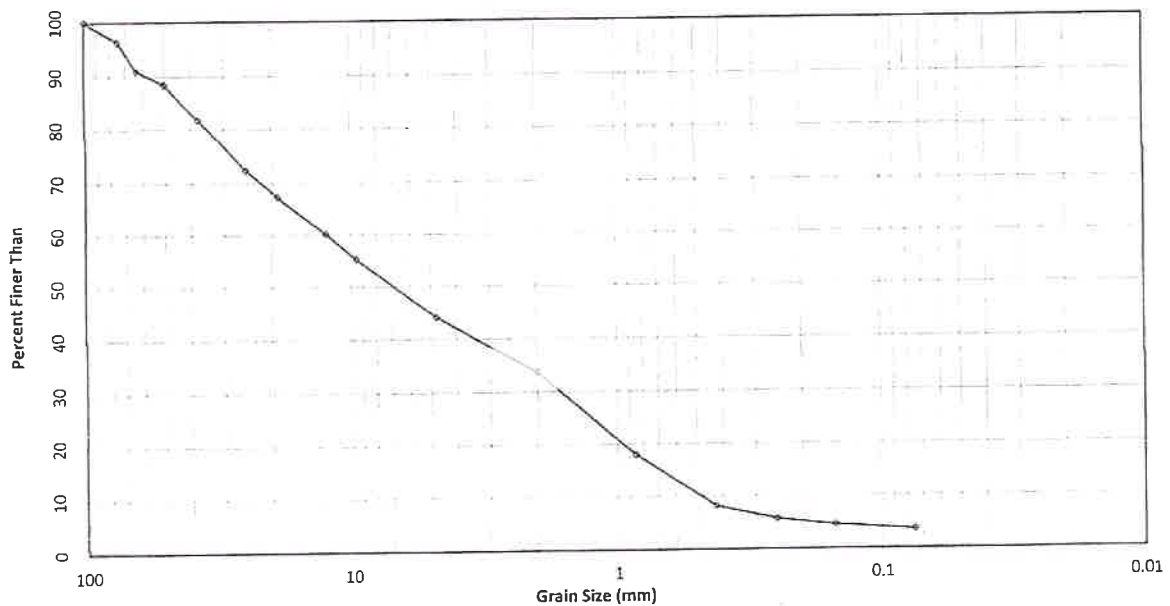
### Material Description:

% Gravel Sizes  
56

% Sand Sizes  
41

% Silt and Clay Sizes  
3.5

### Remarks:



DRAWING NO.

WE CERTIFY TESTING PROCEDURES ARE IN ACCORDANCE  
WITH ASTM C136, C137 AND D2216 STANDARDS  
P. MACHIBRODA ENGINEERING LTD.

PER

*Prashant Schenqer*



# P.M. MACHIBRODA ENGINEERING LTD.

## ASTM C136: GRAIN SIZE ANALYSIS

Project: Aggregate Assessment

Location: Near Shellbrook, SK

Project No.: 20564

Source: 23-13

Sample No.: 16

Depth(m): 0 - 3.0

### Specification:

#### Sieve Analysis:

Sieve Designation			Specification	
U.S.	Standard	%	Max	Min
Alternative	mm	Finer		
8 in.	200.000	100		
4 in.	100.000	96		
3 in.	75.000	94		
2 in.	50.000	88		
1 in.	25.000	77		
3/4 in.	19.000	74		
1/2 in.	12.500	68		
3/8 in.	9.500	65		
No. 4	4.750	56		
No. 10	2.000	42		
No. 20	0.850	18		
No. 40	0.425	7.4		
No. 60	0.250	5.0		
No. 100	0.150	3.5		
No. 200	0.075	2.4		

### Other Laboratory Test:

Laboratory Determination of Water (Moisture) Content of Soil and Rock  
by Mass (ASTM D2216)

Moisture Content (As Received): 1.7%

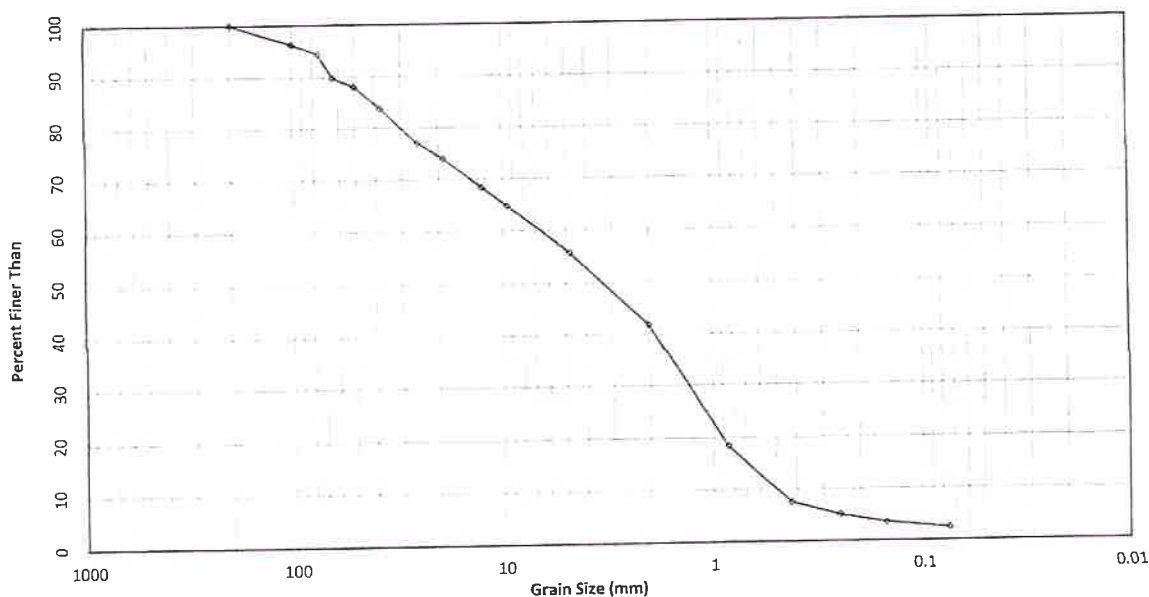
### Material Description:

% Gravel Sizes  
44

% Sand Sizes  
53

% Silt and Clay Sizes  
2.4

### Remarks:



DRAWING NO.

WE CERTIFY TESTING PROCEDURES ARE IN ACCORDANCE  
WITH ASTM C136, C117 AND D2216 STANDARDS  
P. MACHIBRODA ENGINEERING LTD.

PER

*Pastor Scherger*



# P.M. MACHIBRODA ENGINEERING LTD.

## ASTM C136: GRAIN SIZE ANALYSIS

Project: Aggregate Assessment

Location: Near Shellbrook, SK

Project No.: 20564

Source: 23-14

Sample No.: 17

Depth(m): 0.10 - 2.0

### Specification:

#### Sieve Analysis:

Sieve Designation			Specification	
U.S. Alternative	Standard mm	% Finer	Max	Min
8 in.	200.000	100		
4 in.	100.000	94		
3 in.	75.000	92		
2 in.	50.000	84		
1 in.	25.000	69		
3/4 in.	19.000	64		
1/2 in.	12.500	58		
3/8 in.	9.500	55		
No. 4	4.750	47		
No. 10	2.000	42		
No. 20	0.850	31		
No. 40	0.425	21		
No. 60	0.250	15		
No. 100	0.150	9.4		
No. 200	0.075	5.7		

#### Other Laboratory Test:

Laboratory Determination of Water (Moisture) Content of Soil and Rock  
by Mass (ASTM D2216)

Moisture Content (As Received): 2.8%

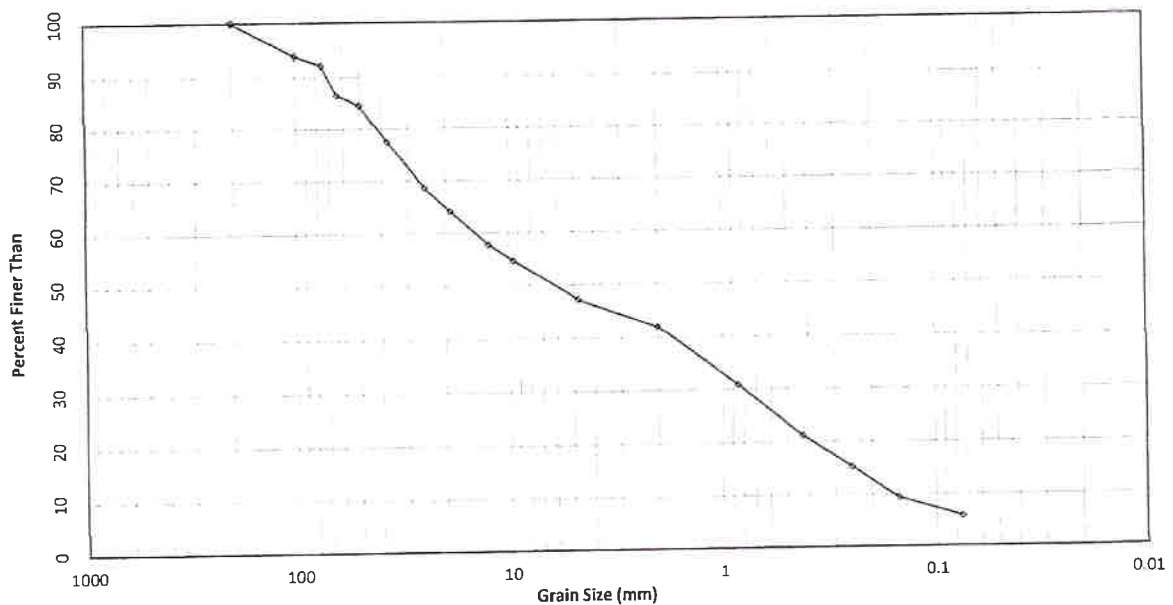
### Material Description:

% Gravel Sizes  
53

% Sand Sizes  
41

% Silt and Clay Sizes  
5.7

### Remarks:



DRAWING NO

WE CERTIFY TESTING PROCEDURES ARE IN ACCORDANCE  
WITH ASTM C136, C137 AND D2216 STANDARDS  
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# P.M. MACHIBRODA ENGINEERING LTD.

## ASTM C136: GRAIN SIZE ANALYSIS

Project: Aggregate Assessment  
Location: Near Shellbrook, SK  
Project No.: 20564  
Source: 23-15  
Sample No.: 18  
Depth(m): 0.15 - 2.0

### Specification:

#### Sieve Analysis:

Sieve Designation	U.S. Alternative	Standard mm	% Finer	Specification	
				Max	Min
8 in.		200.000	100		
4 in.		100.000	85		
3 in.		75.000	85		
2 in.		50.000	79		
1 in.		25.000	65		
3/4 in.		19.000	62		
1/2 in.		12.500	56		
3/8 in.		9.500	53		
No. 4		4.750	46		
No. 10		2.000	40		
No. 20		0.850	28		
No. 40		0.425	19		
No. 60		0.250	14		
No. 100		0.150	9.9		
No. 200		0.075	7.4		

#### Other Laboratory Test:

#### Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass (ASTM D2216)

Moisture Content (As Received): 4.3%

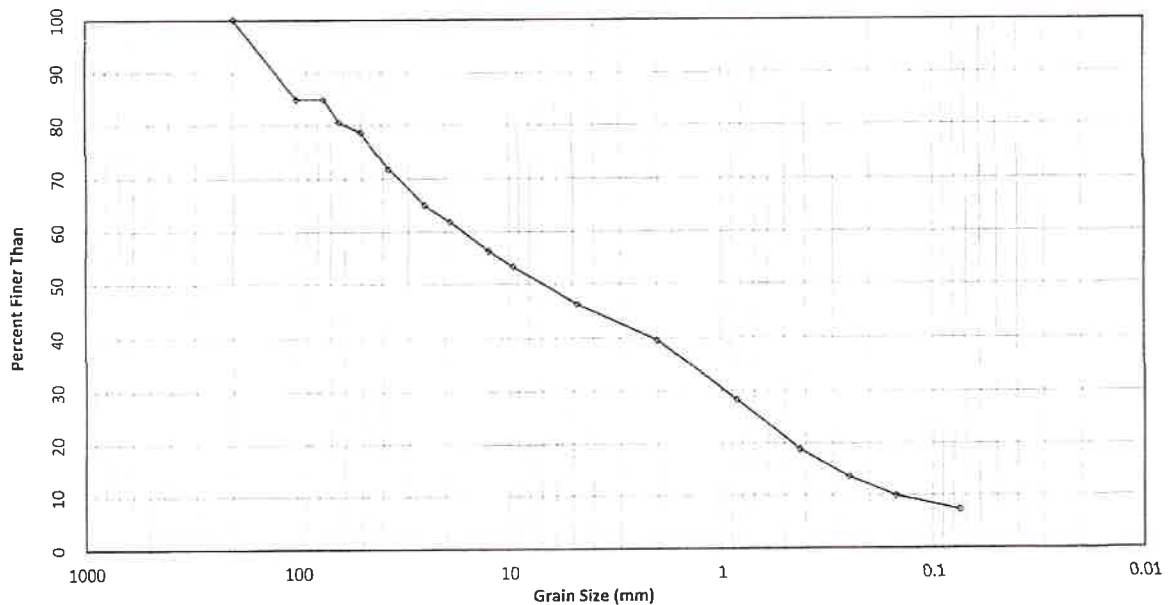
### Material Description:

% Gravel Sizes  
54

% Sand Sizes  
39

% Silt and Clay Sizes  
7.4

### Remarks:



DRAWING NO.

WE CERTIFY TESTING PROCEDURES ARE IN ACCORDANCE  
WITH ASTM C136, C137 AND C2216.5. APPROVED  
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**P. MACHIBRODA**  
ENGINEERING LTD.

## ASTM C136: GRAIN SIZE ANALYSIS

Project: Aggregate Assessment  
Location: Near Shellbrook, SK  
Project No.: 20564  
Source: 23-16  
Sample No.: 19  
Depth(m): 0.10 - 3.0

### Specification:

#### Sieve Analysis:

Sieve Designation	U.S.		% Finer	Specification	
	Alternative	Standard mm		Max	Min
8 in.		200.000	100		
4 in.		100.000	96		
3 in.		75.000	94		
2 in.		50.000	87		
1 in.		25.000	72		
3/4 in.		19.000	68		
1/2 in.		12.500	60		
3/8 in.		9.500	56		
No. 4		4.750	45		
No. 10		2.000	32		
No. 20		0.850	16		
No. 40		0.425	9.6		
No. 60		0.250	6.6		
No. 100		0.150	4.6		
No. 200		0.075	3.4		

#### Other Laboratory Test:

Laboratory Determination of Water (Moisture) Content of Soil and Rock  
by Mass (ASTM D2216)

Moisture Content (As Received): 3.5%

### Material Description:

% Gravel Sizes  
55

% Sand Sizes  
42

% Silt and Clay Sizes  
3.4

### Remarks:

