

Ministry of Energy, Mines & Petroleum Resources  
Mining & Minerals Division  
BC Geological Survey

Assessment Report  
Title Page and Summary

TYPE OF REPORT [type of survey(s)]: TECHNICAL REPORT TOTAL COST: ~~12046.02~~ 12046.02

AUTHOR(S): JEFF AUSTIN P. ENG. SIGNATURE(S): Jeff Austin

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): MY-4-309 YEAR OF WORK: 2015

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S): EVENT No. 5537568

PROPERTY NAME: WESTERN CANADA LIMESTONE LTD

CLAIM NAME(S) (on which the work was done): BLUE 2001

COMMODITIES SOUGHT: LIMESTONE

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 559349

MINING DIVISION: KAMLOOPS NTS/BCGS: 087E

LATITUDE: 50° 0' 22" LONGITUDE: 119° 33' 39" (at centre of work)

OWNER(S):  
1) DON SANBERG 2) \_\_\_\_\_  
~~700 RICHARDS~~

MAILING ADDRESS:  
700 RICHARDS  
KELOWNA B.C.

OPERATOR(S) [who paid for the work]:  
1) WESTERN CANADA LIMESTONE LTD 2) \_\_\_\_\_

MAILING ADDRESS:  
906 FAIRWAY CRESCENT  
KELOWNA B.C. V1Y 4S7

PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):  
LIMESTONE

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: \_\_\_\_\_

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
<b>GEOLOGICAL (scale, area)</b>			
Ground, mapping			
Photo interpretation			
<b>GEOPHYSICAL (line-kilometres)</b>			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
<b>GEOCHEMICAL (number of samples analysed for...)</b>			
Soil			
Silt			
Rock			
Other			
<b>DRILLING (total metres; number of holes, size)</b>			
Core			
Non-core			
<b>RELATED TECHNICAL</b>			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic	AGGREGATE TESTWORK	BLUE 2001	<del>9600</del> 12046.02
<b>PROSPECTING (scale, area)</b>			
<b>PREPARATORY / PHYSICAL</b>			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
<b>TOTAL COST:</b>			12046.02

BC Geological Survey  
Assessment Report  
35448

AN EVALUATION OF THE AGGREGATE PRODUCTION POTENTIAL FROM THE  
WESTERN CANADA LIMESTONE LTD QUARRY

Blue 2000 Claim Group – Tenure number 559349

119 33' 33"W 50 0' 23" N

Prepared for

Western Canada Limestone Ltd.  
13 – 2550 Acland Road  
Kelowna, B.C.  
V1X 7L4

Attention: Mr. Don Sandberg

October 4, 2014

AN EVALUATION OF THE AGGREGATE PRODUCTION POTENTIAL FROM THE  
WESTERN CANADA LIMESTONE LTD QUARRY

Prepared by

International Metallurgical and Environmental Inc.  
906 Fairway Crescent  
Kelowna, B.C.  
V1Y 4S7

*Signed and Sealed*

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Jeffrey B. Austin, P.Eng. – President  
International Metallurgical and Environmental Inc.

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## INTRODUCTION

Western Canada Limestone Ltd operates a limestone mining operation located approximately 17 kilometres from downtown Kelowna, B.C. The operation produces aggregates for use in construction and landscaping.

The Crown granted tenure is contained within the Blue 2000 claim group. Mineral Tenure is held under Tenure Number 559349. On-going mining operations are shown in Figure 1 below.



Figure 1. – Photo of Western Canada Limestone Ltd. Quarry Operation(August 2012)

Western Canada Limestone Ltd. has contracted International Metallurgical and Environmental Inc. to evaluate the option of using crushing and grinding technology to add value to the products that are derived from the quarry operations of Western Canada Limestone Ltd. Within the local market area, stone products have various values and these are summarized in the following Table 1.

Table 1  
 Typical Aggregate and Stone Market Pricing in the Central Okanagan

Product	Typical Market Value	Comments
Pit run alluvial stone	\$4.00 – \$6.00	Current WCL* product
75 mm crushed stone	\$7.00 – \$10.00	Current WCL* product
25 mm crushed stone	\$7.00 - \$10.00	Current WCL* product
Agricultural lime	\$18.00 – \$25.00	Potential WCL product
Rounded 25 mm stone	\$15.00-\$18.00	Potential WCL product
Rounded 12 mm stone	\$18.00 - \$22.00	Potential WCL product
Calcine Feed	\$25.00 - \$40.00	Potential WCL product

\* Western Canada Limestone Ltd.

All of the products which are potentially available from the quarry of Western Canada Limestone Ltd. have substantial market volumes and potentially could be financially very significant to the project. It is the long term plan to move into the production of higher valued aggregates by the use of crushing, screening and grinding to produce these higher valued products. By moving from simple crushed products, Western Canada Limestone Ltd. could double the unit value of the material moved from it quarry.

This report outlines the results of crushing and grinding tests conducted in the facilities of International Metallurgical and Environmental Inc.



## PROJECT LOCATION

The project is located at kilometer 10.5 on the Bear Lake Main Road on the western shore of Lake Okanagan. The map below shows Tenure 559349 which holds the operations of Western Canada Limestone Ltd.

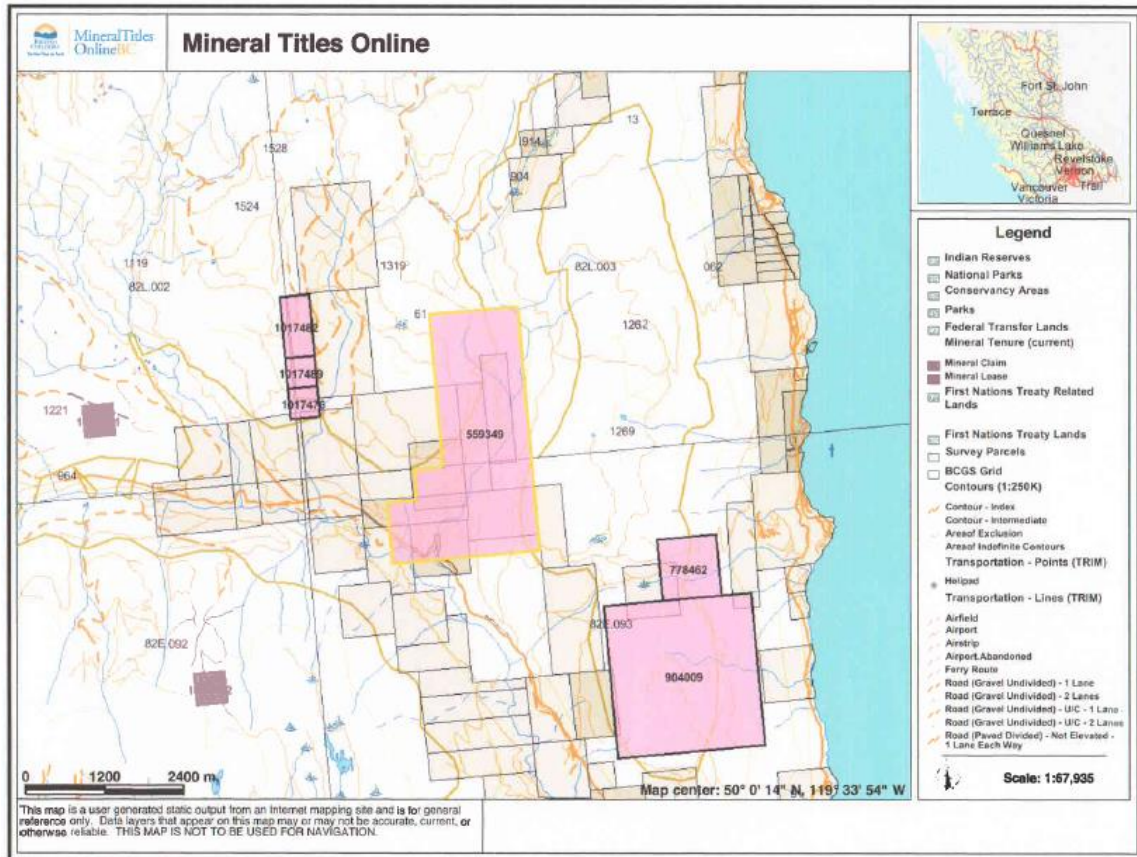


Figure 2. – Location of Mineral Tenure 559349 and Western Canada Limestone Ltd.



RESULTS AND DISCUSSION

Test Samples

Four large representative limestone sample were provided to International Metallurgical and Environmental Inc. for use in this test work program. Approximately 150 kilograms of stone was provided from the on-going operations in the quarry, the location of sampling within the quarry was confined to the upper mining bench with samples collect approximately 30 metres apart at the toe of the mining bench.

The sample material was crushed to less than three inches in a laboratory jaw crusher in order to provide material for screening and preparing material for detailed crushing tests. Typical limestone chemistry from the Western Canada Limestone Ltd. quarry is shown in Table 2 below. The limestone chemistry shown below in table 1 is well above the requirements of the agricultural lime specifications.

Table 2  
Summary of Analysis\* – Western Canada Limestone Ltd. Quarry Production Sample

Sample	CaO %	CaCO <sub>3</sub> %	MgO %	SiO <sub>2</sub> %	S %	LOI %
WCL Quarry Prod.	54.8	97.8	0.15	0.7	0.02	43.4

\* Obtained from 2011 analysis of limestone

The limestone from this deposit is coarse grained and relatively hard compared to other limestone deposits, although limestone produces more fines than other blast rock. This generation of fines is approaching the upper limit for meeting the characteristics of structural aggregates used in highway construction. Screening of these fines is simple, although a use for the fines is needed and using them to produce lime is an attractive option. These materials are well-received as structural aggregates in the local market. The minus two millimeter fraction is considered suitable for sale as agricultural lime from a particle size distribution specification.

By targeting to remove the fine fraction of the crusher discharge product and consider selling it for its chemical content as agricultural lime, it allows the production of aggregates of much higher

value in the coarse size ranges. The highest value aggregate in the local market is rounded drain rock which can be produced in a grinding mill which does not include steel grinding media. The coarse stone fractions within the mill, behave as a grinding media and becomes rounded in the grinding process. This concept is similar to the fully autogenous grinding process, which is widely used in the metal-mining industry. Screening of the ground mill product allows for the separation of the drain rock in the fractions above 3/8 of an inch and the production of agricultural lime as the fraction finer than approximately 2 mm. The intermediate size fraction between 2 mm and 3/8 of an inch does not have a ready market and can be returned to the grinding process.

## Methods and Procedures

Crushing of the four samples was conducted using a laboratory scale jaw crusher and three different crush sizes were used in this test work, 75 mm, 50 mm and 25 mm. The reason for the selection of the various crush sizes follows typical specifications for various aggregate sizes in the local market. Significant volumes of minus 75 mm stone is sold into highway and engineered foundation projects. As well, significant volumes of minus 25 mm stone is sold into the same market place.

A separate market niche includes drain rock in the ranges from 3/8(8 mm) of an inch to approximately 2 inches(50 mm). Drain rock is required to be rounded in order to maximize the open void space within the stone volume. Industrial grinding mills produce round stone when the stone is used as the grinding media in the absence of steel grinding media.

The various crush sizes were obtained by adjusting the opening of the laboratory jaw crusher to achieve the target crush sizes. The crusher discharge was subsequently screened to obtain detailed size analysis of the crushed stone.

The grinding of limestone samples to obtain rounded stone was done in a laboratory grinding mill using 10 kilogram samples of 50 mm crushed stone. Grinding time was used as a means of controlling the degree of comminution of the samples and each of the four samples were subject to grinding times of 15, 30 and 45 minutes in the grinding mill. The mill contents were subsequently screened to determine the yield of each of the various aggregate products.

## DETAILED TEST RESULTS

### Crushing Tests

Each of the four samples were crushed to three different upper sizes, namely 75, 50 and 25 mm and the crushed stone was analyzed by screen fraction analysis. All of the screen analysis data is contained in Appendix 1.

A typical data set for one of the samples is shown in Table 3 for all three of the crush sizes and this same data is shown graphically in Figure 3.

Table 3  
Summary of Screen Analysis for Sample 1.

Mesh Size	Cumulative Percent Passing		
	75 mm crush	50 mm crush	25 mm crush
3 in. - 75.0 mm	100.0	100	100
2 in. - 50 mm	83.0	99.6	100
1 in. - 25 mm	63.6	76.15	98.01
1/2 in. 12.5 mm	51.0	62.74	71.68
1/4 in. - 6.35 mm	40.3	51.75	55.35
8 mesh - 2.35 mm	28.0	34.2	43.77
12 mesh - 1.4 mm	22.8	28.66	36.86
20 mesh - 0.85 mm	17.2	24.35	30.84
40 mesh - 0.425 mm	13.7	20.23	22.49
80 mesh - 0.18 mm	9.1	14.99	15.51
100 mesh - 150 um	7.9	12.74	14.29
200 mesh - 75 um	4.9	8.19	11.3

All of the samples tested, showed similar crushing characteristics, with increasing volumes of minus 200 mesh material as the crushing top-size was made finer. The 25 mm crush material will not pass specifications for use as a road building structural aggregate due to the high volume of minus 200 mesh material contained. The coarse fractions, 75 and 50 mm crush products have suitable size distributions for use in engineered structural foundations including road structures.

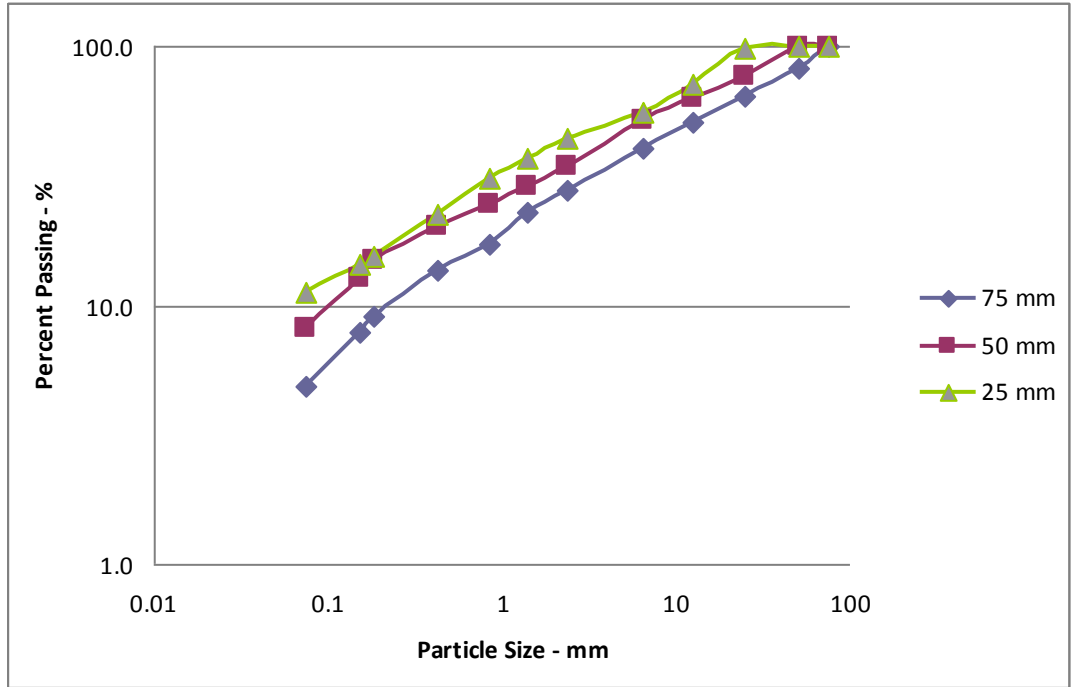


Figure 3 – Particle Size Distributions for 75, 50 and 25 Crush Products, Sample 1

Grinding Tests

All four of the samples were subject to grinding tests to produce round cobble from the shape sharp shaped crushed stone and to increase the fines contained within the sample. The detailed results are contained in Appendix 2, as size distribution data obtained from batch grinding the rock samples in a large laboratory grinding mill.

The volume of drain rock obtained from the grinding tests was dependent on the amount of grinding time used or more accurately, the grinding power input to the sample. Shown below in Table 4 is an example of the distribution of drain rock and agricultural lime produced by grinding and screening of sample 1. All other samples performed in a similar manner to sample 1.

The quality of round rock is considered to be very high from this process and will be readily accepted into the local market.

Table 4  
Summary of Product Distribution from Screening of Mill Discharge Product.  
Sample 1

Product	15 minute grind	30 minute grind	45 minute grind
Drain Rock – 1 to 2 inch	18.4	15.9	12.7
Drain Rock – ½ to 1 inch	13.6	12.3	10.4
Drain Rock – 3/8 to 1/8 inch	8.1	7.4	5.5
Agricultural lime minus 2.35 mm	46.0	54.8	62.4
Intermediate Product(recycle)	13.9	9.6	8.9

## CONCLUSIONS AND RECOMMENDATIONS

Based on the results of this test work, the following can be concluded:

- 1) Coarse crushing of the limestone can be used to produce good quality structural aggregated in a top-size range of 50 mm and greater. At a size of 25 mm, the fine content of the crushed rock appears too excessive and this material will likely not meet current specifications.
- 2) The grinding of crushed material followed by screening can be used to produce high value drain rock and agricultural lime in large volumes. This represents an approximate doubling of the unit value of limestone when used to produce these two products.



**CERTIFICATE OF QUALIFIED PERSON**

**Jeffrey B. Austin, P.Eng.**

I, Jeffrey B. Austin, P.Eng., do hereby certify that:

1. I am a Consulting Engineer and President of International Metallurgical and Environmental Inc., residing at 906 Fairway Crescent, Kelowna, B.C., Canada. 2

This certificate applies to the technical report titled “ An Evaluation of the Aggregate Production Potential from the Western Canada Limestone Ltd. Quarry”, dated October 4, 2014 (the “Technical Report”).

2. I fulfill the requirements of a qualified person for the purposes of NI 43-101 based on my academic qualifications, professional membership and relevant experience, as set out below:
  - a. I hold the following academic qualifications:

BASc.	University of British Columbia	1984
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- b. I am a member in good standing of the following professional and technical associations:

Association of Professional Engineers and Geoscientists of BC	15708
---------------------------------------------------------------	-------

- c. I have worked in the minerals industry as a Consulting Process Engineer continuously since 1987, a period of 26 years.
3. I have personally inspected the property.
4. I am responsible for all aspects of the Technical Report.
5. I am not independent of Western Canada Limestone Ltd. as defined in section 1.5 of NI 43-101. I currently serve as president of Western Canada Limestone Ltd.
6. I have read and am familiar with NI 43-101 and the sections of the Technical Report for which I am responsible. To the best of my knowledge, information, and belief, the parts of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101.
7. As of the date of this certificate, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 16<sup>nd</sup> day of December, 2012

“Signed and Sealed”

\_\_\_\_\_  
Jeffrey B. Austin, P.Eng.

INVOICE

October 4, 2014

Invoice Number: 21548  
HST No.: 898084686

Mr. Don Sandberg  
Western Canada Limestone Ltd.  
906 Fairway Crescent  
Kelowna, B.C.  
V1Y4S7

Dear Don,

This invoice covers the costs of completing aggregate test work on composite samples from Western Canada Limestone Ltd.

Sample preparation – 14 hours @\$80 per hour	\$1,120.00
12 batch grinding tests @ \$600 each	\$7,200.00
Project management and reporting of results – 20 hours @ \$120 per hour	\$2,400
Sub-total	<u>\$10,720.00</u>
GST	\$536.00
<b>Invoice total</b>	<b>\$11,256.00</b>

Thank-you for the opportunity to provide this service.

Yours very truly,

Jeffrey B. Austin, P.Eng. – President  
International Metallurgical and Environmental Inc.

## APPENDIX 1

### Detailed Particle Size Distribution Data of Crushed Limestone

International Metallurgical and Environmental Inc.  
Screen Analysis

Date: April 14, 2014

Sample: No. 1 - Minus 75 mm crushed limestone

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	17.04	83.0
1 in. - 25 mm	19.40	63.6
1/2 in. 12.5 mm	12.60	51.0
1/4 in. - 6.35 mm	10.70	40.3
8 mesh - 2.35 mm	12.30	28.0
12 mesh - 1.4 mm	5.20	22.8
20 mesh - 0.85 mm	5.52	17.2
40 mesh - 0.425 mm	3.52	13.7
80 mesh - 0.18 mm	4.66	9.1
100 mesh - 150 um	1.15	7.9
200 mesh - 75 um	3.01	4.9
minus 200 mesh - 75 um	4.90	

International Metallurgical and Environmental Inc.  
Screen Analysis

Date: April 14, 2014

Sample: No. 1 - Minus 50 mm crushed limestone

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.40	99.6
1 in. - 25 mm	23.45	76.2
1/2 in. 12.5 mm	13.41	62.7
1/4 in. - 6.35 mm	10.99	51.8
8 mesh - 2.35 mm	17.55	34.2
12 mesh - 1.4 mm	5.54	28.7
20 mesh - 0.85 mm	4.31	24.4
40 mesh - 0.425 mm	4.12	20.2
80 mesh - 0.18 mm	5.24	15.0
100 mesh - 150 um	2.25	12.7
200 mesh - 75 um	4.55	8.2
minus 200 mesh - 75 um	8.19	

International Metallurgical and Environmental Inc.  
Screen Analysis

Date: April 14, 2014

Sample: No. 1 - Minus 25 mm crushed limestone

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.00	100.0
1 in. - 25 mm	1.99	98.0
1/2 in. 12.5 mm	26.33	71.7
1/4 in. - 6.35 mm	16.33	55.4
8 mesh - 2.35 mm	11.58	43.8
12 mesh - 1.4 mm	6.91	36.9
20 mesh - 0.85 mm	6.02	30.8
40 mesh - 0.425 mm	8.35	22.5
80 mesh - 0.18 mm	6.98	15.5
100 mesh - 150 um	1.22	14.3
200 mesh - 75 um	2.99	11.3
minus 200 mesh - 75 um	11.30	

International Metallurgical and Environmental Inc.  
Screen Analysis

Date: April 14, 2014

Sample: No. 2 - Minus 75 mm crushed limestone

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	18.33	81.7
1 in. - 25 mm	18.99	62.7
1/2 in. 12.5 mm	12.83	49.9
1/4 in. - 6.35 mm	11.25	38.6
8 mesh - 2.35 mm	11.36	27.2
12 mesh - 1.4 mm	5.96	21.3
20 mesh - 0.85 mm	5.01	16.3
40 mesh - 0.425 mm	3.55	12.7
80 mesh - 0.18 mm	3.87	8.9
100 mesh - 150 um	1.24	7.6
200 mesh - 75 um	2.96	4.7
minus 200 mesh - 75 um	4.65	



International Metallurgical and Environmental Inc.  
Screen Analysis

Date: April 14, 2014  
Sample: No. 2 - Minus 50 mm crushed limestone

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.10	99.9
1 in. - 25 mm	20.77	79.1
1/2 in. 12.5 mm	14.87	64.3
1/4 in. - 6.35 mm	11.01	53.3
8 mesh - 2.35 mm	17.28	36.0
12 mesh - 1.4 mm	6.34	29.6
20 mesh - 0.85 mm	3.39	26.2
40 mesh - 0.425 mm	6.99	19.3
80 mesh - 0.18 mm	5.31	13.9
100 mesh - 150 um	1.68	12.3
200 mesh - 75 um	3.96	8.3
minus 200 mesh - 75 um	8.30	

International Metallurgical and Environmental Inc.  
Screen Analysis

Date: April 14, 2014

Sample: No. 2 - Minus 25 mm crushed limestone

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.00	100.0
1 in. - 25 mm	0.87	99.1
1/2 in. 12.5 mm	26.10	73.0
1/4 in. - 6.35 mm	17.35	55.7
8 mesh - 2.35 mm	10.99	44.7
12 mesh - 1.4 mm	7.30	37.4
20 mesh - 0.85 mm	6.54	30.9
40 mesh - 0.425 mm	7.25	23.6
80 mesh - 0.18 mm	7.01	16.6
100 mesh - 150 um	1.46	15.1
200 mesh - 75 um	3.08	12.1
minus 200 mesh - 75 um	12.05	

International Metallurgical and Environmental Inc.  
Screen Analysis

Date: April 14, 2014

Sample: No. 3 - Minus 75 mm crushed limestone

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	16.93	83.1
1 in. - 25 mm	20.05	63.0
1/2 in. 12.5 mm	12.41	50.6
1/4 in. - 6.35 mm	9.87	40.7
8 mesh - 2.35 mm	11.38	29.4
12 mesh - 1.4 mm	5.69	23.7
20 mesh - 0.85 mm	5.50	18.2
40 mesh - 0.425 mm	4.15	14.0
80 mesh - 0.18 mm	4.50	9.5
100 mesh - 150 um	1.69	7.8
200 mesh - 75 um	2.99	4.8
minus 200 mesh - 75 um	4.84	

International Metallurgical and Environmental Inc.  
Screen Analysis

Date: April 14, 2014

Sample: No. 3 - Minus 50 mm crushed limestone

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.55	99.5
1 in. - 25 mm	24.60	74.9
1/2 in. 12.5 mm	14.50	60.4
1/4 in. - 6.35 mm	10.87	49.5
8 mesh - 2.35 mm	16.89	32.6
12 mesh - 1.4 mm	6.33	26.3
20 mesh - 0.85 mm	4.16	22.1
40 mesh - 0.425 mm	3.77	18.3
80 mesh - 0.18 mm	4.55	13.8
100 mesh - 150 um	1.09	12.7
200 mesh - 75 um	4.60	8.1
minus 200 mesh - 75 um	8.09	

International Metallurgical and Environmental Inc.  
Screen Analysis

Date: April 14, 2014

Sample: No. 3 - Minus 25 mm crushed limestone

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.00	100.0
1 in. - 25 mm	0.26	99.7
1/2 in. 12.5 mm	25.41	74.3
1/4 in. - 6.35 mm	16.15	58.2
8 mesh - 2.35 mm	13.66	44.5
12 mesh - 1.4 mm	7.06	37.5
20 mesh - 0.85 mm	5.34	32.1
40 mesh - 0.425 mm	8.00	24.1
80 mesh - 0.18 mm	7.45	16.7
100 mesh - 150 um	2.95	13.7
200 mesh - 75 um	3.74	10.0
minus 200 mesh - 75 um	9.98	

International Metallurgical and Environmental Inc.  
Screen Analysis

Date: April 14, 2014

Sample: No. 4 - Minus 75 mm crushed limestone

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.15	99.9
2 in. - 50 mm	18.33	81.5
1 in. - 25 mm	20.45	61.1
1/2 in. 12.5 mm	12.05	49.0
1/4 in. - 6.35 mm	10.11	38.9
8 mesh - 2.35 mm	12.36	26.6
12 mesh - 1.4 mm	4.24	22.3
20 mesh - 0.85 mm	5.60	16.7
40 mesh - 0.425 mm	4.01	12.7
80 mesh - 0.18 mm	4.22	8.5
100 mesh - 150 um	1.20	7.3
200 mesh - 75 um	2.88	4.4
minus 200 mesh - 75 um	4.40	

International Metallurgical and Environmental Inc.  
Screen Analysis

Date: April 14, 2014

Sample: No. 4 - Minus 50 mm crushed limestone

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.00	100.0
1 in. - 25 mm	24.11	75.9
1/2 in. 12.5 mm	12.91	63.0
1/4 in. - 6.35 mm	10.96	52.0
8 mesh - 2.35 mm	16.80	35.2
12 mesh - 1.4 mm	5.50	29.7
20 mesh - 0.85 mm	5.06	24.7
40 mesh - 0.425 mm	5.56	19.1
80 mesh - 0.18 mm	6.02	13.1
100 mesh - 150 um	2.05	11.0
200 mesh - 75 um	3.05	8.0
minus 200 mesh - 75 um	7.98	



International Metallurgical and Environmental Inc.  
Screen Analysis

Date: April 14, 2014

Sample: No. 4 - Minus 25 mm crushed limestone

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.00	100.0
1 in. - 25 mm	0.23	99.8
1/2 in. 12.5 mm	23.80	76.0
1/4 in. - 6.35 mm	17.41	58.6
8 mesh - 2.35 mm	12.55	46.0
12 mesh - 1.4 mm	7.65	38.4
20 mesh - 0.85 mm	6.54	31.8
40 mesh - 0.425 mm	9.00	22.8
80 mesh - 0.18 mm	6.94	15.9
100 mesh - 150 um	1.30	14.6
200 mesh - 75 um	2.87	11.7
minus 200 mesh - 75 um	11.71	

## APPENDIX 2

### Particle Size Distributions of Ground Limestone

International Metallurgical and Environmental Inc.  
 Screen Analysis

Date: May 12, 2014

Sample: No. 1 - Minus 50 mm crushed limestone

Grinding time: 15 minutes

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.00	100.0
1 in. - 25 mm	18.40	81.6
1/2 in. 12.5 mm	13.56	68.0
1/4 in. - 6.35 mm	8.10	59.9
8 mesh - 2.35 mm	13.93	46.0
12 mesh - 1.4 mm	4.49	41.5
20 mesh - 0.85 mm	3.65	37.9
40 mesh - 0.425 mm	3.87	34.0
80 mesh - 0.18 mm	7.25	26.8
100 mesh - 150 um	2.89	23.9
200 mesh - 75 um	4.61	19.3
minus 200 mesh - 75 um	19.25	

Drain rock 1 inch to 2 inch	18.40	percent
Drain rock 1/2 inch to 1 inch	13.56	percent
Drain rock 1/4 to 1/2 inch	8.10	percent
Agricultural lime	46.0	percent
Unassigned recycle	13.93	percent

International Metallurgical and Environmental Inc.  
 Screen Analysis

Date: May 12, 2014

Sample: No. 1 - Minus 50 mm crushed limestone

Grinding time: 30 minutes

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.00	100.0
1 in. - 25 mm	15.89	84.1
1/2 in. 12.5 mm	12.31	71.8
1/4 in. - 6.35 mm	7.44	64.4
8 mesh - 2.35 mm	9.56	54.8
12 mesh - 1.4 mm	4.55	50.3
20 mesh - 0.85 mm	3.21	47.0
40 mesh - 0.425 mm	3.00	44.0
80 mesh - 0.18 mm	4.17	39.9
100 mesh - 150 um	2.71	37.2
200 mesh - 75 um	4.09	33.1
minus 200 mesh - 75 um	33.07	

Drain rock 1 inch to 2 inch	15.89	percent
Drain rock 1/2 inch to 1 inch	12.31	percent
Drain rock 1/4 to 1/2 inch	7.44	percent
Agricultural lime	54.8	percent
Unassigned recycle	9.56	percent

International Metallurgical and Environmental Inc.  
Screen Analysis

Date: May 12, 2014

Sample: No. 1 - Minus 50 mm crushed limestone

Grinding time: 45 minutes

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.00	100.0
1 in. - 25 mm	12.71	87.3
1/2 in. 12.5 mm	10.44	76.9
1/4 in. - 6.35 mm	5.54	71.3
8 mesh - 2.35 mm	8.91	62.4
12 mesh - 1.4 mm	3.79	58.6
20 mesh - 0.85 mm	2.01	56.6
40 mesh - 0.425 mm	2.00	54.6
80 mesh - 0.18 mm	3.45	51.2
100 mesh - 150 um	2.23	48.9
200 mesh - 75 um	2.45	46.5
minus 200 mesh - 75 um	46.47	

Drain rock 1 inch to 2 inch	12.71	percent
Drain rock 1/2 inch to 1 inch	10.44	percent
Drain rock 1/4 to 1/2 inch	5.54	percent
Agricultural lime	62.4	percent
Unassigned recycle	8.91	percent

International Metallurgical and Environmental Inc.  
 Screen Analysis

Date: May 12, 2014

Sample: No. 2 - Minus 50 mm crushed limestone

Grinding time: 15 minutes

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.00	100.0
1 in. - 25 mm	19.30	80.7
1/2 in. 12.5 mm	14.77	65.9
1/4 in. - 6.35 mm	8.41	57.5
8 mesh - 2.35 mm	14.33	43.2
12 mesh - 1.4 mm	3.75	39.4
20 mesh - 0.85 mm	2.99	36.5
40 mesh - 0.425 mm	4.15	32.3
80 mesh - 0.18 mm	5.98	26.3
100 mesh - 150 um	1.89	24.4
200 mesh - 75 um	3.56	20.9
minus 200 mesh - 75 um	20.87	

Drain rock 1 inch to 2 inch	19.30	percent
Drain rock 1/2 inch to 1 inch	14.77	percent
Drain rock 1/4 to 1/2 inch	8.41	percent
Agricultural lime	43.2	percent
Unassigned recycle	14.33	percent

International Metallurgical and Environmental Inc.  
Screen Analysis

Date: May 12, 2014

Sample: No. 2 - Minus 50 mm crushed limestone

Grinding time: 30 minutes

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.00	100.0
1 in. - 25 mm	16.44	83.6
1/2 in. 12.5 mm	13.87	69.7
1/4 in. - 6.35 mm	7.02	62.7
8 mesh - 2.35 mm	10.41	52.3
12 mesh - 1.4 mm	4.52	47.7
20 mesh - 0.85 mm	3.33	44.4
40 mesh - 0.425 mm	3.65	40.8
80 mesh - 0.18 mm	5.12	35.6
100 mesh - 150 um	2.20	33.4
200 mesh - 75 um	3.71	29.7
minus 200 mesh - 75 um	29.73	

Drain rock 1 inch to 2 inch	16.44	percent
Drain rock 1/2 inch to 1 inch	13.87	percent
Drain rock 1/4 to 1/2 inch	7.02	percent
Agricultural lime	52.3	percent
Unassigned recycle	10.41	percent



International Metallurgical and Environmental Inc.  
Screen Analysis

Date: May 12, 2014

Sample: No. 2 - Minus 50 mm crushed limestone

Grinding time: 45 minutes

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.00	100.0
1 in. - 25 mm	11.33	88.7
1/2 in. 12.5 mm	10.74	77.9
1/4 in. - 6.35 mm	6.69	71.2
8 mesh - 2.35 mm	7.49	63.8
12 mesh - 1.4 mm	3.76	60.0
20 mesh - 0.85 mm	2.29	57.7
40 mesh - 0.425 mm	3.77	53.9
80 mesh - 0.18 mm	5.11	48.8
100 mesh - 150 um	2.78	46.0
200 mesh - 75 um	3.15	42.9
minus 200 mesh - 75 um	42.89	

Drain rock 1 inch to 2 inch	11.33	percent
Drain rock 1/2 inch to 1 inch	10.74	percent
Drain rock 1/4 to 1/2 inch	6.69	percent
Agricultural lime	63.8	percent
Unassigned recycle	7.49	percent

International Metallurgical and Environmental Inc.  
Screen Analysis

Date: May 12, 2014

Sample: No. 3 - Minus 50 mm crushed limestone

Grinding time: 15 minutes

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.00	100.0
1 in. - 25 mm	16.33	83.7
1/2 in. 12.5 mm	13.44	70.2
1/4 in. - 6.35 mm	8.71	61.5
8 mesh - 2.35 mm	15.35	46.2
12 mesh - 1.4 mm	4.77	41.4
20 mesh - 0.85 mm	3.00	38.4
40 mesh - 0.425 mm	4.89	33.5
80 mesh - 0.18 mm	7.31	26.2
100 mesh - 150 um	3.36	22.8
200 mesh - 75 um	2.98	19.9
minus 200 mesh - 75 um	19.86	

Drain rock 1 inch to 2 inch	16.33	percent
Drain rock 1/2 inch to 1 inch	13.44	percent
Drain rock 1/4 to 1/2 inch	8.71	percent
Agricultural lime	46.2	percent
Unassigned recycle	15.35	percent

International Metallurgical and Environmental Inc.  
Screen Analysis

Date: May 12, 2014

Sample: No. 3 - Minus 50 mm crushed limestone

Grinding time: 30 minutes

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.00	100.0
1 in. - 25 mm	13.71	86.3
1/2 in. 12.5 mm	11.99	74.3
1/4 in. - 6.35 mm	6.44	67.9
8 mesh - 2.35 mm	9.71	58.2
12 mesh - 1.4 mm	4.11	54.0
20 mesh - 0.85 mm	3.75	50.3
40 mesh - 0.425 mm	2.29	48.0
80 mesh - 0.18 mm	3.99	44.0
100 mesh - 150 um	1.98	42.0
200 mesh - 75 um	3.21	38.8
minus 200 mesh - 75 um	38.82	

Drain rock 1 inch to 2 inch	13.71	percent
Drain rock 1/2 inch to 1 inch	11.99	percent
Drain rock 1/4 to 1/2 inch	6.44	percent
Agricultural lime	58.2	percent
Unassigned recycle	9.71	percent

International Metallurgical and Environmental Inc.  
 Screen Analysis

Date: May 12, 2014

Sample: No. 3 - Minus 50 mm crushed limestone

Grinding time: 45 minutes

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.00	100.0
1 in. - 25 mm	9.77	90.2
1/2 in. 12.5 mm	8.75	81.5
1/4 in. - 6.35 mm	5.21	76.3
8 mesh - 2.35 mm	7.77	68.5
12 mesh - 1.4 mm	2.96	65.5
20 mesh - 0.85 mm	2.75	62.8
40 mesh - 0.425 mm	2.34	60.5
80 mesh - 0.18 mm	4.75	55.7
100 mesh - 150 um	2.22	53.5
200 mesh - 75 um	2.71	50.8
minus 200 mesh - 75 um	50.77	

Drain rock 1 inch to 2 inch	9.77	percent
Drain rock 1/2 inch to 1 inch	8.75	percent
Drain rock 1/4 to 1/2 inch	5.21	percent
Agricultural lime	68.5	percent
Unassigned recycle	7.77	percent

International Metallurgical and Environmental Inc.  
Screen Analysis

Date: May 12, 2014

Sample: No. 4 - Minus 50 mm crushed limestone

Grinding time: 15 minutes

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.00	100.0
1 in. - 25 mm	17.50	82.5
1/2 in. 12.5 mm	13.40	69.1
1/4 in. - 6.35 mm	7.45	61.7
8 mesh - 2.35 mm	14.30	47.4
12 mesh - 1.4 mm	4.50	42.9
20 mesh - 0.85 mm	3.00	39.9
40 mesh - 0.425 mm	4.01	35.8
80 mesh - 0.18 mm	6.22	29.6
100 mesh - 150 um	2.45	27.2
200 mesh - 75 um	4.10	23.1
minus 200 mesh - 75 um	23.07	

Drain rock 1 inch to 2 inch	17.50	percent
Drain rock 1/2 inch to 2 inch	13.40	percent
Drain rock 1/4 to 1/2 inch	7.45	percent
Agricultural lime	47.4	percent
Unassigned recycle	14.30	percent

International Metallurgical and Environmental Inc.  
 Screen Analysis

Date: May 12, 2014

Sample: No. 4 - Minus 50 mm crushed limestone

Grinding time: 30 minutes

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.00	100.0
1 in. - 25 mm	15.60	84.4
1/2 in. 12.5 mm	12.90	71.5
1/4 in. - 6.35 mm	6.45	65.1
8 mesh - 2.35 mm	10.50	54.6
12 mesh - 1.4 mm	3.87	50.7
20 mesh - 0.85 mm	3.01	47.7
40 mesh - 0.425 mm	3.10	44.6
80 mesh - 0.18 mm	4.51	40.1
100 mesh - 150 um	2.15	37.9
200 mesh - 75 um	3.55	34.4
minus 200 mesh - 75 um	34.36	

Drain rock 1 inch to 2 inch	15.60	percent
Drain rock 1/2 inch to 2 inch	12.90	percent
Drain rock 1/4 to 1/2 inch	6.45	percent
Agricultural lime	54.6	percent
Unassigned recycle	10.50	percent

International Metallurgical and Environmental Inc.  
Screen Analysis

Date: May 12, 2014

Sample: No. 4 - Minus 50 mm crushed limestone

Grinding time: 45 minutes

Mesh Size	Percent retained	Cumulative Percent Passing
3 in. - 75.0 mm	0.00	100.0
2 in. - 50 mm	0.00	100.0
1 in. - 25 mm	10.74	89.3
1/2 in. 12.5 mm	9.41	79.9
1/4 in. - 6.35 mm	5.02	74.8
8 mesh - 2.35 mm	7.44	67.4
12 mesh - 1.4 mm	3.15	64.2
20 mesh - 0.85 mm	2.24	62.0
40 mesh - 0.425 mm	2.64	59.4
80 mesh - 0.18 mm	4.06	55.3
100 mesh - 150 um	1.76	53.5
200 mesh - 75 um	2.09	51.5
minus 200 mesh - 75 um	51.45	

Drain rock 1 inch to 2 inch	10.74	percent
Drain rock 1/2 inch to 2 inch	9.41	percent
Drain rock 1/4 to 1/2 inch	5.02	percent
Agricultural lime	67.4	percent
Unassigned recycle	7.44	percent