



D'Arcy Scallon  
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June 19, 2023

Re: Dunn Lake Road Resurfacing and Realignment Project 24130  
25mm Well Graded Base Course - Aggregate Production Completion Report

Production of crushed 25mm Well Graded Based Course (WGB) for Ministry of Transportation and Infrastructure (MoTI) Dunn Lake Road Resurfacing and Realignment Project No. 24130 has been completed at Simpco Resources Group (SRG) Louis Creek Pit. Material was produced from SRG Louis Creek Pit and stockpiled in the adjacent MoTI Agate Bay Road Pit No. 2866 (see Figure 1-Stockpile Locations).

Specifications for the 25mm WGB produced was based on MoTI 2020 Standard Specifications for Highway Construction Section 202 Granular Surfacing, Base and Sub-base. Aggregate production was completed by Barsi Enterprises Ltd. of Kamloops, BC. Production commenced on April 13 and was completed on June 6 2023. Onsite Quality Control sampling and testing consisted of one washed sieve analysis (ASTM 136) every hour and a half during aggregate production. A fracture count test (ASTM D5821) was completed on every second washed sieve analysis sample. All Quality Control samples were split, bagged, and labeled with sample number, time and date and were stored onsite for random selection during project Quality Assurance sampling. A total of one hundred and nineteen Quality Control sieve analysis and sixty fracture count tests were completed during aggregate production.

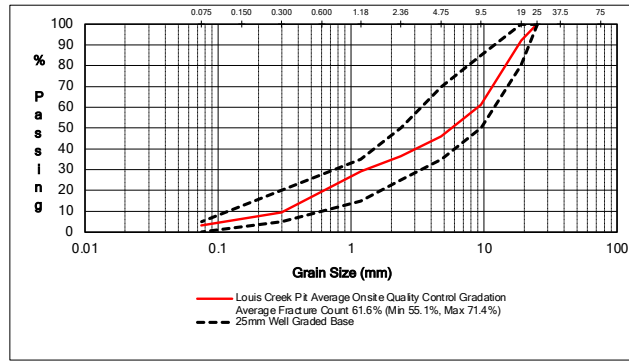
A Design Aggregate Gradation (DAG) was selected by the contractor at approximately 10% of aggregate production. The running average of 4 consecutive tests were monitored against the aggregate permissible limits for each specification sieve size throughout production. The intention of the DAG and permissible limits is to assist the production contractor in monitoring the end product to ensure it is consistently graded throughout production.

Quality Control monitoring and end product Quality Assurance sampling was completed by Main Street Aggregate Consulting of Kamloops, BC. Quality Assurance sampling consisted of randomly selecting split samples of stored contractor Quality Control samples as well as obtaining composite samples from the end product stockpile. Quality Assurance samples were delivered to the WSP Engineering laboratories in Kamloops and Kelowna for testing. A total of ten Quality Assurance washed sieve analysis, three fracture counts and one flat and elongated (D4791) tests were processed for the project.

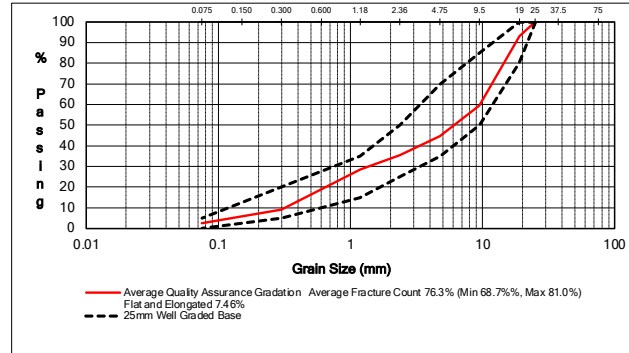
Prior to aggregate production the stockpile base was levelled and surveyed by Twin Rivers Survey Services Inc. of Kamloops BC. Based on a comparison of the original ground profile and finished stockpile survey a total volume of 27,533m<sup>3</sup> 25mm WGB was produced and placed in stockpile (Stockpile 1). The surveys were completed with a Trimble R8 Base Station and Trimble R10 Rover.

An existing stockpile of 25mm WGB was hauled from SRG Louis Creek Pit to MoTI Agate Bay Road Pit as part of the total quantity requirement for the project. A total volume of 4,560m<sup>3</sup> (Stockpile 2) was hauled from the SRG Louis Creek Pit. Quality Control and Assurance testing data has been submitted separately to MoTI for the hauled stockpile.

Average Quality Control and Quality Assurance Graphs:



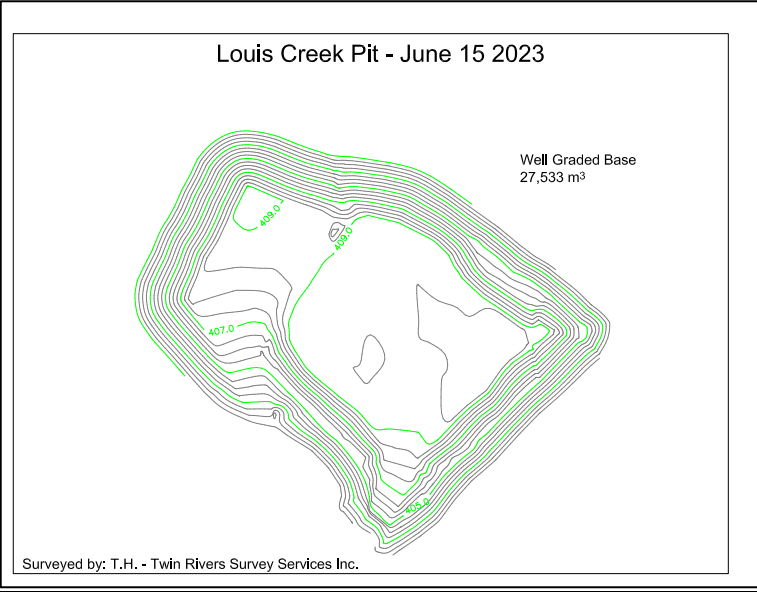
Average Quality Control Gradation Chart



Average Quality Assurance Gradation Chart

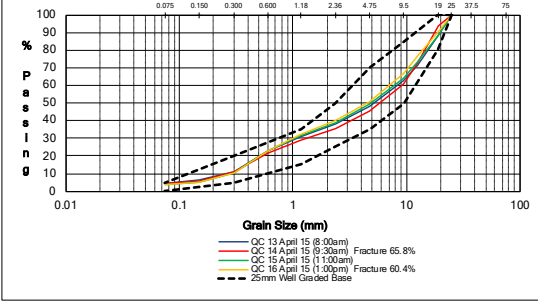
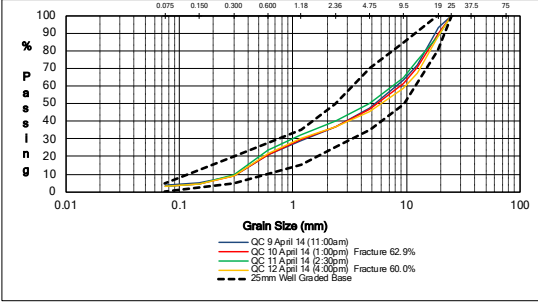
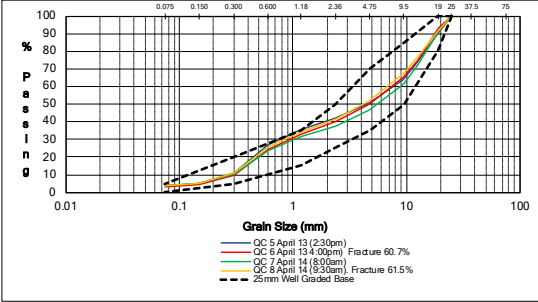
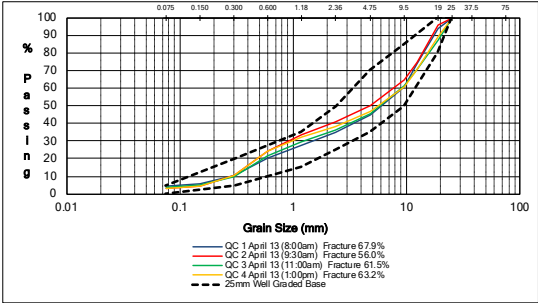


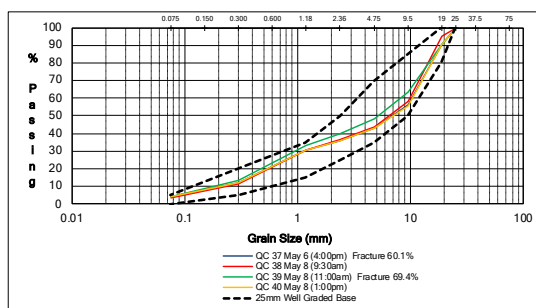
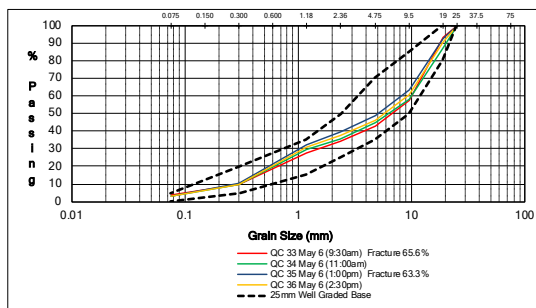
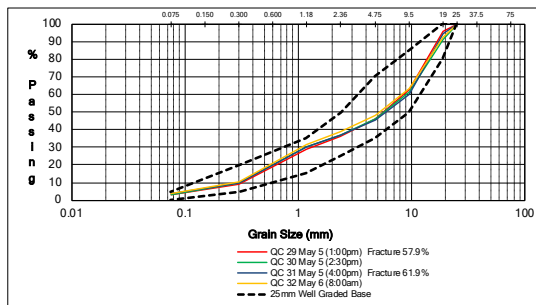
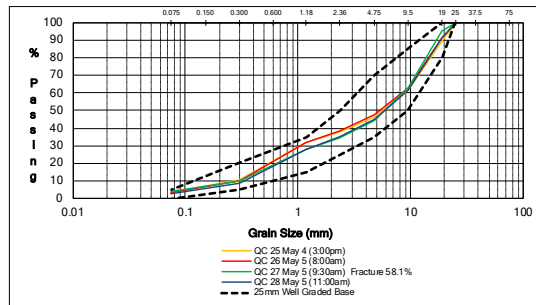
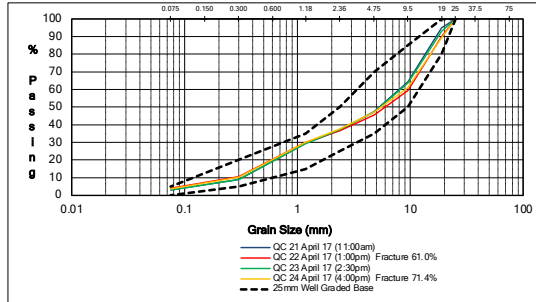
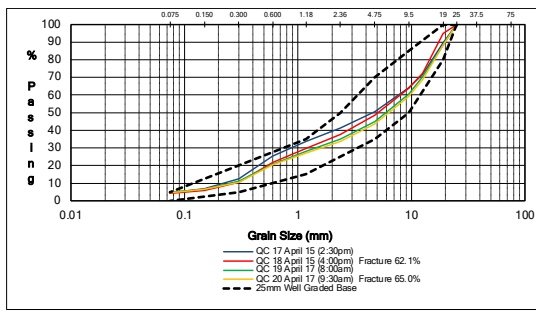
Figure 1- Stockpile Locations

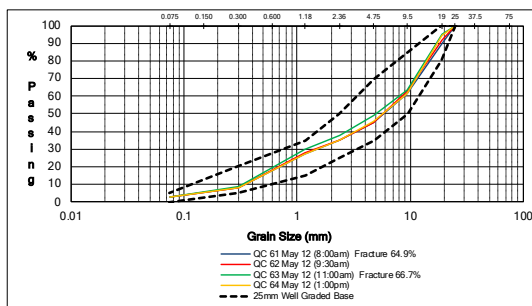
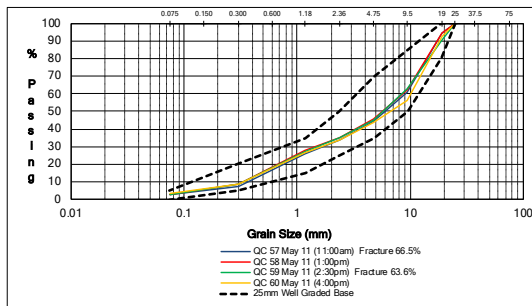
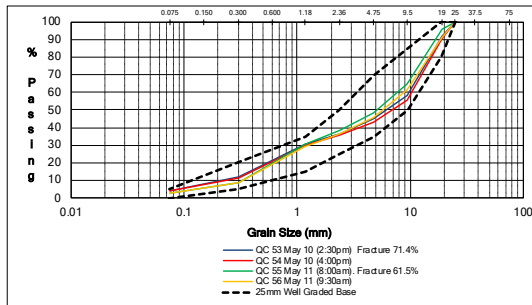
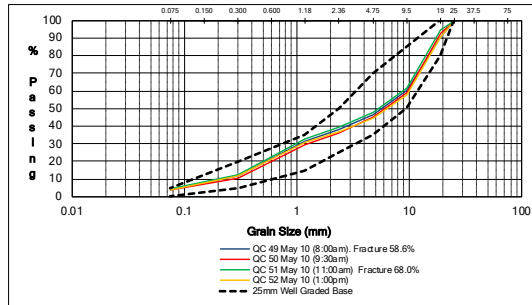
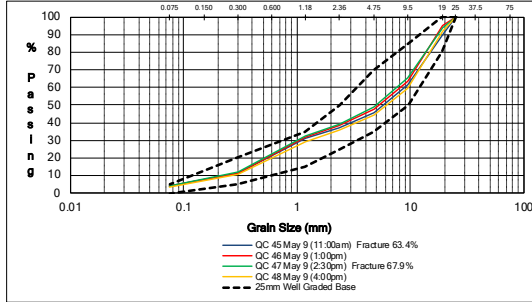
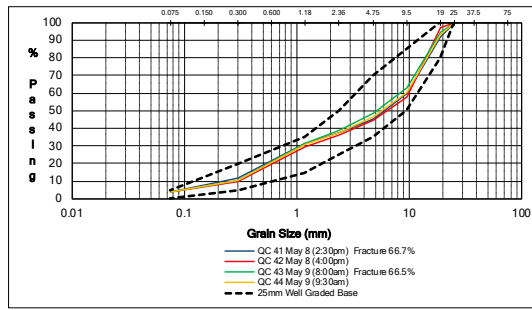


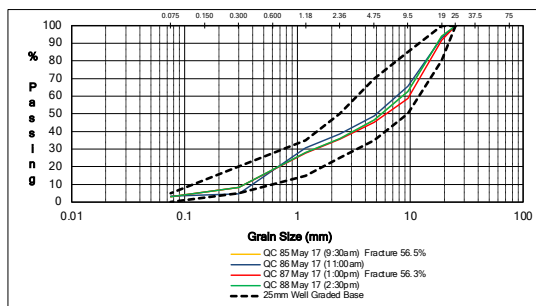
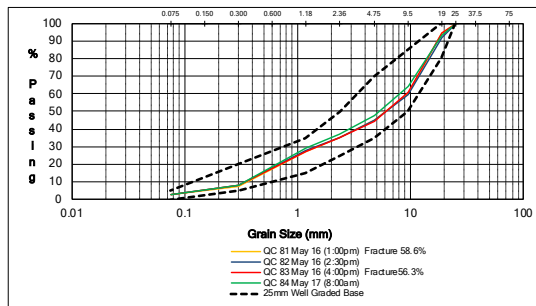
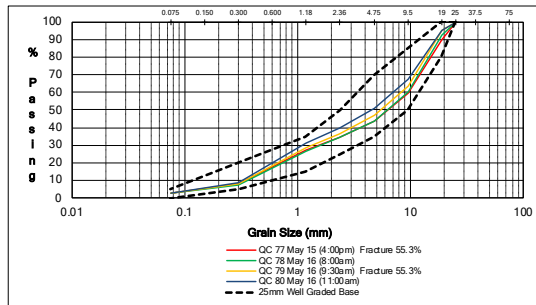
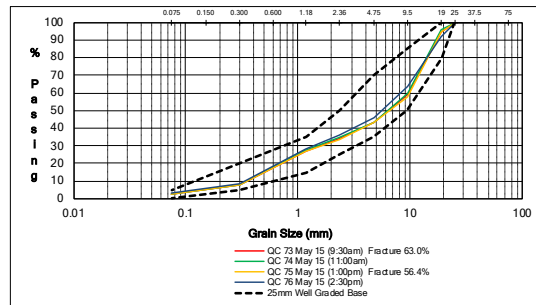
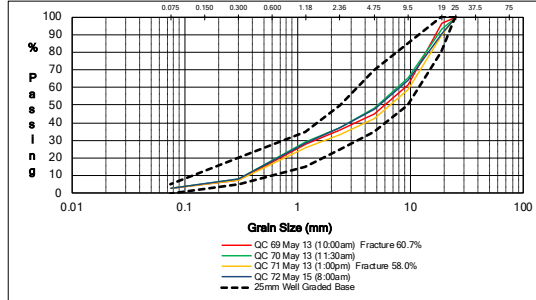
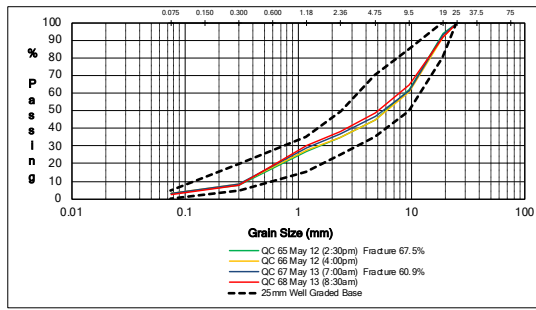
**Twin Rivers Survey Services Inc. Stockpile Plan**

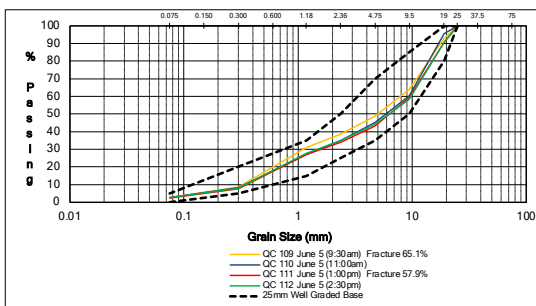
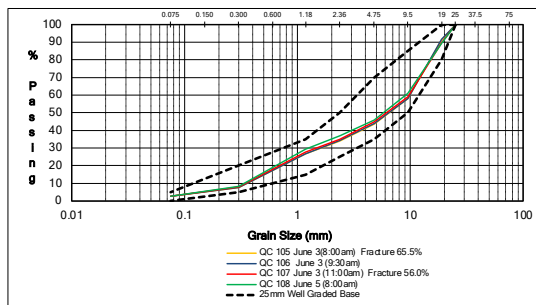
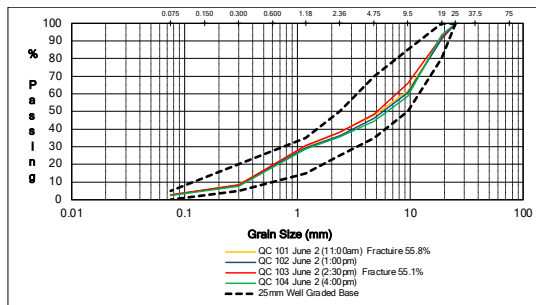
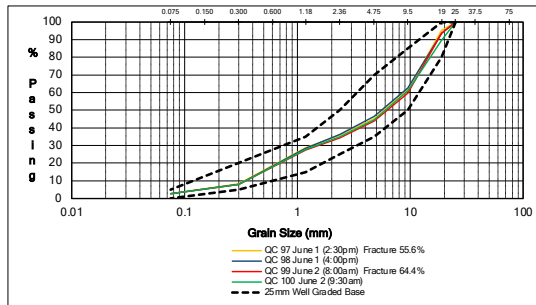
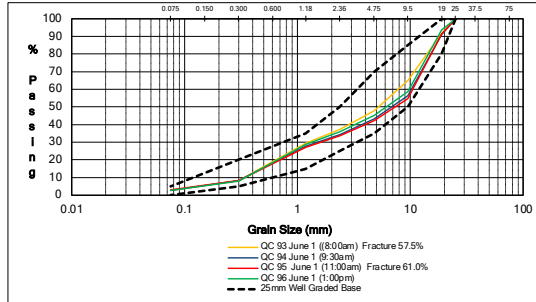
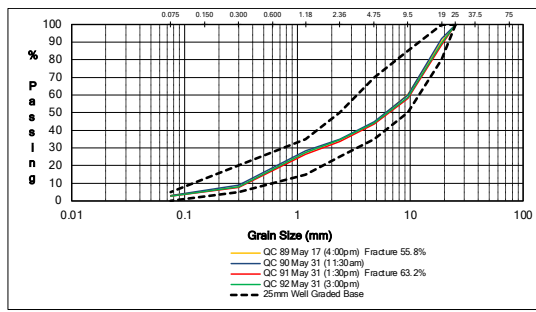
Barsi Enterprises Ltd. Quality Control Sieves:

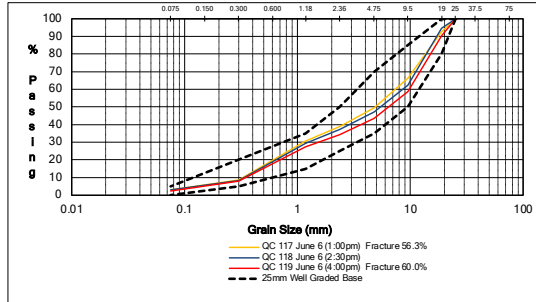
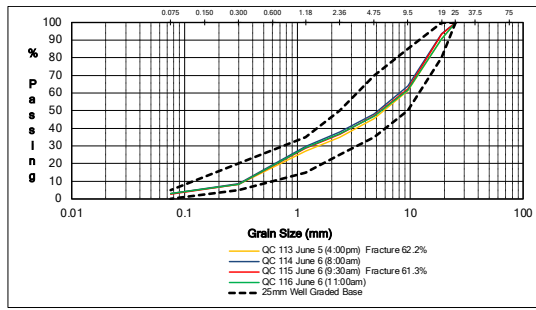




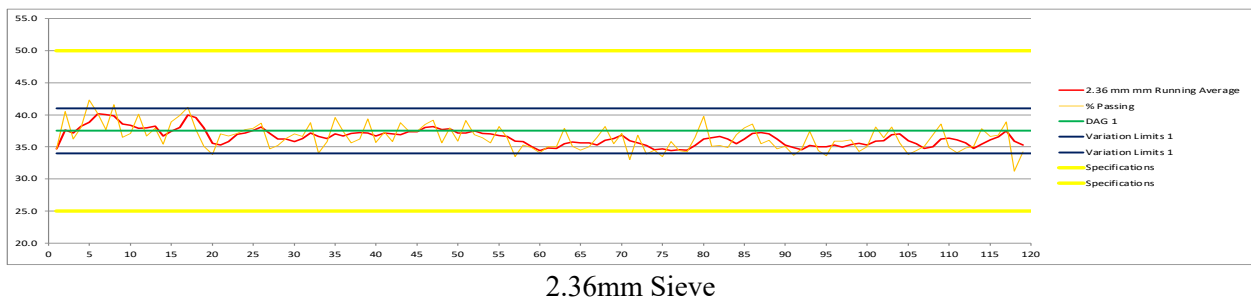
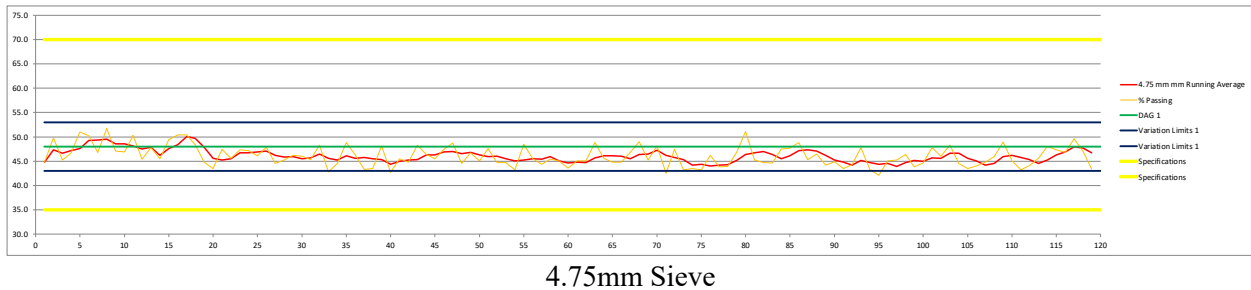
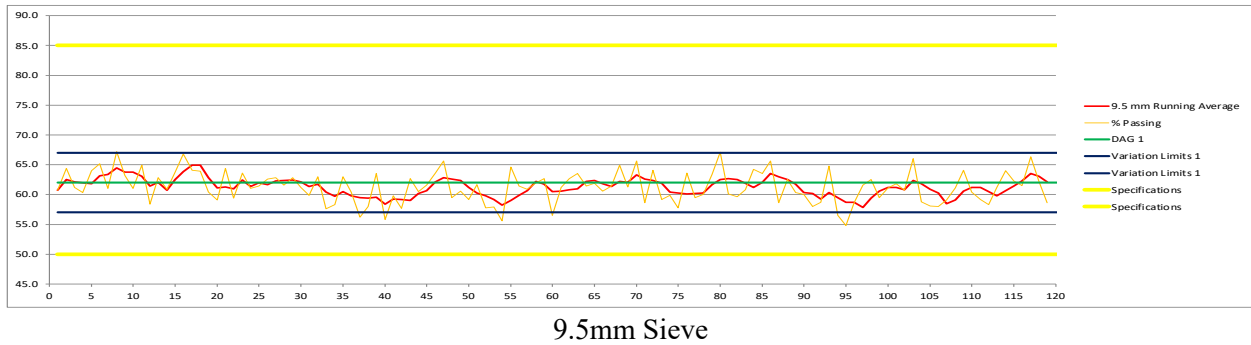
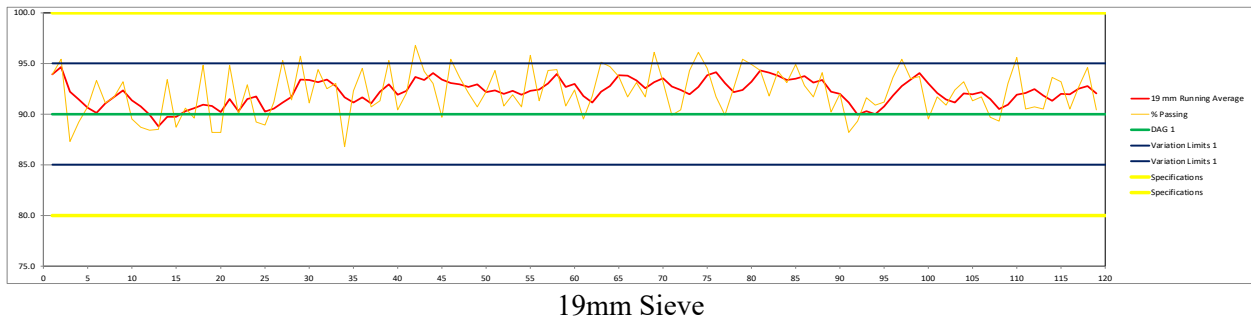






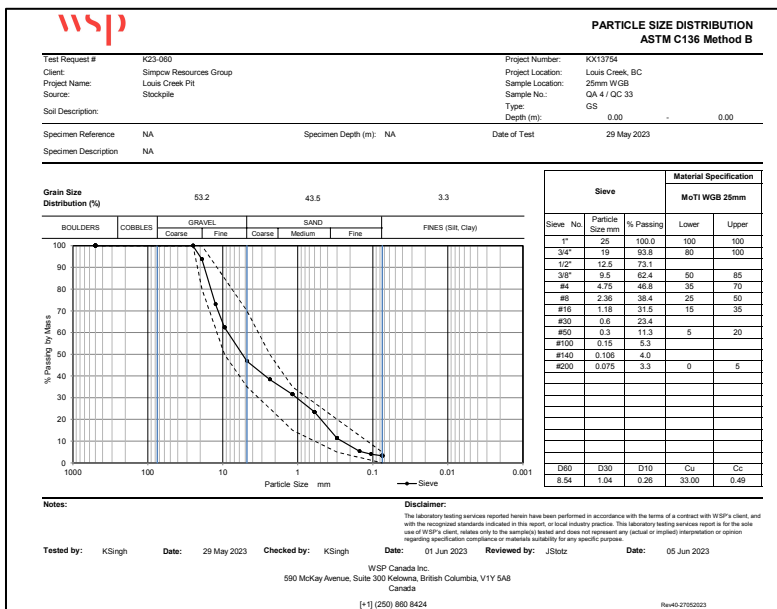
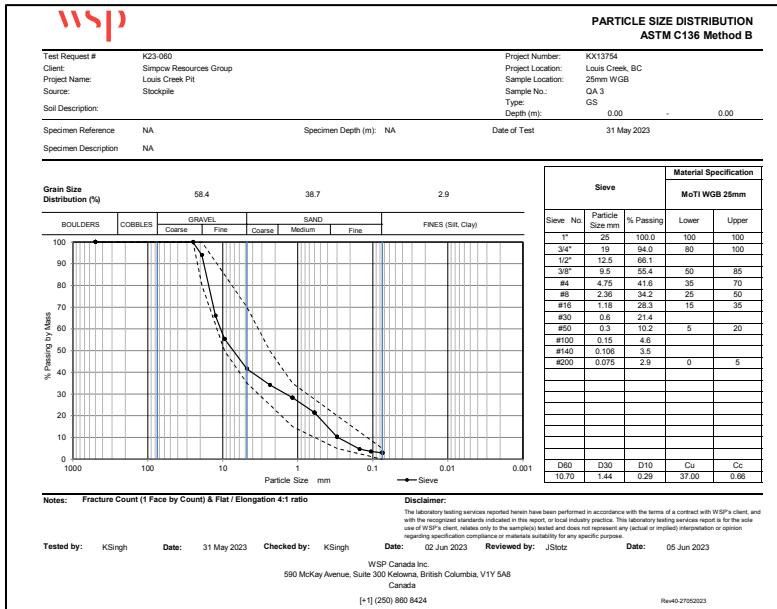
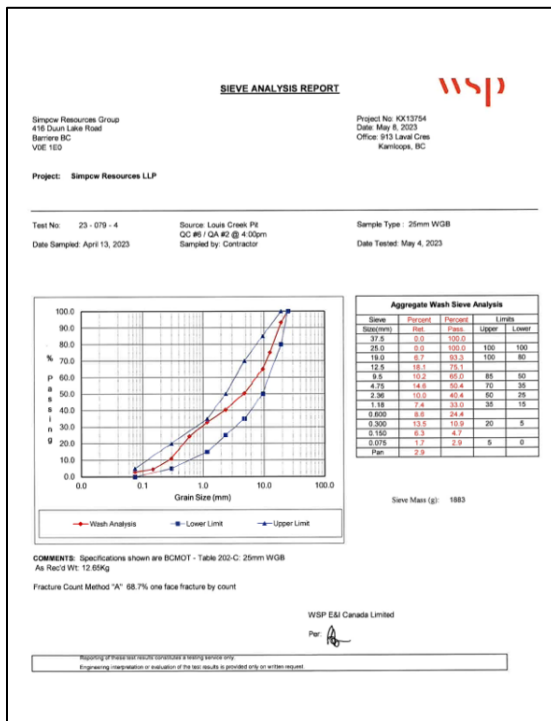


**Quality Control Design Aggregate Gradation Running Average Graphs:**

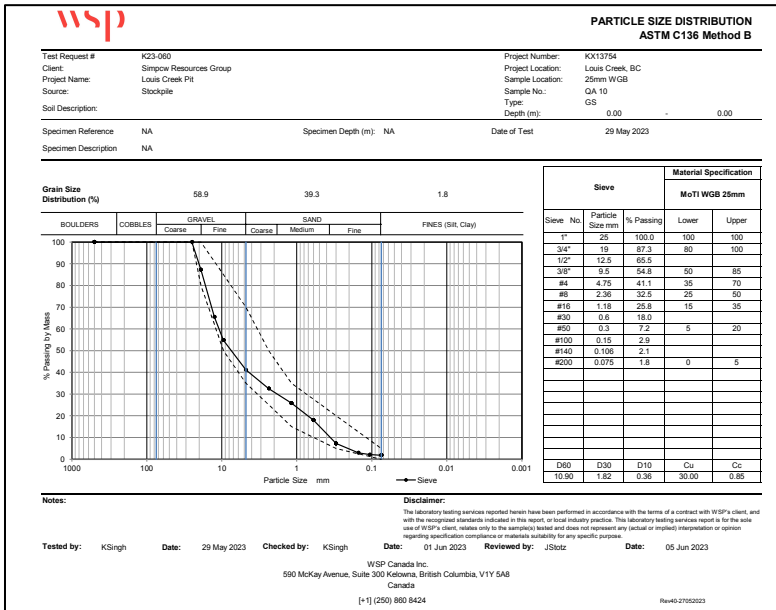
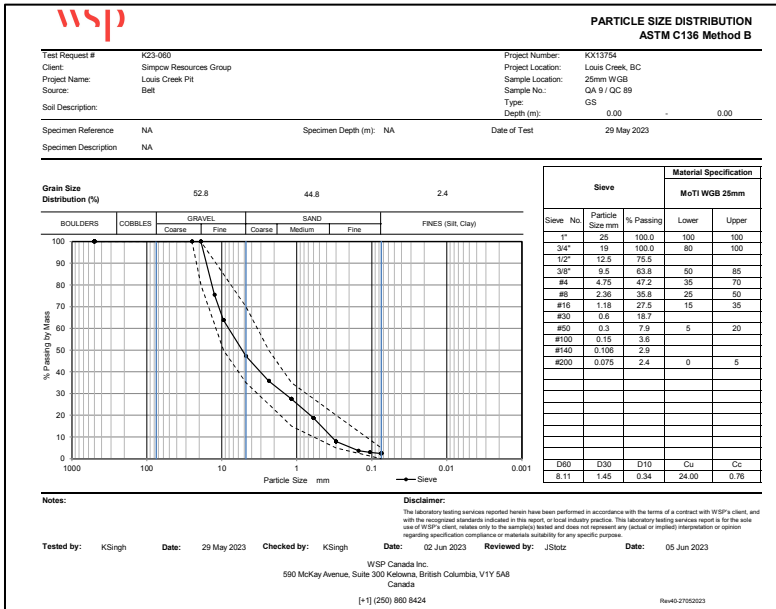
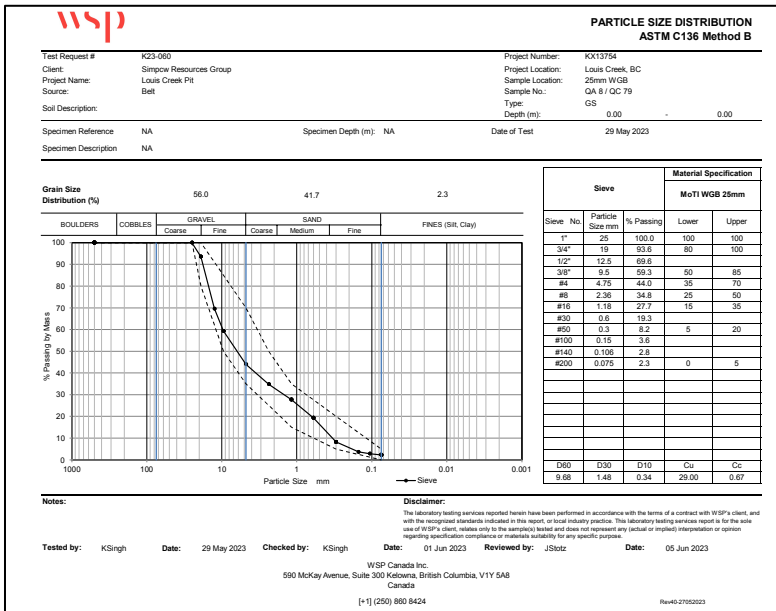














**Percentage of Fractured Particles  
in Coarse Aggregates**  
MOTi Appendix 202-A (ASTM D5821)

<b>Project No.:</b> KX13754	<b>Date Sampled:</b> May 9, 2023
<b>Client:</b> Simpcow	<b>Sampled By:</b> Client
<b>Project Name:</b> Simpcow Resources LLP	<b>Sample ID:</b> QA-3 (G-3)
<b>Source:</b> Louis Creek Pit	<b>Lab Schedule:</b> K23-060

**MOTi Appendix 202-A (ASTM D5821)**

SIEVE SIZE (mm)	ORIGINAL GRADATION (% Retained)	Fractured Particles (%)
25	0	0
25 to 19	6.01	64.47
19 to 12.5	33.91	72.90
12.5 to 9.5	44.62	78.62
9.5 to 4.75	58.45	83.80
<b>Total Fractured Particles (%)</b>		<b>81.01</b>

**Comments:** Fractured Particles by Count

**Number of Fractured Faces**

One Face   
Two Face

K. Singh	02-Jun-23	J. Stotz, ASCT	05-Jun-23
<b>Tested By</b>	<b>Date Tested</b>	<b>Reviewed By</b>	<b>Date Reviewed</b>



**Percentage of Fractured Particles  
in Coarse Aggregates**  
MOTi Appendix 202-A (ASTM D5821)

<b>Project No.:</b> KX13754	<b>Date Sampled:</b> May 9, 2023
<b>Client:</b> Simpcow	<b>Sampled By:</b> Client
<b>Project Name:</b> Simpcow Resources LLP	<b>Sample ID:</b> QA-7
<b>Source:</b> Louis Creek Pit	<b>Lab Schedule:</b> K23-060

**MOTi Appendix 202-A (ASTM D5821)**


SIEVE SIZE (mm)	ORIGINAL GRADATION (% Retained)	Fractured Particles (%)
25	0	0
25 to 19	7.99	66.92
19 to 12.5	34.87	70.66
12.5 to 9.5	44.52	80.14
9.5 to 4.75	58.22	84.37
<b>Total Fractured Particles (%)</b>		<b>79.08</b>

**Comments:** Fractured Particles by Count

**Number of Fractured Faces**

One Face   
Two Face

K. Singh	02-Jun-23	J. Stotz, ASCT	05-Jun-23
<b>Tested By</b>	<b>Date Tested</b>	<b>Reviewed By</b>	<b>Date Reviewed</b>

 <b>Percentage of Flat and Elongated Particles in Coarse Aggregates</b> ASTM D4791																								
<b>Project No.:</b>	KK13754	<b>Date Sampled:</b>	May 9, 2023																					
<b>Client:</b>	Simpow	<b>Sampled By:</b>	Client																					
<b>Project Name:</b>	Simpow Resources LLP	<b>Sample ID:</b>	QA-3 (G-3)																					
<b>Source:</b>	Louis Creek Pit	<b>Lab Schedule:</b>	K23-060																					
<b>ASTM D4791</b>																								
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">SIEVE SIZE (mm)</th> <th style="width: 33%;">ORIGINAL GRADATION (% Retained)</th> <th style="width: 34%;">Flat and Elongated Particles (%)</th> </tr> </thead> <tbody> <tr> <td>25</td> <td>0</td> <td>0</td> </tr> <tr> <td>25 to 19</td> <td>6.01</td> <td>3.45</td> </tr> <tr> <td>19 to 12.5</td> <td>33.91</td> <td>3.88</td> </tr> <tr> <td>12.5 to 9.5</td> <td>44.62</td> <td>5.32</td> </tr> <tr> <td>9.5 to 4.75</td> <td>58.45</td> <td>10.94</td> </tr> <tr> <td colspan="2"><b>Total Flat and Elongated Particles (%)</b></td> <td><b>7.46</b></td> </tr> </tbody> </table>				SIEVE SIZE (mm)	ORIGINAL GRADATION (% Retained)	Flat and Elongated Particles (%)	25	0	0	25 to 19	6.01	3.45	19 to 12.5	33.91	3.88	12.5 to 9.5	44.62	5.32	9.5 to 4.75	58.45	10.94	<b>Total Flat and Elongated Particles (%)</b>		<b>7.46</b>
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<b>Comments:</b> 4:1 Ratio Used - Percentages based on F&E by particle count.																								
<b>K. Singh</b>	<b>02-Jun-23</b>	<b>J. Stotz, ASCT</b>	<b>05-Jun-23</b>																					
<b>Tested By</b>	<b>Date Tested</b>	<b>Reviewed By</b>	<b>Date Reviewed</b>																					
WSP Canada Inc. - Kelowna Laboratory #200 - 1027 Trench Place, Kelowna, BC V1Y 9Y4																								

Please feel free to call or email if you have any questions regarding the SRG Louis Creek Pit 25mm WGB aggregate production program or the Quality Control/Quality Assurance test results.

Sincerely,



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 Main Street Aggregate Consulting  
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 Email: [main\\_street\\_aggregates@shaw.ca](mailto:main_street_aggregates@shaw.ca)