



6980 Sierra Center Parkway, Suite 90  
Reno, NV 89511

April 3, 2017  
File: 1009

Mr. Chris Benna  
**RILITE AGGREGATES**  
3025 Mill Street  
Reno, NV 89502

**RE: Rilite Pit – Washed Concrete Sand  
Aggregate Qualification**

Dear Mr. Benna:

Per your request, we have performed aggregate quality testing on the washed concrete sand received by our laboratory from the Rilite Pit on March 14<sup>th</sup>. Test results are provided on the attached page(s), including gradation and aggregate quality test results in comparison with the 2012 and 2016 Standard Specifications for Public Works Construction (SSPWC), "Orange Book", and current ASTM specification requirements.

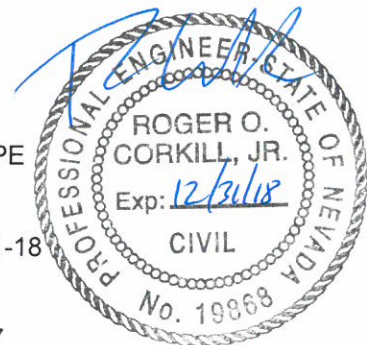
We appreciate this opportunity to provide our laboratory testing services. If you have any questions or require further information, please do not hesitate to contact us.

Sincerely,

**CONSTRUCTION MATERIALS ENGINEERS, INC.**

Steven L. Vineis  
Laboratory Manager  
[svineis@cmenv.com](mailto:svineis@cmenv.com)  
Direct: 775-737-7568  
Mobile: 775-772-9921

Roger O. Corkill Jr., PE  
Project Manager  
RE Number 19868  
Expiration Date 12-31-18  
[rcorkill@cmenv.com](mailto:rcorkill@cmenv.com)  
Direct: 775-737-7581  
Mobile: 775-722-5067



4/3/17

SLV:ROC:jy  
Attachment

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AGGREGATE TEST RESULTS SUMMARY - RILITE PIT WASHED CONCRETE SAND

**Sieve Analysis**

U.S. Standard Sieve Size	Percent Passing by Weight		
	ASTM C136/C117	2012 SSPWC Specification <sup>1</sup>	2016 SSPWC & ASTM C33 Specification
<sup>3</sup> / <sub>8</sub> Inch	100	100	100
No. 4	100	95 - 100	95 - 100
No. 8	82	80 - 100	80 - 100
No. 16	59	50 - 85	50 - 85
No. 30	41	25 - 60	25 - 60
No. 50	24	10 - 30	5 - 30
No. 100	9	2 - 10	0 - 10
No. 200	2.7	0 - 3.0	0 - 3.0
Fineness Modulus	2.88	2.3 - 3.1	2.3 - 3.1

**Aggregate Quality Testing<sup>2</sup>**

Test Type	Test Method	Sample Result	SSPWC Specification <sup>1</sup>
Soundness (by Sodium Sulfate)	ASTM C88	9%	10 Maximum
Clay Lumps	ASTM C142	0.0%	3 Maximum
Organic Impurities	ASTM C40	Plate 1	Less Than Plate 3
Sand Equivalent	ASTM D2419	90	71 Minimum
Coal and Lignite	ASTM C123	0.0%	0.5 Maximum <sup>3</sup>

**Aggregate Property Testing**

Test Type	Test Method	Sample Result	SSPWC Specification <sup>1</sup>
Unit Weight (Loose Basis, pcf)	ASTM C29	78.5	-
Bulk Specific Gravity (SSD Basis)	ASTM C128	2.25	-
Absorption	ASTM C128	3.2%	-

<sup>1</sup> All SSPWC specification requirements per 2012 & 2016 Standard Specifications for Public Works Construction unless otherwise noted.

<sup>2</sup> Potential Reactivity data (per ASTM C33, Appendix requirements) is available upon request.

<sup>3</sup> Specification requirement per ASTM C33.

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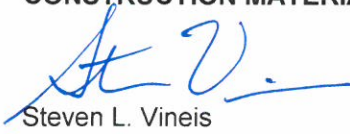
Dear Mr. Benna:

Per your request, we have performed aggregate quality testing on the washed concrete sand received by our laboratory from the Rilite Pit on March 14<sup>th</sup>. Test results are provided on the attached page(s), including gradation and aggregate quality test results in comparison with the 2014 Nevada Department of Transportation (NDOT) Standard Specifications for Road and Bridge Construction requirements.

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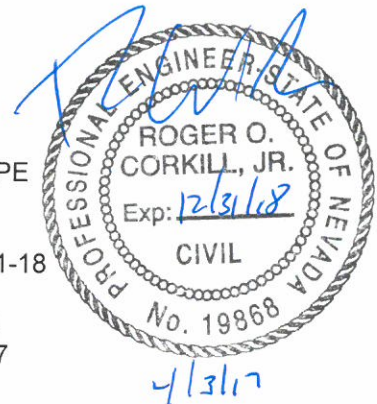
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AGGREGATE TEST RESULTS SUMMARY - RILITE PIT WASHED CONCRETE SAND

**Sieve Analysis**

U.S. Standard Sieve Size	Percent Passing by Weight	
	Nev. T206	NDOT Specification <sup>1</sup>
$\frac{3}{8}$ Inch	100	100
No. 4	100	95 - 100
No. 8	82	80 - 100
No. 16	59	50 - 85
No. 30	41	25 - 60
No. 50	24	5 - 30
No. 100	9	0 - 10
No. 200	2.7	0 - 5
Fineness Modulus <sup>2</sup>	2.88	2.30 - 3.10

**Aggregate Quality Testing<sup>3</sup>**

Test Type	Test Method	Sample Result	Specification <sup>1</sup>
Sand Equivalent	Nev. T227	90	71 Minimum
Clay Lumps	AASHTO T112	0.0%	1% Maximum
Soundness (by Sodium Sulfate)	AASHTO T104	9%	10% Maximum
Lightweight Pieces	AASHTO T113	0.0%	1% Maximum
Organic Impurities	AASHTO T21	Satisfactory	Satisfactory

**Aggregate Property Testing**

Test Type	Test Method	Sample Result	Specification <sup>1</sup>
Unit Weight (Loose Basis, pcf)	AASHTO T19	79	-
Bulk Specific Gravity (SSD Basis)	Nev. T493	2.25	-
Absorption	Nev. T493	3.2%	-

<sup>1</sup> All specification requirements per 2014 NDOT Standard Specifications for Road and Bridge Construction.

<sup>2</sup> Determined according to AASHTO T27 and AASHTO T11.

<sup>3</sup> Potential Reactivity data (per AASHTO T303) is available upon request.





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Dear Mr. Benna:

Per your request, we have performed aggregate quality testing on the washed concrete sand received by our laboratory from the Rilite Pit on March 14<sup>th</sup>. Test results are provided on the attached page(s), including gradation and aggregate quality test results in comparison with specifications outlined in the 2015 Caltrans Standard Specifications.

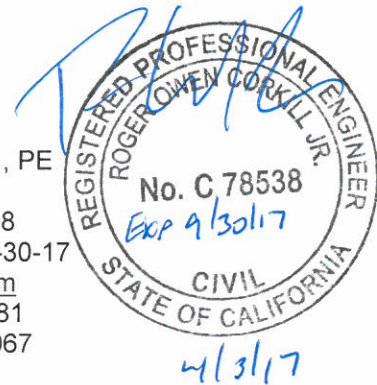
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AGGREGATE TEST RESULTS SUMMARY - RILITE PIT WASHED CONCRETE SAND

**Sieve Analysis**

U.S. Standard Sieve Size	Percent Passing by Weight			
	CT 202	X-Value	Operating Range Specification <sup>1</sup>	Contract Compliance Specification <sup>1</sup>
<sup>3</sup> / <sub>8</sub> Inch	100	-	100	100
No. 4	100	-	95 - 100	93 - 100
No. 8	82	-	65 - 95	61 - 99
No. 16	59	59	49 - 69	46 - 72
No. 30	41	40	31 - 49	28 - 52
No. 50	24	23	17 - 29	14 - 32
No. 100	9	-	2 - 12	1 - 15
No. 200	2.7	-	0 - 8	0 - 10
Fineness Modulus	2.88	-	-	-

**Aggregate Quality Testing**

Test Type	Test Method	Sample Result	Specification <sup>1</sup>
Clay Lumps	ASTM C142	0.0%	3.0% Maximum <sup>2</sup>
Soundness (by Sodium Sulfate)	CT 214	9.1%	10% Maximum
Durability Index	CT 229	88	60 Minimum
Organic Impurities	CT 213	Satisfactory	Satisfactory
Sand Equivalent (Operating Range)	CT 217	90	75 Minimum
Sand Equivalent (Contract Compliance)	CT 217	90	71 Minimum

**Aggregate Property Testing**

Test Type	Test Method	Sample Result	Specification <sup>1</sup>
Unit Weight (Loose Basis, pcf)	CT 212	78.5	-
Bulk Specific Gravity (SSD Basis)	CT 207	2.25	-
Absorption	CT 207	3.2%	-

<sup>1</sup> All specification requirements per 2015 Caltrans Standard Specifications unless otherwise noted.  
<sup>2</sup> Specification requirement per ASTM C33.