



September 21, 2005

Carolina Stalite Company
P.O. Box 186
Gold Hill, North Carolina 28071

Attention: Mr. Jody R. Wall, P.E.

Reference: **LABORATORY TEST RESULTS**
Physical Testing of Granular Backfill Material
S&ME Project No. 1433-05-721
S&ME Proposal No. 3305908

Dear Mr. Wall:

S&ME has completed the laboratory testing on the granular backfill material that you delivered to our office on September 6, 2005. The testing included a gradation including a No. 200 wash, Magnesium Sulfate soundness (four cycles), Los Angeles Abrasion, direct shear and loss on ignition in accordance with S&ME Proposal No. 3305908. The results of the testing are included in the attachments.

S&ME is pleased to provide you with these laboratory testing services. If you should have any questions or require further testing, please call.

Sincerely,

S&ME, Inc.

Jason B. Burgess, P.E.
Project Engineer

John B. Pearson, P.E.
Laboratory Manager

Attachments
JBB/JBP/jbb

S&ME, Inc., Knoxville Branch
1413 Topside Road
Louisville, Tennessee 37777

(865) 970-0003
(865) 970-2312 fax
www.smacinc.com

Customer: Carolina Stalite Company

Proposal Number: 3305908

Address: P.O. Box 186

Material: Granular Backfill Material

City, State, Zip: Gold Hill, NC 28071

S&ME Project No.: 1433-05-721

Date Received: 9-06-05

**Gradation including a No. 200 Wash
ASTM C117 and ASTM C136**

Sieve Size	Percent Passing (%)	AASHTO M195-00 19.0 to 4.75 mm Stone Specification (%)
1"	100	100
3/4"	96	90 - 100
1/2"	59	---
3/8"	34	10 - 50
No. 4	7	0 - 15
No. 8	5	---

Percent Passing the No. 200 sieve: 2.2 %

Physical Property	Test Designation	Test Results	Client Provided Requirements
Los Angeles Abrasion	ASTM C131	28 %	40 % maximum
Magnesium Sulfate Soundness	AASHTO T104 (four cycles)	0 %	30 % maximum
Angle of Internal Friction	ASTM D3080	44.6 °	38 ° minimum
Organic Content	ASTM D2974 Method D	0.04 %	0.1% maximum

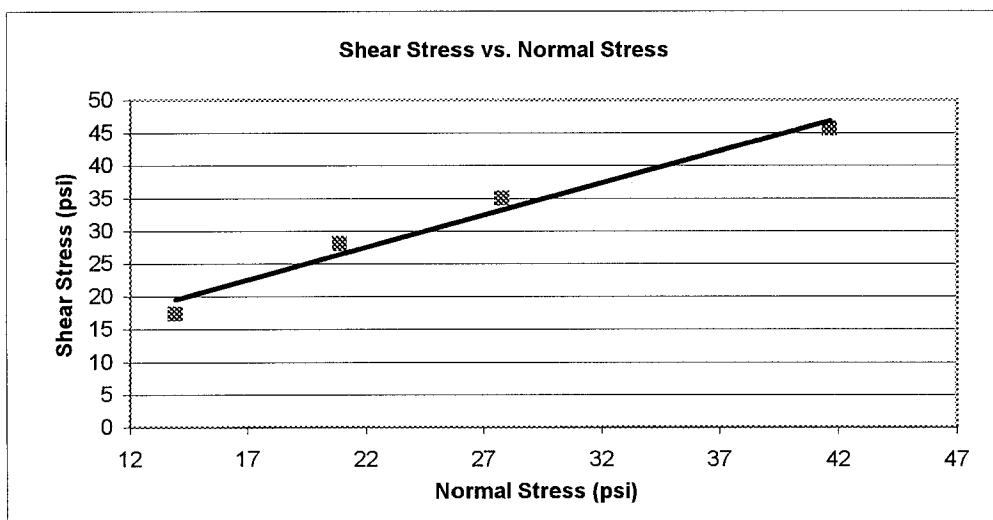
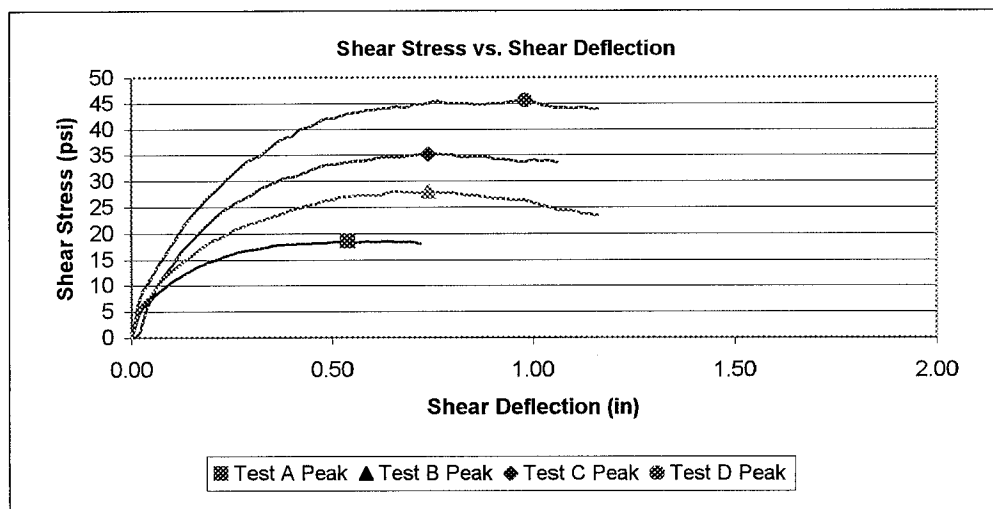


Direct Shear (ASTM D3040)

Project Name	Stalite	Project Number	1433-05-721
Material Type	Gran. Lightweight Backfill	Date Received	9/6/2005
Shear Box	12" x 12" square	Date Completed	9/19/2005
Sample Log Number	3/4" Stone (-3/4" material)	Test Condition	Inundated

	Test A	Test B	Test C	Test D
Normal Load (ksf)	2	3	4	6
Normal Load (psi)	13.89	20.83	27.78	41.67
Target Dry Density (pcf)	65% Relative Density			
Target Moisture Content (%)	Inundated			
Peak Shear Stress (psi)	18.47	28.07	35.21	45.65
Shear Deflection at Peak (psi)	0.54	0.74	0.74	0.98

Results	
C, psi	5.80
ϕ , degrees	44.6



Remarks: Specimens remolded to 65% relative density given test values supplied with samples.
Specimens were sheared at a loading rate of 0.04 inches per minute.

**Summary of Laboratory Test
Expanded Slate - Stalite Testing
Carolina Stalite Company
LAW Project No. 30160-5-0486**

Sample Identification: Expanded Slate – Stalite

AASHTO T 103: Standard Method of Test for Soundness of Aggregates by Freezing and Thawing (Procedure A, 25 cycles)

Sample Fraction	Percent of Total Sample Retained	Sample Weight (gms)	Percent Passing Designated Sieve After Test	Weighted Percentage Loss
1 1/2" - 3/4"	4.1	0	0.59*	0.02
3/4" - 3/8"	80.7	999.7	0.59	0.48
3/8" - #4	14.8	300.2	0.53	0.08
Minus #4	0.4	0	---	---
Total	100.0			0.58

*Assumed value per AASHTO T 103