

ASBESTOS CONTAINING MATERIAL INVESTIGATION REPORT

**S-32-36 – ST. ANDREWS RD. BRIDGE
OVER I-26 (EAST & WEST BOUND LANES)
SCDOT BRIDGE #327003600200
LEXINGTON COUNTY, SOUTH CAROLINA**

PREPARED FOR:



Mr. David Kinard, P.E.
Project Manager
3955 Faber Place Drive, Suite 300
North Charleston, South Carolina 29405

PREPARED BY:

F&ME Consultants
3112 Devine Street
Columbia, South Carolina 29205

March 20, 2018

Yes, asbestos was found.
 No, asbestos was not found.

F&ME Project No.: G5662.010

TABLE OF CONTENTS

1.	Executive Summary	1
2.	Introduction	1
3.	Existing Bridge Structure	2
4.	Field Assessment	3
5.	Assessment Results	3
6.	Recommendations	4
	Appendices	5

Appendix A – Site Vicinity Map

Appendix B – Sample Location Plan

Appendix C – Summary of Sample Results

Appendix D – Laboratory Analysis Reports

Appendix E – Chain of Custody Forms

Appendix F – Personnel Certifications

Appendix G – Site Photographs

1. EXECUTIVE SUMMARY

This executive summary is intended as an overview for the convenience of the reader. This report should be reviewed in its entirety prior to making any decisions regarding this project.

F&ME Consultants Inc. (F&ME) completed an Asbestos Containing Material (ACM) Investigation on the S-32-36 (St. Andrews Rd.) Bridge Over I-26 in Lexington County, South Carolina, for HDR, Inc (David Kinard, P.E. - Project Manager), on March 2, 2018. This investigation was also conducted pursuant to South Carolina Department of Health and Environmental Control (SCDHEC), United States Environmental Protection Agency (USEPA), National Emission Standards for Hazardous Air Pollutants (NESHAP), and Occupational Safety and Health Administration (OSHA) regulations requiring an ACM investigation prior to any demolition and/or renovation activities.

Per an agreed upon scope of work, F&ME performed this investigation to identify any ACM that might be encountered during the demolition operations, associated with the existing bridge, and make recommendations regarding proper handling and disposal of any ACM found. The investigation of the subject bridge identified two (2) suspect materials: expansion joint material, and column expansion joint material. During the field investigation, F&ME collected samples of the suspect materials and assessed the physical condition of each material. Laboratory results indicated that **both of the materials were non-ACM**. Therefore, at this time, no special handling or disposal requirements are required regarding ACM. However, during the course of demolition activities, previously concealed ACM may be discovered. If hidden suspect ACM is encountered, the affected contractor(s) must stop work, take appropriate actions, and notify the Owner/F&ME Consultants for an appropriate response action.

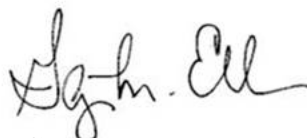
We appreciate the opportunity to assist you in this matter. If you have any questions or require additional information, please feel free to contact our office at (803) 254-4540.

Sincerely,

F&ME CONSULTANTS



Michael S. Mincey
Environmental Professional
Asbestos Consultant/Management Planner
SCDHEC License No: MP-00161
Expiration Date 01/29/2019



Glynn M. Ellen
Senior Environmental Professional
Asbestos Consultant/Management Planner
SCDHEC License No: ASB-22641
Expiration Date 01/29/2019

2. INTRODUCTION

F&ME Consultants has completed an ACM investigation on the S-32-36 (St. Andrews Rd.) Bridge over I-26 in Lexington County, South Carolina. The investigation was performed on March 2, 2018. This investigation was conducted pursuant to SCDHEC, USEPA, NESHAP, and OSHA regulations which require an ACM investigation prior to any demolition and/or renovation activities. See Appendix A – Site Vicinity Map for the location of St. Andrews Rd. over I-26.

It is our understanding that the existing bridge structure is scheduled to be demolished as part of the Carolina Crossroads project. The scope of this investigation was to determine if asbestos was present on the present bridge structure by identifying and sampling suspect ACM, obtaining analytical results, quantifying any confirmed ACM, and assessing the physical condition of the ACM, where possible.

This report has been prepared exclusively for HDR, Inc. and shall not be disseminated in whole or part to other parties without prior consent from HDR, Inc. or F&ME Consultants, Inc. No other environmental issues were addressed as part of this report.

3. EXISTING BRIDGE STRUCTURE

The existing bridge structure (~352.0'L x 78.5'W, inside curb to inside curb), is located on S-32-36 (St. Andrews Rd.) and crosses over I-26 in Lexington County, South Carolina. The bridge was constructed in 1981 according to the date stamped on the bridge's concrete guardrail. The bridge is a five-lane, four (4) span bridge constructed with poured-in-place concrete bridge deck spans, concrete curb and gutters with steel galvanized guardrails and concrete sidewalks on both sides of the bridge. Each span is supported by twelve (12) structural steel beams with steel diaphragms. The bridge beams are supported by two (2) end bents and three (3) interior bents. According to the SCDOT bridge drawings provided, and through onsite observations made in the field, the beam supports for both the end bents and interior bents are constructed with a concrete bent caps that are supported by six (6) concrete columns on each interior bent. The middle interior bent is supported by seven (7) concrete columns. The end bents have soil and concrete covering the piles with only the top of the concrete bent caps exposed. The bridge approaches on each end of the bridge consist of a five-lane asphalt paved roadway.



Photo 1 – S-40-36 (St. Andrews Rd.) Bridge over I-26 in Lexington County, SC.

4. FIELD ASSESSMENT

During the inspection, all bridge components (i.e. concrete bent caps, piles, and expansion joints) were visually inspected for suspect ACM. Examples of possible suspect materials include bent and pile cap felt, bond-break pads, expansion joint material, and Transite scuppers. The impact dampeners on the galvanized guard rail approaching the bridge were determined to be constructed of black rubber, and therefore, not a suspect material. The bridge deck rested directly on the pile and bent caps, with no suspect material (i.e. bond-break pads) observed/visible between them. PVC scuppers were observed on the bridge. However, bridge expansion joint material, column expansion joint material was noted during the investigation and are suspect materials.

See Appendix B – Sample Location Plan, for detailed sample locations. Also, see Appendix G – Site Photographs, for more details.

5. ASSESSMENT RESULTS

During the investigation, the deck expansion joint material and the column expansion joint material were the only suspect materials observed on the subject bridge. Three (3) random samples of each suspect material were collected for laboratory analysis, and their physical characteristics were recorded. The remaining structural materials (i.e. concrete, steel, etc.) were not considered suspect and were not sampled.

The bridge was a four (4) span concrete and steel structure, with expansion joints where the concrete deck sections meet, and where the roadway butts up to the bridge at the approaches (i.e. expansion joints on either side of the bridge).

The samples of the suspect material were analyzed by polarized light microscopy (PLM) in accordance with EPA 600/R-93/116. A “*first positive stop*” protocol was requested by HDR, Inc. This protocol establishes that if the first sample of a material tested positive for asbestos content, subsequent samples were not to be analyzed, and would be considered positive as well. The results of the analysis indicated **none of the suspect materials contained asbestos**. Results of laboratory analysis are summarized in Appendix C – Summary of Sample Results.

Appropriate sampling and chain-of-custody protocols were followed to ensure proper handling and delivery of samples to the analytical laboratory. Appendix D and E were provided to show laboratory documentation for the analytical results. Appendix F – Personnel Certification, shows the official qualifications of the South Carolina Asbestos Inspectors.

6. RECOMMENDATIONS

The results, conclusions, and recommendations of this investigation are representative of the conditions observed at the site on the date of the field inspection. F&ME does not assume responsibility for any changes in conditions or circumstances that may have occurred after this inspection.

It is our understanding that the subject structure is to be demolished as part of this project. All accessible suspect materials have been sampled and analyzed by an accredited laboratory and found to contain no ACM. Therefore, there are no foreseen special handling or disposal requirements, regarding asbestos, that will be required for the demolition of this bridge.

If any concealed and/or inaccessible ACM are encountered during the demolition activities, the affected contractor(s) must stop work, take appropriate actions, and notify the Owner/asbestos Consultant for an appropriate response action. The SCDHEC must be notified if any suspect ACM is discovered.

We sincerely appreciate the opportunity to be of service to HDR, Inc., in this matter. If you have any questions regarding the information presented herein, please contact our office at (803) 254-4540.

APPENDICES

Appendix A – Site Vicinity Map

Appendix B – Sample Location Plan

Appendix C – Summary of Sample Results

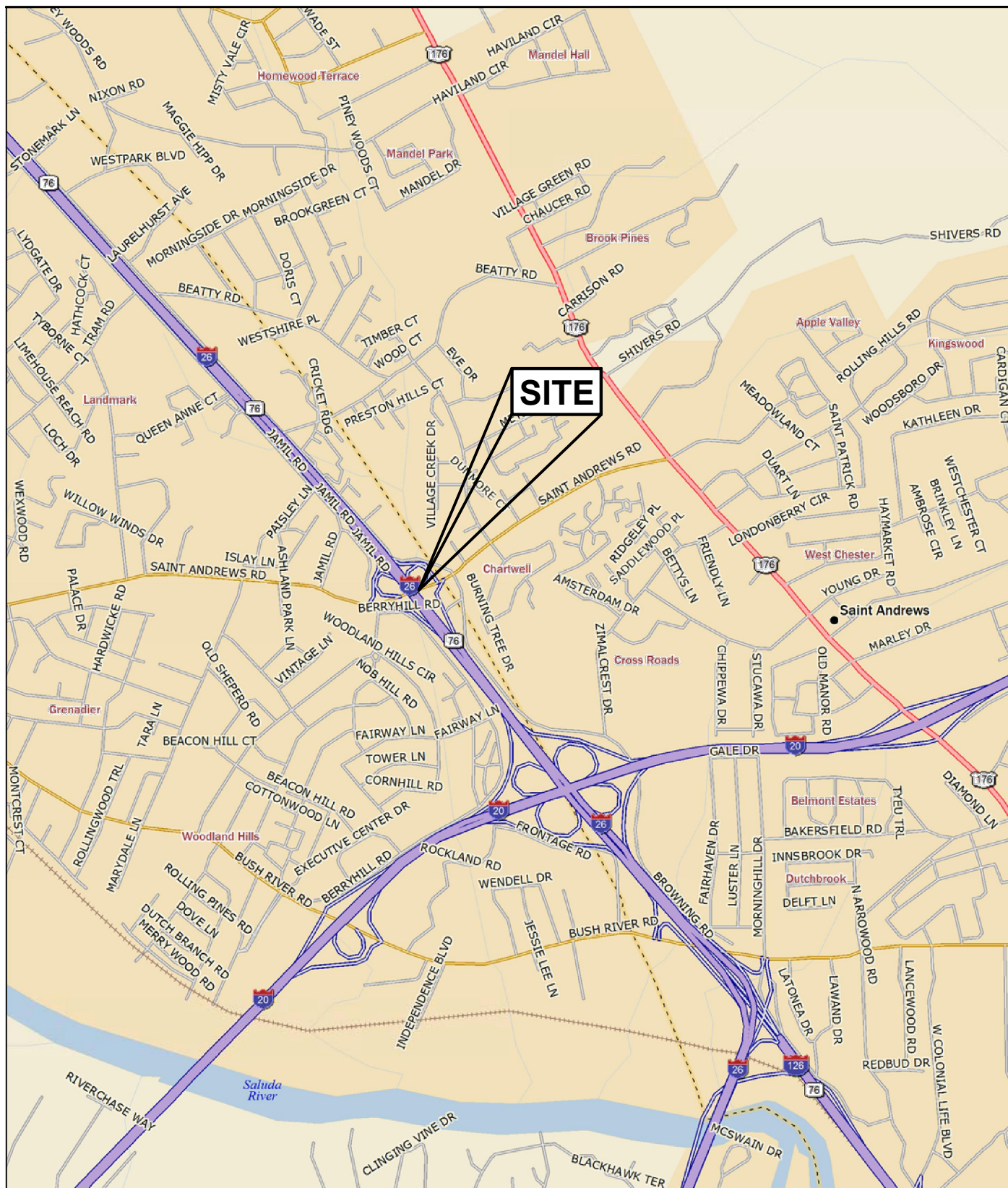
Appendix D – Laboratory Analysis Reports

Appendix E – Chain of Custody Forms

Appendix F – Personnel Certifications

Appendix G – Site Photographs

Appendix A
Site Vicinity Map



Data use subject to license.

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www.delorme.com

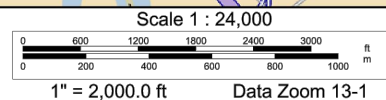
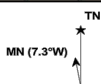


FIGURE NUMBER:

1

F&ME CONSULTANTS PROJECT NUMBER:

G5662.01

ASBESTOS CONTAINING MATERIALS INVESTIGATION

S-32-36 (St. Andrews Rd.) OVER I-26

Lexington County, SC

Site Vicinity Map

Prepared for: HDR, Inc.

3955 Faber Place Drive, Suite 300

North Charleston, SC 29405

F&ME CONSULTANTS

1825 Blanding Street
Columbia, SC 29201

ORIGINAL:
April 10, 2018

REVISIONS:

- 1
- 2
- 3

SCALE:
AS SHOWN

DRWN. BY: CTC

CHKD. BY: MSM

APPR. BY: GME

NOTES:

Appendix B

Sample Location Plan

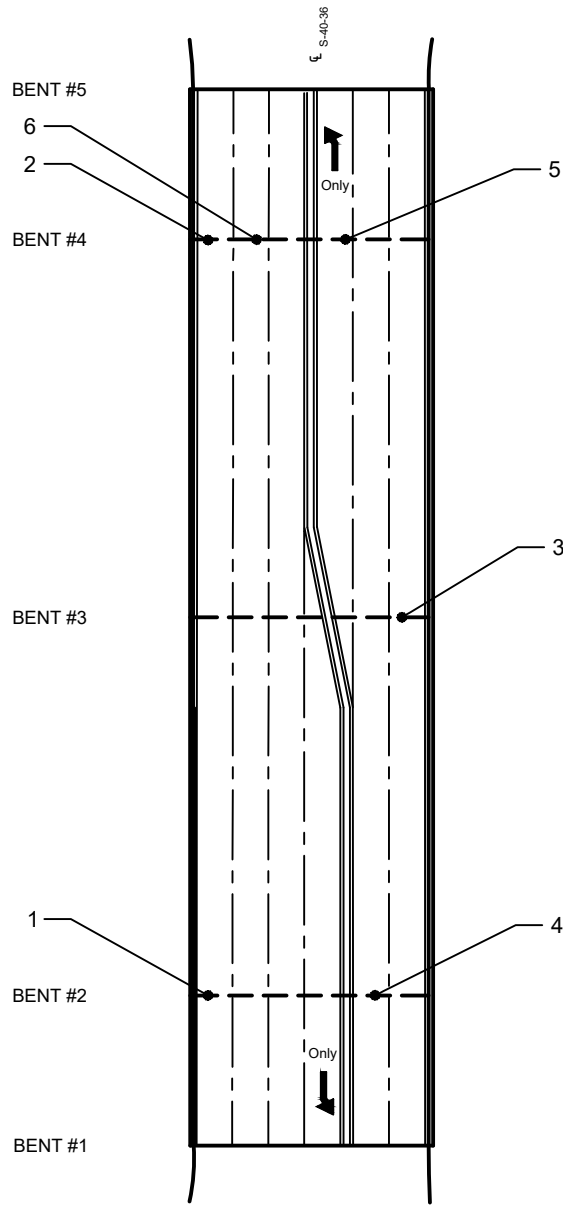


FIGURE NUMBER:

2

F&ME CONSULTANTS PROJECT NUMBER:

G5662.010

ASBESTOS CONTAINING MATERIALS INVESTIGATION

S-32-36 (St. Andrews Rd.) OVER I-26

Lexington County, SC

Sample Location Plan

Prepared for: HDR, Inc.
3955 Faber Place Drive, Suite 300
North Charleston, SC 29405

F&ME CONSULTANTS

1825 Blanding Street
Columbia, SC 29201

ORIGINAL:

April 12, 2018

REVISIONS:

1

2

3

SCALE:

N.T.S.

DRWN. BY: MSM

CHKD. BY: MSM

APPR. BY: GME

NOTES:

Appendix C

Summary of Sample Results

Appendix C – Summary of Sampling Results

Sample ID	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
1	Expansion Joint Material	Black Non- Fibrous Homogeneous		100% Matrix Material	None Detected
2	Expansion Joint Material	Black Non- Fibrous Homogeneous	100% Non-Fibrous (Other)	100% Non-Fibrous (Other)	None Detected
3	Expansion Joint Material	Black Non- Fibrous Homogeneous	100% Non-Fibrous (Other)	100% Non-Fibrous (Other)	None Detected
4	Drilled Shaft Expansion Joint Material	Black/Brown Fibrous Homogeneous		100% Matrix Material	None Detected
5	Drilled Shaft Expansion Joint Material	Black/Brown Fibrous Homogeneous	95% Cellulose	5% Non-Fibrous (Other)	None Detected
6	Drilled Shaft Expansion Joint Material	Black/Brown Fibrous Heterogeneous	97% Cellulose 1% Synthetic	2% Non-Fibrous (Other)	None Detected

Appendix D

Laboratory Analysis Reports



EMSL Analytical, Inc.

706 Gralin Street Kernersville, NC 27284

Tel/Fax: (336) 992-1025 / (336) 992-4175

<http://www.EMSL.com> / greensborolab@emsl.com

EMSL Order: 021801522

Customer ID: FMEC62

Customer PO: G5662-01

Project ID:

Attention: Glynn M. Ellen
F & ME Consultants
1825 Blanding Street
Columbia, SC 29201

Phone: (803) 254-4540

Fax: (803) 254-4542

Received Date: 03/05/2018 8:30 AM

Analysis Date: 03/07/2018

Collected Date: 03/02/2018

Project: ACM Inv. - I-26 / St. Andrews Rd Bridge

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
2 021801522-0001	Deck Expansion Joint Material	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
3 021801522-0002	Deck Expansion Joint Material	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5 021801522-0003	Drilled Shaft Expansion Joint Material (Column)	Brown/Black Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
6 021801522-0004	Drilled Shaft Expansion Joint Material (Column)	Brown/Black Fibrous Homogeneous	97% Cellulose 1% Synthetic	2% Non-fibrous (Other)	None Detected

Analyst(s)

Nicole Shutts (2)

Scott Combs (2)

Stephen Bennett, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

Samples analyzed by EMSL Analytical, Inc. Kernersville, NC NVLAP Lab Code 102104-0, CA ELAP 2689, Virginia 3333-000228, West Virginia LT000321

Initial report from: 03/07/2018 15:33:26



EMSL Analytical, Inc.

706 Gralin Street Kernersville, NC 27284
Tel/Fax: (336) 992-1025 / (336) 992-4175
<http://www.EMSL.com> / greensborolab@emsl.com

EMSL Order: 021801522
Customer ID: FMEC62
Customer PO: G5662-01
Project ID:

Attention: Glynn M. Ellen
F & ME Consultants
1825 Blanding Street
Columbia, SC 29201
Phone: (803) 254-4540
Fax: (803) 254-4542
Received Date: 03/05/2018 8:30 AM
Analysis Date: 03/08/2018
Collected Date: 03/02/2018
Project: ACM Inv. - I-26 / St. Andrews Rd Bridge

Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM via EPA/600/R-93/116 Section 2.5.5.1

Sample ID	Description	Appearance	% Matrix Material	% Non-Asbestos Fibers	Asbestos Types
1 021801522-0005	Deck Expansion Joint Material	Black Non-Fibrous Homogeneous	100	None	No Asbestos Detected
4 021801522-0006	Drilled Shaft Expansion Joint Material (Column)	Black Fibrous Homogeneous	100	None	No Asbestos Detected

Analyst(s)

Stephen Bennett (2)

Stephen Bennett, Laboratory Manager
or other approved signatory

This laboratory is not responsible for % asbestos in total sample when the residue only is submitted for analysis. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Kernersville, NC

Initial report from: 03/08/2018 09:49:17

Appendix E

Chain of Custody Forms



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

1522

EMSL ANALYTICAL, INC.
706 GRALIN ST.
KERNERSVILLE, NC 27284
PHONE: (336) 992-1025
FAX: (336) 992-4175

Company Name : F&ME Consultants		EMSL Customer ID:	
Street: 3112 Devine Street		City: Columbia	State/Province: SC
Zip/Postal Code: 29205	Country: USA	Telephone #: 803-254-4540	Fax #: 803-254-4542
Report To (Name):		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email	
Email Address: gellen@fmecon.com, mmincey@fmecon.com		Purchase Order: G5662.01	
Project Name/Number: ACM Inv. - I-26/St. Andrews Rd Bridge		EMSL Project ID (Internal Use Only):	
U.S. State Samples Taken: SC		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	

EMSL-Bill to: Same Different - If Bill to is Different note instructions in Comments**
Third Party Billing requires written authorization from third party

Turnaround Time (TAT) Options* - Please Check

- 3 Hour
 6 Hour
 24 Hour
 48 Hour
 72 Hour
 96 Hour
 1 Week
 2 Week

*For TEM Air 3 hr through 6 hr, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

<p>PCM - Air <input type="checkbox"/> Check if samples are from NY</p> <p><input type="checkbox"/> NIOSH 7400</p> <p><input type="checkbox"/> w/ OSHA 8hr. TWA</p> <p>PLM - Bulk (reporting limit)</p> <p><input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%)</p> <p><input type="checkbox"/> PLM EPA NOB (<1%)</p> <p>Point Count</p> <p><input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)</p> <p>Point Count w/Gravimetric</p> <p><input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)</p> <p><input type="checkbox"/> NYS 198.1 (friable in NY)</p> <p><input type="checkbox"/> NYS 198.6 NOB (non-friable-NY)</p> <p><input type="checkbox"/> NYS 198.8 SOF-V</p> <p><input type="checkbox"/> NIOSH 9002 (<1%)</p>	<p>TEM - Air <input type="checkbox"/> 4-4.5hr TAT (AHERA only)</p> <p><input type="checkbox"/> AHERA 40 CFR, Part 763</p> <p><input type="checkbox"/> NIOSH 7402</p> <p><input type="checkbox"/> EPA Level II</p> <p><input type="checkbox"/> ISO 10312</p> <p>TEM - Bulk</p> <p><input checked="" type="checkbox"/> TEM EPA NOB</p> <p><input type="checkbox"/> NYS NOB 198.4 (non-friable-NY)</p> <p><input type="checkbox"/> Chatfield SOP</p> <p><input type="checkbox"/> TEM Mass Analysis-EPA 600 sec. 2.5</p> <p>TEM - Water: EPA 100.2</p> <p>Fibers >10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking</p> <p>All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking</p>	<p>TEM- Dust</p> <p><input type="checkbox"/> Microvac - ASTM D 5755</p> <p><input type="checkbox"/> Wipe - ASTM D6480</p> <p><input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167)</p> <p>Soil/Rock/Vermiculite</p> <p><input type="checkbox"/> PLM EPA 600/R-93/116 with milling prep (<1%)</p> <p><input type="checkbox"/> PLM EPA 600/R-93/116 with milling prep (<0.25%)</p> <p><input type="checkbox"/> TEM EPA 600/R-93/116 with milling prep (<0.1%)</p> <p><input type="checkbox"/> TEM Qualitative via Filtration Prep</p> <p><input type="checkbox"/> TEM Qualitative via Drop Mount Prep</p> <p><input type="checkbox"/> Cincinnati Method EPA 600/R-04/004 - PLM/TEM (BC only)</p> <p>Other:</p> <p><input type="checkbox"/></p>
---	---	--

Check For Positive Stop - Clearly Identify Homogenous Group Filter Pore Size (Air Samples): 0.8µm 0.45µm

Samplers Name: Mike Mincey

Samplers Signature: *Mike Mincey*

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
*1 thru 3	Deck Expansion Joint Material		
*4 thru 6	Drilled Shaft Expansion Joint Material (Column)		

Client Sample # (s):	1 - 6	Total # of Samples:	6
Relinquished (Client):	<i>Mike Mincey</i>	Date:	03/02/18
Received (Lab):	<i>[Signature]</i>	Date:	3/5/18
Time:		Time:	17:00
Time:		Time:	8:30

Comments/Special Instructions: Samples marked with astrick (*), run TEM only.

③ EFX 790 790140994

Appendix F

Personnel Certifications

SCDHEC ISSUED

Asbestos ID Card

Michael Mincey



SUPERAHERA	SA-01424	01/30/19
CONSULTMP	MP-00161	01/29/19
AIRSAMPLER	AS-00272	01/30/19

Expiration Date:

This card is nontransferable and considered invalid if loaned or given to another person for identification. This card will also be invalid if altered or defaced. This card is property of SCDHEC. It must be returned to the department if the holder's accreditation is revoked or if this card is invalidated. Any person performing regulated asbestos activities without current accreditation shall be subject to legal sanction. This card must be returned upon expiration and/or issuance of a new card.

YOU MUST HAVE THIS IDENTIFICATION CARD WITH YOU ON THE JOB.

For information of corrections contact: SCDHEC – Asbestos Section
2600 Bull Street
Columbia, SC 29201
(803) 898-4289

SCDHEC ISSUED

Asbestos ID Card

Glynn M Ellen



SUPERAHERA	SA-00455	01/30/19
CONSULTPD	PD-00098	06/09/18
CONSULTMP	ASB-22641	01/29/19
AIRSAMPLER	AS-00079	01/30/19

Expiration Date:

This card is nontransferable and considered invalid if loaned or given to another person for identification. This card will also be invalid if altered or defaced. This card is property of SCDHEC. It must be returned to the department if the holder's accreditation is revoked or if this card is invalidated. Any person performing regulated asbestos activities without current accreditation shall be subject to legal sanction. This card must be returned upon expiration and/or issuance of a new card.

YOU MUST HAVE THIS IDENTIFICATION CARD WITH YOU ON THE JOB.

For information of corrections contact: SCDHEC – Asbestos Section
2600 Bull Street
Columbia, SC 29201
(803) 898-4289

Appendix G

Site Photographs

Photograph 1



- East Side View of Bridge

Photograph 2



- Top of Bridge Deck View

Photograph 3



- Underside of Bridge View.

Photograph 4



- Expansion Joint Material on Top of Bridge Deck.

Photograph 5



- Column Expansion Joint Material Located at the Interface of Concrete at Grade and Concrete Column