

ASBESTOS CONTAINING MATERIAL INVESTIGATION REPORT

I-20 BRIDGE OVER THE CSX RAILWAY 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

February 27, 2019

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

F&ME Project No.: G5662.010

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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 Materials (ACM) Investigation on the I-20 Bridge over the CSX Railway in Lexington County, South Carolina, for HDR, Inc (David Kinard, P.E. - Project Manager), on February 13, 2019, and 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 of the existing bridge, and to provide recommendations regarding proper handling and disposal of any ACM found. The investigation of the subject bridge identified three (3) suspect materials: tan expansion joint material, expansion joint board and black 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 **all three 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

Mile Mucy

Michael S. Mincey

Environmental Professional Asbestos Consultant/Management Planner SCDHEC License No: MP-00161 Expiration Date 01/21/2020 Glynn M. Ellen

Environmental Department Manager Asbestos Consultant/Management Planner SCDHEC License No: ASB-22641

Expiration Date 01/21/2020



2. INTRODUCTION

F&ME Consultants has completed an ACM investigation on the I-20 Bridge over the CSX Railway in Lexington County, South Carolina. The investigation was performed on February 13, 2019, and 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 I-20 over the CSX Railway.

It is our understanding that the existing bridge structure will 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 (~175.5'L x 107.0'W, inside curb to inside curb), is located on I-20 and crosses over the CSX Railway in Lexington County, South Carolina. The actual date of construction for the original bridge structure (SCDOT Bridge #321002000500) is unknown. The bridge was widened from it's original construction in the late 1980's. The structure is a six-lane bridge constructed with a poured-in-place concrete bridge deck, with concrete curb and gutters, and consists of three (3) bridge deck spans. The original bridge deck spans are supported by fourteen (14) precast horizontal concrete beams,



Photo 1 – I-20 Bridge over CSX Railway in Lexington, SC.

concrete diaphragms and is supported by five (5) concrete columns and pour in place concrete bent caps. The widened section of the bridge is supported by five (5) precast horizontal beams and concrete diaphragms supported by three (3) concrete columns. End bents are constructed with vertical concrete walls and wing walls, and have soil and concrete covering the piles with only the top of the concrete bent cap exposed. Galvanized guardrails and posts are attached to both ends of the bridge. The bridge approach on each end of the bridge consist of a six-lane asphalt paved roadway.

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 drainage scuppers. Impact dampeners on the galvanized guard rails were constructed of black rubber, and therefore, are not a suspect material. The bridge deck rested directly on the bent caps, with no suspect materials (i.e. bond-break pads) observed/visible between them. Non-suspect PVC scuppers were observed on the sides of the bridge. A tan expansion joint mastic, black expansion joint board and a black expansion joint material were noted during the investigation and are the only suspect materials identified. See Appendix B – Sample Location Plan, for detailed sample locations. Also, see Appendix G – Site Photographs, for more details.

4.1 Suspect Materials

The purpose of this investigation was to locate, sample and record the physical characteristics of suspect ACM on the subject bridge structure. Therefore, the quantities and physical condition of suspect materials were assessed, and bulk samples of these materials were submitted for laboratory analysis. The following suspect materials and approximate amounts were identified during this ACM Investigation:

- Tan Expansion Joint Material (<1,000 SF)
- Black Expansion Joint Board (<1,000 SF)
- Black Expansion Joint Material (<1,000 SF)

Random samples of the suspect materials were collected for laboratory analysis, and their physical characteristics were recorded. Building materials such as concrete, metal, wood, brick, etc., were not considered suspect ACM. Bulk samples of suspect materials were analyzed by Polarized Light Microscopy (PLM) in accordance with EPA 600/R-93/116. Confirmation Transmission Electron Microscopy (TEM) was also performed on any non-friable organically bound materials that tested negative for asbestos content as per SCDHEC regulations effective May 27, 2011. See Appendix C – Summary of Samples, for complete list of all samples taken. Proper sampling and chain-of-custody protocols were followed to ensure appropriate handling and delivery of samples to the analytical laboratory. Refer to Appendix F –Personnel Certifications, for SCDHEC qualifications of Investigation personnel, and Appendix E– Chain of Custody Forms, for documentation of proper handling and delivery of samples.



5. ASSESSMENT RESULTS

During the investigation, a tan expansion joint material, expansion joint board and black 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 is a three (3) span structure, with expansion joints where the concrete bridge decks meet on the bridge, as well as where the bridge structure meets the approach slabs (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 utilized for this investigation. 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 three 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 existing bridge structure will be demolished as part of the Carolina Crossroads 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



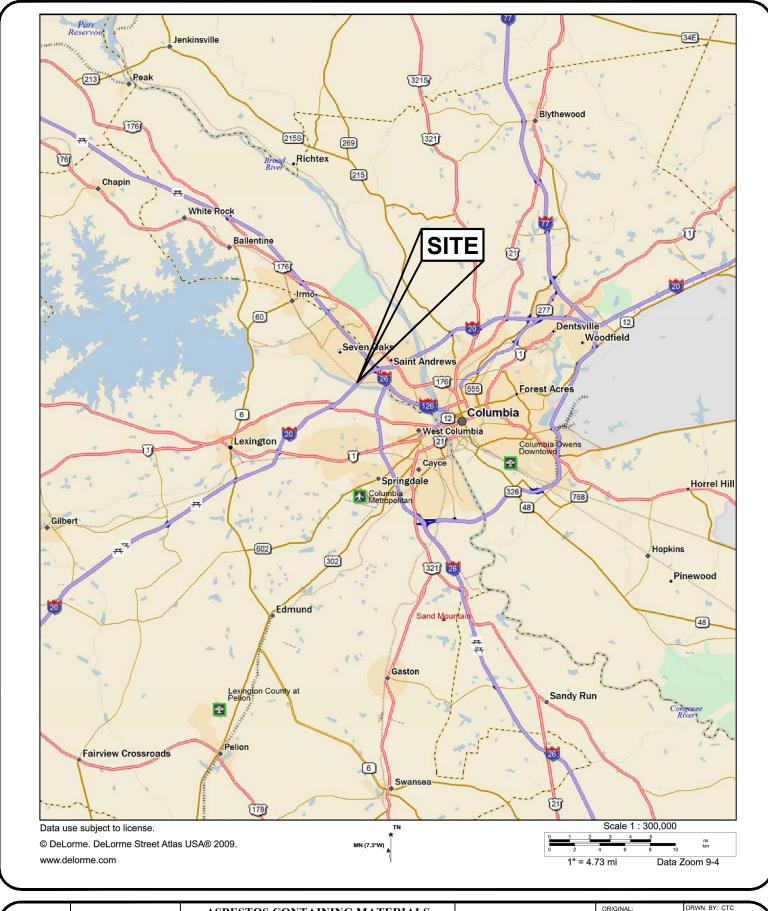


FIGURE NUMBER:

1

F&ME CONSULTANTS PROJECT NUMBER:

G5662.010

ASBESTOS CONTAINING MATERIALS INVESTIGATION I-20 over the CSX Railway

Lexington County, SC
Site Vicinity Map

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

F&ME CONSULTANTS

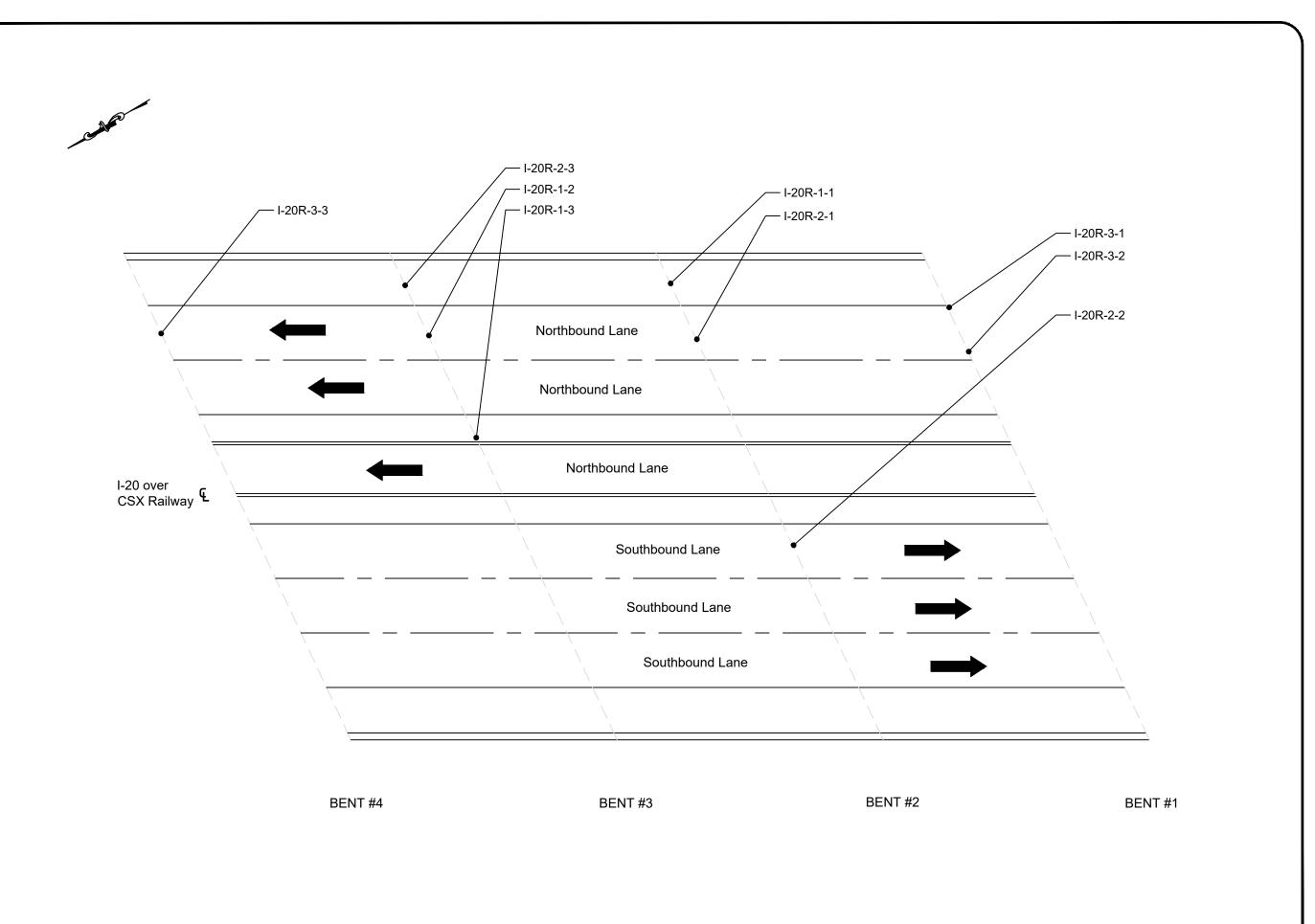
1825 Blanding Street Columbia ,SC 29201

DRWN. BY: CTC
CHKD. BY: MSM
APPR. BY: GME
NOTES:

Appendix B

Sample Location Plan





ASBESTOS CONTAINING MATERIALS
INVESTIGATION
I-20 over the CSX Railway
Lexington County, SC
Sample Location Map

F&ME CONSULTANTS PROJECT NUMBER: G5662.010

FIGURE NUMBER:

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
I-20R-1-1	Tan Expansion Joint Material	Tan Non-Fibrous Homogeneous	-	100% Non-Fibrous (Other)	None Detected
I-20R-1-2	Tan Expansion Joint Material	Brown/Tan Non- Fibrous Homogeneous	-	100% Non-Fibrous (Other)	None Detected
I-20R-1-3	Tan Expansion Joint Material				
I-20R-2-1	Expansion Joint Board	Brown/Black Non- Fibrous Homogeneous	-	100% Non-Fibrous (Other)	None Detected
I-20R-2-2	Expansion Joint Board	Brown/Black Non- Fibrous Heterogeneous	<1% Cellulose	100% Non-Fibrous (Other)	None Detected
I-20R-2-3	Expansion Joint Board				
I-20R-3-1	Black Expansion Joint Material	Brown/Black Non- Fibrous Homogeneous	1% Cellulose	99% Non-Fibrous (Other)	None Detected
I-20R-3-2	Black Expansion Joint Material	Gray/Brown Fibrous Heterogeneous	1% Cellulose	15% Quartz 84% Non-Fibrous (Other)	None Detected
I-20R-3-3	Black Expansion Joint Material				



Appendix D

Laboratory Analysis Reports





Attention: Glynn M. Ellen

EMSL Analytical, Inc.

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

EMSL Order: 021901169 Customer ID: FMEC62 Customer PO: G5662.01

Project ID:

Phone: (803) 254-4540

Fax: (803) 254-4542

Received Date: 02/18/2019 9:00 AM

Analysis Date: 02/20/2019 **Collected Date:** 02/15/2019

Project: ACM Inv. - I-26 Bridge over CSX Railway

F & ME Consultants

1825 Blanding Street

Columbia, SC 29201

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

			Non-Asbe	Asbestos	
Sample	Description	Appearance	% Fibrous	% Non-Fibrous	% Type
I-20-1-1	Tan Expansion Joint Material	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
I-20-1-2	Tan Expansion Joint Material	Brown/Tan Non-Fibrous		100% Non-fibrous (Other)	None Detected
021901169-0002		Homogeneous			
I-20-2-1	Expansion Joint Board	Brown/Black Non-Fibrous		100% Non-fibrous (Other)	None Detected
021901169-0003		Homogeneous			
I-20-2-2	Expansion Joint Board	Brown/Black Non-Fibrous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
021901169-0004		Heterogeneous			
I-20-3-1	Black Expansion Joint Material	Brown/Black Non-Fibrous	1% Cellulose	99% Non-fibrous (Other)	None Detected
021901169-0005		Homogeneous			
I-20-3-2	Black Expansion Joint Material	Gray/Black Fibrous	1% Cellulose	15% Quartz 84% Non-fibrous (Other)	None Detected
021901169-0006	minor paragraphic	Heterogeneous		initial (dutor)	

Analyst(s)

Kristie Elliott (3)

Scott Combs (3)

Stephen Bennett, Laboratory Manager or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method"), but augmented with procedures outlined in the 1993 ("final") version of the method. This report relates only to the samples reported above, 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. All samples received in acceptable condition unless otherwise noted. 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. EMSL recommends gravimetric reduction for all non-friable organically bound materials prior to analysis. Estimation of uncertainty is available on request.

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: 02/20/2019 13:49:10



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: 021901169 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: 02/18/2019 9:00 AM

Analysis Date: 02/21/2019 **Collected Date:** 02/15/2019

Project: ACM Inv. - I-26 Bridge over CSX Railway

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
I-20-1-3 021901169-0007	Tan Expansion Joint Material	Tan Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
I-20-2-3 021901169-0008	Expansion Joint Board	Brown/Black Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
I-20-3-3 021901169-0009	Black Expansion Joint Material	Black Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected

Analyst(s)

Stephen Bennett (3)

ften how

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: 02/21/2019 14:31:44

Appendix E

Chain of Custody Forms



OrderID: 021901169



Asbestos Chain of Custody EMSL Order Number (Lab Use Only):

EMSL ANALYTICAL, INC. 706 GRALIN ST. KERNERSVILLE, NC 27284

PHONE: (336) 992-1025 FAX: (336) 992-4175

P						
Company Name : F&ME Consult	EMSL Customer ID: FMEC62					
Street: 3112 Devine Street		City: Columbia		State/Provi	nce: SC	
Zip/Postal Code: 29205	Country: USA	Telephone #: 803-254-4		Fax #: 803	-254-4542	
Report To (Name):		Please Prov	ide Results:	Fax Email		
Email Address: gellen@fmecons mmincey@fmeconsultants.com	ultants.com,	Purchase Order: G5662.01				
Project Name/Number: ACM Ir	v I-26 Bridge over CSX	Country Charles and a supervision of the country of				
Railway U.S. State Samples Taken: SC		EMSL Project ID (Internal Use Only):				
	SL-Bill to: Same Different	CT Samples: Commercial/Taxable Residential/Tax Exempt - If Bill to is Different note instructions in Comments**				
	Third Party Billing requires wr	itten authorizatior	from third party	Comments		
3 Hour 6 Hour	Turnaround Time (TAT			COS Inc.		
*For TEM Air 3 hr through 6 hr, please of	all ahead to schedule. *There is a premiu	m charge for 3 Ho	ur TEM AHERA or	FPA LEVEL II TAT YOU	will be asked to sign on	
authorization form for this sei	vice. Analysis completed in accordance	with EMSL's Terr	ns and Conditions I	ocated in the Analytica	Price Guide.	
PCM - Air Check if samples are from NY	<u>TEM – Air</u> ☐ 4-4.5hr TAT	(AHERA only)	TEM- Dust			
☐ NIOSH 7400	☐ AHERA 40 CFR, Part 76	63	☐ Microvac -	ASTM D 5755		
☐ w/ OSHA 8hr. TWA	☐ NIOSH 7402		☐ Wipe - AST			
PLM - Bulk (reporting limit)	☐ EPA Level II		10 00000 to 00000	nication (EPA 600/J	-93/167)	
☑ PLM EPA 600/R-93/116 (<1%)	☐ ISO 10312		Soil/Rock/Vei		00/10//	
☐ PLM EPA NOB (<1%)	TEM - Bulk		☐ PLM EPA 600/R-93/116 with milling prep (<1%)			
Point Count	☑ TEM EPA NOB		☐ PLM EPA 600/R-93/116 with milling prep (<0.25%)			
☐ 400 (<0.25%) ☐ 1000 (<0.1%)	☐ NYS NOB 198.4 (non-fri	4 (non-friable-NY)		EPA 600/R-93/116 with milling prep (<0.1%)		
Point Count w/Gravimetric	Chatfield SOP	natfield SOP TEM		Qualitative via Filtration Prep		
☐ 400 (<0.25%) ☐ 1000 (<0.1%)		TEM Mass Analysis-EPA 600 sec. 2.5		Qualitative via Drop Mount Prep nnati Method EPA 600/R-04/004 – PLM/TEM		
☐ NYS 198.1 (friable in NY)	TEM – Water: EPA 100.2	TEM – Water: EPA 100.2 (BC only)			-04/004 - PLM/TEM	
NYS 198.6 NOB (non-friable-N	Y) Fibers >10μm Waste	Fibers >10µm Waste Drinking Other:				
☐ NYS 198.8 SOF-V ☐ NIOSH 9002 (<1%)	All Fiber Sizes	All Fiber Sizes Waste Drinking				
	arly Identify Homogenous Grou	p Filter	Pore Size (Air S	Samples): 0.8	μm	
Samplers Name: Mike Mincey	1			Wille W.		
Sample #	Sample Descript	ion	V	olume/Area (Air) HA # (Bulk)	Date/Time Sampled	
*I-20R-1-1 to I-20R-1-3 Tan Ex	manajan Jaint Matarial			, , , , , , , , , , , , , , , , , , ,	- Campida	
1-2010-1-1 to 1-2010-1-3	Tan Expansion Joint Material					
*I-20R-2-1 to I-20R-2-3 Expans	0R-2-1 to I-20R-2-3 Expansion Joint Board					
*I-20R-3-1 to I-20R-3-3 Black Expansion Joint Material						
					, i	
Client Sample # (s): I-20R-1-1 - I-20R-3-3 Total # of Samples: 9						
Relinquished (Client): Mile Muncy Date: 02/15/2019 Time: 17:00						
Received (Lab):	Date	2/10	119		_	
Comments/Special Instructions:	Samples marked with astrick (*		V.	Time	: YAm	
2 E	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	^	-	(QI DNI I		
	10 ETX 795686306604					

Appendix F

Personnel Certifications



SCDHEC ISSUED

Asbestos ID Card

Michael Mincey



CONSULTMP MP-00161 01/21/20 AIRSAMPLER AS-00272 01/22/20 SUPERAHERA SA-01424 01/22/20

Expiration Date:

This card is nontransferable and 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 01/22/20
AIRSAMPLER AS-00079 01/22/20
CONSULTPD PD-00098 06/08/19
CONSULTMP ASB-22641 01/21/20

This card is nontransferable and according 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



APPENDIX J - SITE PHOTOGRAPHS



Photo 1. East Side View of Bridge.



Photo 2. Top of Bridge Deck View.



Photo 3. Tan Expansion Joint Material



Photo 4. Expansion Joint Board



Photo 5. Black Expansion Joint Material



Photo 6. SCDOT Bridge Number

