Asbestos & Lead-Based Paint Assessment
Carolina Crossroads I-20/26/126 Project
Broad River Road Bridge over I-20
Structure No. 402017600500
Richland County, South Carolina
S&ME Project No. 1461-16-047

INSPECTION PERFORMED BY:
Travis Knight & Bobby McAllister
SCDHEC Lic. BI-00885 & BI-01429

Inspection Dates: February 20, 2018

☐ **Asbestos was NOT found**
☒ **Asbestos WAS found**

☐ **Lead-Based Paint was NOT found**
☒ **Lead-Based Paint WAS found**

Report Expiration: February 2021

PREPARED FOR:
HDR Engineering Inc., of the Carolinas
4400 Leeds Avenue, Suite 450
North Charleston, SC 29405
(843) 414-3700

PREPARED BY:
S&ME, Inc.
134 Suber Road
Columbia, SC 29210
(803) 561-9024

May 22, 2018

May 22, 2018

HDR Engineering Inc., of the Carolinas
4400 Leeds Avenue, Suite 450
North Charleston, SC 29405

Attention: Mr. David Kinard, PE

Reference: **Asbestos & Lead-Based Paint Assessment**
Carolina Crossroads I-20/26/126 Project
Broad River Road Bridge over I-20
Structure No. 402017600500
Columbia, Richland County, South Carolina
S&ME Project No. 1461-16-047

Dear Mr. Kinard:

S&ME, Inc. (S&ME) is pleased to provide the enclosed report detailing our Asbestos and Lead-Based Paint Assessment of the Broad River Road Bridge over I-20 in Columbia, Richland County, South Carolina (Structure No. 402017600500). Our services consisted of an asbestos assessment and lead-based paint assessment. The work was performed in accordance with our subcontract modification dated January 24, 2018 to our Subconsultant Agreement dated August 17, 2016. The enclosed report includes the executive summary, project background, investigative procedures, findings and results, and conclusions and recommendations as necessary.

This report is provided for the use of the HDR Engineering Inc., of the Carolinas and South Carolina Department of Transportation. Use of this report by any other parties will be at such party's sole risk and S&ME, Inc. disclaims liability for any such use or reliance by third parties. The results presented in this report are indicative of conditions only during the time of the assessment.

In accordance with South Carolina Department of Health and Environmental Control Regulation 61-86.1 Standards of Performance for Asbestos Projects, this asbestos assessment report will remain valid for three years from the date of inspection (February 2021).

We appreciate the opportunity to provide you with our industrial hygiene/environmental services. If you have any questions concerning this report, please call us at (803) 561-9024.

Sincerely,

S&ME, Inc.

Bobby McAllister
Asbestos Building Inspector
(SCDHEC License No. BI-01429)

Tom Behnke, P.G., CHMM
Project Manager/Senior Reviewer
(SCDHEC License No. MP-00004)

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Executive Summary

An asbestos assessment and lead-based paint assessment was conducted on February 19, 20 & March 28, 2018 of the Broad River Road Bridge over I-20 (Structure No. 402017600500) in Columbia, Richland County, South Carolina. The site location and structure are identified on **Exhibits 1-2** in **Appendix II**. The purpose of the assessment was to identify asbestos-containing materials (ACMs) and lead The purpose of the assessment was to identify asbestos-containing materials (ACMs) and lead-based paint coatings associated with the structure prior to renovation or demolition activities.

The bridge consists of a six-lane asphalt roadway with concrete curbing resting on concrete beams with a concrete deck supported by concrete piers.

Asbestos

The asbestos assessment was performed in general accordance with the South Carolina Department of Health and Environmental Control (SCDHEC) Regulation 61-86.1, *Standards of Performance for Asbestos Projects* effective May 27, 2011. The asbestos assessment included the bulk sampling and analysis of suspect ACMs from the structure. The suspect materials identified on the bridge structure included expansion joint and felt paper. S&ME observed sixteen Johns-Manville Transite four inch C telephone ducts spanning the length of bridge beneath the road deck. The transite telephone ducts are presumed to be an asbestos-containing material therefore no samples were taken to preserve the integrity of the telephone ducts. The combined estimated quantity of transite telephone ducts is approximately 4,200 linier feet. No other asbestos containing materials were identified.

Lead-Based Paint

Painted surfaces associated with the bridge structure were considered suspect and analyzed for lead content. Painted surfaces exceeding the SCDHEC disposal criteria of 0.7 milligrams per square centimeter (mg/cm^2) were considered lead-based paint for the purpose of this assessment. The following lead-based paint systems were identified:

- Gray foot plates located underneath bridge

1.0 Introduction

S&ME was contracted to perform an asbestos and lead-based paint assessment of the Broad River Road Bridge over I-20 in Columbia, Richland County, South Carolina. The site location and structure are identified on **Exhibits 1-2** in **Appendix II**. The bridge is identified as structure number 402017600500. These services were requested and authorized by the South Carolina Department of Transportation (SCDOT). We understand the bridge is scheduled for renovation and/or demolition activities. The asbestos and lead-based paint assessment was performed on February 20, 2018.

The bridge consists of a six-lane asphalt roadway with concrete curbing resting on concrete beams with a concrete deck supported by concrete piers. The bridge is approximately 264 feet long and 60 feet wide. Photographs of the structure are provided in **Appendix II**.

Asbestos Assessment

The asbestos assessment was performed to identify and sample suspect ACMs in accordance with regulatory requirements for structures scheduled to be renovated or demolished. Demolition and renovation activities are regulated by OSHA, EPA and SCDHEC. The EPA and SCDHEC require asbestos assessments, conducted by licensed individuals, prior to renovation and/or demolition projects. Code 40 of Federal Regulations Part 61-86.1 require asbestos assessments, followed by the proper removal, and disposal of ACM that is affected by renovation or demolition. The identification of ACMs will aid in the prevention of occupational exposures and/or environmental releases of airborne asbestos. Identification of ACM is also required by OSHA 1926.1101. The EPA, OSHA and SCDHEC define ACM as materials containing greater than one (1) percent asbestos in a representative sample. However, OSHA regulates materials containing less than or equal to one percent asbestos. Identification of ACMs also complies with Title 40 Code of the Federal Regulations, part 61, and State Regulation 61-86.1 enforced by the SCDHEC, along with Title 29 Code of Federal Regulations, part 1926 enforced by OSHA.

Section 2.0 describes the assessment procedures used, results of the suspect ACMs sampled and analyzed, confirmed ACMs located on the structure, and conclusions and recommendations regarding the subject bridge as related to ACMs.

Lead-Based Paint Assessment

The purpose of the lead-based paint assessment was to identify observable lead-based paint finishes associated with the structure which may be adversely affected by future renovation or demolition activities. The identification of these materials will aid in the compliance of occupational exposure (OSHA) and/or environmental releases of airborne lead dust in accordance with 29 CFR 1926.62 (Lead in Construction) and provide information to facilitate proper disposal of lead-based paint coated components and debris in accordance with the SCDHEC and EPA.

2.0 Asbestos Assessment

2.1 Assessment Procedures

The asbestos assessment was performed by observing and collecting random samples of suspect asbestos-containing materials associated with the subject bridge structure. Significant destructive investigative techniques

and sampling was not performed as part of this assessment. Consequently, the possibility exists that suspect materials were not detected in inaccessible areas such as pipe chases, voids, or in areas deemed unsafe to enter by the asbestos inspector. If additional suspect materials are discovered during future renovation or demolition activities, destructive actions to the suspect ACM should not proceed until bulk samples are collected and analyzed for asbestos content.

Suspect ACMs that were observed and sampled consist of expansion joint and felt paper. S&ME observed sixteen Johns-Manville transite four inch C telephone ducts spanning the length of bridge beneath the road deck. The transite telephone ducts are presumed to be an asbestos-containing material therefore no samples were taken to preserve the integrity of the telephone ducts.

To comply with current SCDHEC Regulations, a sampling strategy was developed to provide representative samples of suspect asbestos-containing materials in accordance with OSHA, SCDHEC and EPA. Bulk samples were then extracted from suspect ACMs and recorded on a chain of custody record and submitted to EMSL's asbestos laboratory in Pineville, North Carolina for analysis via the following method:

Polarized Light Microscopy (PLM)
The suspect materials were analyzed by trained microscopists using PLM techniques coupled with dispersion staining in accordance with EPA Test Method Title 40 Code of Federal Regulations, Chapter I (1-1-87 edition), Part 763, Subpart F-APPENDIX A. This method identifies asbestos mineral fibers based on six optical characteristics: morphology, birefringence, refractive index, extinction angle, sign of elongation and dispersion staining colors. The laboratory analysis reports the specific type of asbestos identified (there are six asbestos minerals) and the percentage of asbestos presents.

Transmission Electron Microscopy (TEM)
In accordance with SCDHEC Regulation 61-86.1, Transmission Electron Microscopy (TEM) confirmation analysis is required to be performed on one sample of any non-friable organically bound material (NOB) that tests negative via PLM analysis. The TEM analysis was performed by EMSL using EPA 600 Method in accordance with ASTM E2356.

Both the PLM and the TEM laboratories are accredited by the National Voluntary Laboratory Accreditation Program (NVLAP), which is administered by the National Institute of Standards and Technology.

2.2 Findings and Results

The asbestos assessment conducted on February 20, 2018 included the quantification and random bulk sampling of various suspect asbestos-containing materials associated with the bridge structure. The suspect materials consisted of vibration dampener, expansion joint and black tar material. No suspect drainage scuppers were observed on the structure. The EPA and SCDHEC define materials as asbestos-containing if an asbestos content >1% is detected in a representative sample. In accordance with SCDHEC Regulation 61-86.1, TEM analysis was performed on one sample of each of the following non-friable, organically-bound (NOB) materials from the bridge that displayed a result of no asbestos detected via PLM analysis:

- Expansion joint material

- Felt material

Of the representative materials sampled and analyzed during this assessment, asbestos in concentrations >1% was **not** identified.

S&ME observed sixteen Johns-Manville transite four inch C telephone ducts spanning the length of bridge beneath the road deck. The transite telephone ducts are presumed to be an asbestos-containing material therefore no samples were taken to preserve the integrity of the telephone ducts.

A table summarizing the sample number, location, type of material tested, approximate quantity of the material sampled, condition of the material, and corresponding result for each sample is provided in **Appendix I**. Site Exhibits and photographs are provided in **Appendix II**. A copy of the inspector's SCDHEC license is provided in **Appendix V**.

3.0 Lead-Based Paint Assessment

3.1 Assessment Procedures

The lead-based paint assessment was conducted for compliance with the SCDHEC limit of 0.7 milligrams (mg) of lead per square centimeter (cm^2) of painted surface for lead-based paint coated waste. SCDHEC, Health Division defines lead-based paint as a coating containing lead in quantities ≥0.7 mg/cm^2 (SCDHEC, Health Division definition #4-53-1320f). Any coated surfaces meeting or exceeding the SCDHEC limit of 0.7 mg/cm^2 were considered lead-based paint for the purpose of this assessment.

OSHA does not recognize a threshold level of lead for definition purposes, only the presence or absence of lead. The current OSHA regulations recognize an airborne action level of thirty micrograms of lead per cubic meter of air (30 $\mu g/m^3$) during an eight-hour day and a permissible exposure level of fifty micrograms per cubic meter (50 $\mu g/m^3$).

Representative covered components and surfaces were analyzed utilizing a Niton XLp-300A X-Ray Fluorescence (XRF) spectrum analyzer (serial #95004). The suspect painted finishes were selected based on the color of the topcoat and the underlying paint layers and/or the substrate on which it was applied.

3.2 Findings and Results

Coated surfaces associated with the bridge structure were tested for the presence of lead-based paint. The coated surfaces meeting or exceeding the SCDHEC limit of 0.7 milligrams of lead per square centimeter (mg/cm^2) were considered lead-based paint for the purpose of this survey. The following lead-based paint systems were identified:

- Gray foot plates located underneath bridge (15.4 mg/cm^2)

The XRF summary with sample numbers, sample location, component, substrate, paint color, condition, and results is provided in **Appendix IV**.

4.0 Conclusions and Recommendations

Based on the findings of this assessment, we provide the following conclusions and recommendations:

4.1 Asbestos

S&ME observed sixteen Johns-Manville Transite four inch C telephone ducts spanning the length of bridge beneath the road deck. The transite telephone ducts are presumed to be an asbestos-containing material therefore no samples were taken to preserve the integrity of the telephone ducts. The estimated quantity of transite telephone duct is approximately 4,200 linier feet.

S&ME recommends proper removal and disposal of the ACM by a licensed asbestos abatement contractor prior to activities that may disturb an ACM. State and Federal regulations should be carefully considered in order to verify compliance before any actions are initiated that may disturb an ACM. If additional suspect ACMs not included in this report are discovered and will be disturbed by renovation or demolition activities, bulk samples must be collected by a licensed asbestos inspector and analyzed for asbestos content, prior to disturbance of the suspect material(s).

Asbestos removal requires written notification to SCDHEC, specific removal procedures, proper transportation, and disposal per state and federal regulations. The identification and proper removal of ACM prior to demolition or renovation will aid in the prevention of occupational exposures and/or environmental releases of airborne asbestos.

4.2 Lead-Based Paint Conclusions

The gray foot plates located underneath bridge (15.4 mg/cm^2) exceeded the SCDHEC 0.7 mg/cm^2 limit for lead-based paint.

The client is advised that OSHA does not recognize a threshold level of lead for definition purposes, only the presence or absence of lead. Consequently, the OSHA regulations governing worker protection for lead-based paint may apply to work practices including the disturbance of paint systems with detectable levels of lead. Destructive actions (sanding, burning, demolition, component removal, paint preparation) to the lead-containing paint surfaces will require the contractor comply with the standards of OSHA, including but not limited to initial exposure monitoring, the use of personal protective equipment, and medical surveillance.

SCDHEC Regulation 61-107.19 permits demolition materials painted with lead-based paint (≥ 0.7 mg/cm^2) to be disposed in a permitted Class Two (C&D) or Class Three Subtitle D, Municipal Solid Waste (MSW) landfill.

Accumulations of paint waste (chips, dust, or flakes) must be tested by the Toxicity Characteristic Leaching Procedure (TCLP) to determine if the waste is classified as hazardous, which requires disposal in a Subtitle C (hazardous waste) landfill. Lead waste, at a minimum, must be disposed in a Class Two or Three landfill.

5.0 Limitations

This report is provided for the sole use of the Client. Use of this report by any other parties will be at such party's sole risk, and S&ME disclaims liability for any such use or reliance by third parties. The results presented in this report are indicative of conditions only during the time of the sampling period and of the specific areas referenced. Under no circumstances is this report to be used as a bidding document, or as a project design or specification.

S&ME performed the services in accordance with generally accepted practices of reputable environmental consultants undertaking similar studies at the same time and in the same geographical area. S&ME has endeavored to meet this standard of care. No other warranty, expressed or implied, is intended or made with respect to this report or S&ME's services. Users of this report should consider the scope and limitations related to these services when developing opinions as to risks associated with the site. Additional limitations to our survey are as follows:

- Significant destructive sampling was not performed during the asbestos survey. Additional suspect ACMs may be present in inaccessible locations such as materials encased in concrete. Consequently, if additional suspect materials are discovered during future renovation or demolition activities, bulk samples must be collected and analyzed for asbestos content.
- The subject structure is a bridge over an interstate. Not all portions of the underside of the bridge could be observed or reached by the inspectors.

Appendices

Appendix I – Summary of Asbestos Sampling

Summary of Asbestos Sampling

Project Name:	Broad River Road Bridge over I-20 (Structure No. 402017600500)	**Project Number:**	1461-16-047
Location:	Columbia, Richland County, South Carolina	**Sampling Date(s):**	February 20, 2018

Table I-I Summary of Asbestos Sampling

Sample No.	Sample Location	Material	Approx. Quantity[1]	Asbestos Type	%[2]	Condition	P.F.D.[3]	H.A.[4]
EJ-1	Concrete Sidewalk	Expansion joint	300 SF	NAD	NA	NA	NA	NA
EJ-2	Concrete Sidewalk	Expansion joint		NAD	NA	NA	NA	NA
EJ-3 *(TEM)*	Concrete Sidewalk	Expansion joint		NAD	NA	NA	NA	NA
FP-1	Beneath Plates	Felt paper	40 SF	NAD	NA	NA	NA	NA
FP-2	Beneath Plates	Felt paper		NAD	NA	NA	NA	NA
FP-3 *(TEM)*	Beneath Plates	Felt paper		NAD	NA	NA	NA	NA

SF = square feet NAD = No Asbestos Detected NA = Not Applicable

Note 1: Estimated quantities. The quantities should not be used for bidding purposes, as field conditions should be verified.

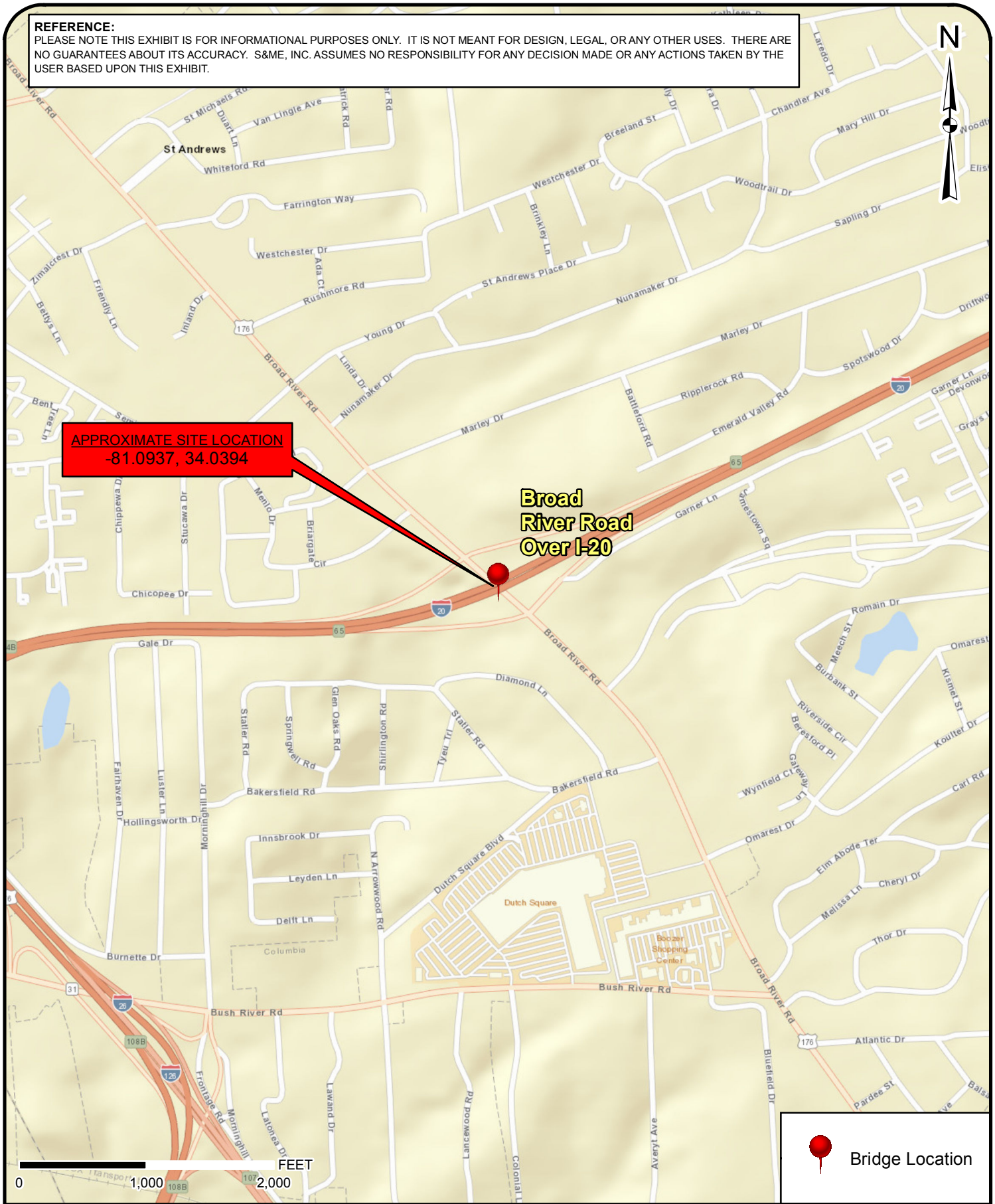
Note 2: The EPA, SCDHEC and OSHA define a material as asbestos-containing if an asbestos content greater than one percent (>1%) is detected in a representative sample.

Note 3: Potential for Disturbance

Note 4: Hazard Assessment

Appendix II – Exhibits and Photographs

REFERENCE:
PLEASE NOTE THIS EXHIBIT IS FOR INFORMATIONAL PURPOSES ONLY. IT IS NOT MEANT FOR DESIGN, LEGAL, OR ANY OTHER USES. THERE ARE NO GUARANTEES ABOUT ITS ACCURACY. S&ME, INC. ASSUMES NO RESPONSIBILITY FOR ANY DECISION MADE OR ANY ACTIONS TAKEN BY THE USER BASED UPON THIS EXHIBIT.



Vicinity Exhibit

Broad River Road Over Interstate 20

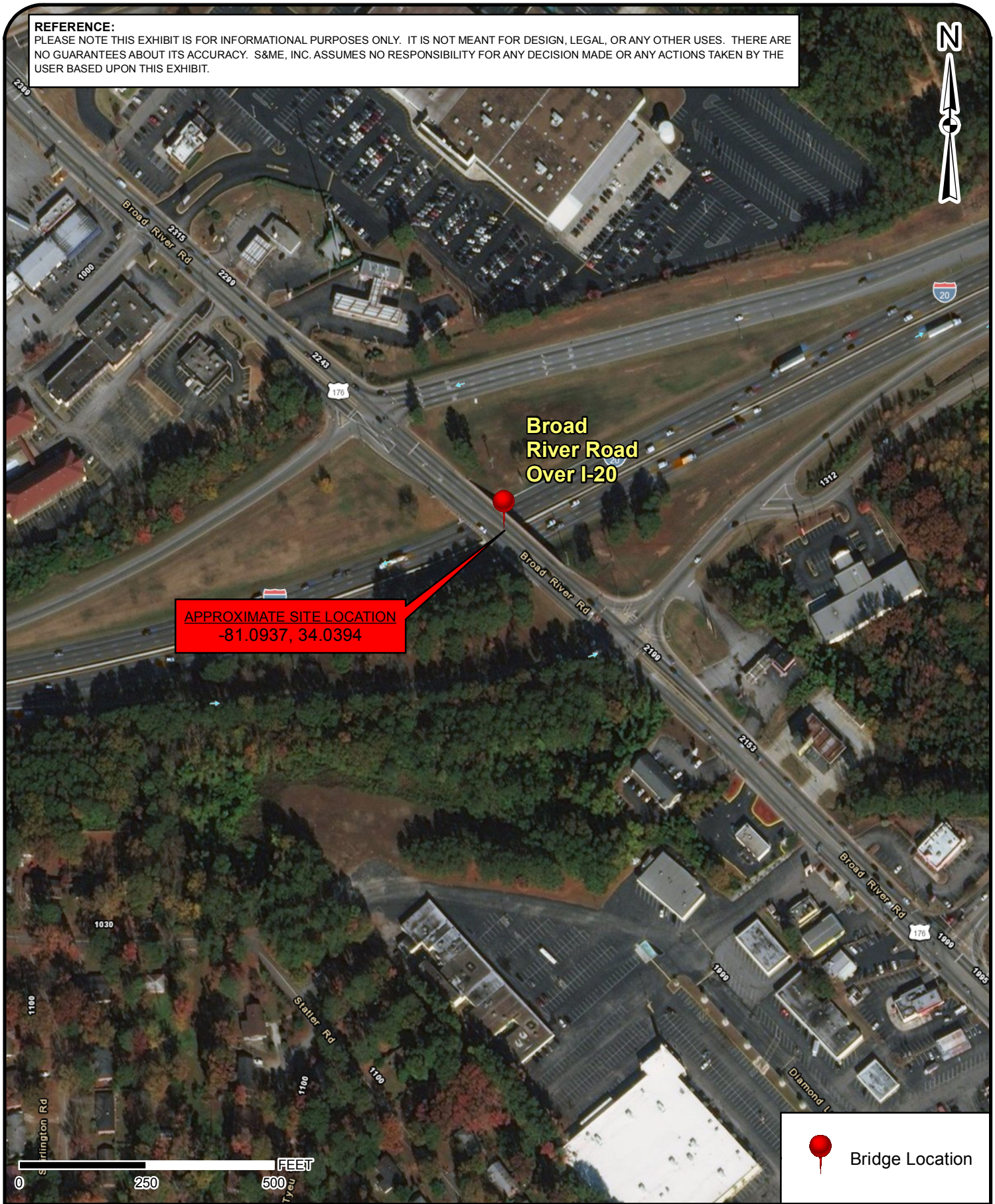
Columbia, Richland County, South Carolina

Source: World Street Map

SCALE:	EXHIBIT NO.
1 " = 1,000 '	1
DATE: 3-6-18	
PROJECT NUMBER 1461-16-047 Ph. 3	

Drawing Path: Q:\Environmental\Projects\2016\1461-16-047 Ph 3 Cooridor Improvement Project\mxds\Broad River Over I-20\Broad River Over I-20 Vicinity.mxd plotted by CHandley 03-06-2018

REFERENCE:
PLEASE NOTE THIS EXHIBIT IS FOR INFORMATIONAL PURPOSES ONLY. IT IS NOT MEANT FOR DESIGN, LEGAL, OR ANY OTHER USES. THERE ARE NO GUARANTEES ABOUT ITS ACCURACY. S&ME, INC. ASSUMES NO RESPONSIBILITY FOR ANY DECISION MADE OR ANY ACTIONS TAKEN BY THE USER BASED UPON THIS EXHIBIT.



Aerial Exhibit

Broad River Road Over Interstate 20

Columbia, Richland County, South Carolina

Source: World Imagery 2016

SCALE:	EXHIBIT NO.
1 " = 250 '	2
DATE: 3-6-18	
PROJECT NUMBER 1461-16-047 Ph. 3	

Drawing Path: Q:\Environmental\Projects\2016\1461-16-047 Ph 3 Cooridor Improvement Project\mxds\Broad River Over I-20\Broad River Over I-20 Aerial.mxd plotted by CHandley 03-06-2018

1	View of the Broad River Road Bridge over I-20.

2	The bridge is identified as structure # 402017600500.

3	View of the Johns-Manville transite four inch C Telephone Duct.

4	The gray bent plate tested positive for lead-based paint (15.4 mg/cm^2).

	Site Photographs **Broad River Road Bridge over I-20** **Structure No. 402017600500** **Columbia, Richland County, South Carolina**	S&ME Project 1461-16-047	
		Taken by: B. McAllister & T. Knight	Date: February 19, 2018

5	View underneath bridge. Concrete beams, deck and piers.

6	No scuppers were observed during the assessment of the bridge.

	Site Photographs **Broad River Road Bridge over I-20** **Structure No. 402017600500** **Columbia, Richland County, South Carolina**	S&ME Project 1461-16-047	
		Taken by: B. McAllister & T. Knight	Date: February 19, 2018

Appendix III – Asbestos Bulk Sample Analysis Sheets and Chain of Custody Record

EMSL Analytical, Inc.

10801 Southern Loop Blvd Pineville, NC 28134

Tel/Fax: (704) 525-2205 / (704) 525-2382

http://www.EMSL.com / charlottelab@emsl.com

EMSL Order:	411801412
Customer ID:	S&ME50
Customer PO:	1461-16-047 P
Project ID:	

Attention:	Travis Knight	**Phone:**	(803) 561-9024
	S&ME, Inc.	**Fax:**	(803) 561-9177
	134 Suber Rd.	**Received Date:**	02/22/2018 9:35 AM
	Columbia, SC 29210	**Analysis Date:**	02/23/2018
		Collected Date:	02/20/2018
Project:	Broad River over I-20		

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

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
EJ-1 *411801412-0001*	Concrete Sidewalk - Expansion Joint	Black Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
EJ-2 *411801412-0002*	Concrete Sidewalk - Expansion Joint	Black Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
FP-1 *411801412-0003*	Beneath Plates - Felt Paper	Black Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
FP-2 *411801412-0004*	Beneath Plates - Felt Paper	Gray/Black Non-Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected

Analyst(s)

Aaron Hartley (2)

Anupriya Tyagi (2)

Lee Plumley, Laboratory Manager
or Other Approved Signatory

Initial report from: 02/23/2018 14:13:58

EMSL Analytical, Inc.
10801 Southern Loop Blvd Pineville, NC 28134
Tel/Fax: (704) 525-2205 / (704) 525-2382
http://www.EMSL.com / charlottelab@emsl.com

EMSL Order: 411801412
Customer ID: S&ME50
Customer PO: 1461-16-047 P
Project ID:

Attention: Travis Knight
S&ME, Inc.
134 Suber Rd.
Columbia, SC 29210

Project: Broad River over I-20

Phone: (803) 561-9024
Fax: (803) 561-9177
Received Date: 02/22/2018 9:35 AM
Analysis Date: 02/27/2018
Collected Date: 02/20/2018

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
EJ-3 *411801412-0005*	Concrete Sidewalk - Expansion Joint	Black Non-Fibrous Homogeneous	100	None	No Asbestos Detected
FP-3 *411801412-0006*	Beneath Plates - Felt Paper	Gray Fibrous Homogeneous	100	None	No Asbestos Detected

Analyst(s)

Aaron Hartley (2)

Lee Plumley, Laboratory Manager
or other approved signatory

Samples analyzed by EMSL Analytical, Inc. Pineville, NC

Initial report from: 02/27/2018 12:49:42

OrderID: 411801412

EMSL Analytical, Inc.
10801 Southern Loop Blvd

Pineville, NC 28134
PHONE: (704) 525-2205
FAX: (704) 525-2382

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number *(Lab Use Only)*: 411801412

Company : S&ME, Inc.		**EMSL-Bill to:** ☑ Same ☐ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*	
Street: 134 Suber Rd.			
City: Columbia	**State/Province:** SC	**Zip/Postal Code:** 29210	**Country:** US
Report To (Name): Travis Knight		**Telephone #:** 803-561-9024	
Email Address: tknight@smeinc.com		**Fax #:** 803-561-9177	**Purchase Order:** 1461-16-047 P
Project Name/Number: Broad River over I-20		**Please Provide Results:** ☐ Fax ☑ Email ☐ Mail	
U.S. State Samples Taken: SC		**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt	

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.*

PLM - Bulk (reporting limit)	TEM – Bulk
■ PLM EPA 600/R-93/116 (<1%)	■ TEM EPA NOB – EPA 600/R-93/116 Section 2.5.5.1
☐ PLM EPA NOB (<1%)	☐ NY ELAP Method 198.4 (TEM)
Point Count ☐ 400 (<0.25%) ☐ 1000 (<0.1%)	☐ Chatfield Protocol (semi-quantitative)
Point Count w/Gravimetric ☐ 400 (<0.25%) ☐ 1000 (<0.1%)	☐ TEM % by Mass – EPA 600/R-93/116 Section 2.5.5.2
☐ NIOSH 9002 (<1%)	☐ TEM Qualitative via Filtration Prep Technique
☐ NY ELAP Method 198.1 (friable in NY)	☐ TEM Qualitative via Drop Mount Prep Technique
☐ NY ELAP Method 198.6 NOB (non-friable-NY)	**Other**
☐ OSHA ID-191 Modified	☐
☐ Standard Addition Method	

☐ **Check For Positive Stop – Clearly Identify Homogenous Group** **Date Sampled:** 2/21/18

Samplers Name: Travis Knight **Samplers Signature:** [signature]

Sample #	HA #	Sample Location	Material Description
		Please See Attached COC	

Client Sample # (s): - **Total # of Samples:**

Relinquished (Client): [signature] **Date:** 2/21/18 **Time:** 1600

Received (Lab): Kyle Nelson **Date:** 2/22/18 **Time:** 9:35 AM PL

Comments/Special Instructions:
NOB = 2 PLMs and 1 TEM if both PLMs are negative.

7954 3428 9410

411801412

BULK SAMPLE Chain of Custody Record

PROJECT NO.	PROJECT NAME: Broad River over I-20
FACILITY	
SAMPLER(S): TK / Bam	DATE TAKEN: 2/20/18
SIGNATURE:	

SAMPLE #	HA	MATERIAL	LOCATION	QUANTITY	COMMENTS / SPECIAL INSTRUCTIONS
EJ-1		Expansion Joint	Concrete Sidewalk		
2		"	"		NOTE
3		"	"		
FP-1		Felt Paper	Beneath Plate		
2		"	"		NOTE
3		"	"		

Appendix IV – XRF Lead-Based Paint Reading Summary Table

XRF LEAD-BASED PAINT READING SUMMARY TABLE

Serial #95004
PAINT
Project No.: 1461-16-047
Site: Broad River Road Bridge over I-20
Date: February 19 & March 28, 2018
Ranges (NEG<INC<POS): Device PCS

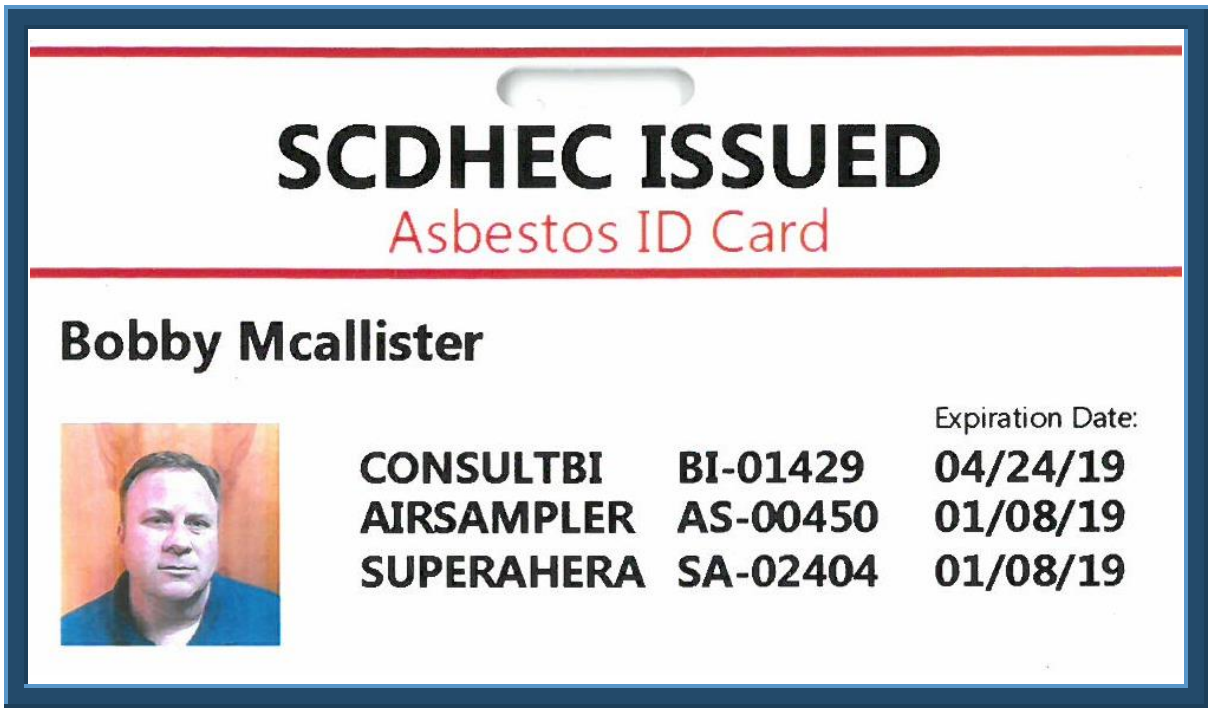
Reading Number	Floor/Area	Room	Feature	Substrate	Condition	Color	Result	XRF Reading (mg/cm²)
97	**Bridge**		**Plate at Foot**	**Metal**	**Poor**	**Gray**	**Postive**	**15.40**
17			Calibration					1.10
18			Calibration					1.00
19			Calibation					1.30
20	Bridge		Yellow Stripe	Asphalt	Poor	Yellow	Negative	<LOD
21	Bridge		White Stripe	Asphalt	Poor	White	Negative	<LOD

Appendix V – Copy of SDHEC Inspectors' Licenses

South Carolina Department
of
Health and Environmental Control

Asbestos License

Bobby J. McAllister



South Carolina Department
of
Health and Environmental Control

Asbestos License

Travis L. Knight