



ADDENDUM NUMBER 01
Wednesday December 19, 2018

PROJECT: USC Sumter – Science Building Renovations
GMC PROJECT NO. AGRE180004
USC PROJECT NO. H39-9520

This addendum forms a part of the Construction Documents and modifies the original Bidding Documents dated 11.20.18 as noted below. Acknowledge receipt of this addendum in the space provided on the Bid Form. Failure to do so may subject Bidder to disqualification.

GENERAL:

- A1G1 Pre-Bid Conference sign in sheet listing the attendees is attached to this addendum.
- A1G2 The bill of materials dated 12.19.18 contained in this addendum submitted by Rose Talbert Paints are approved equals. All other substitution request have been denied, use the specified product.
- A1G3 The Limited Asbestos & Lead Paint Survey dated 03.26.18 is attached to this addendum.

SPECIFICATIONS:

- A1S1 Section 22 68 13 – Replace section in its entirety with attached section 22 68 13
- A1S2 Section 23 73 13 – Replace section in its entirety with attached section 23 73 13
- A1S3 Section 23 81 26 – Replace section in its entirety with attached section 23 81 26

DRAWINGS:

- A1D1 Sheet E1.01 – Replace sheet in its entirety and replace with attached Sheet E1.01
- A1D2 Sheet E6.02 – Replace sheet in its entirety and replace with attached Sheet E6.02
- A1D3 Sheet P2.01 – Replace sheet in its entirety and replace with attached Sheet P2.01

COMMENTS / QUESTIONS:

The following are comments & questions received for addendum #01:

1. Does the owner provide the DI water system? Or do we need to price a DI water system and if so what brand /type?
The DI water system shall be Owner Furnished Contractor Installed (OFICI)
2. Does the electrician provide the power stations? Or do we need to price and if so, are they pedestal

type single or double face?

The selected lab casework vendor shall provide double side double gang power stations. The electrician shall provide the outlets and wiring. The power stations shall be polished aluminum finish.

3. Are safety shower to be purchased and installed by the plumber?
Yes
4. Are the deck mounted eye washes to be purchased and installed by the plumber?
Yes
5. Elevation 8/A6.02 - Are both cabinets under each hood supposed to acid storage or general purpose?
They shall be general purpose storage
6. Elevation 2/A6.00 - Is the hood cabinet to be acid storage or general purpose?
It shall be general purpose storage.
7. Are locks required for lab casework? Locations?
Hasp lock hardware shall be furnished at the island drawers for use by students. Locks shall be furnished by students and are not in contract. No locks on any other casework.
8. Are marine edges required at the sinks?
No marine edges.

END OF ADDENDUM NUMBER 01

**University of South Carolina
Non Mandatory Pre Bid Sign In Sheet
Sumter, South Carolina**

Project Name: USC Sumter-Science Building Renovation
Project Number: H39-9520
Pre Bid Date & Time: December 11, 2018 10:30AM Administration Building, Bultman Conference Room

SWMBE Contractor Indicate Below	Name	Company Name	Address	Phone #	Email
S W M B E	Jonathan Houston	JFContractors	119 S. Aarvin Sumter SC 29150	803.464 0503	jhouston@jfcontractors.com
S W M B E	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX etc
S W M B E	Ben Edmunds	Blankenship	950 Trinity Rd Raleigh, NC PO Box 1607	803 648 2835	bwedmunds@aol.com Pete @ Gillman and Associates .com
S W M B E	Mike McCulloch	Gillman & Assoc	Aiken SC 29802	803-401 4261	✓ jroodley@LCCCS.com
S W M B E	Joe Roddy	LCK	1301 GEORGE SUITE 600 GT 29201		
S W M B E	WES SPIRES	EMC			WES.SPIRES@EMCNETWORK.COM
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****By signing this sheet you agree to receive information electronically.

**University of South Carolina
Non Mandatory Pre Bid Sign In Sheet
Lancaster, SC**

Project Name: USC Sumter - Science Building Renovation
Project Number: H39-9520
Pre Bid Date & Time: Tuesday, December 11, 2018 10:30AM; Bultman Conference Room - 2nd Floor; USC Sumter

SWMBE Contractor Indicate Below	Name	Company Name	Address	Phone #	Email
S <u>W</u> M B E	Blake Berkley	Solid Structures	2548 Morningside Dr. West Columbia, SC 29169	803 926-0298	bberkley@solidstructures.info
S W <u>(M)</u> B E	Gregory Doughton	Farmer Construction Electrical Division	Columbia, SC School House Rd	803 477 6056	greg@scelectrical.com
S W M B E	Derek Skipper	Thompson Turner	100 N Main Street Sumter	843.995.2442	dskipper@thompsonturner.com
S W M B E	DWAYNE HARDEE	HARDEE CONSTRUCTION	1254 Wilson Hwy Sumter, SC	803 469-9297	DWAYNEHARDEE@HARDEECONSTRUCTION.COM
S W M B E	Parks Bunch	Bayer Construction	4900 Fort Jackson Blvd Columbia, SC 29209	803-940-3410	bids@bayerconstruction.net
S W M B E	VAN HAUSER	LCK	1301 GERVAIS ST. Columbia, SC	803/351-5725	VHAUSER@LCKCS.COM
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**University of South Carolina
Non Mandatory Pre Bid Sign In Sheet
Lancaster, SC**

Project Name: USC Sumter - Science Building Renovation
Project Number: H39-9520
Pre Bid Date & Time: Tuesday, December 11, 2018 10:30AM; Bultman Conference Room - 2nd Floor; USC Sumter

SWMBE Contractor Indicate Below	Name	Company Name	Address	Phone #	Email
S W M B E	H. Gillens	Quintech Solutions	102 Sangersee Pt Ct 3 4, Sville SC	843 695 0170	HGillens@QuintechSolutionsInc. com
S W M B E	Kacy Gunter	FB Construction	2240 N Douglas St Florence, SC 29501	843-618-2441	Kacy.Gunter@fb.construction.com
S W M B E	Gregg Hartley	S.N.B construction	2125A Jody Rd Florence, SC 29501	(843) 332-0687	tommy.snbc@gmail.com
S W M B E	Otis Barrow	Tyler Construction Group	433 Rabon Rd Columbia SC	803 865-1404	bids@tyler-construction.com
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**University of South Carolina
Non Mandatory Pre Bid Sign In Sheet
Sumter, South Carolina**

Project Name: USC Sumter-Science Building Renovation
Project Number: H39-9520
Pre Bid Date & Time: December 11, 2018 10:30AM Administration Building, Bultman Conference Room

SWMBE Contractor Indicate Below	Name	Company Name	Address	Phone #	Email
S W M B E	Tommy Stabler	DENNIS CORP	1900 Hugor 5 th Columbia	803 518-9862	tstabler@denniscorp.com
S W M B E	MIKE AMMONS	Premier Constructors	682 DuVance Rd West Columbia	803 960-8478	mammans@premierconstructors.net
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Limited Asbestos & Lead Based Paint Survey

USC Sumter – Science Building

200 Miller Road
Sumter, South Carolina



March 26, 2018

Prepared For: University of South Carolina
Department of Facilities, Business & Finance
1300 Pickens Street, Columbia, SC
ARM Project No. 09-781-18

Report Compiled By

Robbie Robertson

Robbie Robertson

South Carolina Consultant / Building Inspector License #01179

Report Reviewed By

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ARM ENVIRONMENTAL
SERVICES, INC.

1210 1st STREET SOUTH EXTENSION / COLUMBIA, SC 29209 / phone 803-783-3314 fax 803-783-2587

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EXECUTIVE SUMMARY

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

ARM Environmental Services, Inc. (ARM) has conducted an asbestos and lead-based paint (LBP) survey of the USC Sumter Science Building at 200 Miller Road in Sumter, South Carolina. The purpose of this survey was to sample and identify suspect asbestos-containing materials (ACM) and provide information regarding the identity, location, condition and approximate quantities of ACM in the interior building components and to characterize the condition of any materials found to contain Lead Based Paint.

The survey was performed on March 15, 2018, by a South Carolina Department of Health and Environmental Control (SCDHEC) licensed asbestos inspector, in accordance with the sampling protocols established in EPA 40 CFR 763 (Asbestos Hazard Emergency Response Act, AHERA) and the SCDHEC Regulation 61-86.1 Standards of Performance for Asbestos Projects. Twenty-four (24) bulk samples were collected from eight (8) homogeneous areas of suspect ACM.

Based on the results of laboratory analysis, the following material was confirmed to contain asbestos at concentrations greater than one percent (>1%).

- **Beige Vinyl Sheet Flooring with Mastic ~ 9,200 SF**

In the event of future disturbance of this material, there is a potential for asbestos fibers to be released. State and Federal regulations require the removal of asbestos-containing materials prior to any disturbance caused by renovation or demolition.

Please note, there were no roofing materials included in this survey. In the event that any suspect ACM, which was not addressed in this survey is encountered, the material/component should be presumed to contain asbestos until analysis can be conducted.

ARM personnel conducted a limited lead-based paint (LBP) survey of accessible building components at the USC Sumter Science building on March 15, 2018. The LBP survey was conducted using a Niton XL-309 X-Ray Fluorescence (XRF) Analyzer (Serial #17307) to measure the lead content of surface coatings on representative homogenous building components. Based on the XRF results, the following materials tested positive or are assumed positive for lead-based paint:

- **Red Metal Window Panels (Exterior)- Side A,C,D**
- **White Specked Ceramic Wall Tile (Interior, Hall- H101, H102) – Side A**
- **White Ceramic Wall Tile (Interior, Hall- H101, H102, H104) – Side B,C,D**
- **Yellow Ceramic Wall Tile (Interior, Hall- H101, H102, H104) – Side B,C,D**
- **Black Ceramic Wall Tile (Interior, Hall- H101, H102, H104) – Side B,C,D**

1.0 INTRODUCTION

ARM conducted a limited asbestos and lead-based paint survey of building materials at the USC Sumter Science building located on 200 Miller Road in Sumter, South Carolina. The survey was conducted on March 15, 2018 by a South Carolina Department of Health and Environmental Control (SCDHEC) licensed building inspector.

We understand the asbestos survey was requested due to the planned renovation or demolition of the building. Environmental Protection Agency (EPA) regulation 40 CFR 61, Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP), prohibits the release of asbestos fibers to the atmosphere during renovation/demolition activities. NESHAP requires that potentially regulated asbestos-containing building materials be identified, classified and quantified prior to planned disturbances or demolition activities. SCDHEC defines a renovation as, "altering a facility or one or more facility components in any way, including the stripping or removal of Regulated ACM from any facility component." A demolition is defined as, "Wrecking or taking out any load supporting structural member of a facility together with any related handling operations, the burning of any facility, or moving of a structure."

Suspect ACM was sampled in general accordance with the sampling protocols outlined in EPA Regulation 40 CFR 763 Subpart E763.86 (Asbestos Hazard Emergency Response Act, AHERA) and SCDHEC Regulation 61-86.1 Standards of Performance for Asbestos Projects. Interior and exterior building components were surveyed and homogeneous areas of suspect ACM were visually identified and documented. Although reasonable effort was made to survey accessible suspect materials, additional suspect but un-sampled materials could be located in walls, in voids or in other concealed areas. Samples were delivered to an accredited laboratory for analysis by Polarized Light Microscopy (PLM) and Transmission Electron Microscopy (TEM), as required.

2.0 BUILDING DESCRIPTION

The subject building is used as an educational building for college students. The building is a single-story brick structure, approximately 9,200 square feet in size, and is built on a concrete slab foundation.

One-Story Building

Interior Materials - consist of block walls and dropped ceiling tiles. The floors are either vinyl sheet flooring or carpet over a concrete slab foundation.

Exterior Materials – consist of a brick exterior with metal windows and doors. The roof has a flat built-up commercial roof.

3.0 ASBESTOS SURVEY

The asbestos survey was conducted by Robbie Robertson; SCDHEC licensed Asbestos Building Inspector (License No. BI-01179, exp. 11/16/18). Mr. Robertson's Inspectors License is included as Appendix E. The survey was conducted on March 15, 2018, in

general accordance with the sampling protocols established by EPA Regulation 40 CFR 763 Subpart E 763.86, AHERA and SCDHEC R61-86.1.

A summary of survey activities is provided below. Site photographs taken during the survey are included as Appendix G.

3.1 Regulatory Overview

An ACM is defined by SCDHEC as any material containing asbestos of any type in an amount greater than one percent (1%). The asbestos NESHAP (40 CFR Part 61, Subpart M) regulates asbestos fiber emissions and asbestos waste disposal practices. It also requires the identification and classification of existing building materials prior to demolition or renovation activity. Under NESHAP, asbestos-containing building materials are classified as either friable, Category I non-friable or Category II non-friable ACM. Friable materials are those that, when dry, may be crumbled, pulverized or reduced to powder by hand pressure. Category I non friable ACM includes packing materials, gaskets, resilient floor coverings and asphalt roofing products containing more than 1 percent (%) asbestos. Category II non-friable ACM are non-friable materials other than Category I materials that contain more than 1% asbestos.

Friable ACM, Category I and Category II non-friable ACM which is in poor condition and has become friable or which will be subjected to drilling, sanding, grinding, cutting or abrading and which could be crushed or pulverized during anticipated renovation/demolition activities are considered regulated ACM (RACM). RACM must be removed prior to renovation or demolition activities.

In the state of South Carolina, asbestos activities are regulated by the SCDHEC under the SCDHEC Regulation 61-86.1 Standards of Performance for Asbestos Projects. SCDHEC requires that any asbestos-related activity conducted in a public building be performed by personnel licensed by the SCDHEC. The owner or operator must provide SCDHEC with written notification of planned abatement and removal activities prior to the commencement of those activities. SCDHEC typically requires 4 day notification for non-friable projects and 10 day notification for RACM projects. Asbestos abatement must be performed by SCDHEC-licensed asbestos abatement contractors. A SCDHEC-licensed Project Designer shall prepare a written abatement design for each abatement renovation project involving the removal of greater than 3,000 square, 1,500 linear, or 656 cubic feet of RACM. Third-party air monitoring is typically required during the abatement of friable (regulated) ACM. The SCDHEC asbestos regulations can be found at http://www.scdhec.gov/environment/baq/Asbestos/asbestos_regulations.asp. The Occupational Safety and Health Administration (OSHA) Asbestos Standard for Construction Industry (29 CFR 1926.1101) regulates workplace exposure to asbestos. The OSHA standard requires that employee exposure to airborne asbestos fibers be maintained below 0.1 asbestos fibers per cubic centimeter of air (0.1 f/cc). The OSHA standard classifies construction and maintenance activities, which could disturb ACM, and specifies work practices and precautions which employers must follow when engaging in each class of regulated work. A full copy of the OSHA asbestos standard for general industry may be found at OSHA's website (www.osha.gov) and should be referenced for specific information.

3.2 Visual Assessment

Our survey activities began with a visual observation of the interior of the building to identify apparent homogeneous areas of suspect ACM. A homogeneous area consists of building materials, which appear similar throughout in terms of color, texture and date of application. Building materials which were not identified as concrete, glass, wood, masonry, metal or rubber were considered suspect ACM.

ARM lifted floor coverings in several areas, where possible, and did not observe additional flooring layers unless mentioned in this report; however, as ARM could not assess beneath all floor covering in all areas, there may be isolated areas of additional suspect material present beneath existing flooring.

3.3 Physical Assessment

A physical assessment of each homogeneous area of suspect ACM was conducted to assess the friability and condition of the materials. A friable material is defined by the EPA as a material, which can be crumbled, pulverized or reduced to powder by hand pressure when dry. Friability was assessed by physically touching suspect materials.

3.4 Sample Collection

Based on the results of the visual sampling, bulk samples of suspect ACM were collected in general accordance with AHERA sample collection protocols. Random samples of suspect materials were collected in each homogeneous area. Bulk samples were collected using wet methods as applicable to reduce the potential for fiber release. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker.

The selection of sample locations and frequency of sampling was based on ARM's observations and the assumption that like materials in the same area are homogeneous in content.

Twenty-four (24) bulk samples were collected from eight (8) homogeneous areas of suspect ACM in the building. Sample locations are depicted on the Figure 1 Site Plan, which is included as Appendix A.

3.5 Sample Analysis

Bulk samples were submitted under chain of custody to EMSL Analytical Inc. (EMSL) of Pineville, North Carolina for analysis by Polarized Light Microscopy (PLM) with dispersion staining techniques per EPA EPA/600/R-93/116. The percentage of asbestos, where applicable, was determined by microscopical visual estimation. EMSL is accredited under the National Voluntary Laboratory Accreditation Program NVLAP (#200841-0). If applicable, layered analysis of samples was conducted by the lab to separate the tile and mastic, plaster base coat and finish, layers of vinyl sheet flooring, cove base & mastic, and the drywall and joint compound.

Per the SCDHEC Regulation 61-86.1 Standards of Performance for Asbestos Projects, negative results for non-friable organically bound (NOB) materials such as flooring and

roofing were verified with at least one Transmission Electron Microscopy (TEM) analysis. The additional analysis was performed by TEM in accordance with EPA/600/R-93/116 Section 2.5.5.1.

Asbestos Sample Summary Tables of the suspect ACM samples collected during this assessment are included as Appendix B. The complete laboratory analytical results are included as Appendix C.

3.6 Finding and Recommendations

Based on the results of laboratory analyses, the following material tested positive for asbestos at a concentration >1%:

Regulated Asbestos Containing Materials (RACM) – No Regulated Asbestos Containing Materials were identified during this survey.

Non-Friable Category I Asbestos Containing Materials – This material has been identified as non-friable Category I ACM.

- **Beige Vinyl Sheet Flooring with Mastic ~ 9,200 SF**

In its present condition, and in the absence of future disturbance, there is a low potential for significant concentrations of asbestos fibers to be released into the air from this non-friable Category I asbestos material. It is recommended that a licensed asbestos abatement contractor conduct or supervise the removal and proper disposal of this material prior to demolition of this building.

Non-Friable Category II Asbestos Containing Materials – (No Category II non-friable ACBM was identified during this asbestos survey.)

Please note, there were no roofing materials included in this survey. In the event that any suspect ACM, which was not addressed in this survey is encountered, the material/component should be presumed to contain asbestos until analysis can be conducted.

4.0 LEAD BASED PAINT SURVEY

4.1 Scope of the Limited Lead-Based Paint Survey

ARM personnel conducted a lead-based paint (LBP) survey of accessible building components on March 15, 2018. The LBP survey was conducted using a Niton XL-309 X-Ray Fluorescence (XRF) Analyzer (Serial #17307) to measure the lead content of surface coatings on representative homogenous building components. A homogenous building component is a building material that is uniform in paint color, texture, and appears identical in every respect.

The sample methodology for this survey was limited in scope and generally based on the 1997 revised United States Department of Housing and Urban Development (HUD) guidelines.

HUD and EPA guidelines define lead-based paint as any paint with equal to or greater than 1.0 milligram of lead per square centimeter of painted surface (mg/cm²) when measured by X-ray Fluorescence.

The South Carolina Department of Health and Environmental Control (SCDHEC) defines lead based paint as any paint that is equal to or greater than 0.7 mg/cm² when measured with an XRF. In this survey, the regulatory limit (0.7 mg/cm²) established by SCDHEC was used when measured by the XRF since the structure is slated for renovation or demolition. All waste debris coated with lead-based paint equal to or greater than 0.7mg/cm² must be disposed of in an approved Class Two (C&D) or Class Three (MSWLF) landfill or approved metal recycler. Any building components coated with paint containing lead should be handled in a manner that minimizes the exposure of building occupants or maintenance / renovation / demolition personnel to airborne lead contaminants. Interior room equivalents are identifiable parts of a building (such as a room or a hallway) and are generally listed by number, starting with the first room of the main entrance and proceeding clockwise around the building. The main entrance of the structure was considered to be the front entrance and all walls or building components are labeled A, B, C, or D with A facing the entrance of the building and proceeding clockwise. Floor plans indicating the locations of the building components tested for LBP in the subject building are included in Appendix A of this report.

4.2 Summary of Lead-Based Paint Results

Coated surfaces on the referenced building were analyzed with the XRF. The following building components listed in Table 1 tested positive or are assumed positive for lead-based paint:

Table 1: Lead-Based Paint Material Summary

Material Description	Material Location	Color	Material Condition	XRF Results mg/cm²
Red Metal Window Panels	Exterior – Side A	Red	Intact	1.60 – 2.40
Wall Tile (ceramic)	Interior, Hall H101, H102 – Side A	White Specked	Intact	6.40 – 7.30
Wall Tile (ceramic)	Interior, Hall H101, H102, H104 – Side B,C,D	White	Intact	4.60 – 14.40
Wall Tile (ceramic)	Interior, Hall H101, H102, H104 – Side B,C,D	Yellow	Intact	4.50 – 5.70
Wall Tile (ceramic)	Interior, Hall H101, H102, H104 – Side B,C,D	Black	Intact	6.40 – 7.80

4.3 Lead-Based Paint Survey Conclusions / Recommendations

Based on the XRF results, the following building components tested positive or are assumed positive for lead-based paint:

Exterior Materials

- **Red Metal Window Panels (Exterior, Side A,C,D)**

Interior Materials

- **White Specked Ceramic Wall Tile (Interior, Hall- H101, H102) – Side A**
- **White Ceramic Wall Tile (Interior, Hall- H101, H102, H104) – Side B,C,D**
- **Yellow Ceramic Wall Tile (Interior, Hall- H101, H102, H104) – Side B,C,D**
- **Black Ceramic Wall Tile (Interior, Hall- H101, H102, H104) – Side B,C,D**

Building materials with lead-based paint are subject to South Carolina Department of Health and Environmental Control regulations pertaining to waste disposal, and to OSHA regulations pertaining to worker safety. If these building components are disturbed during renovation or demolition, contractors and workers should be informed as to the presence of lead-based paint and appropriate work practices and personal protective equipment should be used to prevent exposure to lead dust/fumes or spreading lead contamination from the work site. The building components containing lead should be disposed of in accordance with federal and state regulations.

Any building components to be removed containing equal to or greater than 0.7mg/cm² lead-based paint should be disposed of in a Class II or Class III solid waste landfill or recycled by an approved metal recycler. If any paint is to be removed from the building components (chemical stripping, scraping, sandblasting, etc.) the paint residue after removal should be tested for lead using the toxic characteristic leaching procedure (TCLP) to determine if the paint waste should be handled/disposed of as hazardous waste.

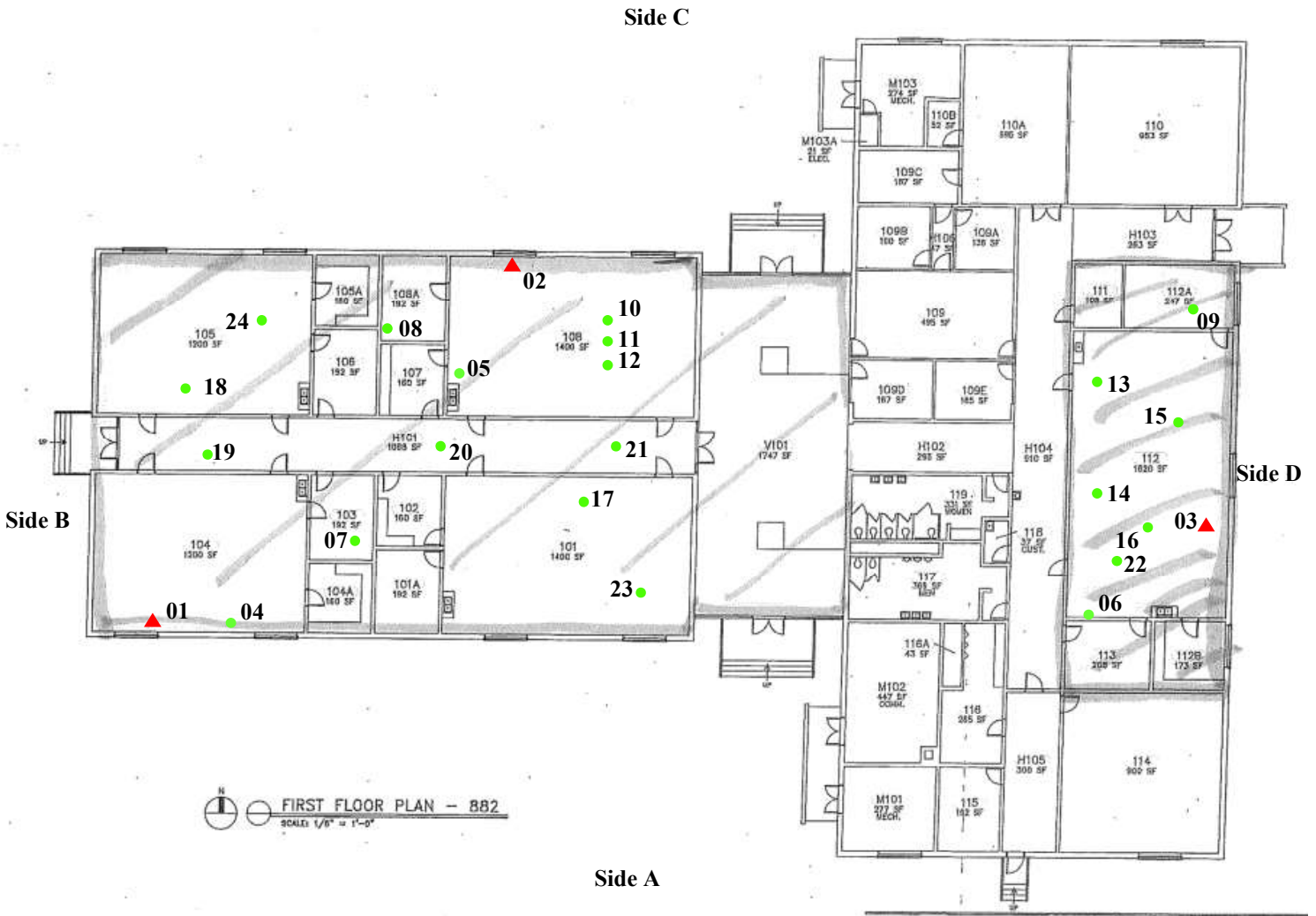
This survey was limited to the accessible building materials tested. All painted surfaces on each building material not tested during the survey, should be presumed to contain lead-based paint until XRF or laboratory analysis can be conducted.

Warranty

ARM warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report. The field and laboratory results reported herein are considered sufficient in detail and scope to determine the presence of accessible and/or exposed suspect lead-based coated materials at the time of the inspection. Test results are valid only for the materials tested. There is a distinct possibility that conditions may exist which could not be identified within the scope of study or which were not apparent during the site visit. This inspection covered only those materials, which were exposed and/or accessible to the inspector. No other warranties are implied or expressed.

Appendix A

Figures



Project
 Asbestos & Lead-Based Paint Survey
 USC – Sumter Science Building
 Sumter, South Carolina
 ARM Project #09-781-18

Figure 1

Floor Plan Showing Sample Locations
 ▲ = Positive Asbestos Sample
 ● = Negative Asbestos Sample

Scale
 Not to Scale

Date
 March, 2018

ARM ENVIRONMENTAL SERVICES, INC.

Appendix B

Asbestos Sample Summary Tables

Table 1 - Asbestos Sample Summary
USC Sumter Science Building 200 Miller Road / Sumter, South Carolina
ARM Project # 09-781-18

HA	Approx. Quantity (ft ²)	Sample Number	Description	Material Location	Lab Result	Category	Present Condition
HA-1	9,200 SF	1	Beige Vinyl Sheet Flooring with Mastic	Room 104	10% Chrysotile Asbestos (Tile)	Misc	Good / NF
		2	Beige Vinyl Sheet Flooring with Mastic	Room 108	Positive Stop	Misc	Good / NF
		3	Beige Vinyl Sheet Flooring with Mastic	Room 112	1.2% Chrysotile Asbestos (Mastic)	Misc	Good / NF
HA-2	600 LF	4	Black Vinyl Baseboard with Mastic	Room 104	<1% Chrysotile Asbestos (Mastic)	Misc	Good / NF
		5	Black Vinyl Baseboard with Mastic	Room 108	<1% Chrysotile Asbestos (Mastic)	Misc	Good / NF
		6	Black Vinyl Baseboard with Mastic	Room 112	<0.53% Chrysotile Asbestos (Mastic)	Misc	Good / NF
HA-3	1,500 SF	7	Carpet Mastic Only	Room 103	NAD - PLM	Misc	Good / NF
		8	Carpet Mastic Only	Room 108A	NAD - PLM	Misc	Good / NF
		9	Carpet Mastic Only	Room 112A	NAD - TEM	Misc	Good / NF
HA-4	500 SF	10	Solid Surface Lab Countertop	Room 108	NAD - PLM	Misc	Good / NF
		11	Solid Surface Lab Countertop	Room 108	NAD - PLM	Misc	Good / NF
		12	Solid Surface Lab Countertop	Room 108	NAD - PLM	Misc	Good / NF
HA-5	9,200	13	2'x4' Pinhole/Fissure Ceiling Tile	Room 112	NAD - PLM	Misc	Good / F
		14	2'x4' Pinhole/Fissure Ceiling Tile	Room 112	NAD - PLM	Misc	Good / F
		15	2'x4' Pinhole/Fissure Ceiling Tile	Room 112	NAD - PLM	Misc	Good / F
HA-6	11,800 SF	16	Ceiling Material	Above dropped tile/ on bar joists (throughout)	NAD - PLM	Misc	Good / F
		17	Ceiling Material	Above dropped tile/ on bar joists (throughout)	NAD - PLM	Misc	Good / F
		18	Ceiling Material	Above dropped tile/ on bar joists (throughout)	NAD - PLM	Misc	Good / F
HA-7	4,000 SF	19	2'x2' Pinhole Ceiling Tile	Hallway	NAD - PLM	Misc	Good / F
		20	2'x2' Pinhole Ceiling Tile	Hallway	NAD - PLM	Misc	Good / F
		21	2'x2' Pinhole Ceiling Tile	Hallway	NAD - PLM	Misc	Good / F
HA-8	11,800 SF	22	Foil Backed Attic Insulation	Ceiling Plenum	NAD - PLM	Misc	Good / F
		23	Foil Backed Attic Insulation	Ceiling Plenum	NAD - PLM	Misc	Good / F
		24	Foil Backed Attic Insulation	Ceiling Plenum	NAD - PLM	Misc	Good / F

HA - Homogeneous Area **NAD** - No Asbestos Detected **PLM** - Polarized Light Microscopy **Chry** - Chrysotile asbestos **Misc** - Miscellaneous Material
TEM = Transmission Electron Microscopy **SM** - Surfacing Material **Cat I** - asbestos containing packings, gaskets, asphaltic roofing products, resilient flooring, pliable mastics
SF - Square Feet **LF** - Linear Feet **VFT** - Vinyl Floor Tile **F**-Friable **NF**- Non-Friable **G** - Good (very localized limited damage)
D - Damaged (Damage of less than 10% distributed & less than 25% localized) **SD** - Significantly damaged (damage equal to or greater than 10% distributed/25% localized)

Appendix C

Analytical Results



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: 411802068

Customer ID: ARM62

Customer PO:

Project ID:

Attention: Sid Havird
ARM Environmental Services, Inc.
1210 1st Street South Extension
Columbia, SC 29209

Phone: (803) 783-3314

Fax: (803) 783-2587

Received Date: 03/16/2018 9:00 AM

Analysis Date: 03/16/2018

Collected Date: 03/15/2018

Project: USC Sumter-Science Bld.

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
01-Flooring <small>411802068-0001</small>	Beige Vinyl Sheet Flooring w/ Mastic	Beige Non-Fibrous Homogeneous	3% Cellulose	87% Non-fibrous (Other)	10% Chrysotile
01-Mastic <small>411802068-0001A</small>	Beige Vinyl Sheet Flooring w/ Mastic	Tan Non-Fibrous Homogeneous	1% Cellulose	99% Non-fibrous (Other)	None Detected
02-Flooring <small>411802068-0002</small>	Beige Vinyl Sheet Flooring w/ Mastic				Positive Stop (Not Analyzed)
02-Mastic <small>411802068-0002A</small>	Beige Vinyl Sheet Flooring w/ Mastic	Tan Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
04-Baseboard <small>411802068-0003</small>	Black Vinyl Baseboard w/ Mastic	Black Non-Fibrous Homogeneous		8% Ca Carbonate 92% Non-fibrous (Other)	None Detected
04-Mastic <small>411802068-0003A</small>	Black Vinyl Baseboard w/ Mastic	Brown Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	<1% Chrysotile
05-Baseboard <small>411802068-0004</small>	Black Vinyl Baseboard w/ Mastic	Black Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
05-Mastic <small>411802068-0004A</small>	Black Vinyl Baseboard w/ Mastic	Tan Non-Fibrous Homogeneous		3% Ca Carbonate 97% Non-fibrous (Other)	<1% Chrysotile
07 <small>411802068-0005</small>	Carpet Mastic Only	Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
08 <small>411802068-0006</small>	Carpet Mastic Only	Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
10 <small>411802068-0007</small>	Solid Surface Lab Countertop	Gray/Black Non-Fibrous Homogeneous		8% Ca Carbonate 92% Non-fibrous (Other)	None Detected
11 <small>411802068-0008</small>	Solid Surface Lab Countertop	Gray/Black Non-Fibrous Homogeneous		8% Ca Carbonate 92% Non-fibrous (Other)	None Detected
12 <small>411802068-0009</small>	Solid Surface Lab Countertop	Gray Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
13 <small>411802068-0010</small>	2x4 Pinhole/Fissure Ceiling Tile	Gray/White Fibrous Heterogeneous	60% Cellulose 10% Min. Wool	10% Perlite 20% Non-fibrous (Other)	None Detected
14 <small>411802068-0011</small>	2x4 Pinhole/Fissure Ceiling Tile	Gray/White Fibrous Heterogeneous	60% Cellulose 5% Min. Wool	10% Perlite 25% Non-fibrous (Other)	None Detected
15 <small>411802068-0012</small>	2x4 Pinhole/Fissure Ceiling Tile	Tan/White Fibrous Homogeneous	40% Cellulose 10% Min. Wool	10% Perlite 40% Non-fibrous (Other)	None Detected

Initial report from: 03/16/2018 16:57:07



EMSL Analytical, Inc.

10801 Southern Loop Blvd Pineville, NC 28134

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

EMSL Order: 411802068
Customer ID: ARM62
Customer PO:
Project ID:

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
16 <small>411802068-0013</small>	Ceiling Material	Gray Fibrous Heterogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
17 <small>411802068-0014</small>	Ceiling Material	Gray Fibrous Heterogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
18 <small>411802068-0015</small>	Ceiling Material	Gray/Tan Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
19 <small>411802068-0016</small>	2x2 Pinhole Ceiling Tile	Gray/White Fibrous Heterogeneous	60% Cellulose 8% Min. Wool	15% Perlite 17% Non-fibrous (Other)	None Detected
20 <small>411802068-0017</small>	2x2 Pinhole Ceiling Tile	Gray/White Fibrous Heterogeneous	60% Cellulose 8% Min. Wool	10% Perlite 22% Non-fibrous (Other)	None Detected
21 <small>411802068-0018</small>	2x2 Pinhole Ceiling Tile	Gray/White Fibrous Homogeneous	50% Cellulose 10% Min. Wool	10% Perlite 30% Non-fibrous (Other)	None Detected
22-Wrap <small>411802068-0019</small>	Foil Backed Attic Insulation	Tan/Black/Silver Fibrous Heterogeneous	50% Cellulose 4% Glass	46% Non-fibrous (Other)	None Detected
22-Insulation <small>411802068-0019A</small>	Foil Backed Attic Insulation	Pink Non-Fibrous Homogeneous	99% Glass	1% Non-fibrous (Other)	None Detected
23-Wrap <small>411802068-0020</small>	Foil Backed Attic Insulation	Tan/Black/Silver Fibrous Heterogeneous	60% Cellulose 3% Glass	37% Non-fibrous (Other)	None Detected
23-Insulation <small>411802068-0020A</small>	Foil Backed Attic Insulation	Pink Fibrous Homogeneous	99% Glass	1% Non-fibrous (Other)	None Detected
24-Wrap <small>411802068-0021</small>	Foil Backed Attic Insulation	Tan/Black/Silver Fibrous Homogeneous	50% Cellulose	50% Non-fibrous (Other)	None Detected
24-Insulation <small>411802068-0021A</small>	Foil Backed Attic Insulation	Pink Fibrous Homogeneous	99% Glass	1% Non-fibrous (Other)	None Detected

Analyst(s) _____
 Eric Loomis (17)
 Katherine Sluder (10)



 Lee Plumley, 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. Pineville, NC NVLAP Lab Code 200841-0, VA 3333 00312

Initial report from: 03/16/2018 16:57:07



EMSL Analytical, Inc.

10801 Southern Loop Blvd Pineville, NC 28134

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

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EMSL Order: 411802068

Customer ID: ARM62

Customer PO:

Project ID:

Attention: Sid Havird
ARM Environmental Services, Inc.
1210 1st Street South Extension
Columbia, SC 29209

Phone: (803) 783-3314

Fax: (803) 783-2587

Received Date: 03/16/2018 9:00 AM

Analysis Date: 03/17/2018 - 03/19/2018

Collected Date: 03/15/2018

Project: USC Sumter-Science Bld.

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
03-Mastic 411802068-0022	Beige Vinyl Sheet Flooring w/ Mastic	Tan Non-Fibrous Heterogeneous	98.8	None	1.2% Chrysotile
06-Baseboard 411802068-0023	Black Vinyl Baseboard w/ Mastic	Black Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
06-Mastic 411802068-0024	Black Vinyl Baseboard w/ Mastic	Brown Non-Fibrous Heterogeneous	100	None	<0.53% Chrysotile
09 411802068-0025	Carpet Mastic Only	Tan Non-Fibrous Heterogeneous	100	None	No Asbestos Detected

Analyst(s)

Aaron Hartley (3)
Derrick Young (1)

Lee Plumley, 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. Pineville, NC

Initial report from: 03/19/2018 13:04:49



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

411802068

EMSL ANALYTICAL, INC.
10801 SOUTHERN LOOP BLVD.
PINEVILLE, NC 28134
PHONE: (704) 525-2205
FAX: (704) 525-2382

Company Name : ARM Environmental		EMSL Customer ID:	
Street: 1210 First Street South Ext.		City: Columbia	State/Province: SC
Zip/Postal Code: 29209	Country: US	Telephone #: 803-783-3314	Fax #: 803-783-2587
Report To (Name): Sid Havird		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email	
Email Address: shavird@armenv.com, rrobertson@armenv.com		Purchase Order:	
Project Name/Number: USC Sumter-Science Bld./ ?		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 checked="" type="checkbox"/> Please run TEM on the following if needed: 03,06,09</p>
---	---	---

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

Samplers Name: Robbie Robertson

Samplers Signature: *Robbie Robertson*

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
01-03	Beige Vinyl Sheet Flooring w/mastic (PLM, TEM)	1	3-15-18
04-06	Black vinyl baseboard w/ mastic (PLM, TEM)	2	3-15-18
07-09	Carpet Mastic only (PLM, TEM)	3	3-15-18
10-12	Solid surface lab countertop (PLM)	4	3-15-18
13-15	2x4 Pinhole/fissure ceiling tile (PLM)	5	3-15-18

Client Sample # (s):	01 - 24	Total # of Samples:	24
Relinquished (Client):	Robbie Robertson	Date:	3-15-18
		Time:	1730
Received (Lab):	<i>Kyle Nelson</i>	Date:	3/16/18
		Time:	9:00 AM Fk
Comments/Special Instructions: Run PLM analyses first & if less than 1% run TEM confirmation on all NOB materials. Bill to: ARM Environmental, 1210 First Street South Ext., Columbia, SC Attention: Gail Cruz Phone: 803-783-3314 EMAIL: gcruz@armenv.com			
7954 4626 5597			

Appendix D

Inspectors Licenses and Certifications

SCDHEC ISSUED

Asbestos ID Card

Robbie Robertson



SUPERAHERA SA-01861
CONSULTBI BI-01179

Expiration Date:
11/15/18
11/16/18



1416 Chapin Road, Chapin, South Carolina 29036 803-345-3833

Robbie Robertson

SSN xxx-xx-3715

This is to certify that the above named student has completed the requisite training for asbestos accreditation under TSCA Title II and has met the requirements of and passed the examination for an EPA approved:

AHERA Asbestos Inspector Refresher

Course Location: Irmo SC

Certificate Number: 20171116Ab301-06

Start Date November 16, 2017

End Date November 16, 2017

Exam Date: November 16, 2017

Expiration Date November 16, 2018

Principal Instructor / Training Administrator - Lee Capell

11/16/2017

Date