TENNESSEE DEPARTMENT OF TRANSPORTATION

ASBESTOS INSPECTION REPORT

Epps Mill Road Bridge over I-24
Bridge 75I00240041 (75-01044-00.48)
Rutherford County, Tennessee
TDOT Project No. 75I024-S0-009, PIN 124683.06

JULY 5, 2023

PROJECT NO.: 232723059
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WSP.COM

SIGNATURES

PREPARED BY

Nicholas J. Smith, PG
Tennessee Asbestos Inspector
Accreditation No: A-I-76036-129714

Approved[1] by (must be reviewed for technical accuracy prior to approval)

Bradley K. Glisson, CHMM
Tennessee Asbestos Inspector
Accreditation No: A-I-50566-127345

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TABLE OF CONTENTS

FIGURES

APPENDICES

1 INTRODUCTION

This report presents the findings of an inspection for asbestos containing materials (ACM) completed on the bridge identified in Section 1.1. The inspection was completed by WSP USA Environment & Infrastructure, Inc. (WSP) in accordance with the State of Tennessee, Department of Transportation Environmental Division, Social and Cultural Resources Office, Hazardous Materials Section requirements.

1.1 TDOT BRIDGE IDENTIFICATION

The bridge over I-24 is identified in the TDOT Project System/Bridge Management System as:

TDOT Project Number: 75I024-S0-009
TDOT PIN Number: 124683.06
Bridge Inventory Number: Bridge 75I00240041 (75-01044-00.48)
State Route (SR) Number: SR2
Log Mile (LM) Number: 00.48

1.2 GENERAL DESCRIPTION

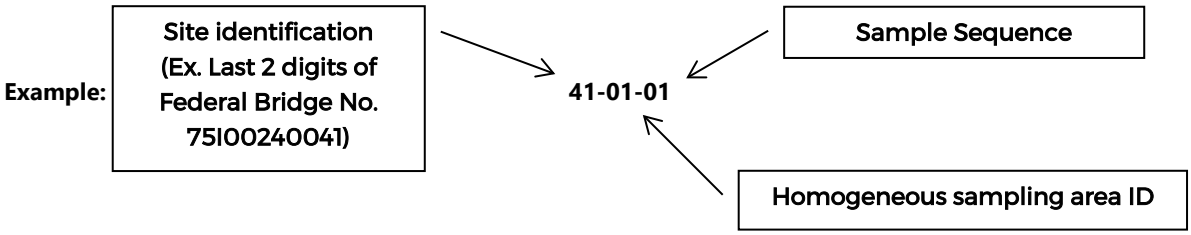
Bridge 75I00240041 (75-01044-00.48) is a two-lane bridge that crosses over I-24 at Log Mile 00.48 in Rutherford County, Tennessee. The bridge has two spans with a total length of 300 feet. The bridge was constructed in 1968. The substructure consists of steel plate girders with concrete abutments and bent. The bridge superstructure consists of a concrete deck and asphalt wearing surface.

2 INSPECTION

The identification of ACM is performed by collecting bulk samples of suspect materials and having those samples analyzed by a laboratory. ACM are those materials found to contain greater than 1% asbestos by polarized light microscopy (PLM).

Bulk sampling is a procedure in which representative homogeneous sampling areas in a structure are identified and then sampled. A homogeneous sampling area is defined as an area that contains material of the same type (uniform in color and texture) and is applied during the same general time period. Once the homogeneous areas (HAs) are identified, bulk samples of suspect materials are obtained at the discretion of our inspectors based on site conditions and past experience.

For asbestos samples collected during the survey, a unique identification is assigned that identifies the homogeneous sampling area or bridge location and a sampling sequence number for each sample collected.



Samples were collected by carefully removing small portions of the suspect material with a clean, sharp knife or other hand tool suitable for the material being sampled. Each sample was placed in a labeled plastic container immediately after collection. Sample containers were then placed in a large re-sealable plastic bag for transportation to the laboratory. The sampling instrument was wiped with a clean, moist cloth to decontaminate the tool and reduce the potential release of asbestos fibers or cross-contamination of subsequent samples. Data pertinent to each sample (e.g., date, sample number, material description, and material category) was recorded on a field data sheet.

The survey was limited to an evaluation and confirmation of the presence of accessible ACM for the bridge. The survey did not include assessments for other regulated building materials such as lead paint and did not include destructive sampling to identify the potential presence of concealed ACMs.

2.1 PERSONNEL AND DATE(S) OF INSPECTION

The sampling and field activities were performed on 12 May 2023 by Nicholas Smith and John David Simpson, accredited State of Tennessee Asbestos Inspectors. A copy of the inspector's accreditations and WSP's current accreditation from the State of Tennessee is included in Appendix A.

No assistance by the TDOT Bridge Maintenance Department was required for mobilization, traffic control, or access to this bridge.

2.2 VISUAL SURVEY

WSP's survey began with a walk-through and visual survey of the structure at this site. The visual survey consisted of:

- sketching the structure, photographing, and/or verifying the plans provided;
- locating and identifying HAs of suspect materials that may contain asbestos minerals; and
- determining applicable sampling locations.

2.3 ACCESS TO BRIDGE COMPONENTS

Individual bridge components were accessed as described in the following subsections. WSP collected bulk samples of suspect materials in a random method with a focus on materials appearing homogeneous with like color and composition. Metal, fiberglass, and wood materials are not considered as suspect ACM and were not sampled.

A total of 24 samples, from 8 HAs, were collected on 12 May 2023, and submitted for laboratory analysis upon return to the office. Figure 1 is the location of the bridge, and Figure 2 is a side view or profile of the bridge with representative sample locations noted. Typical photographs of the bridge and various sampling locations are presented in Appendix B, and Chain-of-Custody forms and laboratory analytical data sheets are included in Appendix C. In addition, WSP prepared a site-specific Health & Safety Plan for the project, which is included in Appendix D.

2.3.1 TOP OF BRIDGE DECK

The concrete top of the bridge deck was covered by an asphalt wearing surface that was not considered a suspect material and not sampled.

2.3.2 UNDERSIDE OF BRIDGE DECK

The concrete underside of the bridge deck was accessible by foot and was sampled as HA-08.

2.3.3 BEAMS AND DIAPHRAGMS

The beams and diaphragms were metal and were not considered a suspect material and were not sampled. Green surfacing on the beams and diaphragms was sampled as HA-07.

2.3.4 BRIDGE PIERS, BENTS AND SUPPORTS

The concrete columns were accessible on foot and were sampled as HA-05. The concrete bent caps were accessible on foot and were sampled as HA-06. Bearing pads were observed to be metal and not considered a suspect material and not sampled.

2.3.5 ABUTMENTS

Concrete abutments were accessible on foot and were sampled as HA-03. The concrete aprons at the abutments were sampled as HA-04.

2.3.6 SIDE RAILS AND CURB

The bridge had concrete barriers and curbs on each side that were accessible on foot from the deck. Concrete barriers were sampled as HA-01. Concrete curbs were sampled as HA-02. No coating was observed.

2.3.7 DRAINS

No deck drains were observed. Drains at the aprons were observed to be PVC and not considered a suspect material and not sampled.

2.3.8 UTILITY CONDUITS

No utility conduits were observed.

2.3.9 OTHER ENVIRONMENTAL ISSUES

No other environmental issues were observed during the bridge inspection.

3 ANALYTICAL PROCEDURES

3.1 ASBESTOS ANALYSIS PROCEDURES

The bulk samples are analyzed in the laboratory using Polarized Light Microscopy (PLM) coupled with dispersion staining (EPA Method 600/R-93/116). PLM is an analytical method for asbestos identification, which identifies the specific asbestos minerals by their unique optical properties. The optical properties are a result of the mineral's chemical composition, physical atomic structure, and visual morphology. This is the U.S. Environmental Protection Agency (EPA) recommended method of analysis for asbestos identification in bulk samples.

When samples similar in appearance have different results, it is beneficial to analyze the remainder of the samples to clarify the results and explore the possibility of different materials. In addition, samples which contain multiple layers, or that have associated mastic or adhesive backing, are analyzed as two (2) or more separate samples. Samples that are identified to contain 1% or less asbestos minerals are generally recommended to be point counted by the laboratory for confirmation.

3.2 LABORATORY NAME AND ACCREDITATION

The bulk samples collected for this inspection were analyzed by a laboratory that has received accreditation from the National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP). Samples from this bridge were analyzed by at the WSP, Atlanta Laboratory, NVLAP Number 101066-0.

4 REGULATORY OVERVIEW

4.1 NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

The EPA's National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations (40 CFR 61, Subpart B) requires that all regulated asbestos-containing materials (RACM) be properly removed prior to any renovation or demolition activities that will disturb them. These regulations define RACM as:

- Friable ACM.
- Category I non-friable ACM that has become friable.
- Category I non-friable ACM that will be or has been subject to sanding, grinding, cutting, or abrading.
- Category II non-friable ACM that has a high probability of becoming, or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

4.1.1 DEFINITIONS

Significant definitions related to regulation of asbestos under NESHAP regulations include:

Friable ACM is defined by the Asbestos NESHAP, as any material containing more than one percent (1%) asbestos as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1, Polarized Light Microscopy (PLM), that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure (Sec. 61.141).

Non-friable ACM is any material containing more than one percent (1%) asbestos as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1, Polarized Light Microscopy (PLM), that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. EPA also defines two (2) categories of non-friable ACM, Category I and Category II non-friable ACM, which are described as follows:

Category I non-friable ACM is any asbestos-containing packing, gasket, resilient floor covering or asphalt roofing product which contains more than one percent (1%) asbestos as determined using polarized light microscopy (PLM) according to the method specified in Appendix A, Subpart F, 40 CFR Part 763 (Sec. 61.141).

Category II non-friable ACM is any material, excluding Category I non-friable ACM, containing more than one percent (1%) asbestos as determined using polarized light microscopy according to the methods specified in Appendix A, Subpart F, 40 CFR Part 763 that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure (Sec.61.141).

"Regulated Asbestos-Containing Material" (RACM) is (a) friable asbestos material, (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting or abrading, or (d) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

Friable materials are defined as those which can be crumbled, pulverized, or reduced to powder by hand pressure when dry. The NESHAP regulations also establish specific notification and control requirements for renovation and demolition work.

5 RESULTS

The results of the asbestos inspection are presented in the following sections.

5.1 RESULTS OF ASBESTOS BULK SAMPLE ANALYSIS

A total of 24 samples were collected from the bridge. Multiple samples of each homogeneous material were collected in accordance with State of Tennessee, Department of Transportation Environmental Division, Social and Cultural Resources Office, Hazardous Materials Section requirements and delivered to the laboratory for visual observation and microscopic analysis. The samples were selected based on HAs of suspect materials, as described in Section 2.3. All samples were analyzed. No ACM was identified in the lab results. The analytical results of all the samples collected from the site, along with the chain-of-custody records, are included in Appendix C.

6 QUALIFICATIONS

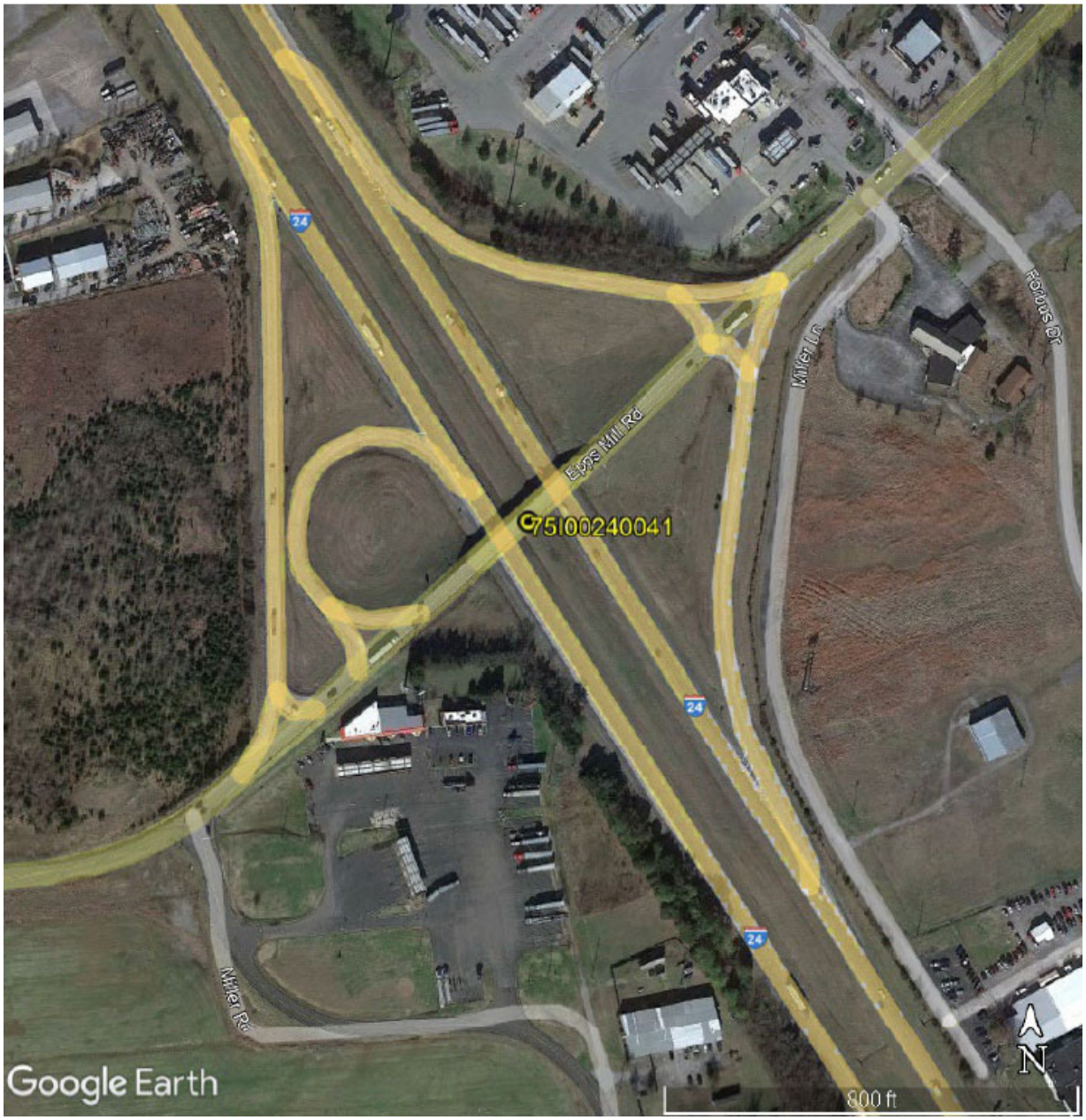
The information presented herein is based on information obtained during the site visit(s) and from previous experience. If additional information becomes available which might impact our conclusions or recommendations, WSP requests the opportunity to review the information, reassess the potential concerns, and modify opinions, if warranted.

This report has been prepared on behalf of the Tennessee Department of Transportation. This document is not a Bid Document or a Contract Document. Use of this report or reliance upon information contained in this report by any other party implies an agreement by that party to the same terms and conditions under which service was provided. Furthermore, any party, other than our Client, relying on this document is cautioned that all conclusions made, or decisions arrived at based on their review of this document are those solely of the third party, without warranty, guarantee or promise by the author. These findings are relevant to the dates of our services and should not be relied upon to represent conditions at substantially earlier or later dates.

FIGURES

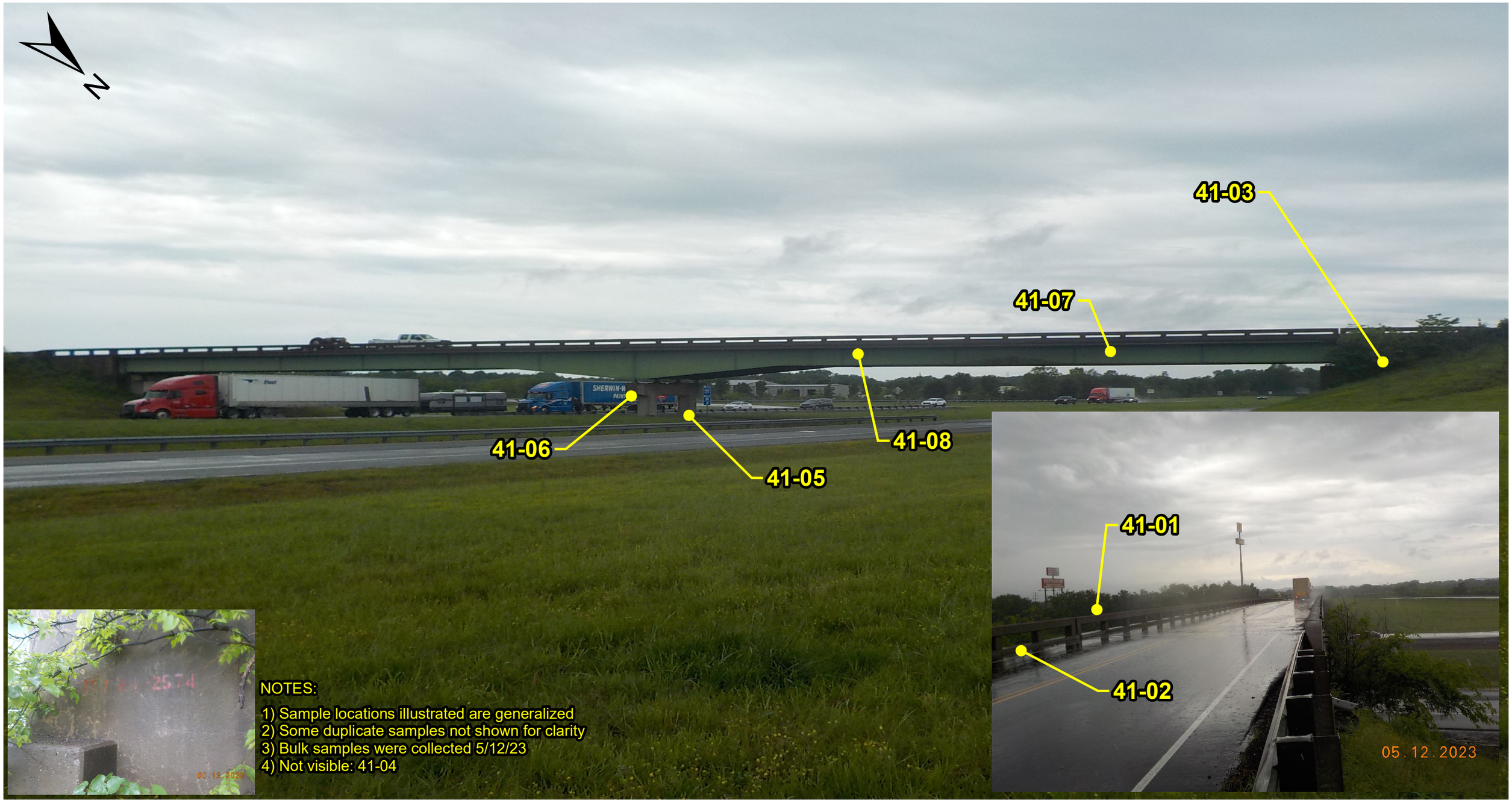
Figure 1
Bridge Location Plan

RUTHERFORD COUNTY



Asbestos Survey
Bridge 75I00240041 (75-01044-00.48)
Epps Mill Road Bridge over I-24, LM 00.48
Rutherford County, Tennessee

WSP Project No. 232723059



TN TDOT Department of Transportation	CLIENT: TDOT - TENNESSEE DEPARTMENT OF TRANSPORTATION TDOT Project No. 75I024-S0-009, PIN 124683.06	DRAWN BY: TAF CHECKED BY: NJS REVIEWED BY: BKG SCALE: NOT TO SCALE	PROJECT: Asbestos Survey Bridge 75I00240041 (75-01044-00.48) Epps Mill Road Bridge over I-24, LM 0.48 Rutherford County, Tennessee	05/2023 PROJECT NO: 232723059
	WSP Environment & Infrastructure, Inc. 216 Centerview Drive, Suite 300 Brentwood, Tennessee 37027 Phone: 615-333-0630 Fax: 615-781-0655		TITLE: FIGURE 2 BRIDGE PROFILE DEPICTING SAMPLE LOCATIONS	SHEET NO: 1 OF 1

APPENDIX

A ASBESTOS ACCREDITATIONS

THE STATE OF TENNESSEE

Department of Environment and Conservation Division of Solid Waste Management
Toxic Substances Program
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 14th Floor Nashville TN 37243

By virtue of the authority vested by the Division of Solid Waste Management, the Company named below is hereby accreditted to offer and/or conduct Asbestos activities pursuant to Rule 1200-01-20:

WSP USA Env. & Inf., Inc.

216 Centerview Drive, Suite 300 Brentwood TN, 37027

to conduct ASBESTOS ACTIVITIES in schools or public and commercial buildings in Tennessee. This firm is responsible for compliance with the applicable requirements of Rule 1200-01-20.

Discipline	Type	Accreditation Number	Effective Date	Expiration Date
Accreditation	Re-Accreditation	A-F-948-136138	June 01, 2023	June 30, 2024

Given under the Seal of the State of Tennessee in Nashville.

This **26th** Day of **June 2023**

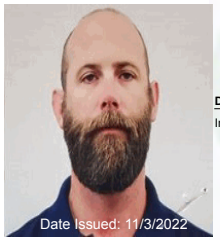
Division of Solid Waste Management
Toxic Substance Program

CN-1324 (Rev 6/13) **RDA-3020**

THE STATE OF TENNESSEE

Department of Environment and Conservation
Division of Solid Waste Management
Toxic Substances Program

79850-76330



Nicholas J Smith

DOB	Sex	HGT	WGT
21-Apr-1982	**M**	**6' 3"**	**200**

Discipline	Accreditation	Expiration
Inspector	A-I-76036-129714	Oct-31-2023

Re-Accreditation

Asbestos Accreditation

Is hereby Accredited pursuant to Rule 1200-01-20 Asbestos Accreditation Requirements to perform Asbestos Activities associated with the Discipline(s) listed on the front of this card.

A false statement pertaining to accreditation(s) is subject to the penalties of perjury.

Date Issued: 11/3/2022

Note: In order for this Tennessee issued accreditation to remain valid through the expiration date, the individual must maintain current applicable accredited asbestos refresher training course(s)

THIS CARD IS NOT TO BE USED FOR ANY OTHER IDENTIFICATION PURPOSES. IF FOUND, RETURN TO:
Department of Environment and Conservation
Division of Solid Waste Management
Toxic Substances Program
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 14th Floor
Nashville TN 37243

CN-1324 **(Rev 6/13)** **RDA-3020**

THE STATE OF TENNESSEE

Department of Environment and Conservation
Division of Solid Waste Management
Toxic Substances Program

John D Simpson

DOB	Sex	HGT	WGT
28-Oct-1991	M	5'11"	199

Discipline	Accreditation	Expiration
Inspector	A-I-188149-131161	Sep-30-2023

Initial

Asbestos Accreditation

APPENDIX

B PHOTOGRAPHS

WSP USA Environment & Infrastructure, Inc.
Photographic Record

Client: Tennessee Department of Transportation	TDOT PIN: 124683.06
Site Name: Bridge 75I00240041 (75-01044-00.48) Epps Mill Road Bridge over I-24, LM 0.48	Site Location: Rutherford County, Tennessee

Photographer: Smith/Simpson Date: 5/12/2023 Direction: Southwest Comments: P-1 – View of the top deck of the bridge. The bridge deck is concrete with asphalt wearing surface, concrete barriers and curb down each side of the bridge.	
Photographer: Smith/Simpson Date: 5/12/2023 Direction: Northwest Comments: P-2 – Profile of Bridge. Bridge has two spans constructed of steel plate girders. No deck drains or utility conduits were observed.	

WSP USA Environment & Infrastructure, Inc.
Photographic Record

Client: Tennessee Department of Transportation	TDOT PIN: 124683.06
Site Name: Bridge 75I00240041 (75-01044-00.48) Epps Mill Road Bridge over I-24, LM 0.48	Site Location: Rutherford County, Tennessee

Photographer: Smith/Simpson Date: 5/12/2023 Direction: Southwest Comments: P-3 – View of the underside of the bridge. The bridge deck is concrete, supported by steel deck girders, concrete abutments, and bent. Bearing pads were metal.	
Photographer: Smith/Simpson Date: 5/12/2023 Direction: NA, Close-Up Comments: P-4 – Barriers were sampled as HA-01. No asbestos was detected in the concrete samples.	

WSP USA Environment & Infrastructure, Inc.
Photographic Record

Client: Tennessee Department of Transportation	TDOT PIN: 124683.06
Site Name: Bridge 75I00240041 (75-01044-00.48) Epps Mill Road Bridge over I-24, LM 0.48	Site Location: Rutherford County, Tennessee

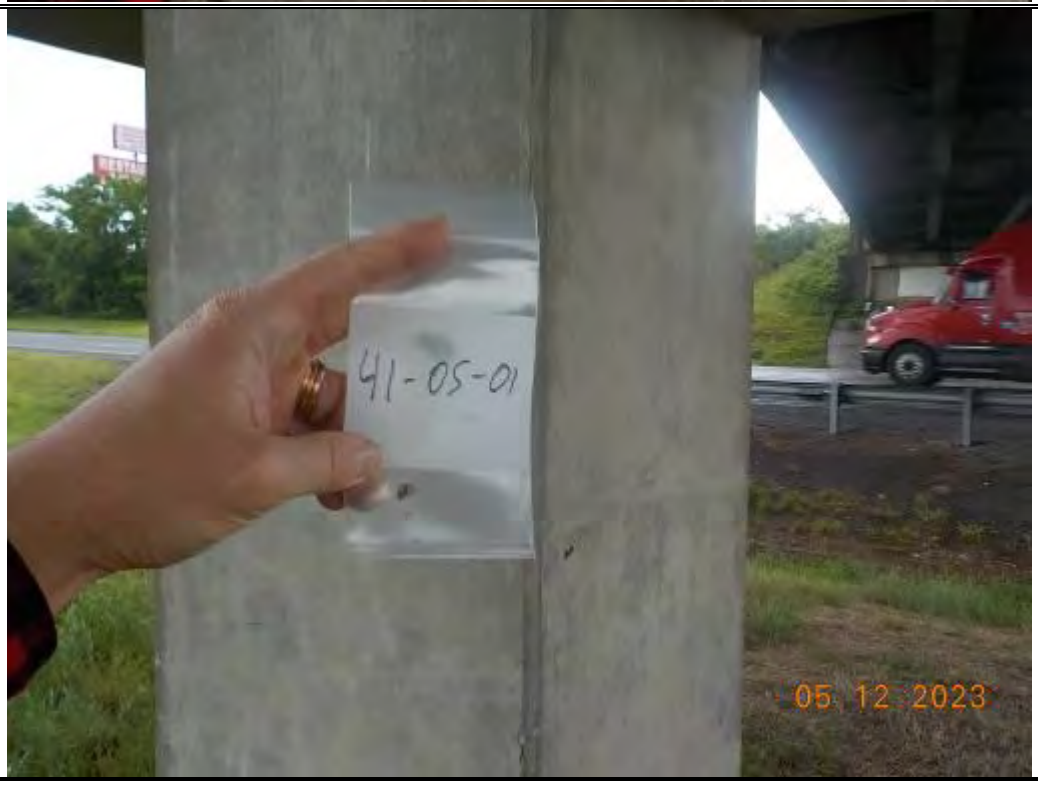
Photographer: Smith/Simpson	
Date: 5/12/2023	
Direction: NA, Close-up	
Comments: P-5 – Curbing was sampled as HA-02. No asbestos was detected in the samples.	

Photographer: Smith/Simpson	
Date: 5/12/2023	
Direction: NA, Close-Up	
Comments: P-6 – Abutment concrete were sampled as HA-03. No asbestos was detected in the concrete samples.	

WSP USA Environment & Infrastructure, Inc.
Photographic Record

Client: Tennessee Department of Transportation	TDOT PIN: 124683.06
Site Name: Bridge 75I00240041 (75-01044-00.48) Epps Mill Road Bridge over I-24, LM 0.48	Site Location: Rutherford County, Tennessee

Photographer: Smith/Simpson	
Date: 5/12/2023	
Direction: NA, Close-up	
Comments: P-7 – Apron concrete was sampled as HA-04. No asbestos was detected in the concrete samples.	

Photographer: Smith/Simpson	
Date: 5/12/2023	
Direction: NA, Close-up	
Comments: P-8 – Column concrete was sampled as HA-05. No asbestos was detected in the concrete samples.	

WSP USA Environment & Infrastructure, Inc.
Photographic Record

Client: Tennessee Department of Transportation	TDOT PIN: 124683.06
Site Name: Bridge 75I00240041 (75-01044-00.48) Epps Mill Road Bridge over I-24, LM 0.48	Site Location: Rutherford County, Tennessee

Photographer: Smith/Simpson	
Date: 5/12/2023	
Direction: NA, Close-up	
Comments: P-9 – Bent cap concrete was sampled as HA-06. No asbestos was detected in the concrete samples.	

Photographer: Smith/Simpson	
Date: 5/12/2023	
Direction: NA, Close-up	
Comments: P-10 – Green surfacing was sampled as HA-07. No asbestos was detected in the samples.	

WSP USA Environment & Infrastructure, Inc.
Photographic Record

Client: Tennessee Department of Transportation	TDOT PIN: 124683.06
Site Name: Bridge 75I00240041 (75-01044-00.48) Epps Mill Road Bridge over I-24, LM 0.48	Site Location: Rutherford County, Tennessee

Photographer: Smith/Simpson	
Date: 5/12/2023	
Direction: NA, Close-up	
Comments: P-11 – Underside deck concrete was sampled as HA-08. No asbestos was detected in the concrete samples.	

APPENDIX

C

ASBESTOS SAMPLE LABORATORY ANALYSIS DATA

Lab Numbers 271348 to 271371

Bulk Sample Chain of Custody

WSP Environment & Infrastructure, Inc.
2677 Buford Hwy NE
Atlanta, Georgia 30324
T: 413-813-0216
www.wsp.com

Total # of Samples: 24

Project Name: WO# 59 TDOT Rutherford County Epps Mill over I-24 **Date Collected:** 05/12/23

Project No.: 232723059 **Phase:** **** **Task:** **** **Date Results Needed By:** 05/29/23

Client: Tennessee Department of Transportation **Client Project No.:** 75I024-S0-009

Special Instructions: Analyze all samples. **Transmit Results to the attention of:** andrew.foy@wsp.com

Sender's Signature: _____ **Date:** 05/12/23

Samples Delivered to: WSP-ATLANTA PLM LAB – 2677 Buford Highway – Atlanta, GA 30324

TURN AROUND TIME: ☐ PLM 24 Hour ☐ PLM 48 Hour ☒ PLM 3-10 Day

Polarized Light Microscopy / Dispersion Staining (PLM/DS)
Appendix E to Subpart E of 40 CFR Part 763 and EPA/600/R-93/116

Note – unless otherwise requested in writing samples will be disposed of 90 days after the date of analysis.

Samples Received By: _____ **Date:** 5/15/23

Sample No.	HA No.	General Description of Material Sampled	Approximate Sample Location
41-01-01	01	Barrier	Abutment 1 – NE
41-01-02	01	Barrier	Abutment 1 – SE
41-01-03	01	Barrier	Abutment 2 – NW
41-02-01	02	Curb	Abutment 1 – NE
41-02-02	02	Curb	Abutment 1 – SE
41-02-03	02	Curb	Abutment 2 – NW
41-03-01	03	Abutment	Abutment 1 – NE
41-03-02	03	Abutment	Abutment 1 – SE
41-03-03	03	Abutment	Abutment 2 – NW
41-04-01	04	Apron	Abutment 1 – NE
41-04-02	04	Apron	Abutment 1 – SE

(Use additional pages as necessary and securely attach to this sheet.)

Lab Numbers 271348 to 271371

Project Number: 232723059

Page: 2 of 2

Sample No.	HA No.	General Description of Material Sampled	Approximate Sample Location
41-04-03	04	Apron	Abutment 2 – NW
41-05-01	05	Column	Bent 1 – S
41-05-02	05	Column	Bent 1 – N
41-05-03	05	Column	Bent 1 – N
41-06-01	06	Bent Cap	Bent 1 – N
41-06-02	06	Bent Cap	Bent 1 – Center
41-06-03	06	Bent Cap	Bent 1 – S
41-07-01	07	Green Surfacing	Abutment 2 - NW
41-07-02	07	Green Surfacing	Abutment 2 – NW
41-07-03	07	Green Surfacing	Abutment 2 – NW
41-08-01	08	Underside Deck	Abutment 2 – NW
41-08-02	08	Underside Deck	Abutment 2 – NW
41-08-03	08	Underside Deck	Abutment 2 – NW
		END OF SAMPLING	

PLM REPORT SUMMARY

WSP USA Environment & Infrastructure Inc.
2677 Buford Hwy
Atlanta, GA 30324 (404) 873-4761

NVLAP Lab Code 101066-0
TDH License No. 300433

Client :	Tennessee Department of Transportation	WSP Job No. :	232723059
Project :	Rutherford County Epps Mill over I-24	Report Date :	6/5/2023
Client Project No.:	75I024-S0-009	Sample Date :	5/12/2023
Identification :	Asbestos, Bulk Sample Analysis		
Test Method :	Polarized Light Microscopy / Dispersion Staining (PLM/DS) App. E to Sub. E of 40 CFR Part 763 and EPA/600/R-93/116		

On 5/15/2023, twenty-four (24) bulk material samples were submitted by Nick Smith for asbestos analysis by PLM/DS.

Lab Sample No.	Sample Description / Location	Asbestos Content
271348	Barrier Abutment 1 - NE 41-01-01 HA01	None Detected-Concrete
271349	Barrier Abutment 1 - SE 41-01-02 HA01	None Detected-Concrete
271350	Barrier Abutment 2 - NW 41-01-03 HA01	None Detected-Concrete
271351	Curb Abutment 1 - NE 41-02-01 HA02	None Detected-Concrete
271352	Curb Abutment 1 - SE 41-02-02 HA02	None Detected-Concrete
271353	Curb Abutment 2 - NW 41-02-03 HA02	None Detected-Concrete
271354	Abutment Abutment 1 - NE 41-03-01 HA03	None Detected-Concrete

These samples were analyzed by layers. The first percentage is the overall asbestos content for the sample. Specific layer or component asbestos content is indicated when relevant. The EPA considers a material to be asbestos containing only if it contains more than one percent asbestos by Calibrated Visual Area Estimation (CVAE). EPA regulations also state that Regulated Asbestos Containing Materials (RACM) -- materials which are friable or may become friable -- be further analyzed by point counting when the results indicate less than ten percent asbestos by CVAE. Our laboratory utilizes CVAE on a routine basis and does not include point counting unless specifically requested. These reports may not be reproduced except in full. Any unauthorized use or distribution of these reports shall be at the client's and recipient's sole risk and without liability to WSP USA Environment & Infrastructure Inc.

PLM REPORT SUMMARY

WSP USA Environment & Infrastructure Inc.
2677 Buford Hwy
Atlanta, GA 30324 (404) 873-4761

NVLAP Lab Code 101066-0
TDH License No. 300433

Client :	Tennessee Department of Transportation	WSP Job No. :	232723059
Project :	Rutherford County Epps Mill over I-24	Report Date :	6/5/2023
Client Project No.:	75I024-S0-009	Sample Date :	5/12/2023
Identification :	Asbestos, Bulk Sample Analysis		
Test Method :	Polarized Light Microscopy / Dispersion Staining (PLM/DS) App. E to Sub. E of 40 CFR Part 763 and EPA/600/R-93/116		

On 5/15/2023, twenty-four (24) bulk material samples were submitted by Nick Smith for asbestos analysis by PLM/DS.

Lab Sample No.	Sample Description / Location	Asbestos Content
271355	Abutment Abutment 1 - SE 41-03-02 HA03	None Detected-Concrete
271356	Abutment Abutment 2 - NW 41-03-03 HA03	None Detected-Concrete
271357	Apron Abutment 1 - NE 41-04-01 HA04	None Detected-Concrete
271358	Apron Abutment 1 - SE 41-04-02 HA04	None Detected-Concrete
271359	Apron Abutment 2 - NW 41-04-03 HA04	None Detected-Concrete
271360	Column Bent 1 - S 41-05-01 HA05	None Detected-Concrete
271361	Column Bent 1 - N 41-05-02 HA05	None Detected-Concrete

These samples were analyzed by layers. The first percentage is the overall asbestos content for the sample. Specific layer or component asbestos content is indicated when relevant. The EPA considers a material to be asbestos containing only if it contains more than one percent asbestos by Calibrated Visual Area Estimation (CVAE). EPA regulations also state that Regulated Asbestos Containing Materials (RACM) -- materials which are friable or may become friable -- be further analyzed by point counting when the results indicate less than ten percent asbestos by CVAE. Our laboratory utilizes CVAE on a routine basis and does not include point counting unless specifically requested. These reports may not be reproduced except in full. Any unauthorized use or distribution of these reports shall be at the client's and recipient's sole risk and without liability to WSP USA Environment & Infrastructure Inc.

PLM REPORT SUMMARY

WSP USA Environment & Infrastructure Inc.
2677 Buford Hwy
Atlanta, GA 30324 (404) 873-4761

NVLAP Lab Code 101066-0
TDH License No. 300433

Client :	Tennessee Department of Transportation	WSP Job No. :	232723059
Project :	Rutherford County Epps Mill over I-24	Report Date :	6/5/2023
Client Project No.:	75I024-S0-009	Sample Date :	5/12/2023
Identification :	Asbestos, Bulk Sample Analysis		
Test Method :	Polarized Light Microscopy / Dispersion Staining (PLM/DS) App. E to Sub. E of 40 CFR Part 763 and EPA/600/R-93/116		

On 5/15/2023, twenty-four (24) bulk material samples were submitted by Nick Smith for asbestos analysis by PLM/DS.

Lab Sample No.	Sample Description / Location	Asbestos Content
271362	Column Bent 1 - N 41-05-03 HA05	None Detected-Concrete
271363	Bent Cap Bent 1 - N 41-06-01 HA06	None Detected-Concrete
271364	Bent Cap Bent 1 - Center 41-06-02 HA06	None Detected-Concrete
271365	Bent Cap Bent 1 - S 41-06-03 HA06	None Detected-Concrete
271366	Green Surfacing Abutment 2 - NW 41-07-01 HA07	None Detected-Paint
271367	Green Surfacing Abutment 2 - NW 41-07-02 HA07	None Detected-Paint
271368	Green Surfacing Abutment 2 - NW 41-07-03 HA07	None Detected-Paint

These samples were analyzed by layers. The first percentage is the overall asbestos content for the sample. Specific layer or component asbestos content is indicated when relevant. The EPA considers a material to be asbestos containing only if it contains more than one percent asbestos by Calibrated Visual Area Estimation (CVAE). EPA regulations also state that Regulated Asbestos Containing Materials (RACM) -- materials which are friable or may become friable -- be further analyzed by point counting when the results indicate less than ten percent asbestos by CVAE. Our laboratory utilizes CVAE on a routine basis and does not include point counting unless specifically requested. These reports may not be reproduced except in full. Any unauthorized use or distribution of these reports shall be at the client's and recipient's sole risk and without liability to WSP USA Environment & Infrastructure Inc.

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On 5/15/2023, twenty-four (24) bulk material samples were submitted by Nick Smith for asbestos analysis by PLM/DS.

Lab Sample No.	Sample Description / Location	Asbestos Content
271369	Underside Deck Abutment 2 - NW 41-08-01 HA08	None Detected-Concrete
271370	Underside Deck Abutment 2 - NW 41-08-02 HA08	None Detected-Concrete
271371	Underside Deck Abutment 2 - NW 41-08-03 HA08	None Detected-Concrete

These samples were analyzed by layers. The first percentage is the overall asbestos content for the sample. Specific layer or component asbestos content is indicated when relevant. The EPA considers a material to be asbestos containing only if it contains more than one percent asbestos by Calibrated Visual Area Estimation (CVAE). EPA regulations also state that Regulated Asbestos Containing Materials (RACM) -- materials which are friable or may become friable -- be further analyzed by point counting when the results indicate less than ten percent asbestos by CVAE. Our laboratory utilizes CVAE on a routine basis and does not include point counting unless specifically requested. These reports may not be reproduced except in full. Any unauthorized use or distribution of these reports shall be at the client's and recipient's sole risk and without liability to WSP USA Environment & Infrastructure Inc.

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Test Method :	Polarized Light Microscopy / Dispersion Staining (PLM/DS) App. E to Sub. E of 40 CFR Part 763 and EPA/600/R-93/116		

STATEMENT OF LABORATORY ACCREDITATION

These samples were analyzed at the Atlanta Branch of WSP USA Environment & Infrastructure Inc. in the Asbestos Laboratory at 2677 Buford Hwy, Atlanta, GA, 30324. The laboratory holds accreditation from the National Institute of Standards and Technology (formerly National Bureau of Standards) under the National Voluntary Laboratory Accreditation Program (NVLAP). This laboratory also is licensed and authorized to perform as an Asbestos Laboratory in the State of Texas within the purview of Texas Occupations Code, chapter 1954, so long as this license is not suspended or revoked and is renewed according to the rules adopted by the Texas Board of Health.

The samples were analyzed by polarized light microscopy in general accordance with the procedures described in the Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116. The results of each bulk sample analysis relate only to the material tested. This report shall not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

Specific questions concerning bulk sample results shall be directed to the PLM Laboratory Manager.

Analyst : Tom D. Morrison

PLM Laboratory Manager : Tom D. Morrison

NVLAP® TESTING
LAB CODE 101066-0

Approved Signatory : 

APPENDIX

D

SITE SPECIFIC HEALTH & SAFETY PLAN

HEALTH AND SAFETY PLAN
Asbestos Survey
Epps Mill Road Bridge over I-24
Rutherford County, Tennessee
TDOT PIN 124683.06
TDOT Project No. 75I024-S0-009

Prepared by:

WSP USA Environment and Infrastructure, Inc.
216 Centerview Drive, Suite 300
Brentwood, Tennessee 37027

May 2023

WSP PROJECT NO. 2327230059

Tennessee Department of Transportation
Asbestos Survey, Epps Mill Road Bridge
Rutherford County, Tennessee
TDOT PIN 124683.06, TDOT Project No. 75I024-S0-009
May 2023

The attached Document has been prepared for Tennessee Department of Transportation Hazardous Waste Contract, E2327. The base document has been submitted for review according to Company Policy and edited for this Work Order to be site specific.

Reviewed By:

Brad K. Glisson, CHMM Date 5/11/2023
Senior Environmental Scientist, Asbestos Safety Board

Kim Barton Date 5/11/2023
Health and Safety Coordinator

WSP PROJECT NO. 2327230059

Tennessee Department of Transportation
Asbestos Survey, Epps Mill Road Bridge
Rutherford County, Tennessee
TDOT PIN 124683.06, TDOT Project No. 75I024-S0-009
May 2023

Daily Safety Meeting Attendees

Name	Signature	Date	Company
Nick Smith	Nicholas D Smith	5/12/23	WSP
John David Simpson	John David Simpson	5/12/23	WSP

Tennessee Department of Transportation
Asbestos Survey, Epps Mill Road Bridge
Rutherford County, Tennessee
TDOT PIN 124683.06, TDOT Project No. 75I024-S0-009
May 2023

EMERGENCY CONTACT LIST

IN THE EVENT OF AN ON-SITE EMERGENCY WHILE WORKING ON THIS PROJECT IMMEDIATELY CONTACT THE FOLLOWING IN ORDER:

1. FIRE, POLICE, OR AMBULANCE CALL **911**
2. WSP, MS. BERTISABEL CUSTER, **615-429-1261**
3. WSP, MR. BRAD GLISSON, **615-479-0941**
4. WSP, KIM BARTON, **225-221-1931**

IN CASE NUMBER 1 OR 2 ABOVE CAN NOT BE REACHED, CONTACT MICHELE BARNHART, WSP SOUTHERN STATES WEST SAFETTY MANAGER, AT **919-491-7710.**

TABLE OF CONTENTS

TABLE OF CONTENTS (CONTINUED)

APPENDICES

1.0 INTRODUCTION

This document presents WSP Environment and Infrastructure, Inc. (WSP) Health and Safety Policies and Procedures for the year 2023 as they apply to asbestos sampling activities to be performed on Bridge 75I00240041 on Epps Mill Road in Rutherford County, Tennessee. An EPA AHERA accredited asbestos inspector will oversee the asbestos sampling activities.

The Health and Safety Policies and Procedures detailed herein shall be followed by on-site WSP personnel, contract personnel, or site visitors, and constitutes the project Health and Safety Plan. The Site Health and Safety Officer will review this plan with each person working at the project site, so that everyone will be familiar with this plan and the hazards of the work to be performed.

Hazardous conditions may arise in the work area during the field operations. For this reason, on-site WSP personnel must read this document and must be knowledgeable of the appropriate health and safety measures needed to assure a safe working environment.

2.0 POTENTIAL SAFETY HAZARDS

To promote the safety and well being of personnel conducting work at the project site, they shall be informed as to the potential hazards that may be encountered there. These hazards take two forms, the risk of physical injury associated with typical site activities, and the risk of chemical exposure from product or waste located at the project site.

The project site will be periodically reevaluated to determine if the level of risk has changed, based on information gathered during the assessment.

Equipment operators and support personal will remain vigilant of safety procedures. OSHA requires that fall protection be provided at elevations of four feet in general industry workplaces,

five feet in shipyards, six feet in the construction industry and eight feet in long shoring operations. In addition, OSHA requires that fall protection be provided when working over dangerous equipment and machinery, regardless of the fall distance.

2.1 Physical Hazards

Physical hazards associated with performing the asbestos sampling activities may include the use of sharp hand tools and ladders. The physical hazards may be compounded by the restricted environment. Safe work practices include the following:

- **Equipment Safety Inspections**

1. All equipment and vehicles shall be scheduled for a periodic safety inspection at a minimum of every three months (29 CFR 1926.550). The inspections shall be accomplished by trained mechanics and supervisory personnel. The inspections shall include but are not limited to all hydraulic lines and fittings for wear and damage, all cable systems and pull ropes for damage and proper installation, exhaust systems, and controls, etc. Inspection schedules, the vehicle and equipment description, nomenclature, the license plate or ID number for the equipment, the findings of the inspections and the corrective action taken shall be maintained.

2. The foreman in charge of any subcontracting crew, along with the site health and safety officer, shall inspect the equipment on a daily basis covering all major systems as outlined above. If potentially hazardous deficiencies are found during the daily inspections, the job shall be shut down until the deficiencies are corrected and potential hazards are deleted.

3. Each user shall inspect their personal safety equipment daily prior to use.

- **Safe Operation of Equipment and General Site Conditions**

1. The subcontractor in charge shall ensure that only qualified personnel operate equipment.
2. All equipment shall be operated in a safe and non-hazardous manner.
3. Only adequately trained personnel shall perform asbestos abatement activities.
4. When using hand tools, use hand tool only for designed propose, do not use excessive force while using hand tools, do not use damaged hand tools, and wear appropriate PPE including groves and safety glasses.
5. If fire extinguishers are used to fight a fire, the extinguisher shall be refilled or replaced immediately after use.
6. Fall protection equipment, such as safety harness, shall be secured to the work basket at all times.

- **Hazardous Noise**

1. All workers shall wear hearing protection whenever they are working in a high noise area.
2. If measurements have not been made, or there is not an accurate way to measure the sound level, then ear protection shall be worn if workers have to shout to communicate when they are three feet apart or less.
3. Ear plugs shall be worn by all personnel at any location where there is the potential to be exposed to hazardous noise.

The project site is located in Rutherford County, Tennessee. The site and surrounding areas may experience heavy volume of traffic, and workers should be prepared to deal with this. Barricades or warning tape should be used to prevent access of unauthorized personnel or their vehicles to the work area, if necessary. In addition, on-site personnel should use caution when traveling to and from project sites.

2.2 Chemical Hazards

Under anticipated working conditions, the constituent of concern at the Site is asbestos fibers. WSP personnel must be aware that these or similar substances that may be encountered on-site and be prepared to modify the work plan if they are encountered. It may be necessary to halt work and evacuate the project site until the risk associated with such substances can be evaluated and remedied.

Asbestos fibers are hazardous when inhaled. They can cause diseases including mesothelioma and asbestosis. Respirators shall be worn during asbestos remediation activities. Wet and other containment methods shall be used during remediation activities to reduce airborne fibers.

Additional information for each substance can be found on the Material Safety Data Sheets (MSDS), presented in **Appendix 1**.

2.3 Safety Precautions

To reduce the health and safety risk to workers at the project site, the following precautions will be observed:

- Keep any potentially contaminated media away from eyes, skin, nose, and mouth,
- Eating, drinking, chewing gum or tobacco, or any practices that increase the probability of hand-to-mouth transfer and ingestion of contaminants is prohibited in the work area,
- Use soap and water to remove any media that contacts the skin. Do not use gasoline or similar solvents to remove oil and grease from the skin. Wash exposed skin promptly,
- Hands should be thoroughly washed upon leaving the work area,
- Properly dispose of rags, disposable gloves, etc.
- Keep work areas clean and well ventilated,

- All on-site personnel must be trained on equipment to be worn, safety procedures to be followed, and emergency procedures and communications to be practices,
- Any required respiratory protective devices and clothing must be worn by all personnel going into areas designated for wearing protective equipment,
- All on-site personnel should make use of their senses to alert themselves to potentially dangerous situations which they should avoid (e.g., presence of strong and irritating or nauseating odors),
- All personnel should practice unfamiliar operations prior to performing the actual procedure in the field,
- On-site field personnel shall be familiar with the physical characteristics of the site, including:
  - wind direction in relation to the work area,
  - accessibility to associates, equipment, and vehicles,
  - site access,
  - nearest water sources, and
  - location of the nearest telephone.

3.0 PERSONNEL REQUIREMENTS

3.1 Incident Manager

The incident manager, to whom on-site health hazards or emergencies shall be reported, is WSP's project manager for this particular project. This report shall be made in writing and include factors relating to the incident. A duplicate copy of this report shall also be submitted to WSP's Corporate Health and Safety Officer. In addition, personnel must follow the WSP Incident Flow Chart which is included in **Appendix 2**.

3.2 Site Health and Safety Officer

The Site Health and Safety Officer will be WSP's on-site geologist, scientist, or engineer who is medically monitored, and health and safety trained. This person shall direct site activities and

implement the safety and health protection procedures outlined in this plan. He/She will have primary responsibility for:

- Denying access to unauthorized personnel,
- Ensuring that on-site personnel have read the Site Health and Safety Plan and are aware of the potential hazards of the site and the proper procedures of handling those hazards should they occur, including the health and safety provisions and standards in this plan,
- Ensuring that the proper personal protection equipment is available and utilized properly by personnel,
- Monitoring the performance of on-site personnel to ensure that health and safety procedures are being performed, in addition to correcting any performances that do not comply with the Health and Safety Plan,
- Coordinating safety procedures with the local authorities,
- Advising the project manager on health and safety matters relative to the site,
- Posting a copy of the Health and Safety Plan at the site with emergency telephone numbers and directions to the nearest telephone,
- Calibrating monitoring equipment and recording results on an instrument calibration log,
- Ensuring that on-site personnel observe the appropriate work zones and decontamination procedures,
- Making "buddy" assignments for personnel, if necessary, and
- Reporting any safety violations to the Project Manager and to the Safety Coordinator.

In addition to these responsibilities, the site health and safety officer shall be responsible for making modifications to the Health and Safety Plan during the course of the project based upon the results of the site monitoring program.

3.3 Project Personnel

Project personnel involved in on-site investigations and operations are responsible for:

- Informing themselves of the guidelines outlined within the Health and Safety Plan, especially any aspects that they do not understand;
- Taking reasonable precautions to prevent injury to themselves and to their fellow employees; being alert to potentially harmful situations;
- Performing only those tasks that they believe they can do safely and immediately reporting any accidents and/or unsafe conditions to the Site Health and Safety Officer;
- Notifying the Site Health and Safety Officer of any special medical conditions (i.e., allergies, pregnancy, diabetes) and, if necessary, assuring that on-site personnel are aware of any such conditions;
- Preventing spillage to the extent possible. In the event that a spillage occurs, contain the spillage and clean up the spill using clean up procedures as directed by the Site Health and Safety Officer;
- Practicing good housekeeping by keeping everything orderly and out of potentially harmful situations;
- Reporting injuries, and;
- Executing the "buddy system" so that each on-site worker is responsible for keeping track of their partner.

On-site personnel are responsible for implementing this Health and Safety Plan in order to promote a safe work environment.

4.0 DESIGNATION OF THE LEVELS OF PROTECTION

Modified Level D protection shall be used during asbestos survey activities. Level C protection will be used during asbestos abatement activities. Level C protection shall include all items specified under level D plus respirators fitted with P-100 particulate filters. Level C protection specifies additional clothing requirements to limit dermal contact.

4.1 Level D Personal Protection Equipment

Level D protection will be selected when it has been determined that there is no possibility of skin contact with a contaminate or with a respiratory hazard. This level is primarily a work uniform.

Level D Equipment:

- Clothing, low static, natural fiber (e.g., cotton) no loose or dangling clothing allowed because of the proximity to power operated equipment.
- Hard hat; ANSI Z89 nonmetallic hard hat.
- Safety glasses; ANSI Z87 glasses with rigid side shields. No contact lenses. Prescription glasses must meet ANSI Z87 or be fitted with approved "fit over" safety glasses.
- Safety shoes; leather or chemically-resistant, steel toe and shank.
- Gloves; inner PVC, outer cotton or leather work glove, if appropriate.
- Hearing protection; while on-site, have hearing protection available. Use hearing protection when noise levels exceed 85 decibels.

Modified Level D Equipment

- Respirator; half face, air purifying, cartridge type fitted with dust pre-mist filters

4.2 Level C Personal Protection Equipment

Level C protection will be selected when the types and concentrations of respirable material is known, or reasonably assumed to be not greater than the protection factors associated with air-purifying respirators, and exposure to the unprotected areas of the body in unlikely to cause harm.

Level C Equipment, in addition to those items already specified under Level D requirements is as follows:

- Respirator; full face, air purifying, cartridge type fitted with dust pre-mist filters
- Clothing; outer garments, one or two-piece, chemical resistant fabric.
- Gloves

If conditions of the project site require a level of protection beyond Level C, then project operations shall cease, and personnel shall evacuate the site while the increased hazard is evaluated.

5.0 DELINEATION OF THE WORK AREA

The work area shall be defined as the area adjacent to where environmental work is being performed. Traffic cones and/or barricades shall be used to identify the work area and control access to the work area.

6.0 CONTROL PROCEDURES

6.1 Work Limitations

To control access to the work zone and the decontamination zone, barricades or warning tape shall be used to delineate these areas. This will serve to protect unauthorized personnel from physical injury or chemical exposure.

Along with the control procedures the following safety requirements shall be observed:

- The work area is to be restricted to authorized personnel and their equipment. Personnel and equipment should be kept to a minimum, consistent with effective site operations. The work area should be barricaded or roped off, to prevent access by unauthorized personnel and/or their vehicles;
- No vehicular movement is allowed in the work area while work activities are underway.

If the level of contamination encountered at the site requires the use of personnel protective equipment above Level C, then a barricaded walkway shall be constructed from the work zone to the decontamination zone. The purpose of the walkway is to limit the spread of contaminated materials at the project site and reduce the area that will require further decontamination efforts.

6.2 Traffic Control Plans

To protect the safety of all personnel working at this facility, WSP will implement the following Traffic Control Plans:

6.2.1 Performing Tasks in Traffic Areas (other than roadways)

- All employees are required to wear high-visibility clothing at all times while onsite, which includes a Class 2 reflective safety vest for daytime work and/or a Class 3 safety shirt with sleeves for nighttime work, or periods of low visibility work (e.g. fog)
- Use a minimum of 2 additional traffic control measures/devices (e.g. delineators, traffic cones, lighting).
- A buddy system should be implemented in areas considered high risk.

6.2.2 Performing Tasks in Roadways

- All employees are required to wear high-visibility clothing at all times while onsite
- A buddy system should be implemented in areas considered high risk.
- Use a minimum of 2 additional traffic control measures/devices.
- Use lane closure procedures following the appropriate regulatory standards (e.g. DOT/OSHA, National Highway Safety Uniform Traffic Control), local standards or Global Remediation minimum standards

6.2.3 Precautionary Measures/Controls

- Be alert, pay attention, watch, and listen for cars
- Wear reflective vest and bright clothing
- Use cones at each point of service
- Place pole mounted warning flags inside of cones

- Park vehicle in order to block traffic
- Use flashing barricades
- Use light bars or reflective lights on trucks
- Consult site manager about traffic evaluation
- Avoid prolonged time in traffic lanes
- Don't work around corners, make yourself visible
- Stay upright as much as possible
- Give notice to vehicle drivers nearby
- Trust no one, even if they see you
- Use buddy system
- Work during non-peak hours
- Always face traffic
- Use floodlights in low light conditions
- Obtain TDOT or police assistance for roadwork and local permits as required
- Place letter on windshields to warn drivers – "CAUTION – Work Area Behind Vehicle"

6.2.4 Examples of Traffic Control Devices

- Traffic cones (at least two) in combination with Standard Warning Flag. Total height at least 42 inches (1 meter)
- Molded Plastic Barricades
- Type I and II Barricades
- Use of Vehicle to block traffic
- Use of light bars or reflective lights on trucks
- Buddy System
- Place letter on windshield
- Use floodlights in darkness
- Placement of "Advance Warning "signs on shoulder
- Plastic Channelizer (Orange Barrels)

Advance warning signs should be used to notify motorists of the presence of workers in and around the roadway. Warning signs should be placed on the right shoulder at an appropriate distance ahead of the work area in accordance with the *Manual on Uniform Traffic Control Devices for Streets and Roadways* (US Department of Transportation, Federal Highway Administration, 2009, revised May 2012). A diagram displaying the recommended placement of warning sign(s) is included in **Appendix 3**. The placement of the warning sign(s) may be adjusted in the field as needed to allow for optimum visibility. Before placing warning signs or other traffic control devices (e.g., cones or barrels), consider motorist speed, road geometry, and the presence of vegetation or other obstructions to motorist visibility.

6.3 Decontamination Procedures

The purpose of decontamination is primarily to limit the spread of contaminated materials. This is accomplished through a step-by-step procedure whereby the protective clothing and equipment are disposed or washed.

6.3.1 Personnel Decontamination

When exiting the work area, all personnel shall follow the decontamination procedures outlined in Sections 6.3.3 and 6.3.4. Level C procedures are outlined in paragraph 6.2.4.

6.3.2 Equipment Decontamination

The Site Health and Safety Officer shall be responsible to assure that equipment is properly decontaminated and checked prior to being removed off-site. Reasonable efforts should be made to remove contamination by wiping, brushing, or washing surfaces.

At a minimum, visually assess that contamination has been removed and if relevant, that no organic vapors are detected above background levels. Equipment should be reasonably clean, dry, unstained, and free from deposits, encrustations, or discoloration.

6.3.3 Level D Decontamination

- Remove trackable or loose materials.
- Remove work gloves and verify that there is no excess soiling of clothing and hands.
- Thoroughly wash hands and face.

6.3.4 Level C Decontamination

The steps for Level C decontamination begin with gloves being washed and rinsed, and then tape being removed. Employee then initiates suit and safety boot wash and rinse, then removal of safety boots, followed by suit removal. Next, the face piece should be removed.

6.4 Disposal of Materials Generated During Field Work

Contaminated materials may be generated while conducting site environmental activities. WSP personnel shall be aware of the proper means of disposal for such materials. The following guidelines will be observed when dealing with such materials:

- Materials generated during field work (disposable protective gear, rags, etc.) will be placed in bags on site to be later removed from the project site,
- Asbestos-related waste will be kept separate and disposed separately.

7.0 TRAINING REQUIREMENTS FOR PERSONNEL

The Site Health and Safety Officer will be trained in the safety aspects of hazardous waste investigations particularly asbestos. On-site personnel shall have successfully attended and completed a 40-hour hazardous waste Site Investigation Health and Safety Trained Program, or Asbestos training as applicable to the project. This program shall contain specific training and demonstrations which will allow the Site Health and Safety Officer and on-site personnel to react in a proper and expeditious manner to contingencies which may arise in investigative activities. The

Site Health and Safety Officer responsible for this project will be the field geologist/engineer assigned to the investigative program. Personnel engaged in on-site activities for this project must have been fit tested and medically approved to wear an air-purifying respirator. Additionally, at least one person on site shall have successfully completed a Red Cross CPR/First Aid training course within the previous year.

On-site personnel shall also be familiar with the location and use of any emergency equipment (i.e. fire extinguisher, etc.) required at the project site. Personnel will also be familiar with any special procedures (i.e. confined space entry, etc.) that will be performed during the assessment.

8.0 WEATHER RELATED HAZARDS

Generally, environmental activities will be conducted outside, and therefore are subject to weather conditions. Precipitation, or extremes in temperature, can pose health or safety hazards and shall be considered. Extra care shall be taken when working in the rain, and operations shall cease in the presence of lighting. WSP personnel shall be able to recognize the symptoms of heat and cold stress, and take the appropriate measures to alleviate them. A location will be designated outside the work area where personnel can take rest breaks from extreme weather conditions.

8.1 Heat Stress

Personnel are likely to experience heat stress on hot, humid days with little or no breeze, especially if the ambient temperature is greater than 90°F. Conditions that can occur from heat stress are heat cramps, heat exhaustion and heat stroke.

Heat cramps are muscular pains and spasms brought on by the loss of water and electrolytes from heavy sweating. Proper treatment includes removing the affected person to a cooler place and providing small sips of water to drink if they want them.

Heat exhaustion is a more severe condition than heat cramps. Symptoms include pale, moist skin, heavy sweating, dilated pupils, headache, dizziness, nausea and vomiting. Treatment for this condition consists of removing the affected person to a cooler place, provide small sips of water at approximately fifteen-minute intervals if the person can tolerate it, and placing towels moistened with cool water on the victim's skin. The victim should be closely monitored to determine if their condition is improving under this treatment. If no improvement is observed within a half hour to an hour, professional medical care should be sought to treat this condition.

Heat stroke is the most severe form of heat stress. This condition occurs when the system which regulates body temperature breaks down, often the victim stops sweating. Symptoms include a very high body temperature, red skin color, and very small pupils. Heat stroke is a very serious condition and professional medial treatment should be obtained for the victim as soon as possible. First aid includes removing the affected person to a cooler place, treating for shock, and bathing the victim with towels moistened with cool water.

8.2 Cold Stress

Personnel can experience cold stress on cool, humid, windy days especially when the ambient temperature is below 40°F. Personnel exposed to cold stress can suffer from hypothermia or frostbite.

Hypothermia occurs when the body temperature is depressed below 98.6°F. Symptoms include shivering, dizziness, numbness, weakness, confusion, and drowsiness. Treatment includes placing the affected person in a warm area sheltered from wind or rain, replacing wet clothing with dry, and if the victim is conscious, provide warm beverages and food (note: do not provide alcohol or stimulants to victims of cold stress).

Frostbite occurs when ice crystals form in body tissues and restrict the flow of blood to the injured areas. Frostbite most commonly occurs at the body's extremities (e.g., fingers and toes) and on exposed skin (e.g., nose and ears). Symptoms of frostbite include white or grayish skin color, a feeling of pain in the early stages, often the affected area feels cold and numb. Treatment should include removing the affected person to a warm place, sheltered from the wind or rain, and allowing the affected area to thaw. Professional medical treatment should be sought for moderate or severe cases of frostbite.

9.0 ACCESS TO ELEVATED LOCATIONS

9.1 Power Man Lifts

9.1.1 Safe Lift Procedures

- Lift should be visually inspected by a designated Competent Person prior to each use. Only use a lift in good working condition.
- Prior to operating lift look at surroundings for electrical lines, trees, pipes, or structural protrusions that the lift bucket or arm could come in contact with and endanger occupants.
- Operator should be trained by a qualified person on the equipment being used.
- Equipment should only be moved with the lift in the retracted or grounded position unless the equipment was specifically designed for that type of operation ("Snooper Truck or Reach-all").
- Brakes should always be set to lock equipment in place prior to extending boom.
- Occupants should be secured to the basket with a body harness and lanyard at all times.
- Workers should remain within the confines of the lift at all times.

9.2 Ladders

The use of ladders to collect samples from elevated locations presents a unique physical hazard. WSP personnel should follow the following procedures prior to utilizing a ladder to reach elevated sample locations.

9.2.1 General Ladder Safety

- Inspect ladders and climbing devices to confirm it is good working condition. Ladders with structural defects including loose or missing parts must be rep[laced. No handmade ladders shall be used.
- The duty rating of the ladder must be greater that the total weight of the climber and tools.
- The length of the ladder should be sufficient so that the user does not have to stand on the top step.
- Ladders must have non-conductive side rails if there is a potential to contact energized electrical lines or equipment.
- Portable ladders should be placed on a substantial base. Ladders must not be used on slippery surfaces unless slip resistant feet are used and the ladder is secured by lashing or holding.
- When ascending or descending the ladder the worker must face the ladder, keep center of gravity between the rails, maintain three points of contact (one hand and both feet or two hands and one foot), not carry any object that could cause him/her to lose balance and/or fall.
- Do not overreach or lean while working.
- Only one person on a ladder at a time.
- Never attempt to move or shift a ladder while standing on it.

9.2.2 Extension Ladders

- Because extension ladders are not self-supporting only lean them against a stable structure that can withstand the load.
- Before starting work, survey the area for energized power lines.
- Set the ladder at the proper angle. When a ladder is leaned against a surface, the bottom of the ladder should be one quarter of the ladders working length away from the wall.

- To access elevated surfaces, extend the ladder three feet above that surface or secure the ladder at its top.

9.2.3 Step Ladders

- Only put ladders on a stable level surface that is not slippery.
- Lock ladder spreaders.
- Use ladders for the purpose for which they were designed. Do not use a folded stepladder as a single ladder.
- Never use the top 2 steps or cap as a step.
- Never use the cross bracing on the back of a ladder for climbing.

10.0 MEDICAL REQUIREMENTS

10.1 Health Monitoring

WSP provides annual medical surveillance programs for employees who have risk of exposure to environmental waste products. WSP personnel on-site during the subject project shall be active in WSP's medical surveillance program. This program is based on recommendations within the NIOSH/OSHA/USCG/EPA Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities and includes the following areas of concern:

1. Occupational History
2. Medical History
3. Physical Examination
4. Ophthalmology Assessment
5. Audiometry
6. Chest X-Ray
7. Electrocardiogram
8. Blood and Urine Screening

9. Pulmonary Function Test

10.2 Site Specific Requirements

Due to the nature of the substances used or stored at the subject site, no specific medical monitoring of personnel will be required while the abatement activities are being conducted. However, if a worker suffers a chemical exposure, or experience symptoms indicating that such an exposure may have occurred, then that worker will be checked by a physician to determine if he/she has suffered any adverse health effects as a result of this exposure.

11.0 ON-SITE EMERGENCIES

11.1 Emergency Procedures

11.1.1 Emergency Situation

Site activities present a potential risk to on-site personnel. During routine operations, a risk is minimized by establishing good work practices, staying alert, and using proper personal protective equipment. Unpredictable events such as physical injury, chemical exposure, or fires may occur and must be anticipated. If an emergency occurs these procedures should be followed:

- In the event that any on-site personnel experiences adverse effects or symptoms of exposure while on the scene, WSP personnel shall immediately halt work and act according to the instructions provided by the Site Health and Safety Officer;
- The discovery of a condition that would suggest the existence of a situation more hazardous than anticipated, should result in the evacuation of WSP personnel, followed by re-evaluation of the hazard and the level of personal protection required;
- In the event of an incident, the Project Manager and the Site Health and Safety Officer shall prepare a memorandum detailing all aspects of the incident. Follow-up action must be taken to correct the situation that caused the incident.

11.1.2 Project Telephone

The nearest telephone to the project site is the cellar phone located on WSP's onsite Health and Safety officer.

11.1.3 Emergency Communications

The "buddy system" will be enforced for field activities involving potential exposure to hazardous or toxic materials, and within the work zone. Each person will observe their partner for symptoms of chemical over exposures or heat stress and provide emergency assistance when warranted.

Emergency Signals: The following emergency signals shall be used:

- Grasping throat with hand — Emergency - help me
- Thumbs up — OK; understood
- Grasping buddy's wrist — Leave site now.

11.1.4 Emergency Organizations

A list of the organizations whose assistance might be required to deal with an on-site emergency is provided, along with their address, telephone number, and a point of contact (if relevant).

- Ambulance Service - 911
- Fire Department - 911
- Police Department - 911
- WSP Nashville, Bertisabel Custer - (615) 429-1261
- WSP Nashville. Kimberly Barton – (225) 221-1931

It may be necessary to coordinate activities with these organizations prior to beginning project operations.

11.1.5 Emergency Evacuation

If an emergency arises which requires personnel to evacuate the project site, personnel shall leave in an upwind direction to a point where safe deliberation can be made of how to respond to the emergency situation.

11.1.6 Emergency Equipment

A 5-pound fire extinguisher shall be readily available at the project site, capable of extinguishing class A-B-C fires. On-site personnel shall be familiar with its proper use.

A first-aid kit will also be available on-site, in the event a worker suffers a physical injury. On-site personnel certified in first aid can administer treatment to an injured worker.

11.2 Emergency Medical Care

11.2.1 Local Hospital

The closest hospital is the **Christiana Middle Hospital** located at **4675 Shelbyville Pike, Christiana, Tennessee 37037**. The telephone number for the hospital is **(615) 904-3885**. This hospital is located approximately 10 miles west of the work site with a travel time of approximately 17 minutes by car. A map showing the location of and direction to the nearest hospital is presented in **Appendix 4A.**

11.2.2 Medical Clinic

Injuries that are not serious will be treated at **MMC Now Family Walk-in Clinic** located at **3626 Shelbyville Pike, Murfreesboro, Tennessee 37128.** The telephone number for the clinic is **(615) 867-8002**. This clinic is located approximately 8 miles northwest of the work site with a travel time of approximately 11 minutes by car. A map from the work site and directions to the nearest clinic are presented in **Appendix 4B**.

11.2.3 Emergency Drills

The Site Health and Safety Officer may hold periodic emergency drills, to train on-site personnel in the correct procedures to follow in the event of an emergency. Special emphasis will be placed on the proper response to a fire or chemical exposure injury.

12.0 SUMMARY

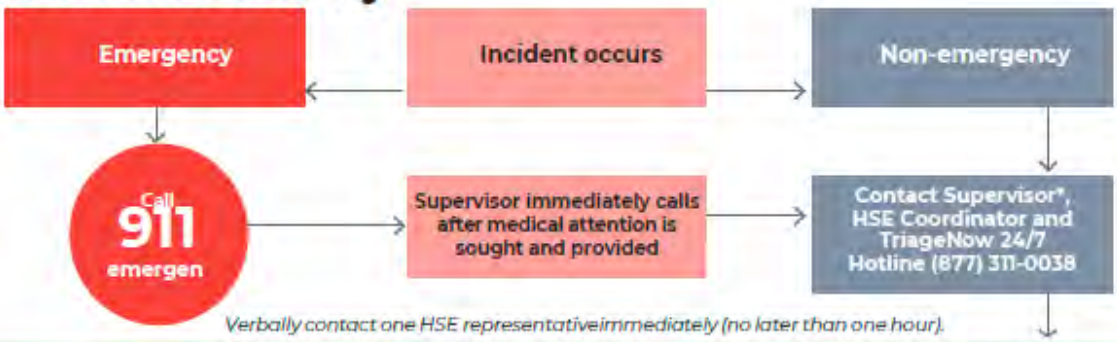
WSP personnel involved with the scope of work for the subject project shall be familiar with the possible hazards involved, the safety procedures, and other inherent factors outlined in this plan. Prior to the commencement of work on the project, the Project Manager and the Site Health and Safety Officer should discuss general procedures to be implemented, addressing local safety and health requirements and any site-specific conditions that may require additional precautions.

APPENDIX 1
Safety Data Sheets

APPENDIX 2
Incident Reporting

Incident flow chart

Call immediately



Name/E-Mail	Region	Contact Information
US		
Cindy Sundquist cynthia.sundquist@wsp.com	US	207.650.7593 (cell)
Tiana Rasmussen tiana.rasmussen@wsp.com	Mountain & Central Gulf Coast Regions, West US	480.432.6644 (cell)
Mike Larson michael.larson@wsp.com	Pacific Region, West US	719.502.7921 (cell)
Kirby Lastinger kirby.lastinger@wsp.com	Southeast Region, US East	863.272.4775 (cell)
Michele Barnhart michele.Barnhart@wsp.com	Central Region, US East	919.491.7710 (cell)
Jeff Tweeddale jeff.tweeddale@wsp.com	Northeast Region, US East	860.805.5883 (cell)
Remediation		
Greg Ertel gregory.ertel@wsp.com	Rochester, NY	585.465.0557 (cell)
E&I		
Karla St. John karla.stjohn@wsp.com	Minneapolis, MN	612.750.1341 (cell)
Vlad Ivensky vladimir.ivensky@wsp.com	Blue Bell, PA	267.736.0631 (cell)

High potential near misses, unsafe work refusals, workplace violence/harassment and security incidents, subcontractor incidents,regulatory inspections, spills, and property damage should be reported immediately to one of the above HSE Representatives. *The Supervisor is responsible for Local/Client Notifications, Drug/Alcohol Testing coordination as per client and WSP E&I requirements. submitting iSMS report and completing Initial IAR within 24 hours and forwarding to HSE Team.

Download iSMS Mobile App. Open the app, enter iSMS URL: **zeroharm.onepb.net**

Get it on Google Play | **Download on the App Store**

APPENDIX 3
Advance Warning Sign Placement

APPENDIX 4A
Hospital Route

APPENDIX 4B
Clinic Route