



# LEAD-BASED PAINT INVESTIGATION REPORT

BRIDGE REMNANTS ON LAKE MARION  
CLARENDON & ORANGEBURG COUNTIES, SOUTH CAROLINA

## PREPARED FOR:

The logo for TRANSYSTEMS. The word 'TRANSYSTEMS' is in a bold, blue, sans-serif font. The letter 'A' is stylized with a blue triangle pointing upwards from its center.

C/O Mr. Peter Strub  
Sr. Vice President/Principal  
1859 Summerville Avenue, Suite 600  
Charleston, SC 29405

## PREPARED BY:

F&ME Consultants, Inc.  
211 Business Park Blvd.  
Columbia, South Carolina 29203

**August 18, 2023**

Yes, LBP was found.  
 No, LBP was not found.

FME Project No.: G6744.000

## TABLE OF CONTENTS

1.	Executive Summary.....	1
2.	Lead-Based Paint Background Information.....	3
3.	Introduction.....	3
4.	Investigation Procedures and Results.....	3
5.	Recommemndations.....	4
	APPENDICES.....	5

Appendix A – Site Vicinity Map

Appendix B – General Bridge Plans

Appendix C – XRF Data

Appendix D - Site Photographs

Appendix E – EPA LBP Inspector Certification



# 1 EXECUTIVE SUMMARY

This executive summary is intended as an overview for the convenience of the reader. This report should be reviewed in its entirety prior to making any decisions regarding this project. This investigation report is one of seven (7) completed for the project. The investigations included the existing north and southbound I-95 bridge structures, the former US 301/15 Trail Bridges, and the older remnants of the US 301 bridge. The below Bridge numbering system utilized for the investigations and referenced in this report reflects the numbering system developed by F&ME Consultants, Inc. (FME) field personnel during the field investigation and does not reflect any Bridge numbering system used by The South Carolina Department of Transportation (SCDOT). This report is specifically for the Bridge Remnants only. Refer to other reports prepared by FME for the other bridges.

F&ME Consultants, Inc. (FME) has completed a Lead-Based Paint (LBP) investigation the existing three (3) sections of the Bridge Remnants on Lake Marion (Bridge #7) in Clarendon and Orangeburg Counties in South Carolina, at the request of Transystems (Client). The purpose of the investigation was to locate, identify and test components of the Bridge that are painted or coated with LBP. The field investigations were performed on July 19, 2023, in anticipation of the complete demolition of the Bridge Remnants. Refer to Appendix A, Site Vicinity Map is provided to show the location of the Bridge. Appendix B, General Bridge Plans, is provided to show the layout of the Bridge Remnants.

Per an agreed upon scope of work, this LBP Investigation was conducted to identify accessible Bridge components that have been painted or coated with lead-containing materials that have concentrations greater than or equal ( $\geq$ ) to the regulatory limit of 0.7 mg/cm<sup>2</sup>. This investigation includes both a visual evaluation of the physical condition of painted materials as well as quantitative testing of surfaces using an X-Ray Fluorescence (XRF) LBP analyzer. The XRF documents the concentration of lead, if any, in the overall paint or coating. Bridge components were scanned with a Viken XRF analyzer (Model # Pb200i, Serial #1888, Reference Date: 11/01/22) with a limit of detection (LOD) of 0.1 mg/cm<sup>2</sup>.

LBP is regulated by multiple government agencies, and each requires different response actions when the concentration of lead exceeds specified thresholds. The Occupational Safety and Health Administration (OSHA) regulates worker exposure to lead dust, and as a result considers materials with any lead content to be a potential hazard. Additionally, South Carolina Department of Health and Environmental Control (SCDHEC) requires some waste materials to be disposed of at specific disposal facilities that are able to manage this waste.

The results from the XRF quantitative testing of the bridge components indicate that lead is not present in paint and/or coatings in concentrations greater than or equal to ( $\geq$ ) 0.7 mg/cm<sup>2</sup> in the bridge components scanned during this LBP investigation.



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

Sincerely,

F&ME CONSULTANTS



**Michael S. Mincey**

SC Lead Based Paint Inspector

EPA Certification No. LBP-I-1198708-2 (Exp. 2/21/25)



**Glynn M. Ellen**

Environmental Department Manager



## 2 LEAD-BASED PAINT BACKGROUND INFORMATION

Housing and Urban Development (HUD) defines “LBP” as any coating that has a lead concentration of 1.0 milligrams of lead per square centimeter (1.0 mg/cm<sup>2</sup>) or greater, or if the lead concentration is greater than one half of a percent (> 0.5%) by weight. The Consumer Product Safety Commission (CPSC) currently considers paint to be lead-containing if the concentration of lead exceeds 90 ppm (0.009% by weight). In 1978, the CPSC banned the sale of LBP to consumers, and banned its application in areas where consumers have direct access to painted surfaces. Both the CPSC and HUD definitions of lead-containing paint are aimed at protecting the general population from exposure to lead in residential settings.

In contrast, the mission of OSHA with respect to lead-containing paint is to protect workers during construction activities that may generate elevated airborne lead concentrations. OSHA states that construction work (including renovation, maintenance, and demolition) carried-out on structures coated with paint having lead concentrations lower than the HUD or CPSC can still result in airborne lead concentrations in excess of regulatory limits. For this reason, OSHA has not defined lead-containing paint, but states that paint having any measurable level of lead may pose a substantial exposure hazard during construction work, depending upon the work performed. Therefore, in these situations, OSHA guidelines and safety procedures should be followed. By OSHA standards and regulations, the employer shall ensure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air (50 ug/m<sup>3</sup>) averaged over an 8-hour period.

Additionally, SCDHEC requires the use of specific waste disposal sites if materials contain lead concentrations greater than or equal to ( $\geq$ ) 0.7 mg/cm<sup>2</sup>. Due to the anticipated demolition of the Bridge structures, the SCDHEC lead disposal requirements were used as a threshold.

## 3 INTRODUCTION

The bridge remnants that are believed to be the old US 301 (Bridge #7) consist of three (3) separate sections of the original Bridge that remain out in the water alongside the US 15/ 301 Trail Bridge. Each remaining section consisted of a two (2) Bridge spans. These sections were constructed with PIP concrete decking, curb/gutter system, guardrails, beams, diaphragms, bent caps and piers. Each section was noted to have an asphalt overlay and metal drainage scuppers. Advertising signage was mounted on one section that remains. Refer to Appendix A, Site Vicinity Map, for the

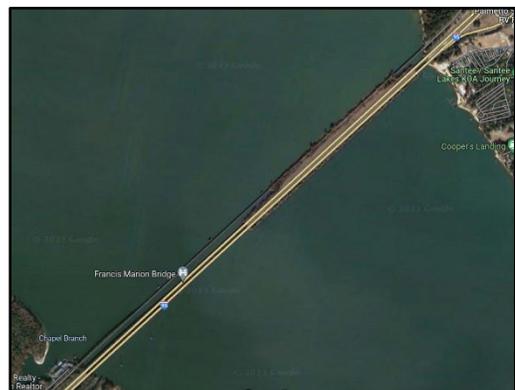


Photo 1 – Northbound I-95 over Lake Marion Overflow Bridge in Clarendon & Orangeburg Counties, SC.

location of the Bridges. Appendix B, Sample Location Plan, for a layout of the samples taken from each Bridge.

## 4 INVESTIGATION PROCEDURES AND RESULTS

FME's LBP Investigation sampling protocol consisted of randomly selecting bridge components and scanning them with a Viken X-Ray Fluorescence (XRF) Portable Analyzer (Model # Pb200i, Serial #1888).

The results from the XRF quantitative testing of the bridge components indicate that lead is not present in paint and/or coatings in concentrations greater than or equal to ( $\geq$ ) 0.7 mg/cm<sup>2</sup> in the bridge components scanned during this LBP investigation.

## 5 RECOMMENDATIONS

The results from the XRF quantitative testing of the bridge components indicate that lead is not present in paint and/or coatings in concentrations greater than or equal to ( $\geq$ ) 0.7 mg/cm<sup>2</sup> in the bridge components scanned during this LBP investigation.

During the bridge demolition activities, some painted surfaces may be uncovered. If painted bridge components are uncovered, testing should be conducted if they contain levels of lead  $\geq$  0.7 mg/cm<sup>2</sup>. If found to be lead containing, the coated/painted components will need to be handled and disposed of properly. Proper handling includes the avoidance of creating lead dust, as well as the creation of lead-contaminated soil hazards. Activities that would generate lead dust include abrasion, scraping, or sanding. As previously stated, OSHA has not defined lead-containing paint, but states that paint having any measurable level of lead may pose a substantial exposure hazard during construction work, depending upon the work performed. In these cases, OSHA regulations and procedures should be followed to protect the personnel carrying out the work on a bridge component containing any amount of lead.

If any hidden and/or inaccessible materials suspected or known to contain lead-based paint are encountered during any bridge demolition activities, the persons involved are advised to stop work, follow proper regulatory precautions and procedures, and notify FME for an immediate response action.

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



## APPENDICES

Appendix A – Site Vicinity Map

Appendix B – General Bridge Plans

Appendix C – XRF Data

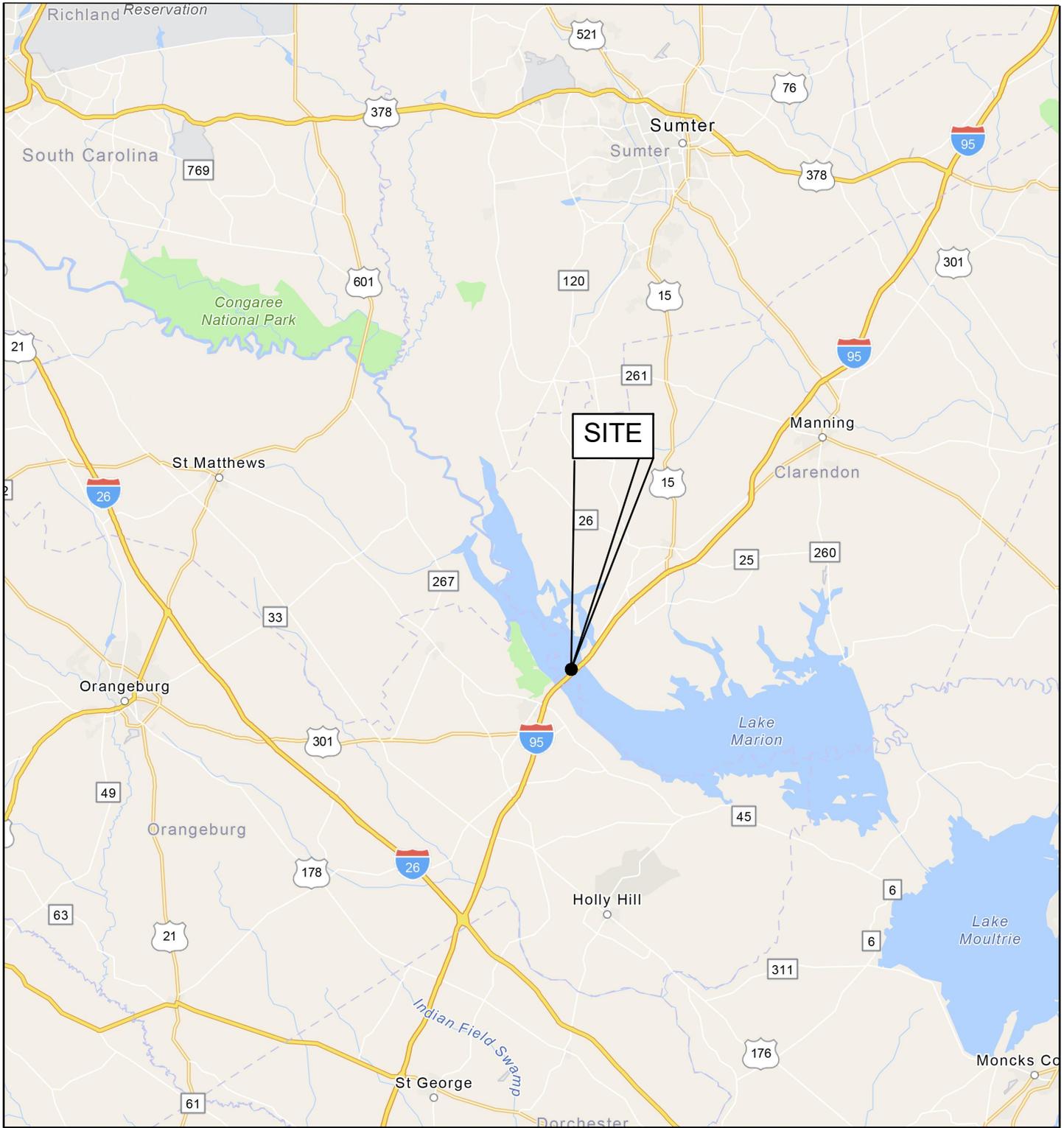
Appendix D - Site Photographs

Appendix E – EPA LBP Inspector Certification

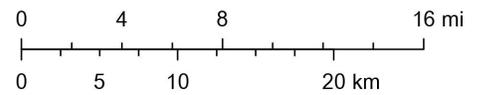


## Appendix A

### Site Vicinity Map



1:577,791



<p>FIGURE NUMBER:  1</p>	<p>F&amp;ME CONSULTANTS PROJECT NUMBER:  G6744.000</p>	<p>LEAD-BASED PAINT INVESTIGATION          Bridge Remnants on Lake Marion          Clarendon &amp; Orangeburg Counties, South Carolina  <u>SITE VICINITY MAP</u>          Prepared for:          Transystems          1859 Summerville Ave., Suite 600          Charleston, SC 29405</p>	 <p>211 BUSINESS PARK BLVD.          COLUMBIA, SC 29203</p>	<p>ORIGINAL:          August 11, 2023</p> <p>REVISIONS:          1 _____          2 _____          3 _____</p> <p>SCALE:          Shown</p>	<p>DRWN. BY: MSM          CHKD. BY: MSM          APPR. BY: GME</p> <p>NOTES:          _____          _____          _____</p>
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## Appendix B

### General Bridge Plans



US 301 Bridge Remnant (Bridge #7)

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Match Line

Match Line

**F&ME** CONSULTANTS, INC.  
COLUMBIA, SC  
CONSULTANTS

BRIDGE REMNANTS ON LAKE MARION  
CLARENDON & ORANGEBURG COUNTIES, SOUTH CAROLINA

GENERAL BRIDGE PLAN

F&ME JOB NO. G6744.000

SCALE: N.T.S.

FIGURE 2

4			
3			
2			
1			
REV.	BY	DATE	DESCRIPTION OF REVISION
TOPO.		DATE	
DWG.	MSM	DATE 08/11/2023	GROUP ____ - ____
R/W		DATE	



US 301 Bridge Remnant (Bridge #7)

Ⓓ

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Ⓐ

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Match Line

Match Line

**F&ME** CONSULTANTS, INC.  
CONSULTANTS COLUMBIA, SC

BRIDGE REMNANTS ON LAKE MARION  
CLARENDON & ORANGEBURG COUNTIES, SOUTH CAROLINA

GENERAL BRIDGE PLAN

F&ME JOB NO. G6744.000

SCALE: N.T.S.

FIGURE 3

4			
3			
2			
1			
REV.	BY	DATE	DESCRIPTION OF REVISION
TOPO.		DATE	
DWG.	MSM	DATE 08/11/2023	GROUP ____ - ____
R/W		DATE	



US 301 Bridge Remnant (Bridge #7)

D

B

C

A

Match Line

Match Line



F&ME CONSULTANTS, INC.  
COLUMBIA, SC

BRIDGE REMNANTS ON LAKE MARION  
CLARENDON & ORANGEBURG COUNTIES, SOUTH CAROLINA

GENERAL BRIDGE PLAN

F&ME JOB NO. G6744.000

SCALE: N.T.S.

FIGURE 4

4			
3			
2			
1			
REV.	BY	DATE	DESCRIPTION OF REVISION
TOPO.		DATE	
DWG.	MSM	DATE 08/11/2023	GROUP ____ - ____
R/W		DATE	

## Appendix C

### XRF Data

**Appendix C – XRF Data**  
**Date Scanned: 07/19 - 21/2023**  
**Bridge Remnants on Lake Marion**

Scan No.	Pbc (mg/cm <sup>2</sup> )	Component	Substrate	Side	Condition	Color
<b>Bridge #7 (Bridge Remnants on Lake Marion) 07/21/2023</b>						
1	0.93	Calibrate				
2	0.91	Calibrate				
3	0.94	Calibrate				
4	<LOD	Sign Bottom Plate	Metal	Center	Intact	Gray
5	<LOD	Sign Bottom Plate	Metal	Center	Intact	Gray
6	<LOD	Sign Bottom Plate	Metal	Center	Intact	Gray
7	0.81	Calibrate				
8	0.87	Calibrate				
9	0.93	Calibrate				

LOD (Limit of Detection) = 0.1 mg/cm<sup>2</sup>

Blue text indicates any concentrations of LBP which OSHA considers a potential exposure risk when removed.

Red text indicates concentrations of LBP that have specific disposal requirements regulated by SCDHEC.

Side A = North, then go clockwise.

## Appendix D

### Site Photographs



**Photo 1.** Top View of Bridges.



**Photo 2.** Bridge Remnant on West Side of US 301/15 Trail Bridge over Lake Marion.



**Photo 3.** Top View of Deck of Bridge Remnant.



**Photo 4.** Galvanized Metal Sign Attached to Top of Deck on Bridge Remnant.



**Photo 5.** Galvanized Metal Sign Anchor Plates on Underside of Bridge Remnant.



## Appendix E

### EPA LBP Inspector Certification

# United States Environmental Protection Agency

This is to certify that



Michael S Mincey

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Inspector

## In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires February 21, 2025

LBP-I-1198708-2

Certification #

January 05, 2022

Issued On



A handwritten signature in black ink, appearing to read 'Adrienne Priselac'.

Adrienne Priselac, Manager, Toxics Office

Land Division