



LEAD-BASED PAINT INVESTIGATION REPORT

S-38-191 (MIDDLE WILLOW RD.) BRIDGE OVER
ROBERTS SWAMP
ORANGEBURG COUNTY, SOUTH CAROLINA
PROJECT ID# PO44269

PREPARED FOR:



c/o Mr. Trapp Harris, PE
SCDOT
955 Park Street
Columbia, SC 29201

PREPARED BY:

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

January 22, 2025

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

FME Project No.: G7100.009

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1. EXECUTIVE SUMMARY

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

F&ME Consultants, Inc. (FME) has completed a Lead-Based Paint (LBP) investigation of the S-38-191 (Middle Willow Road) Bridge over Roberts Swamp (Bridge), in Orangeburg County, South Carolina at the request of the South Carolina Department of Transportation (SCDOT) (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 investigation was performed on January 14, 2025, in anticipation of the on-alignment replacement of the existing Bridge. Appendix A, Site Vicinity Map, is provided to show the location of the Bridge. Appendix B, General Bridge Plan, is also provided at the end of this report.

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 milligrams per square centimeter (mg/cm^2). This investigation includes both a visual evaluation of the physical condition of painted materials as well as quantitative testing of surfaces using an XRF LBP analyzer. The XRF documents the concentration of lead, if any, in the overall paint or coating. Bridge components were scanned with a SciAps XRF analyzer (Model # X550 Pb, Serial #03033, Reference Date: 9/12/24) with a limit of detection (LOD) of $0.1 \text{ mg}/\text{cm}^2$.

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, the South Carolina Department of Environmental Services (SCDES) requires some waste materials to be disposed of at specific disposal facilities that are able to manage this waste.

At the time of the LBP investigation of the Bridge, there were no noted accessible bridge components that were painted or coated with paint to scan with the XRF analyzer. Refer to Appendix C, Site Photos, for pictures of the Bridge. Appendix D includes the inspector's EPA lead-based paint inspector certification.

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,

FME CONSULTANTS



Jeffrey S. Leary

SC Lead-Based Paint Inspector

EPA Certification No. LBP-I-18721-3 (Exp. 7/29/27)



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^2) 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 parts per million (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^3) averaged over an 8-hour period.

Additionally, SCDES requires the use of specific waste disposal sites if materials contain lead concentrations greater than or equal to (\geq) 0.7 mg/cm^2 . Due to the anticipated demolition of the structure, the SCDES lead disposal requirements were used as a threshold.

3. INTRODUCTION

The existing Bridge (21.0' L x \approx 24.0' W inside curb to inside curb) is located on S-38-191 (Middle Willow Rd.) and crosses over Roberts Swamp in Orangeburg County, South Carolina. The construction date of the Bridge is unknown. The Bridge structure consists of a two (2) cell poured-in-place (PIP) concrete box culvert, concrete wing walls, and a two-lane asphalt overlay. The roadway has been washed out on each end of the Bridge during the recent flooding from Hurricane Helene in September 2024. In addition, a buried utility cable was exposed on the southern side of the Bridge. Refer to Appendix A, Site Vicinity Map, for the location of the structure.



Photo 1: S-38-191 (Middle Willow Rd.) Bridge over Roberts Swamp in Orangeburg County, South Carolina.

4. INVESTIGATION PROCEDURES AND RESULTS

The Bridge was recently damaged during Hurricane Helene in September 2024. The soils on the approach to both sides of the Bridge were washed out during recent flooding. FME's LBP Investigation sampling protocol consisted of randomly selecting Bridge components and scanning them with a Sci-Aps X-Ray Fluorescence (XRF) Portable Analyzer (Model # X550 Pb, Serial #03033). However, no accessible painted or coated bridge components were identified to scan with the XRF analyzer for lead. Refer to Appendix C, Site Photos, for typical views of the Bridge. Appendix D includes the inspector's EPA lead-based paint inspector certification.

5. RECOMMENDATIONS

The results, conclusions, and recommendations from this investigation are representative of the conditions observed at the site on the date of the field investigation. FME does not assume responsibility for any changes in conditions or circumstances that occur after the date of the field investigation. No other environmental issues were addressed as part of this report.

As previously stated, at the time of the LBP investigation, no accessible painted or coated bridge components were found to scan with the XRF analyzer for lead. If any concealed and/or inaccessible suspect LBP are encountered during the Bridge rehabilitation activities, the affected contractor(s) must stop work, take appropriate actions, and notify the Owner/LBP Consultant for an appropriate response action.

As stated previously, OSHA regulates any measurable level of lead, as it may pose a substantial exposure hazard to workers. Therefore, in these situations, OSHA regulations and safety procedures should be followed. These regulations also list the proper personal protective equipment to be used by the workers disturbing the LBP items and the requirements for personal air monitoring. OSHA's exposure action level (AL) for lead, regardless of respirator use, is an airborne concentration of micrograms per cubic meter ($50 \mu\text{g}/\text{cm}^3$), averaged over an eight-hour period. The action level (AL) is the level at which an employer must begin specific compliance activities as outlined in OSHA's lead standards. By OSHA standards and regulations, the employer shall ensure that no employee is exposed to lead at concentrations greater than fifty of air $50 \mu\text{g}/\text{m}^3$ averaged over an 8-hour period which is the permissible exposure level (PEL).

SCDES regulates the proper disposal of LBP and associated debris. SCDES defines two types of LBP debris. The first is LBP *waste*, which is defined as material such as wood, brick, and metal that is painted with LBP. The other is LBP *residue* which is defined as residue that is generated from the removal (e.g., scraped, chipped, sandblasted, or chemical) of LBP from a structure. LBP *waste* that comes from a commercial or residential facility may be disposed of in either a Class 2 or 3 landfill, while LBP *residue* from a commercial facility must have a toxicity characteristic leaching procedure (TCLP) analysis to determine the lead content. TCLP analysis is used to determine whether a waste

is a characteristic hazardous waste due to leachability under the South Carolina Hazardous Waste Management Regulations. LBP *residue* with a TCLP analysis results greater than or equal to five milligrams per liter (≥ 5 mg/l) lead must be disposed of in a Subtitle C landfill (Hazardous Waste). However, LBP *residue* from a commercial facility with a TCLP analysis results less than five milligrams per liter (< 5 mg/l) lead is required to be disposed of in a Class 3 landfill.

We sincerely appreciate the opportunity to be of service to SCDOT 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

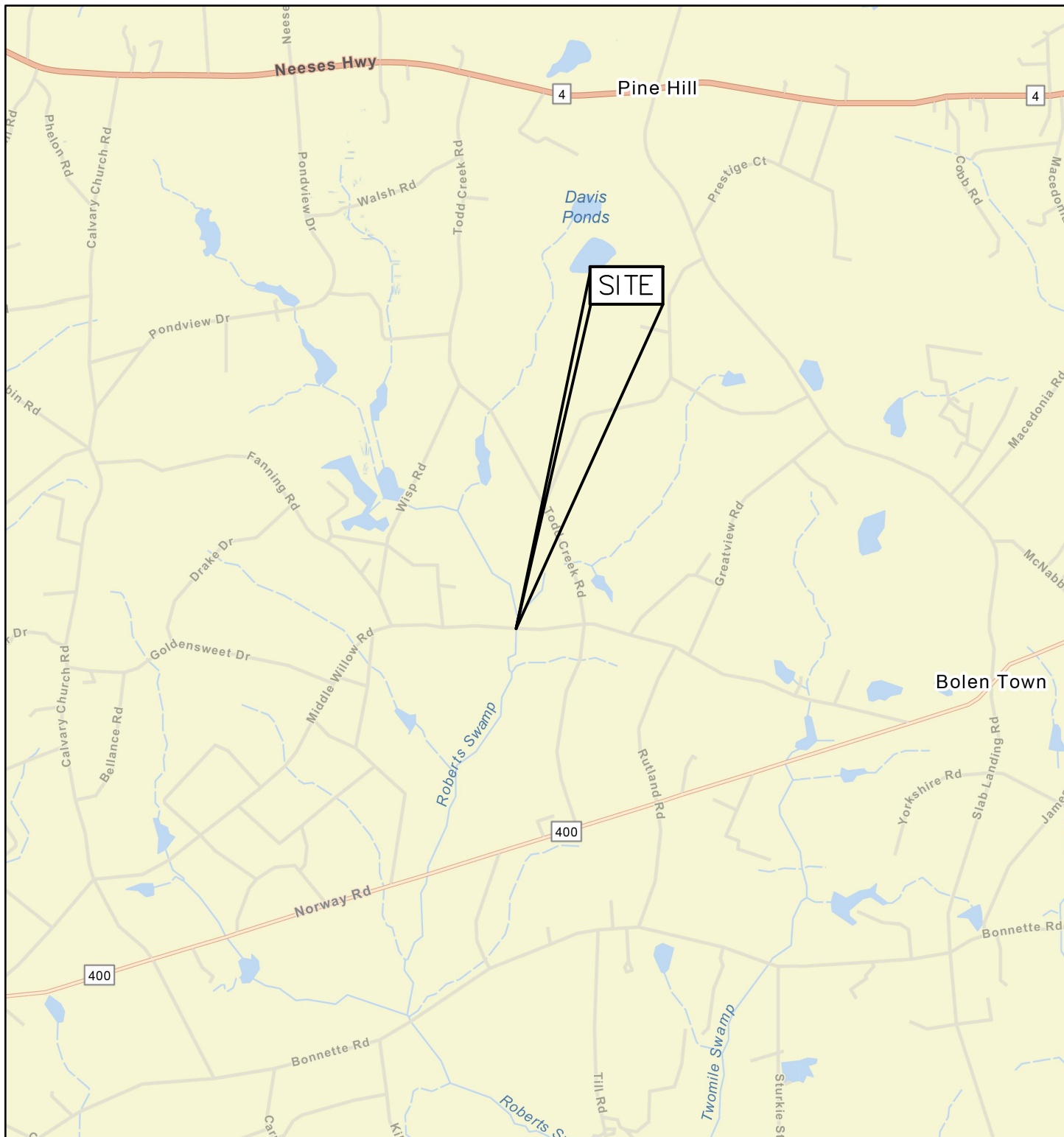
Appendix B – General Bridge Plan

Appendix C – Site Photos

Appendix D – EPA LBP Inspector Certification

Appendix A

Site Vicinity Map



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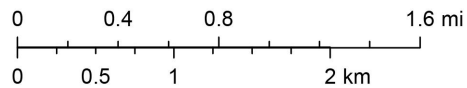


FIGURE
NUMBER:

1

F&ME CONSULTANTS
PROJECT NUMBER:

G67100.009

LEAD-BASED PAINT INVESTIGATION
S-38-191 Bridge over Roberts Swamp
Orangeburg County, SC
Site Vicinity Map
Prepared for: SCDOT
955 Park Street
Columbia, SC 29201



211 BUSINESS PARK BLVD.
COLUMBIA, SC 29203

ORIGINAL:
January 15, 2025

REVISIONS:

1
2
3

SCALE:
AS SHOWN

DRWN. BY: MSM
CHKD. BY: JSL
APPR. BY: GME

NOTES:

Appendix B

General Bridge Plan

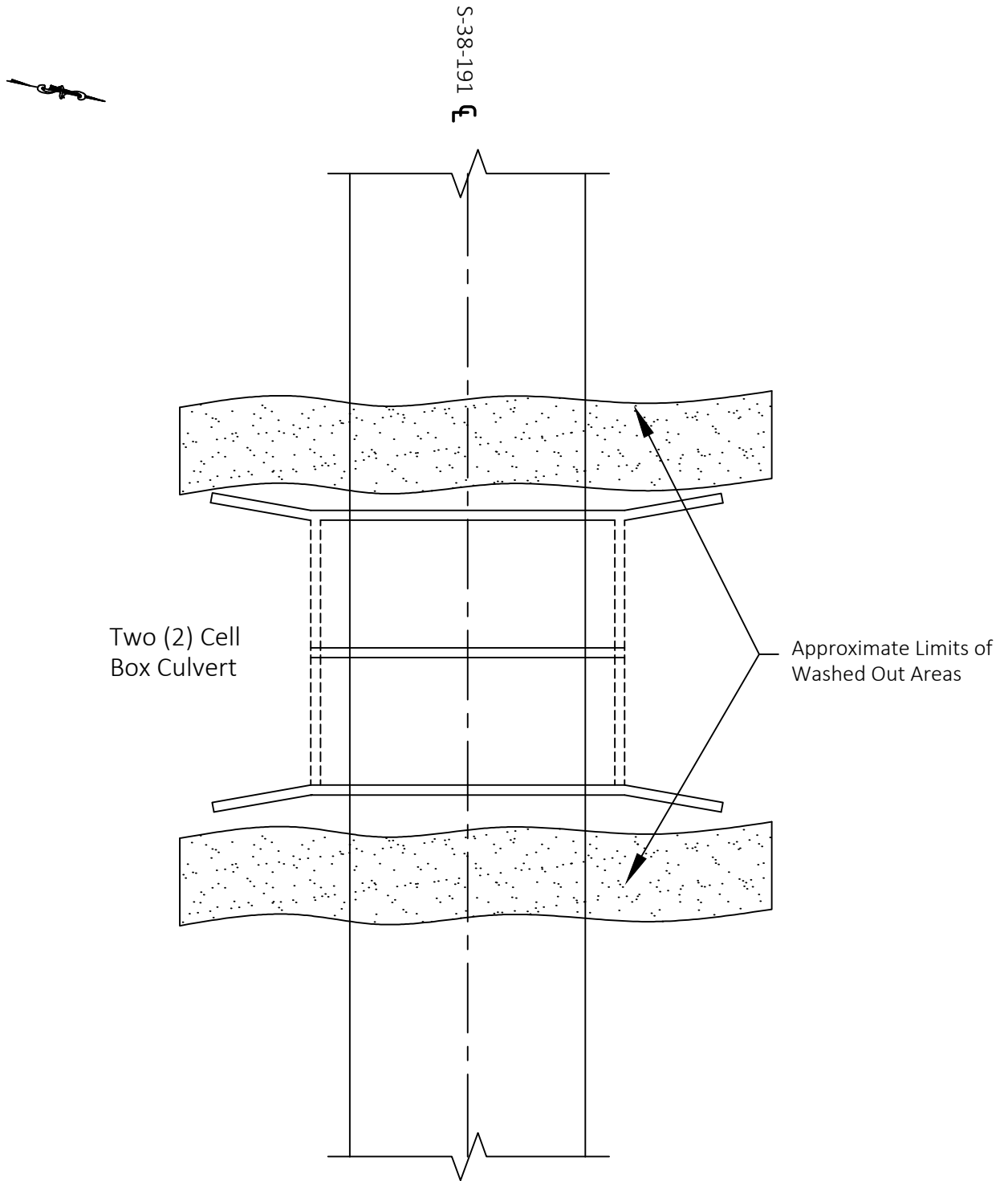


FIGURE
NUMBER:

2

F&ME CONSULTANTS
PROJECT NUMBER:

G7100.009

LEAD-BASED PAINT INVESTIGATION
S-38-191 Bridge over Roberts Swamp
Orangeburg County, SC

General Bridge Plan
Prepared for: SCDOT
955 Park Street
Columbia, SC 29201



211 BUSINESS PARK BLVD.
COLUMBIA, SC 29203

ORIGINAL:
January 15, 2025

REVISIONS:

1 _____
2 _____
3 _____

SCALE:
N.T.S.

DRWN. BY: MSM
CHKD. BY: JSL
APPR. BY: GME

NOTES:

Appendix C

Site Photos



Photo 1. Eastern View of the Top of the Bridge.



Photo 2. Southeastern View of Bridge.



Photo 3. Exposed Utility Line on the Southern Side of the Bridge.



Photo 4. Northeastern View of Bridge.



Photo 5. Southeastern View of the Washout on the West Side of the Bridge and the Leaning Power Pole.



Photo 6. Northeastern View of Washout on the East side of the Bridge.



Appendix D

EPA LBP Inspector Certification

United States Environmental Protection Agency

This is to certify that



Jeffrey S Leary

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 July 29, 2027

LBP-I-18721-3

Certification #

March 15, 2024

Issued On



Adrienne Priselac, Manager, Toxics Office

Land Division