

**NESHAP ASBESTOS SURVEY REPORT AND
SCREENING FOR METALS-BASED COATINGS**

Florida Department of Transportation

District 1

State Road 710 from US 441 to the L-63 Canal

Okeechobee County, Florida

Financial Project Identification: 419344-3-32-01

ETDM Number: 11092

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016 and executed by FHWA and FDOT.

TIERRA

May 16, 2018

Wantman Group, Inc.
213 South Dillard St, Suite 210
Winter Garden, Florida 34787

Attn: Mr. Alfredo Rodriguez, P.E.
Project Manager

**RE: NESHAP Asbestos Survey Report and Screening for Metals-Based Coatings
SR 710 over Interceptor Canal L-63N (Bridge No. 910065)**

SR 710 from US 441 to the L-63 Canal
Okeechobee County, Florida
FPID: 419344-3-32-01
Tierra Project No.: 6511-12-054A

Mr. Rodriguez:

The purpose of this report is to present the results of an asbestos survey and screening for metals-based coatings performed in April 2018 at the above referenced project. We understand that this survey was requested due to the planned modification of these bridge structures.

- **Laboratory Polarized Light Microscopy (PLM) results indicated no Asbestos Containing Materials (ACMs) were identified from the samples collected. Please refer to the attached laboratory report for details.**
- **No bridge plans were available at the time of this survey.**
- **No Metals-Based Coatings (MBCs) were observed on the bridge structure.**

Tierra appreciates the opportunity to provide this service to Wantman Group, Inc. If you have any questions regarding this report, please contact our office at your earliest convenience.

Respectfully Submitted,

TIERRA, INC.



Sammy M. Awad
AHERA Asbestos Building Inspector
Environmental Scientist

Scott S. Crandall, P.E.
Florida Licensed Asbestos Consultant
License No. EA0000060

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EXECUTIVE SUMMARY

Tierra conducted a National Emission Standards for Hazardous Air Pollutants (NESHAP) asbestos survey and screening for Metals-Based Coatings (MBCs) of the following bridge structure located in Okeechobee County, Florida. It is our understanding that the Florida Department of Transportation (FDOT) is planning to modify the bridge structure.

- SR 710 over Interceptor Canal L-63N (Bridge No. 910065)

The purpose of the *survey* was to identify and sample suspect Asbestos Containing Materials (ACMs) and screen metal surfaces for suspected MBCs.

The purpose of this *report* is to provide information regarding the identity, location, condition and approximate quantities of these materials so that proper remediation and disposal methods can be evaluated.

The survey was conducted in April 2018 by an Asbestos Hazard Emergency Response Act (AHERA) accredited inspector in general accordance with the sampling protocols established in Environmental Protection Agency (EPA) 40 Code of Federal Regulations (CFR) 763. Twenty-four bulk samples were collected from eight homogeneous areas of suspect ACM from Bridge No. 910065.

- No ACMs were identified from the samples collected and analyzed by Polarized Light Microscopy (PLM). Please refer to the attached laboratory report for details.
- Bridge plans were not available during the time of this survey, therefore a review of bridge plans could not be conducted.
- Metal surfaces with suspected metals-based paints and/or protective coatings were not observed on the bridge structure during the survey.

A Project Location Map is included in **Appendix A**. A Photograph Log of homogenous areas is presented in **Appendix B**. Certifications and Licenses are included in **Appendix C**. The laboratory report is provided in **Appendix D**. The Sample Location Sketch is included in **Appendix E**.

This *Executive Summary* provides a brief overview of work activities completed in association with the proposed roadway improvement project. The reader should utilize the detailed information presented within this report for specific information regarding any area of particular interest.

1.0 INTRODUCTION

Tierra conducted an asbestos survey and screening for Metals-Based Coatings (MBCs) of the following bridge structure located in Okeechobee County:

- SR 710 over Interceptor Canal (Bridge No. 910065)

See **Appendix A** for Bridge Location Map and a Photograph Log in **Appendix B**.

The survey was conducted in April 2018 by Mr. Sammy Awad, an Asbestos Hazard and Emergency Response Act (AHERA) accredited asbestos inspector. The certification for Mr. Awad is provided in **Appendix C**. Suspect Asbestos Containing Material (ACM) samples were collected in general accordance with the sampling protocols outlined in Environmental Protection Agency (EPA) regulation 40 CFR 763. Samples were shipped under chain of custody to an accredited laboratory for analysis by Polarized Light Microscopy (PLM). The work described herein was performed under the direction of Mr. Scott Crandall, P.E., a Florida Licensed Asbestos Consultant (License No. EA0000060). A copy of Mr. Crandall's license is presented in **Appendix C**. The laboratory's accreditation certificates are provided in **Appendix C** and the laboratory results are provided in **Appendix D**.

1.1 Project Objective

We understand this asbestos survey was requested due to the planned modification of the existing bridge structure. EPA regulation 40 CFR 61, Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP), prohibits the release of asbestos fibers and other hazardous air pollutants to the atmosphere during renovation or demolition activities. The asbestos NESHAP requires that potentially regulated asbestos-containing building materials be identified, classified and quantified prior to planned disturbances or demolition activities.

2.0 BRIDGE DESCRIPTION

According to the Florida Department of Transportation's (FDOTs) Florida Bridge Information list (database) dated April 2018, SR 710 over Interceptor Canal L-63N (Bridge No. 910065) was originally constructed in 1972 with no renovations to date.

The SR 710 over Interceptor Canal L-63N (Bridge No. 910065) is 230 feet in length, consists of 5 spans, 3 middle bents and 2 end bents. It consists of two total lanes servicing eastbound and westbound traffic. It is constructed on concrete piles with concrete abutments at both ends supporting a cast in place concrete bridge deck. Concrete barrier walls are located along the sides. Bridge embankment control is achieved with sand cement rip-rap sloped stabilizing walls at both ends. Guardrails at the approaches are galvanized "W" channel steel on wood posts.

3.0 FIELD ACTIVITIES

The survey was conducted by Mr. Sammy Awad, an AHERA-accredited asbestos inspector. A copy of the asbestos inspector certificate is presented in **Appendix C**. The survey was conducted in general accordance with the sample collection protocols established in EPA regulation 40 CFR 763. A summary of the survey activities performed is provided below.

3.1 Visual Assessment

Our survey activities began with a visual observation of the structure to identify homogeneous areas of suspect ACM. A homogeneous material consists of building materials that appear similar throughout in terms of color, texture and date of application. Building materials identified as metal, glass, wood, masonry, metal or rubber were not considered suspect ACM. If surfaces are covered with protective coatings those materials are noted and sampled.

Neoprene bearing pads, metal bearing plates and PVC scuppers were observed during Tierra's visual assessment of the bridge.

A visual inspection of the bridge structure was performed to identify metal surfaces with possible MBCs (arsenic, cadmium, chromium, lead, mercury and zinc). No painted metal surfaces were observed. See photographs in **Appendix B**. Bearing plates, nuts, and bolts appeared to be galvanized.

3.2 Physical Assessment

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

3.3 Sample Collection

Based on results of the visual observation, bulk samples of suspect ACM were collected in general accordance with AHERA sampling protocols. Representative samples of suspect materials were collected from each homogeneous area. Tierra personnel collected bulk samples using wet methods to reduce the potential for fiber release. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker. A discussion of the suspect ACM samples collected during the survey is included in **Section 6.0**.

3.4 Sample Analysis

Bulk samples of ACM were submitted under chain of custody to EMSL Analytical, Inc. (EMSL) of Orlando, Florida for analysis by PLM with dispersion staining techniques per EPA methodology (40 CFR 763, Subpart F). The percentage of asbestos, where applicable, was determined by microscopic visual estimation. EMSL's accreditation number under the National Voluntary Laboratory Accreditation Program is 101151-0. See certificate in **Appendix C**.

The EPA and the Occupational Safety and Health Administration (OSHA) define asbestos containing material as any material which contains greater than one percent asbestos. When samples analyzed by PLM contain asbestos in amounts less than ten percent (<10%), a more exact method of analysis called point counting may be performed at the client's request. The EPA point count method allows a sample in which asbestos was visually detected, but which is visually estimated to have 10% or less asbestos, to be quantified using a point count procedure. If not point counted, a sample in which asbestos was visually detected and estimated (including trace to ≤1%) must be assumed to be greater than 1% and treated as an ACM. The EPA point counting procedure is as follows: an ocular reticule (cross hair or point array) is used to visually superimpose a point or points on the microscope field of view. A total of 400 points superimposed on either asbestos fibers or non-asbestos matrix material must be counted over at least eight different preparations of representative sub-samples. If an asbestos fiber and matrix particle overlap so that a point is superimposed on their visual intersection, a point is scored

for both categories. Point counting provides a quantification of the area percent asbestos. Per EPA's regulations, materials which have been point-counted and, therefore, quantitatively determined to have less than or equal to one percent ($\leq 1\%$) asbestos, can be treated as non-ACM. *No samples were point counted during this survey.*

4.0 PLAN REVIEW

- Bridge Plans were unavailable at the time of Tierra's bridge survey, therefore a review of bridge plans could not be conducted.

5.0 REGULATORY OVERVIEW

5.1 Asbestos Regulations

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

Category II non-friable ACM are any materials other than Category I materials that contain more than 1% asbestos.

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

In the State of Florida, asbestos activities are regulated by the Florida Department of Environmental Protection (FDEP). RACM must be removed prior to demolition activities which will disturb the ACM materials. The owner or operator must provide the FDEP with written notification of planned removal activities at least 10 working days prior to the commencement of asbestos abatement activities. Removal of RACM must be conducted by a State of Florida licensed asbestos abatement contractor.

The OSHA Asbestos standard for construction (29 CFR 1926.1101) regulates workplace exposure to asbestos. The OSHA standard requires that employee exposure to airborne asbestos fibers be maintained below 0.1 asbestos fibers per cubic centimeter of air (0.1 f/cc). The OSHA standard classifies construction and maintenance activities which could disturb ACM and specifies work practices and precautions which employers must follow when engaging in each class of regulated work.

5.2 Metals-Based Protective Coatings and Lead-Based Paint Regulations

Historically, metals such as arsenic, cadmium, chromium, lead, mercury and zinc were added to paints and other coatings as pigmentation and/or to improve performance, color and longevity. Specific regulations regarding lead-based paints have been developed by the EPA.

Lead-based paint is defined as a surface coating or paint containing lead in excess of 1.0 milligram per square centimeter (mg/cm²) or 0.5% by weight (EPA Toxic Substance Control Act, Section 401). 0.5% is equivalent to 5000 parts per million (ppm). Based on regulations contained in the Lead-Based Paint Poisoning Prevention Act (LBPPPA) and promulgated by the Consumer Product Safety Commission (CPSC), lead-based paint is defined as paint containing more than 0.06% lead as of June 1977. In 1978, the CPSC banned the sale of lead-based paint to consumers.

Under EPA regulations arsenic, cadmium, chromium, lead, mercury and zinc impacted wastes generated during abatement activities are handled as either a solid waste or a hazardous waste, depending on the amount and form of each of the metals.

If the maximum level of the contaminant in an extract of a representative sample of the waste stream proposed for disposal, as determined by a Toxicity Characteristic Leaching Procedure (TCLP) laboratory analysis (see *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, Test Method 1311, EPA Publication SW-846), is less than the regulatory level set in 40 CFR 261.24, then EPA regulations allow the material to be disposed of as solid waste at a solid waste landfill. If the TCLP analysis equals or exceeds the regulatory level, the material must be managed as a hazardous waste.

The EPA's maximum concentration regulatory levels, as listed in 40 CFR 261.24, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic are: arsenic 5.0 milligram per liter (mg/L), cadmium 1.0 mg/L, chromium 5.0 mg/L, lead 5.0 mg/L, and mercury 0.2 mg/L. Zinc is not listed in Table 1.

Impacted materials that are recycled, such as painted steel beams sent to a scrap metal yard, are not considered waste; therefore, they are exempt from waste disposal regulations, however other occupational exposure and recycling regulations may apply.

OSHA established the Lead Standard for the Construction Industry, 29 CFR 1926.62, which applies to all construction work where an employee may be exposed to lead. These exposures include demolition and salvage of structures where lead or material containing lead are present and removal or encapsulation of materials containing lead, as well as alterations and repairs including painting and decorating. The standard defines the occupationally permissible exposure limit and specific requirements for construction work with and in lead materials. OSHA does not have a percentage lead in paint action level in their current construction lead standard. OSHA regulations are driven by airborne lead exposure to workers. OSHA considers the lead regulation enforceable if the presence of *any* lead in paint at detectable concentrations is present when demolition or renovation activities are performed. Any abatement of the lead-based paint or cutting, sanding, and/or grinding of the structures painted with LBP should be performed in accordance with OSHA regulations. OSHA also has established exposure limit for other heavy metals including arsenic, cadmium and chromium. Demolition activities are regulated under the NESHAP statute for general dust control. Specifications for the proper work practices, controls and disposal should be developed to document compliance with all applicable regulations.

Galvanization is the process of submerging steel, iron, or alloys in molten zinc creating a chemical bond (metal bond) used to prevent rust. Galvanized materials are considered a metal-based coating, that contain significant levels of zinc based on the nature of galvanization. OSHA establishes permissible exposure limits for some zinc compounds such as zinc oxides and zinc chlorides. Work practices that may liberate zinc, including but not limited to, grinding, cutting, torching or welding, would be subject to OSHA worker protection rules.

6.0 FINDINGS

6.1 Asbestos

A total of twenty-four bulk samples from eight homogeneous areas of suspect ACM from were collected for laboratory analysis.

A Project Location Map is included in **Appendix A**. A photographic log showing homogenous areas is presented in **Appendix B**. Certifications and Licenses are included in **Appendix C**. The laboratory report of analytical results is included in **Appendix D**. The Sample Location Sketch is included in **Appendix E**.

A summary of the suspect ACMs identified is provided in the following table, along with the results from the laboratory PLM analysis. Approximate quantities identified in the following table were determined using the Google Earth measuring tool or field observations.

Table 1 – Summary of Suspected ACM

SR 710- over Interceptor Canal L-63N (Br. No. 910065)					
Homogeneous Sample Area	Sample No.	Material Description / Sample Location	Approx. Quantity	Lab Results % Asbestos	NESHAP Category
1	001B 002B 003B	Black bearing pad; between girder and end bent	90 ft ²	Not Detected	N/A
2	004B 005B 006B	Gray end bent concrete; end bents	480 ft ³	Not Detected	N/A
3	007B 008B 009B	Gray girder concrete; girders	11,040 ft ³	Not Detected	N/A
4	010T 011T 012T	Gray deck concrete; deck	9,200 ft ³	Not Detected	N/A
5	013S 014S 015S	Gray barrier wall concrete; barrier walls	1,380 ft ³	Not Detected	N/A
6	016T 017T 018T	Black reflector mastic; deck	20 ft ²	Not Detected	N/A
7	019B 020B 021B	Gray pile concrete, piles	960 ft ³	Not Detected	N/A
8	022T 023T 024T	Gray expansion fill; deck	240 LF	Not Detected	N/A

B-Sample taken from bottom of bridge; T-Sample was taken from top of bridge; S-Sample was taken from side of bridge; LF-Linear Feet

6.2 Metals-Based Protective Coatings

No metal surfaces with suspected metals-based paints were observed on the bridge structure during the survey. However, a protective coating (galvanized) was observed on bearing plates, nuts and bolts.

7.0 CONCLUSIONS

- No ACMs were identified as a result of laboratory PLM tests.
- Bridge plans were not available during the time of this survey, therefore a review of bridge plans could not be conducted.
- No metal surfaces with suspected metals-based paints were observed on the bridge structure. However, galvanized (zinc coated) metal components were observed on the bridge structure.

8.0 RECOMMENDATIONS

Based on the results of this survey, Tierra recommends no further testing.

It should be noted that suspect materials, other than those identified during the survey could exist within the structures in areas not accessible to the inspector at the time of the survey. Should suspect materials other than those which were identified during this survey be uncovered during the renovation/demolition process, those materials should be assumed to be ACM until sampling and analysis can confirm or refute their asbestos content.

9.0 GENERAL COMMENTS

This survey was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions and recommendations expressed in this report are based on conditions observed during our survey of the subject bridge structures. The information contained in this report is relevant to the date on which this survey was performed, and should not be relied upon to represent conditions at a later date. Tierra does not warrant the work of regulatory agencies, laboratories or other third parties supplying information which may have been used in the preparation of this report. No warranty, express or implied, is made.

APPENDIX A

Bridge Location Map



BRIDGE LOCATION MAP

SOURCE: FDOT SURVEY AND MAPPING DATED 2015

REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
			TIERRA PROJECT NO.: 6511-12-054A	SR 710	OKEECHOBEE	419344-3-32-01	A
				TIERRA, INC. 7351 TEMPLE TERRACE HIGHWAY TAMPA, FLORIDA 33637 CERTIFICATE OF AUTHORIZATION 6486			SR 710 FROM US 441 TO L-63 CANAL

APPENDIX B

Photograph Log

NESHAP Asbestos Survey and Screening for Metals-Based Coatings
SR 710 over Interceptor Canal L-63N (Bridge No. 910065)
Tierra Project No.: 6511-12-054A
FPID: 419344-3-32-01

4SR 710 over Interceptor Canal L-63N – Bridge No. 910065



East of SR 710 over Interceptor Canal L-63N (Br. No. 910065) looking northwest



Homogeneous Area 1 (Samples 001-003) – Black bearing pad; between girder and end bent



Homogeneous Area 2 (Samples 004-006) – Gray end bent concrete; end bents



Homogeneous Area 3 (Samples 007-009) – Gray girder concrete; girders



Homogeneous Area 4 (Samples 010-012) – Gray deck concrete; bridge deck



Homogeneous Area 5 (Samples 013-015) – Gray barrier wall concrete; barrier wall



Homogeneous Area 6 (Samples 016-018) – Black reflector mastic; deck



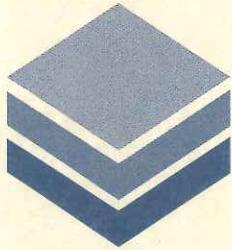
Homogeneous Area 7 (Samples 019-021) – Gray pile concrete; Bents



Homogeneous Area 8 (Samples 022-024) – Gray expansion fill; deck

APPENDIX C

Certifications and Licenses



M·E·T·A
 Mayhew Environmental Training Associates
 I N C O R P O R A T E D

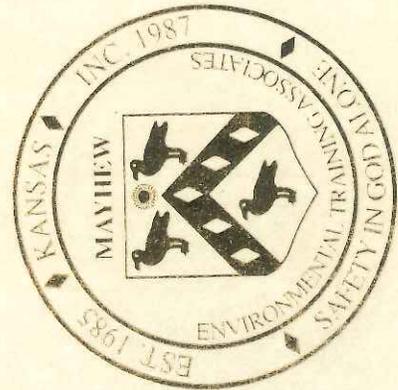
Certificate # MEDA26DC38306E4CA

Sammy Awad

has on 7/20/2017, in Tampa, FL
 completed the requirements for asbestos accreditation under Section 206 of TSCA Title II, 15 USC 2646

4-hr. Asbestos Building Inspector Refresher

as approved by FL
 and the US EPA under 40 CFR 763 (AHERA)
 from 7/20/2017 to 7/20/2017 and passed the associated exam on 7/20/2017
 with a score of at least 70%



Training Provider #: FL49-0001221
 Course #: 170720ASBIRFL728

SSN: XXX-XX-4151
 Expiration: 7/20/2018

P.O. Box 786 - Lawrence, KS. 66044 - 800.444.6382

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Bill Young

Bill Young
 Instructor

Thomas Mayhew

Thomas Mayhew
 President

RICK SCOTT, GOVERNOR

KEN LAWSON, SECRETARY

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
ASBESTOS LICENSING UNIT

LICENSE NUMBER

EA0000060

The ASBESTOS CONSULTANT - ENGINEER
Named below IS LICENSED
Under the provisions of Chapter 469 FS.
Expiration date: NOV 30, 2018

CRANDALL, SCOTT S
DIVERSIFIED PROFESSIONAL SERVICES CORP
3600 10TH ST NE
ST PETERSBURG FL 33704



ISSUED: 10/23/2016

DISPLAY AS REQUIRED BY LAW

SEQ # L1610230004424



RICK SCOTT, GOVERNOR

JONATHAN ZACHEM, SECRETARY



STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
ASBESTOS LICENSING UNIT

THE ASBESTOS BUSINESS ORGANIZATION HEREIN IS LICENSED UNDER THE
PROVISIONS OF CHAPTER 469, FLORIDA STATUTES

TIERRA INC

SCOTT S CRANDALL
7351 TEMPLE TERRACE HWY
TAMPA FL 33637

LICENSE NUMBER: ZA405

EXPIRATION DATE: NOVEMBER 30, 2019

Always verify licenses online at MyFloridaLicense.com



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United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101151-0

EMSL Analytical, Inc.
Orlando, FL

is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2017-07-01 through 2018-06-30

Effective Dates

A handwritten signature in black ink, appearing to read "Peter S. Lumb".

For the National Voluntary Laboratory Accreditation Program



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.
3303 Parkway Center Court
Orlando, FL 32808
Carlos Rivadeneyra
Phone: 407-599-5887
Email: crivadeneyra@emsl.com
<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101151-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- Appendix E to Subpart E of Part 763 -- Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

For the National Voluntary Laboratory Accreditation Program

APPENDIX D

Laboratory Results



EMSL Analytical, Inc.

3303 PARKWAY CENTER COURT Orlando, FL 32808

Tel/Fax: (407) 599-5887 / (407) 599-9063

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

EMSL Order: 341805821

Customer ID: TIRA78

Customer PO:

Project ID:

Attention: Sammy Awad
Tierra, Inc.
7351 Temple Terrace Highway
Tampa, FL 33637

Phone: (813) 989-1354

Fax:

Received Date: 04/30/2018 2:40 PM

Analysis Date: 05/06/2018 - 05/07/2018

Collected Date: 04/24/2018

Project: 6511-12-054A; SR710 Br#910065

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
001 341805821-0001	NW Corner - Between Girder + End Bert - Black Bearing Pad	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
002 341805821-0002	NE Corner - Between Girder + End Bert - Black Bearing Pad	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
003 341805821-0003	SW Corner - Between Girder + End Bert - Black Bearing Pad	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
004 341805821-0004	SW Corner, End Bert - Gr. End Bert Concrete	Gray Non-Fibrous Heterogeneous		45% Quartz 15% Ca Carbonate 40% Non-fibrous (Other)	None Detected
005 341805821-0005	NW Corner, End Bert - Gr. End Bert Concrete	Gray Non-Fibrous Heterogeneous		45% Quartz 15% Ca Carbonate 40% Non-fibrous (Other)	None Detected
006 341805821-0006	NE Corner, End Bert - Gr. End Bert Concrete	Gray Non-Fibrous Homogeneous		35% Quartz 15% Ca Carbonate 50% Non-fibrous (Other)	None Detected
007 341805821-0007	SW Corner, Girder - Gr. Girder Concrete	Gray Non-Fibrous Homogeneous		35% Quartz 15% Ca Carbonate 50% Non-fibrous (Other)	None Detected
008 341805821-0008	NW Corner, Girder - Gr. Girder Concrete	Gray Non-Fibrous Homogeneous		35% Quartz 15% Ca Carbonate 50% Non-fibrous (Other)	None Detected
009 341805821-0009	NE Corner, Girder - Gr. Girder Concrete	Gray Non-Fibrous Homogeneous		35% Quartz 15% Ca Carbonate 50% Non-fibrous (Other)	None Detected
010 341805821-0010	W. Area, Deck - Gr. Deck Concrete	Gray Non-Fibrous Homogeneous		35% Quartz 5% Ca Carbonate 60% Non-fibrous (Other)	None Detected
011 341805821-0011	C. Area, Deck - Gr. Deck Concrete	Gray Non-Fibrous Homogeneous		35% Quartz 5% Ca Carbonate 60% Non-fibrous (Other)	None Detected
012 341805821-0012	E. Area, Deck - Gr. Deck Concrete	Gray Non-Fibrous Homogeneous		35% Quartz 5% Ca Carbonate 60% Non-fibrous (Other)	None Detected
013 341805821-0013	SW Corner, Barrier Wall - Gr. Barrier Wall Concrete	Gray Non-Fibrous Homogeneous		35% Quartz 5% Ca Carbonate 60% Non-fibrous (Other)	None Detected
014 341805821-0014	NW Corner, Barrier Wall - Gr. Barrier Wall Concrete	Gray Non-Fibrous Homogeneous		35% Quartz 5% Ca Carbonate 60% Non-fibrous (Other)	None Detected
015 341805821-0015	NE Corner, Barrier Wall - Gr. Barrier Wall Concrete	Gray Non-Fibrous Homogeneous		35% Quartz 5% Ca Carbonate 60% Non-fibrous (Other)	None Detected
016 341805821-0016	W. Area, Deck - Black Reflector Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 05/07/2018 11:38:35



EMSL Analytical, Inc.

3303 PARKWAY CENTER COURT Orlando, FL 32808

Tel/Fax: (407) 599-5887 / (407) 599-9063

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

EMSL Order: 341805821
Customer ID: TIRA78
Customer PO:
Project ID:

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
017 <i>341805821-0017</i>	C. Area, Deck - Black Reflector Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
018 <i>341805821-0018</i>	E. Area, Deck - Black Reflector Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
019 <i>341805821-0019</i>	W. Bert N. Pile - Gr. Pile Concrete	Gray Non-Fibrous Homogeneous		35% Quartz 10% Ca Carbonate 55% Non-fibrous (Other)	None Detected
020 <i>341805821-0020</i>	W. Bert N. Pile - Gr. Pile Concrete	Gray Non-Fibrous Homogeneous		35% Quartz 10% Ca Carbonate 55% Non-fibrous (Other)	None Detected
021 <i>341805821-0021</i>	E. Bert S. Pile - Gr. Pile Concrete	Gray Non-Fibrous Homogeneous		35% Quartz 10% Ca Carbonate 55% Non-fibrous (Other)	None Detected
022 <i>341805821-0022</i>	E. Bert S. Pile - Gr. Expansion Fill	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
023 <i>341805821-0023</i>	C. Area, Deck - Gr. Expansion Fill	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
024 <i>341805821-0024</i>	E. Area, Deck - Gr. Expansion Fill	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s)

Carlos Rivadeneyra (6)

Fletcher Etheridge (14)

Jhon Rosario (4)

Carlos Rivadeneyra, Laboratory Director
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

Samples analyzed by EMSL Analytical, Inc. Orlando, FL NVLAP Lab Code 101151-0

Initial report from: 05/07/2018 11:38:35

341805821

(2)

BULK SAMPLE LOG

Project Name/Number:	SR 710 Br. # 910065 0511-12-054A
Samplers Name/Date:	Sammy Award 4/24/18

HA #: 1	Sample #: 001	Friable: Y / (N)	Condition: Good
Material Description: Black Bearing Pad		Location(s): NW CORNER - Between Girder + End Bent	
HA #: 1	Sample #: 002	Friable: Y / (N)	Condition: Good
Material Description: "		Location(s): NE CORNER - Between Girder + End Bent	
HA #: 1	Sample #: 003	Friable: Y / (N)	Condition: Good
Material Description: "		Location(s): SW CORNER, Between Girder + End Bent	
HA #: 2	Sample #: 004	Friable: Y / (N)	Condition: Good
Material Description: Gr. End Bent Concrete		Location(s): SW CORNER, End Bent	
HA #: 2	Sample #: 005	Friable: Y / (N)	Condition: Good
Material Description: "		Location(s): NW CORNER, End Bent	
HA #: 2	Sample #: 006	Friable: Y / (N)	Condition: Good
Material Description: "		Location(s): NE CORNER, End Bent	
HA #: 3	Sample #: 007	Friable: Y / (N)	Condition: Good
Material Description: Gr. Girder Concrete		Location(s): SW CORNER, Girder	
HA #: 3	Sample #: 008	Friable: Y / (N)	Condition: Good
Material Description: "		Location(s): NW CORNER, Girder	
HA #: 3	Sample #: 009	Friable: Y / (N)	Condition: Good
Material Description: "		Location(s): NE CORNER, Girder	

Br. # 910065

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BULK SAMPLE LOG

3

Project Name/Number: <i>SR 710 Br.# 910065 6511-12-054A</i>
Samplers Name/Date: <i>Sammy Awad 4/24/18</i>

HA #: <i>4</i>	Sample #: <i>010</i>	Friable: <i>Y / (N)</i>	Condition: <i>Good</i>
Material Description: <i>Gr. Deck Concrete</i>		Location(s): <i>W. Area, Deck</i>	
Approx. Amount:			
HA #: <i>4</i>	Sample #: <i>011</i>	Friable: <i>Y / (N)</i>	Condition: <i>Good</i>
Material Description: "		Location(s): <i>C. Area, Deck</i>	
Approx. Amount:			
HA #: <i>4</i>	Sample #: <i>012</i>	Friable: <i>Y / (N)</i>	Condition: <i>Good</i>
Material Description: "		Location(s): <i>E. Area, Deck</i>	
Approx. Amount:			
HA #: <i>5</i>	Sample #: <i>013</i>	Friable: <i>Y / (N)</i>	Condition: <i>Good</i>
Material Description: <i>Gr. Barrier Wall Concrete</i>		Location(s): <i>SW Corner, Barrier Wall</i>	
Approx. Amount:			
HA #: <i>5</i>	Sample #: <i>014</i>	Friable: <i>Y / (N)</i>	Condition: <i>Good</i>
Material Description: "		Location(s): <i>NW Corner, Barrier Wall</i>	
Approx. Amount:			
HA #: <i>5</i>	Sample #: <i>015</i>	Friable: <i>Y / (N)</i>	Condition: <i>Good</i>
Material Description: "		Location(s): <i>NE Corner, Barrier Wall</i>	
Approx. Amount:			
HA #: <i>6</i>	Sample #: <i>016</i>	Friable: <i>Y / (N)</i>	Condition: <i>Good</i>
Material Description: <i>Black Reflector Mastic</i>		Location(s): <i>W. Area, Deck</i>	
Approx. Amount:			
HA #: <i>6</i>	Sample #: <i>017</i>	Friable: <i>Y / (N)</i>	Condition: <i>Good</i>
Material Description: "		Location(s): <i>C. Area, Deck</i>	
Approx. Amount:			
HA #: <i>6</i>	Sample #: <i>018</i>	Friable: <i>Y / (N)</i>	Condition: <i>Good</i>
Material Description: "		Location(s): <i>E. Area, Deck</i>	
Approx. Amount:			

Br.# 910065

341805821
BULK SAMPLE LOG

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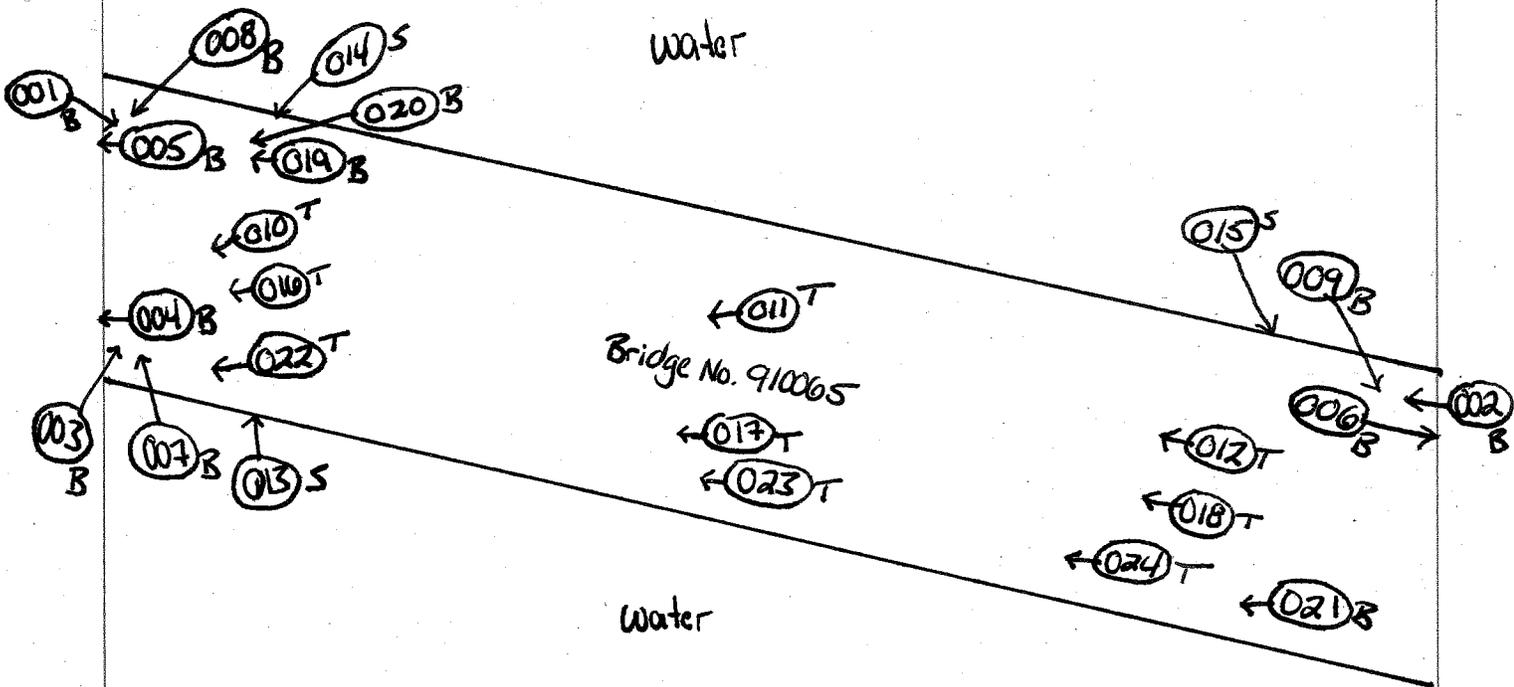
Project Name/Number:	STC 710 Br: # 910005 0511-12-054A
Samplers Name/Date:	Sammy Awad 4/24/18

HA #: 7	Sample #: 019	Friable: Y / (N)	Condition: Good
Material Description: Gr. Pile Concrete		Location(s): W. Best. N. Pile	
		Approx. Amount:	
HA #: 7	Sample #: 020	Friable: Y / (N)	Condition: Good
Material Description: "		Location(s): "	
		Approx. Amount:	
HA #: 7	Sample #: 021	Friable: Y / (N)	Condition: Good
Material Description: "		Location(s): E. Best S. Pile	
		Approx. Amount:	
HA #: 8	Sample #: 022	Friable: Y / (N)	Condition: Good
Material Description: Gr. Expansion Fill		Location(s): W. Area, Deck	
		Approx. Amount:	
HA #: 8	Sample #: 023	Friable: Y / (N)	Condition: Good
Material Description: "		Location(s): C. Area, Deck	
		Approx. Amount:	
HA #: 8	Sample #: 024	Friable: Y / (N)	Condition: Good
Material Description: "		Location(s): E. Area, Deck	
		Approx. Amount:	
HA #:	Sample #:	Friable: Y / N	Condition:
Material Description:		Location(s):	
		Approx. Amount:	
HA #:	Sample #:	Friable: Y / N	Condition:
Material Description:		Location(s):	
		Approx. Amount:	
HA #:	Sample #:	Friable: Y / N	Condition:
Material Description:		Location(s):	
		Approx. Amount:	

APPENDIX E

Sample Location Sketch

over Interceptor Canal L-63N



Samples taken from:
 T-Top
 B-Bottom
 S-Side

Note: Not to Scale

Drawn By: Sammy Awad