

November 5, 2019

Ohio Department of Transportation District 12
5500 Transportation Blvd.
Garfield Hts., Ohio 44125

Attention: Mr. Mark Carpenter, District Environmental Coordinator

Re: **Asbestos Survey**
CUY-8-1.270 Bridge
SR-8 over CSX Railroad
SFN 1801201

Dear Mr. Carpenter,

EnviroScience, Inc. was contracted by the Ohio Department of Transportation District 12 to provide an asbestos survey of the CUY-8-1.270 bridge structure over CSX Railroad.

The 607 foot long six-span steel girder structure will undergo rehabilitation. Bridge inventory report information indicates the structure to have been originally built in 1936 with a major rehab in 2005. A bridge site location map is included in Appendix A.

Asbestos Regulations and Definitions

Prior to the demolition or renovation of a structure (including bridge structures), an asbestos inspection must be conducted by a licensed asbestos hazard evaluation specialist in accordance with National Emissions Standard for Hazardous Air Pollutants (NESHAP) Guidelines, EPA Regulation 40 CFR, Subpart M, Part 61 and OEPA asbestos regulations (OAC 3745-20). Further, the Occupational Safety and Health Administration's (OSHA's) Asbestos Standard for the Construction Industry (29 CFR 1926.1101) regulates all renovation and demolition work involving building materials which contain any amount of asbestos.

NESHAP regulations require that all materials suspected of containing asbestos be sampled to determine asbestos content or be assumed to be an asbestos-containing material (ACM) and, therefore, treated as such. Materials that are determined or assumed to be ACMs shall be quantified and assessed by a licensed inspector. The materials then shall be characterized and assigned one of the following designations: Friable, Category I Non-friable, and Category II Non-friable.

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

Non-friable ACM is any material containing more than one percent (1%) asbestos as determined using the method specified in Appendix E, Subpart E, 40 CFR Part 763, Section 1, Polarized Light Microscopy (PLM), that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. Non-friable ACM can remain on the structure during renovation/demolition if it will not be sanded, grinded, cut, abraded, or made friable by any means. The two categories of non-friable ACM are described as follows:



5070 Stow Road
Stow, OH 44224

- Category I Non-friable ACM - asbestos-containing packing, gaskets, resilient floor covering, and asphalt roofing products.
- Category II Non-friable ACM - any asbestos-containing material excluding Category I Non-friable ACM.

Regulated Asbestos-Containing Material (RACM) is defined as a friable ACM which includes the following:

- Category I Non-friable ACM that has become friable
- Category I Non-friable ACM that has been or will be involved in sanding, grinding, cutting, or abrading, or Category II Non-friable
- Category II Non-friable ACM that has a high probability of becoming crumbled, pulverized, or reduced to powder by forces expected to impact ACM during renovation or demolition.

Asbestos Survey Summary

Bridge Plan Review – ES performed a limited review of available bridge construction plans that were compiled by the department and placed on ODOT’s FTP site. Based on our review of portions of the CUY-8-1.270 plans, suspect asbestos containing materials noted included telephone conduit lines affixed to the structure and pneumatically applied mortar/shotcrete encasing the conduits directly over the rail track lines (assumed to serve as heat/blast protection from locomotives). ES could find no evidence in the plan sheets that suggest the conduits and shotcrete material to be asbestos containing, however, it should be noted that asbestos containing Transite® conduits were historically utilized in similar applications and asbestos was often a component used in fire/heat proofing applications either on its own, or together with binders such as cement and plasters, either in sprayed form or in pressed sheets.

Asbestos Survey - An asbestos survey of the subject bridge structure was conducted on 10/14/19 by C.E. Kessler, Certified State of Ohio Asbestos Hazard Evaluation Specialist #34704.

All accessible portions of the CUY-8-1.270 bridge structure were field investigated for the presence of suspected ACMs. A visual inspection of the deck, beams, abutments, grout filled mat slope protection, parapets and vandal fencing, was conducted. Affixed utilities consisted of a bank of (12) 4” conduit lines on the underside of the structure. These telephone conduit lines (indicated to be present during the plan review) were subsequently identified during the field inspection to be PVC lines and therefore, non-asbestos containing.

The primary bridge components were generally observed to consist of concrete, steel, and asphalt road surface. ES was unable to access and sample the shotcreted portions of the conduit bank directly over the rail lines due to heavy train traffic which lasted throughout the duration of the survey, and height constraints.

The following Table 1 summarizes the bulk samples of suspect materials that were collected:

Table 1 – Sample Summary – CUY-8-1.270 Bridge SFN 1801201					
Sample	Homogeneous Area	Category	Location of Sample	Positive for Asbestos?	Quantity ACM
1-1	Caulking	Misc	Vandal Fence Mounting flange	No	n/a
1-2	Caulking	Misc	Vandal Fence Mounting flange	No	n/a
1-3	Caulking	Misc	Vandal Fence Mounting flange	No	n/a
1-3A	Caulking	Misc	Vandal Fence Mounting flange	No	n/a
1-4	expansion joint	Misc	Parapet wall end piece	No	n/a
1-5	expansion joint	Misc	Parapet wall end piece	No	n/a
1-6	expansion joint	Misc	Abutment wall at top of slope protection	No	n/a
1-7	expansion joint	Misc	Abutment wall at top of slope protection	No	n/a
1-8	expansion joint	Misc	Abutment wall at top of slope protection	No	n/a
1-9	expansion joint	Misc	Outside edge of backwall	No	n/a
1-10	expansion joint	Misc	Outside edge of backwall	No	n/a
1-11	fabric mats	Misc	Grout filled slope protection	No	n/a
1-12	fabric mats	Misc	Grout filled slope protection	No	n/a
1-13	fabric mats	Misc	Grout filled slope protection	No	n/a
1-14	Joint compound	Misc	Parapet wall	No	n/a
1-15 and 1-16	Joint compound	Misc	Parapet Wall	No	n/a

All bulk samples collected were submitted to IATL International Asbestos Testing Laboratories of Mount Laurel, New Jersey, for analysis of asbestos content by polarized light microscopy (PLM) using the Environmental Protection Agency (EPA) Method 600/R-93/116. Appendix B includes an IATL laboratory Chain of Custody, sampling log, and laboratory analysis report. A simple bridge diagram sketch and photo log is provided in Appendix C.

Conclusion and Recommendations

Lab analysis of bulk samples taken from the CUY-8-1.270 structure indicate that no asbestos containing material was identified. However, it should be noted that pneumatically applied mortar/shotcrete material encasing the affixed conduits directly over the rail track lines is present beneath the structure. This type of material has historically been known to potentially contain asbestos as a binder material and heat protectant. ES was unable to access and sample the shotcreted portions of the conduit bank due to the active tracks and heavy train traffic which lasted throughout the duration of the survey, and by height constraints. It is recommended that this material be assumed to contained asbestos unless ODOT has further proprietary knowledge or evidence of the actual materials used during the historic shotcrete application.

Table 2 – Assumed ACM– CUY-8-1.270 Bridge SFN 1801201					
	Homogeneous Area	Category	Location of Sample	Positive for Asbestos?	Quantity ACM
	Shotcrete on 4" conduits	Surfacing Materials	Along an approximate 200 linear feet run of utility conduit bank approximately 6 feet+ wide on the underside of the bridge over the tracks	Assumed positive	Estimated 1300 sq ft

If suspect ACMs are revealed during demolition or renovation activities that were not identified during this survey it is recommended that work activities cease until a Certified Asbestos Hazard Evaluation Specialist can evaluate the new material(s). Any removal and subsequent disposal of the asbestos containing material during demolition operations must comply with the Ohio Administrative code, the occupational Safety and Health Administration (OSHA) regulations and the National Emission Standard for Hazardous Air pollutants (NESHAP). Reference the Ohio Environmental Protection Agency adopted chapters 3745-20-03 & 3745-20-04 of the Ohio Administrative Code. This implements the NESHAP standards for asbestos and its removal.

Notification

An OEPA Notification of Demolition and Renovation form must be submitted ten (10) working days prior to work activities. Appendix D contains the OEPA form of which Section 1 - General Information Lines 1, 2, 3, 4, and 5; and Section 2 - Project Address Specific Information A, B, C, and D have been completed.

Once the Contractor has been selected for the project, the remaining sections of the form shall be completed (as applicable) and the notification form submitted with the proper remittance to the following address at least 10 working days prior to starting work:

Ohio EPA, DAPC Asbestos
P.O. Box 1049
Columbus, Ohio 43216-1049

The form may also be completed/submitted via on-line at <https://epa.ohio.gov/dapc/atu/asbestos>

CAHES Signature



Charles E. Kessler, AICP, CAHES, CEP
Ohio Asbestos Hazard Evaluation Specialist #ES34704

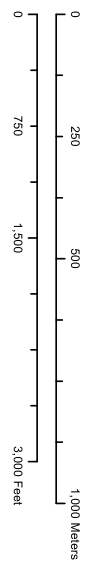
Attachments

APPENDIX A

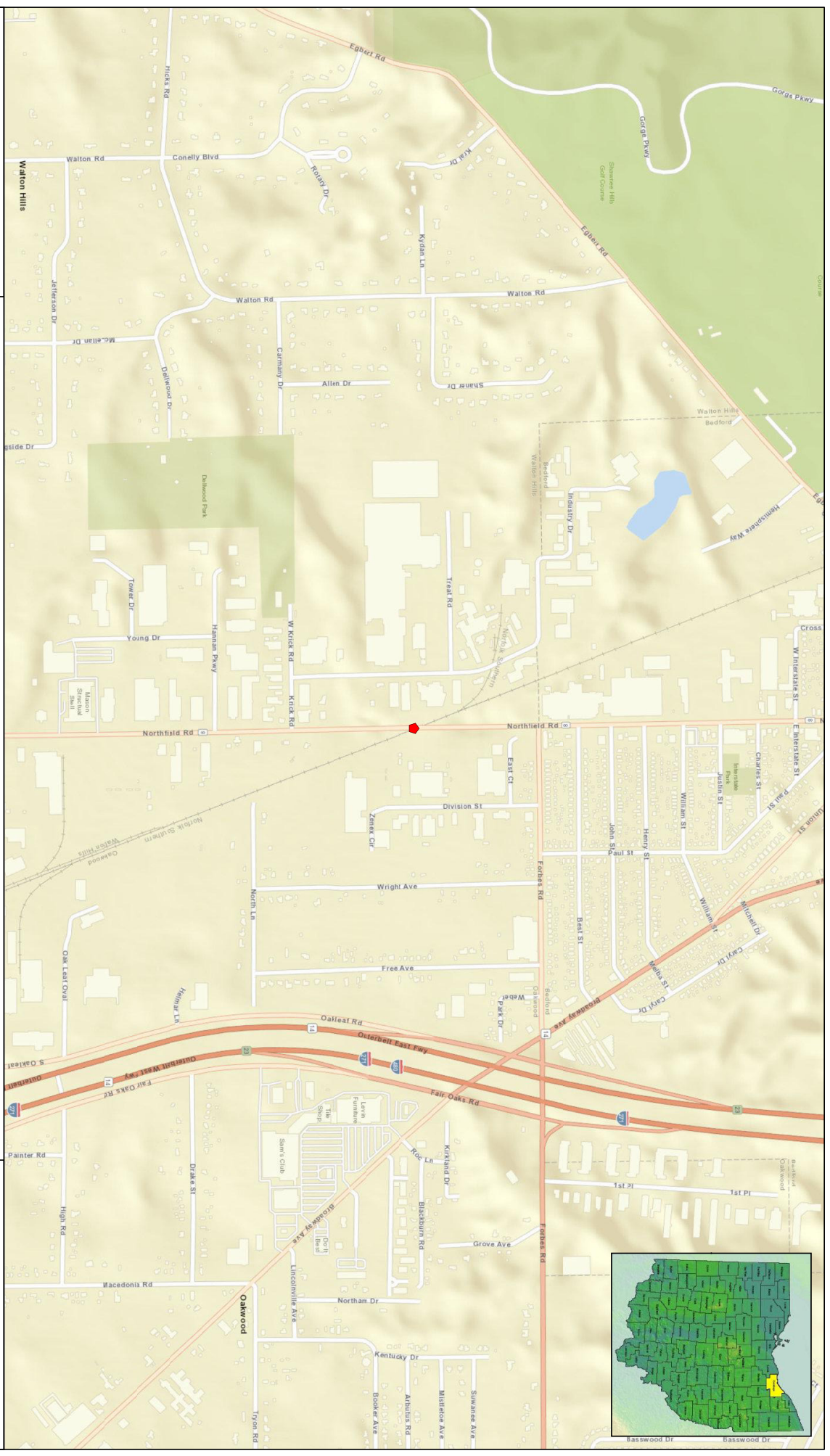
Site Location Mapping

Figure 1. Location of Site on Highway Map of Cuyahoga County, Ohio. CUY8-1-270.

Bridge Location



EnviroScience
Excellence In Any Environment



Basemap courtesy of Esri.



APPENDIX B

Chain of Custody
Bulk Sampling Log
Laboratory Analysis Report

Chain of Custody

–Bulk Asbestos–

Contact Information

Client Company: EnviroScience, Inc.
Office Address: 5070 Stow Road
City, State, Zip: Stow, Ohio 44224
Fax Number: _____
Email Address: ckessler@enviroscienceinc.com

Project Number: 12837 - CUY-BH
Project Name: CUY-District 12 Bridges
Primary Contact: Chuck Kessler
Office Phone: 330-688-0111
Cell Phone: 330-592-9619

PLM Instructions:

- PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993
- PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982
- PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985
- PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002
- PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010
- TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009

- PLM: Point Counting
 - PC: via ELAP 198.1
 - PC: 400 Points
 - PC: 800 Points *
 - PC: 1600 Points *
- PLM: Instructions for Multi-Layered Samples
 - Analyze and Report All Separable Layers per EPA 600
 - Report Composite for Drywall Systems per NESHAP
 - Report All Layers and Composite Where Applicable
 - Only Analyze and Report Specifically Noted Layer
- PLM: Analyze Until Positive (Positive Stop)
 - AUP: by Homogenous Area as Noted
 - AUP: by Material Type as Noted
- PLM: NOB via 198.6
 - PLM: Friable via EPA 600 2.3
 - If <1% by PLM, to TEM via 198.4 *
 - If <1% by PLM, Hold for Instructions
- PLM: Non-Building Material^{***} (Dust, Wipe, Tape)
 - Soil or Vermiculite Analysis^{*}
 - CARB 435

Special Instructions: _____

** Additional charge and turnaround may be required ** Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory*

Turnaround Time

Preliminary Results Requested Date: 10/25/19 Verbal Email Fax

Specific date / time

10 Day 5 Day 3 Day 2 Day 1 Day* 12 Hour** 6 Hour** RUSH**

** End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping****

Chain of Custody

Relinquished (Name/Organization):	C. Kessler/EnviroScience, Inc.	Date: 10/18/19	Time: 1:00 pm
Received (Name / iATL):	_____	Date: _____	Time: _____
Sample Login (Name / iATL):	_____	Date: _____	Time: _____
Analysis(Name(s) / iATL):	_____	Date: 10/20/19	Time: _____
QA/QC Review (Name / iATL):	<i>[Signature]</i>	Date: 10/28/19	Time: _____
Archived / Released:	QA/QC InterLAB Use:	Date: _____	Time: _____

Sample Log

–Bulk Asbestos –

Client: ODOT District 12 Project: #1 - CUY-8-1.270

Sampling Date/Time: 10/14/19

Bulk Asbestos Sample Log			
Client Sample #	iATL #	Location/Description	Notes
1-1	6902484	Vandel Fence Mounting flange	Caulking
1-2	6902485	Vandel Fence Mounting flange	Caulking
1-3	6902486	Vandel Fence Mounting flange	Caulking
1-3A	6902487	Vandel Fence Mounting flange	Caulking
1-4	6902488	Parapet wall end piece	expansion joint
1-5	6902489	Parapet wall end piece	expansion joint
1-6	6902490	Abutment wall at top of slope protection	expansion joint
1-7	6902491	Abutment wall at top of slope protection	expansion joint
1-8	6902492	Abutment wall at top of slope protection	expansion joint
1-9	6902493	Outside edge of backwall	expansion joint
1-10	6902494	Outside edge of backwall	expansion joint
1-11	6902495	Grout filled slope protection	fabric mats
1-12	6902496	Grout filled slope protection	fabric mats
1-13	6902497	Grout filled slope protection	fabric mats
1-14	6902498	Parapet wall	Joint compound
1-15 and 1-16	6902499 6902500	Parapet Wall	Joint compound

CERTIFICATE OF ANALYSIS

Client: EnviroScience, Inc.
5070 Stow Road
Stow OH 44224

Report Date: 10/26/2019
Report No.: 602420 - PLM
Project: CUY-District 12 Bridges #1
Project No.: 12837 - CUY-BH

Client: ENV507

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6902484	Analyst Observation: Grey Caulk	Location: Vandal Fence Mouthing Flange
Client No.: 1-1	Client Description: Caulking	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Lab No.: 6902485	Analyst Observation: Grey Caulk	Location: Vandal Fence Mouthing Flange
Client No.: 1-2	Client Description: Caulking	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100


Lab No.: 6902486	Analyst Observation: Grey Caulk	Location: Vandal Fence Mouthing Flange
Client No.: 1-3	Client Description: Caulking	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

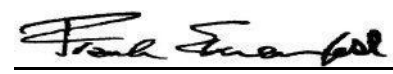
Lab No.: 6902486(L2)	Analyst Observation: Grey Cementitious	Location: Vandal Fence Mouthing Flange
Client No.: 1-3	Client Description: Caulking	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Lab No.: 6902487	Analyst Observation: Grey Caulk	Location: Vandal Fence Mouthing Flange
Client No.: 1-3A	Client Description: Caulking	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Lab No.: 6902487(L2)	Analyst Observation: Grey Cementitious	Location: Vandal Fence Mouthing Flange
Client No.: 1-3A	Client Description: Caulking	Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/21/2019
Date Analyzed: 10/26/2019
Signature: 
Analyst: Jeffrey Fazzo

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: EnviroScience, Inc.
5070 Stow Road
Stow OH 44224


Report Date: 10/26/2019
Report No.: 602420 - PLM
Project: CUY-District 12 Bridges #1
Project No.: 12837 - CUY-BH

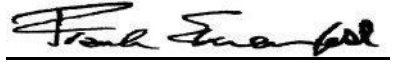
Client: ENV507

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6902488 Client No.: 1-4	Analyst Observation: Brown Fibrous Client Description: Expansion Joint	Location: Parapet Wall End Piece Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 99 Cellulose	<u>Percent Non-Fibrous Material:</u> 1
Lab No.: 6902488(L2) Client No.: 1-4	Analyst Observation: Grey Cementitious Client Description: Expansion Joint	Location: Parapet Wall End Piece Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100
Lab No.: 6902489 Client No.: 1-5	Analyst Observation: Brown Fibrous Client Description: Expansion Joint	Location: Parapet Wall End Piece Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 99 Cellulose	<u>Percent Non-Fibrous Material:</u> 1
Lab No.: 6902490 Client No.: 1-6	Analyst Observation: Brown Fibrous Client Description: Expansion Joint	Location: Abutment Wall At Top Of Slope Protection Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 99 Cellulose	<u>Percent Non-Fibrous Material:</u> 1
Lab No.: 6902491 Client No.: 1-7	Analyst Observation: Brown Fibrous Client Description: Expansion Joint	Location: Abutment Wall At Top Of Slope Protection Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 99 Cellulose	<u>Percent Non-Fibrous Material:</u> 1
Lab No.: 6902492 Client No.: 1-8	Analyst Observation: Brown Fibrous Client Description: Expansion Joint	Location: Abutment Wall At Top Of Slope Protection Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 99 Cellulose	<u>Percent Non-Fibrous Material:</u> 1

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/21/2019
Date Analyzed: 10/26/2019
Signature: 
Analyst: Jeffrey Fazzo

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: EnviroScience, Inc.
5070 Stow Road
Stow OH 44224


Report Date: 10/26/2019
Report No.: 602420 - PLM
Project: CUY-District 12 Bridges #1
Project No.: 12837 - CUY-BH

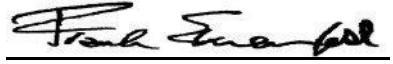
Client: ENV507

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6902493 Client No.: 1-9	Analyst Observation: Brown Fibrous Client Description: Expansion Joint	Location: Outside Edge Of Back Wall Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 99 Cellulose	<u>Percent Non-Fibrous Material:</u> 1
Lab No.: 6902494 Client No.: 1-10	Analyst Observation: Brown Fibrous Client Description: Expansion Joint	Location: Outside Edge Of Back Wall Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 99 Cellulose	<u>Percent Non-Fibrous Material:</u> 1
Lab No.: 6902495 Client No.: 1-11	Analyst Observation: Off-White Woven Material Client Description: Fabric Mats	Location: Grout Filled Slope Protection Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 99 Synthetic	<u>Percent Non-Fibrous Material:</u> 1
Lab No.: 6902496 Client No.: 1-12	Analyst Observation: Off-White Woven Material Client Description: Fabric Mats	Location: Grout Filled Slope Protection Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 99 Synthetic	<u>Percent Non-Fibrous Material:</u> 1
Lab No.: 6902497 Client No.: 1-13	Analyst Observation: Off-White Woven Material Client Description: Fabric Mats	Location: Grout Filled Slope Protection Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 99 Synthetic	<u>Percent Non-Fibrous Material:</u> 1
Lab No.: 6902498 Client No.: 1-14	Analyst Observation: Grey Caulk Client Description: Joint Compound	Location: Parapet Wall Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/21/2019
Date Analyzed: 10/26/2019
Signature: 
Analyst: Jeffrey Fazzo

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: EnviroScience, Inc.
5070 Stow Road
Stow OH 44224

Report Date: 10/26/2019
Report No.: 602420 - PLM
Project: CUY-District 12 Bridges #1
Project No.: 12837 - CUY-BH

Client: ENV507

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6902499
Client No.: 1-15

Analyst Observation: Grey Caulk
Client Description: Joint Compound

Location: Parapet Wall
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6902500
Client No.: 1-16

Analyst Observation: Grey Caulk
Client Description: Joint Compound

Location: Parapet Wall
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/21/2019

Approved By:

Date Analyzed: 10/26/2019

Frank E. Ehrenfeld, III

Signature:

Laboratory Director

Analyst: Jeffrey Fazzo

CERTIFICATE OF ANALYSIS

Client: EnviroScience, Inc.
5070 Stow Road
Stow OH 44224

Client: ENV507

Report Date: 10/26/2019
Report No.: 602420 - PLM
Project: CUY-District 12 Bridges #1
Project No.: 12837 - CUY-BH

Appendix to Analytical Report

Customer Contact: Chuck Kessler

Method: 40 CFR Appendix E to Subpart E of Part 763, interim method for the Determination of Asbestos in Bulk Insulation Samples, and USEPA 600, R93-116 as needed.

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com

iATL Office Manager: wchampion@iatl.com

iATL Account Representative: House Account

Sample Login Notes: See Batch Sheet Attached

Sample Matrix: Bulk Building Materials

Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NYSDOH-ELAP No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. PC Trace represents a <0.25% amount. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

CERTIFICATE OF ANALYSIS

Client: EnviroScience, Inc.
5070 Stow Road
Stow OH 44224

Client: ENV507

Report Date: 10/26/2019
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Project: CUY-District 12 Bridges #1
Project No.: 12837 - CUY-BH

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at customerservice@iatl.com.

- 1) Note: No mastic provided for analysis.
- 2) Note: Insufficient mastic provided for analysis.
- 3) Note: Insufficient material provided for analysis.
- 4) Note: Insufficient sample provided for QC reanalysis.
- 5) Note: Different material than indicated on Sample Log / Description.
- 6) Note: Sample not submitted.
- 7) Note: Attached to asbestos containing material.
- 8) Note: Received wet.
- 9) Note: Possible surface contamination.
- 10) Note: Not building material. 1% threshold may not apply.
- 11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
- 12) Note: Asbestos detected but not quantifiable.
- 13) Note: Multiple identical samples submitted, only one analyzed.
- 14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
- 15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.
- 16) Note: This sample contains >10% vermiculite mineral. See Appendix for Recommendations for Vermiculite Analysis.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites). Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

For New York State customers, NYSDOH requires disclaimers and qualifiers for various vermiculite containing samples that direct analysis via ELAP198.6 and ELAP198.8 for samples that contain >10% vermiculite mineral where ELAP198.6 may be used to evaluate the asbestos content of the material. However, any test result using ELAP198.6 will be reported with the following disclaimer: "ELAP198.6 method does not remove vermiculite and may underestimate the level of asbestos present in a sample containing >10% vermiculite."

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1) **Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2) **Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

CERTIFICATE OF ANALYSIS

Client: EnviroScience, Inc.
5070 Stow Road
Stow OH 44224

Client: ENV507

Report Date: 10/26/2019
Report No.: 602420 - PLM
Project: CUY-District 12 Bridges #1
Project No.: 12837 - CUY-BH

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.

*With advance notice and confirmation by the laboratory.

**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

APPENDIX C

Bridge Diagram Sketch and Photos

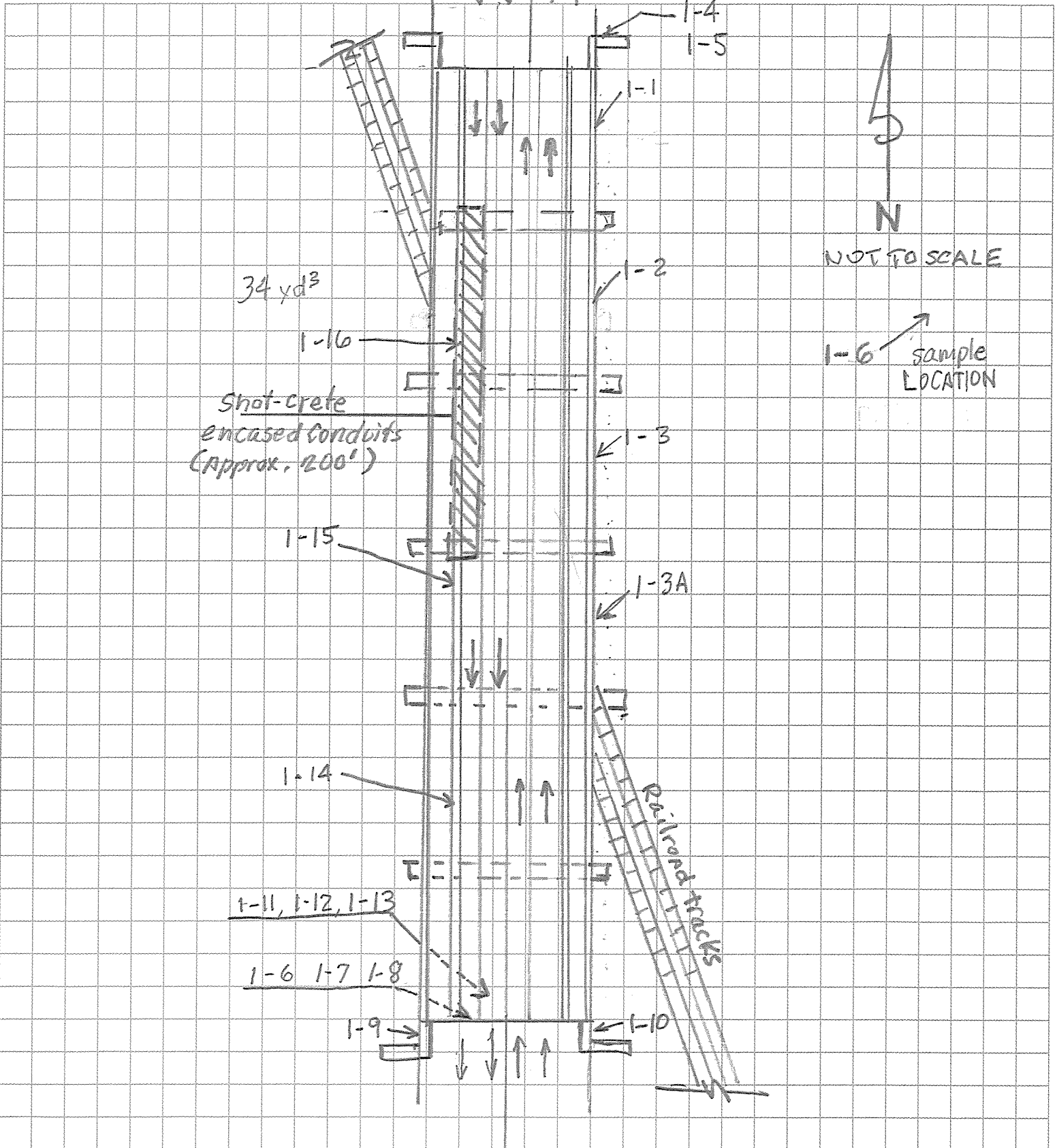




PHOTO 1
Looking south beneath the bridge
at bank of PVC utility conduits

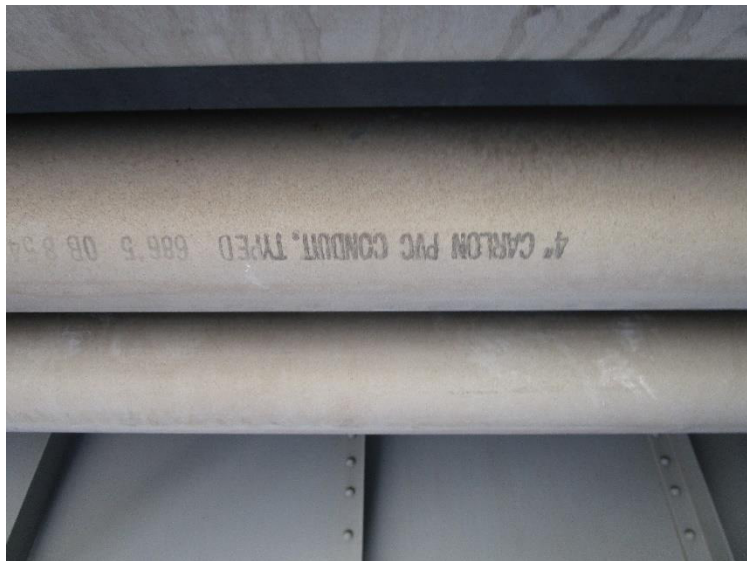


PHOTO 2
View of PVC utility conduit
material



PHOTO 3
View looking at abutment and
beam seats and grout filled slope
protection matting.



PHOTO 4
Grout filled slope protection
matting.



PHOTO 5
View looking at parapet,
sidewalk, and vandal fencing
along top of the deck.



PHOTO 6
View looking at typical parapet
joints.



PHOTO 7
View looking at abutment,
scupper drain, and expansion
joint material



PHOTO 8
View looking up at pneumatically
placed mortar (shot-crete)
protection on utility conduits
above railroad tracks.



PHOTO 9
View of outer beam-line,
sidewalk overhang and vandal
fencing

APPENDIX D

OEPA Notification of Demolition and Renovation form



Notification of Demolition and Renovation/Abatement

Section 1: General Information

Division of Air Pollution Control

Work on projects cannot begin until 10 working days after a COMPLETE original notification form, **including payment**, is submitted to Ohio EPA. Instructions and a worksheet for fee calculation are available at epa.ohio.gov/asbestos. This form can be completed, and payment made, at ebiz.epa.ohio.gov. Questions? asbestos@epa.ohio.gov or (614) 466-0061.

Ohio EPA Use Only	Notification #:	Postmarked: / /	Received: / /	<input type="checkbox"/> Hand-Delivered
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1) Notification Information (Check all that apply)

<input checked="" type="checkbox"/> Original	<input type="checkbox"/> Revision # (count):	<input type="checkbox"/> Installation	<input type="checkbox"/> Emergency	<input type="checkbox"/> Annual	<input type="checkbox"/> Cancellation	Project County: Cuyahoga
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2) Owner, Asbestos Abatement Contractor, Billing and Fire Department Information Revised?

Owner			
Name: Ohio Department of Transportation, District 12			Is this a company? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Address: 5500 Transportation Boulevard		Contact Person: Mark Carpenter	
City: Garfield Heights	State: OH	Zip: 44125 -	
Email: Mark.Carpenter@dot.state.oh.us	Phone: (216) 584 - 2089	Fax: () -	
Asbestos Abatement Contractor (if applicable)			
Name:	License #: AC	Expiration Date: / /	
Address:		Contact Person:	
City:	State:	Zip: -	
Email:	Phone: () -	Fax: () -	
Billing Contact			
Is this contact associated with the <input type="checkbox"/> Owner, <input type="checkbox"/> Asbestos Abatement Contractor, or <input type="checkbox"/> Demolition Contractor (if not installation)?			
Address:		Contact Person:	
City:	State:	Zip: -	
Email:	Phone: () -	Fax: () -	
Fire Department (if applicable)			
Name:			
Address:		Contact Person:	
City:	State:	Zip: -	
Email:	Phone: () -	Fax: () -	

3) Ohio Asbestos Hazard Evaluation Specialist and Evaluation Procedure Revised?

Evaluation Specialist: Charles Kessler	Certification #: ES 34704	Expiration Date: 10 / 7 / 2020
Procedure, including analytical methods, employed to detect the presence of and to estimate the quantity of regulated asbestos-containing material (RACM) and Category I and Category II non-friable asbestos-containing material: <input checked="" type="checkbox"/> PLM <input type="checkbox"/> Point Count <input type="checkbox"/> TEM <input type="checkbox"/> Other Method (Explain Below):		
NESHAP Asbestos Survey - Bulk Sampling w/point count of samples that are less than 10% asbestos containing		

4) Procedures to be followed should unexpected RACM be discovered (check all that apply) Revised?

<input checked="" type="checkbox"/> Stop work and keep wet	<input type="checkbox"/> Evacuate area	<input checked="" type="checkbox"/> Demarcate area	<input type="checkbox"/> Contact licensed abatement contractor
<input type="checkbox"/> Contact district office/local air authority			
<input checked="" type="checkbox"/> Other (Explain): Notify ODOT Project Engineer and Project Superintendent			

5) Planned Demolition (check all that apply) Revised?

Describe demolition work to be performed and method(s) to be employed, including demolition techniques to be used:	
<input type="checkbox"/> Implosion	<input type="checkbox"/> Fire Training
<input type="checkbox"/> Wet Methods	<input type="checkbox"/> Manual Demolition
<input checked="" type="checkbox"/> Mechanical Demolition	<input checked="" type="checkbox"/> Other (Explain):
Existing structure components will be removed by industry standard means and methods	

Notification of Demolition and Renovation/Abatement

Section 1: General Information

Continued

Mail completed form and payment to:
Ohio EPA, DAPC – Asbestos
P.O. Box 1049, Columbus, OH 43216-1049

Description of affected facility components (include attachment if necessary):

(Revised 02/18)

Page 1 of 3

6) Asbestos Description and Engineering Controls (if asbestos is being abated)

Revised?

For the material listed in each project, describe the type(s) of ACM to be abated, engineering controls and work practices to be used to minimize emissions and ensure proper waste handling:

Type of ACM to be abated:	<input type="checkbox"/> Surfacing	<input type="checkbox"/> Mechanical	<input type="checkbox"/> Other		
Engineering Controls:	<input type="checkbox"/> Wet Methods	<input type="checkbox"/> Glove Bag	<input type="checkbox"/> NPE	<input type="checkbox"/> AFD	<input type="checkbox"/> Other:
Work Practices:	<input type="checkbox"/> Intact Removal	<input type="checkbox"/> Manual	<input type="checkbox"/> Mechanical	<input type="checkbox"/> Other:	

7) Asbestos Waste Transporter (if applicable)

Revised?

Transporter #1 Name:		
Address:		Contact Person:
City:	State:	Zip: -
Email:	Phone: () -	Fax: () -
Transporter #2 Name (if applicable):		
Address:		Contact Person:
City:	State:	Zip: -
Email:	Phone: () -	Fax: () -

8) Asbestos Waste Disposal Site (if applicable)

Revised?

Name:		
Address:		Contact Person:
City:	State:	Zip: -
Email:	Phone: () -	Fax: () -

9) Emergency Demolition (complete if you checked "Emergency" above and "Demolition" for any project)

Revised?

A copy of the issued order, including the following information, **must be attached** to this notification.

Government Official Issuing Order:	Title:
Agency:	Authority of Order (Citation of Code):
Date of Order: / /	Demolition Date: / /

10) Emergency Renovation/Abatement (complete if you checked "Emergency" above and "Renovation/Abatement" for any project)

Revised?

Date of Emergency: / /	Time of Emergency: : <input type="checkbox"/> a.m. <input type="checkbox"/> p.m.
Description of Sudden, Unexpected Event:	
Explanation of how the event caused unsafe conditions or equipment damage:	

11) Attestation

Revised?

In accordance with Ohio Administrative Code rule 3745-20-03(A)(4)(p), I certify that at least one person trained as required by paragraph (B) of rule 3745-20-04 of the Administrative Code will supervise the stripping and removal described by this notification. I acknowledge that the submission of false or misleading statements is prohibited by law and I certify that facts contained in this notification are true, accurate, and complete.

Signature:	Date: / /
Name:	Title:
Organization:	



Notification of Demolition and Renovation/Abatement

Section 2: Project Address Specific Information

Division of Air Pollution Control

Please complete Section 2 for the address included with this notification. If the project is an "Installation" per OAC 3745-20, complete a separate Section 2 page for each address associated with this notification.

Ohio EPA Use Only	Project ID #: _____
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A. Facility Description Revised?

Building Name (if applicable): CUY-8-1.270 SFN 1801201		Site Location (specific): State Route 8 over CSX RR, Walton Hills, OH	
Address: Northfield Road (SR-8) Cuyahoga County, Coordinates: 41.36888, -81.432669			
City: Walton Hills	State: OH	Zip: -	
Building Size (square feet):	No. of Floors:	Age: 83, orig.	
Present Use: Misc. Highway Bridge		Prior Use: Misc. Highway Bridge	

B. Type of Operation (check all that apply) Revised?

<input checked="" type="checkbox"/> Demolition	<input type="checkbox"/> Renovation/Abatement – Type: <input type="checkbox"/> Removal <input type="checkbox"/> Repair <input type="checkbox"/> Encapsulation <input type="checkbox"/> Enclosure
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C. Asbestos Present (check one) Revised?

<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> No, previously abated	Year Abated: _____
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D. Approximate Amount of Asbestos-Containing Materials (complete table below and Section 1 #6 if asbestos is present) Revised?

	Material to be Removed				Material NOT to be Removed	
	RACM	Non-friable Asbestos-Containing Material		Non-friable Asbestos-Containing Material		
		Category I	Category II	Category I	Category II	
Pipes (linear feet)						
Surface area on other facility components (ft ²)			1300			
Volume if length or area cannot be measured (ft ³)						

E. Asbestos Abatement Schedule and Abatement Specialist (original notification is required 10 working days prior to the start of work) Revised?

Setup Date: / /		Abatement Date: / /			Complete Date: / /		
(Shift 1) Time start/end on site	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Abatement Specialist Name:				Certification #: AS		Expiration Date: / /	
(Shift 1) Time start/end on site	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Abatement Specialist Name:				Certification #: AS		Expiration Date: / /	

F. Demolition Contractor (if applicable) Revised?

Name:			
Address:		Contact Person:	
City:	State:	Zip: -	
Email:	Phone: () -	Fax: () -	

G. Demolition Schedule (original notification is required 10 working days prior to the start of work) Revised?

Start Date: / /	Complete Date: / /
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H. Project Hold Revised?

Hold Begin Date: / /	Work Resume Date: / /
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