

Appendix H
Designated Substances Survey



October 2017

REPORT ON

**Designated Substances Survey
Highway 34 Overpass Replacement at County Road 17
(Site No. 27-51)
Hawkesbury, Ontario
W.P 4203-15-00**

Submitted to:

Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, Ontario
N6A 5R2



Report Number: 1772182 (5050) DSS

Distribution:

1 e-copy - Dillon Consulting Ltd.
1 e-copy - Golder Associates Ltd.

REPORT





Executive Summary

The Executive Summary highlights key points from the report only. For complete information and findings, as well as the limitations, the reader should examine the complete report.

Golder Associates Ltd. (Golder) was retained by Dillon Consulting Limited (Dillon) (the "Client") to conduct a Designated Substances Survey (DSS) of the Highway 34 Overpass at County Road No. 17, in Hawkesbury, Ontario (the "Site").

It should be noted that only the south side of the Site was accessible for assessment; however, the north side was visually observed. It is assumed that the findings related to the south side of the Site will apply to the north side.

The focus of the DSS was the eleven designated substances, as defined in Ontario Regulation 490/09 *Designated Substances* (O. Reg. 490/09) made under the Ontario *Occupational Health and Safety Act*, R.S.O. 1990 Chapter O.1, as amended (OHSA). Substances surveyed included acrylonitrile, arsenic, asbestos, benzene, coke oven emissions, ethylene oxide, isocyanates, lead, mercury, silica and vinyl chloride.

Asbestos-Containing Materials

Golder's scope of work included an assessment of the accessible areas of the Country Road. No. 17 Overpass (i.e., joint and connection materials, asphalt, and caulking and parging materials).

A total of 18 samples of suspect asbestos-containing materials (ACMs) were collected at the Site and submitted for asbestos content analysis representing six (6) homogeneous materials. Homogeneous materials sampled included two (2) joint materials, one (1) leveling material, one (1) cementitious parging material, and one (1) caulking material.

Based on the analytical results, the following materials were identified to be ACMs and any repair, removal, or disturbance should be conducted in accordance with *Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations*, as amended (O. Reg. 278/05):

- **Overpass curb/rail wall joint material – grey (samples JM-Wall-01a to 01c): 40% Chrysotile; and**
- **Drain pipe caulking – black (samples CLK-Pipe-01a to 01c): 35% Chrysotile.**

Analytical laboratory results of all suspect ACM samples collected are summarized within Appendix C (Table C.1) and the Laboratory Test Report on the asbestos analysis are included within Appendix D.

Electrical and/or other embedded conduits were not observed within the immediate vicinity of the Site; however, they may be concealed underground or within structural elements. Suspect ACMs may exist within such conduits and should be assumed to be asbestos-containing unless proven otherwise by laboratory testing.

The overpass is equipped with two drains; one on the south and one on the north side. Only the south drain was accessible during the site assessment. Attempts were made to open the drain cover; however, the cover was sealed by weathering and debris. Suspect ACMs may be encountered within the drains and must be assumed to be asbestos-containing unless proven otherwise by laboratory testing.



Silica-Containing Materials

The concrete and asphalt at the Site are presumed to be silica-containing materials. Activities that may cause disturbance to these materials must be conducted in accordance with the OHSA and the MOL Silica Guideline. An overview of silica worker precautions is provided in Section 6.3 herein.

Other Designated Substances

No other designated substances, as defined in O. Reg. 490/09 under the OHSA, were observed at the Site. If any additional materials are identified and are expected to be impacted by the project that are not otherwise mentioned within this report, Golder should be contacted to provide further evaluation.



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1.0 INTRODUCTION

Golder Associates Ltd. (Golder) was retained by Dillon Consulting Limited (Dillon) (the Client) to conduct a Designated Substances Survey (DSS) of the Highway 34 Overpass at County Road No. 17, in Hawkesbury, Ontario (the "Site").

The focus of the DSS was the eleven designated substances, as defined in Ontario Regulation 490/09 *Designated Substances* (O. Reg. 490/09) made under the Ontario *Occupational Health and Safety Act*, R.S.O. 1990 Chapter O.1, as amended (OHSA). Substances surveyed included acrylonitrile, arsenic, asbestos, benzene, coke oven emissions, ethylene oxide, isocyanates, lead, mercury, silica and vinyl chloride.

2.0 PROJECT BACKGROUND

This DSS was limited to the accessible areas of the Site. It should be noted that only the south side of the Site was accessible for assessment; however, the north side was visually observed. It is assumed that the findings related to the south side of the Site will apply to the north side.

3.0 SCOPE OF WORK

The scope of work for the DSS was limited to the following:

- Developing a project and project-specific Health and Safety Plan for the Site;
- Visually identifying and inventorying suspected designated substances at the Site;
- Collecting representative bulk samples of suspected asbestos-containing materials (ACMs) and suspected lead-containing paints (LCPs), if any, and submitting these samples to an independent accredited laboratory for analysis;
- Providing approximate locations, condition and quantification of ACMs, if any;
- Providing approximate locations and condition where LCP samples were collected, if any; and,
- Preparation of one (1) pdf Designated Substances Report (DSR) for the Site assessed, including recommended remediation procedures, if applicable. This report is required by the Ministry of Labour (MOL) to be on-site during construction activities.

4.0 REGULATIONS, GUIDELINES AND STANDARDS

Section 30 of the OHSA requires that, prior to beginning a construction project (including building renovation or demolition); a document summarizing the presence of these designated substances must be available to contractors and subcontractors. This report serves that purpose.

A summary of applicable regulations, guidelines and standards are included in Appendix A.

5.0 METHODOLOGY

The Site assessment was completed on September 20, 2017, by Anne Yee, Environmental Health and Safety (EHS) Consultant. Site work was conducted in accordance with standards outlined in the OHSA and Golder's project-specific Health and Safety Plan for the Site without incident.

A summary of applicable methodologies are included in Appendix B.



6.0 RESULTS AND DISCUSSION

6.1 Asbestos-Containing Materials

The asbestos sampling completed at the Site was focused on suspected ACMs that may be disturbed or impacted during work at the Site.

A total of 18 samples of suspect ACMs were collected at the Site and submitted for asbestos content analysis representing six (6) homogeneous materials. Homogeneous materials sampled included two (2) joint materials, one (1) levelling material, one (1) cement parging material, and one (1) caulking material:

- Overpass curb/rail wall joint material – grey (samples JM-Wall-01a to 01c);
- Overpass cementitious leveling material – light grey (samples CLM-Ground-01a to 01c);
- Drain pipe cementitious parging material – grey (samples CPM-Pipe-01a to 01c);
- Drain pipe caulking material – black (samples CLK-Pipe-01a to 01c);
- Wing wall/abutment wall joint material – black (samples JM-Wall-02a to 02c); and,
- Overpass asphalt – grey/black (samples Aspht-01a to 01c).

Based on the analytical results, the following materials were identified to be ACMs and any repair, removal, or disturbance of these ACMs must be conducted in accordance with O. Reg. 278/05:

- **Overpass curb/rail wall joint material – grey (samples JM-Wall-01a to 01c): 40% Chrysotile; and**
- **Drain pipe caulking – black (samples CLK-Pipe-01a to 01c): 35% Chrysotile.**

Analytical laboratory results of all suspected ACM samples collected are summarized within Appendix C (Table C.1) and Laboratory Test Reports on the asbestos analysis are included within Appendix D.

Electrical and/or other embedded conduits were not observed within the immediate vicinity of the Site; however, they may be concealed underground or within structural elements. Suspect ACMs may be encountered within such conduits and must be assumed to be asbestos-containing unless proven otherwise by laboratory testing.

The overpass is equipped with two drains; one on the south and one on the north side. Only the south drain was accessible during the site assessment. Attempts were made to open the drain cover; however, the cover was sealed by weathering and debris. Suspect ACMs may be encountered within the drains and must be assumed to be asbestos-containing unless proven otherwise by laboratory testing.

6.2 Silica

O. Reg. 490/09, Section 19, specifies that an employer shall carry out an assessment of the exposure or likelihood of exposure of a worker to a designated substance in the workplace and record it in writing.

Suspected silica-containing materials within the work areas at the Site include concrete and asphalt.

Disturbance to the concrete and asphalt during this project may cause worker exposure to be greater than the Ontario Exposure Limit Time-Weighted Average (OEL-TWA) for airborne silica. Disturbance of these materials should be conducted in accordance with the OHSA and the MOL Silica Guideline. An overview of silica worker precautions is provided in Section 6.3 herein. If conditions change or activities are scheduled where exposure to silica becomes more likely, an additional worker exposure assessment must be completed at that time.



6.3 Silica Worker Precaution Overview

Precautions against silica exposure during disturbance of these materials may be required during the project. Disturbance of these materials should be conducted in accordance with the OHSA and MOL Silica Guideline. The MOL Silica Guideline provides recommended safe measures and procedures addressing construction-related work involving disturbance of this material that may generate an exposure risk. Upon finalization of the contractor methodologies that are expected to be used during the disturbance of silica-containing building materials, a competent individual should be appointed to complete a worker exposure risk assessment. The additional assessment will be required in order to determine the expected airborne silica dust concentration generated during the work activities and the extent of silica worker precautions required during the project.

- Dust suppression techniques, such as water misting, should be used to minimize the spread of dusts;
- Workers required to demolish or disturb silica-containing products should be trained in the hazards of silica exposure and respiratory protection. Workers should be fit-tested for the respirator worn and, at a minimum, use half-face respirators equipped with P100 filter cartridges. Further protection may be required depending on the method of disturbance and the MOL Silica Guideline should be consulted;
- A work area should be defined where appropriate respiratory protection and protective clothing is required such that the area outside the work area is not anticipated to be affected by dust generated during the work. Appropriate signage should be displayed around the perimeter of the work area indicating the hazards of silica and access to the work area be restricted to trained workers only; and,
- A wash station should be provided for worker decontamination, including access to water. Workers should be instructed on good personal hygiene a given on-site access to wash their hands and face prior to eating, drinking and chewing gum and prior to exiting the work area.

Note that the above is not an extensive list but provides some of the main points within the MOL Silica Guideline.

6.4 Other Designated Substances

No other designated substances, as defined in O. Reg. 490/09 under the OHSA, were observed within the proposed work areas at the Site.

7.0 LIMITATIONS

This report was prepared for the exclusive use of Dillon Consulting Limited (Dillon). This report is based on samples and information collected during the Site visit conducted by Golder Associates Ltd. on September 20, 2017, and is based solely on Site conditions encountered at the time of the sampling, as described in this report.

The conclusions and recommendations contained in this report are based upon professional opinions with regard to the subject matter. These opinions are in accordance with currently accepted environmental assessment standards and practices applicable to these locations and are subject to the following inherent limitations:

The data and findings presented in this report are valid as of the date of the investigation. The passage of time, manifestation of latent conditions or occurrence of future events may warrant further exploration at the properties, analysis of the data, and re-evaluation of the findings, observations, and conclusions expressed in this report.



DSS OF HIGHWAY NO. 34 OVERPASS, HAWKESBURY, ONTARIO

The findings, observations and conclusions expressed by Golder Associates Ltd. in this report are not, and should not be considered, an opinion concerning compliance of any past or present owner or operator of the Building with any federal, provincial or local laws or regulations.

Although efforts were made to expose and identify all potential designated substances within the specified areas at the Site, there is a possibility that additional designated substances may be present in concealed areas or other areas not included as part of this DSS assessment. The DSS required discrete destructive sampling to be performed and all samples were collected with the approval of the Site Representative.

As such, if additional and suspected ACMs are encountered during project activities that are not included in this report, it is recommended that a further investigation be conducted at that time. As such, in the case that suspected ACMs cannot be tested, they must be treated as ACMs until proven otherwise. Should materials encountered during project activities be found to contain asbestos, these materials must be managed in accordance with O. Reg. 278/05.



8.0 CLOSURE

We trust that this report meets your requirements and current needs. If you have any questions regarding the content of this report or require any further information, please do not hesitate to contact the undersigned at (613) 592-9600. Thank you for the opportunity to be of service. We look forward to working with you again.

Yours truly,

GOLDER ASSOCIATES LTD.

Anne Yee, B.Sc.
EHS Consultant, Project Manager

Tim Seabert, M.Sc., CRSP
EHS Practice Leader / Occupational Hygienist

AY/TAS/ca

n:\active\2017\3 proj\1772182 mto ret 4016-e-0012 er-e mega 6\assignment #5 - hwy 34 and county rd 17 hawkesbury\dss and enviro\report\1772182_5050_dss_dillon_hwy 17_cr 34_hawkesbury.docx

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APPENDIX A

Regulations and Guidelines



REGULATIONS AND GUIDELINES

OHSA, R.S.O. 1990, c.0.1

The Ontario *Occupational Health and Safety Act* (OHSA), outlines designated substances that may be present at the Site. The designated substances referred to under Section 30 of the OHSA are regulated under two regulations, which specify occupational exposure limits and any required assessment and control programs. Section 30 of the OHSA requires that, prior to beginning a construction project (including site renovation or demolition) a document summarizing the presence of these designated substances must be available to contractors and subcontractors requesting tenders. This report serves that purpose, however; it does not exclude the requirement for project specifications and scaled drawings outlining abatement areas, quantities and specific procedures typically required in a demolition tender contract.

Asbestos

Ontario Regulation 278/05 entitled *Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations*, as amended (O. Reg. 278/05), made under the OHSA, outlines specific procedures for the identification of ACMs in buildings and on construction sites and protocols for their removal. Under this regulation, if ACMs are suspected to be present or ought reasonably to be suspected, locations of the materials must be documented and re-inspected at reasonable intervals to determine their condition.

Prior to a re-development, renovation or demolition project, a document summarizing the presence of all ACMs must be available to contractors and subcontractors requested to tender. ACMs in good condition can remain at the Site in accordance with the details outlined for ongoing asbestos management. All ACMs must be removed or managed appropriately prior to any disturbance caused by the re-development, renovation or demolition process in accordance with provincial regulations.

R.R.O. 1990, Regulation 347 entitled *General – Waste Management* as amended (O. Reg. 347), made under the Ontario *Environmental Protection Act*, R.S.O. 1990, Chapter E.19, as amended sets out requirements for general waste management including ACM. The regulation defines "asbestos waste" as "solid or liquid waste that results from the removal of asbestos-containing construction or insulation materials or from the manufacture of asbestos-containing products and contains asbestos in more than a trivial amount or proportion". This regulation requires the disposal of asbestos waste in a double sealed container, properly labelled and free of cuts, tears or punctures. The waste must be disposed of in a licensed waste facility which has been properly notified of the presence of asbestos waste.

Lead

Lead is regulated under Ontario Regulation 490/09 entitled *Designated Substances* (O. Reg. 490/09), as amended and made under the OHSA. This regulation prescribes occupational exposure limits (OELs) and other requirements surrounding engineering controls, work practices, hygiene practices and facilities for workers who may become exposed to lead.

The Occupational Health and Safety Branch of the Ontario Ministry of Labour (MOL) published their Guideline entitled *Lead on Construction Projects*, ("MOL Lead Guideline", revised April 2011) to raise the awareness of employers and workers in the construction industry of the hazards posed by lead in construction and the measures and procedures that should be taken to control those hazards. Currently, this document represents due diligence practice for lead exposure control on construction projects, as enforced by the MOL under the General Duty clause 25(2)(h) of the OHSA. As such, it is referenced within the report, where appropriate, to provide guidance on appropriate handling and exposure control procedures when dealing with lead.



APPENDIX A

Regulations and Guidelines

Golder understands the MOL currently does not include criteria for classification LCP, and that, as such, the MOL considers the presence of any detectable concentration of lead in a paint or coating as a LCP. Therefore, in these circumstances, Golder considers all paints with any detectable concentration of lead to be a LCP.

Disposal of lead must be conducted in accordance with the requirements of O. Reg. 347.

Silica

Silica is regulated under O. Reg. 490/09. This Regulation sets out occupational exposure standards and prescriptive requirements surrounding engineering controls, work practices and hygiene practices and facilities for workers who may become exposed to crystalline silica, namely cristobalite, quartz and tripoli. As set out in O. Reg. 490/09, an employer shall take all reasonable precautions to prevent worker exposure to silica.

Procedures for workers involved in construction/demolition activities occurring on a site where silica is disturbed are outlined in the MOL Guideline entitled *Silica on Construction Projects*, ("MOL Silica Guideline", revised April 2011).

The MOL Silica Guideline is referenced within the report, where appropriate, to provide guidance on recommended handling and exposure control procedures when dealing with silica on construction projects. The MOL Silica Guideline is enforceable as a reasonable precaution under the general duty clause 25(2)(h) of the OHSA.

Mercury

Mercury is regulated under O. Reg. 490/09. This regulation sets out occupational exposure standards and prescriptive requirements surrounding engineering controls, work practices and hygiene practices and facilities for workers who may become exposed to mercury.

Disposal of materials containing mercury shall be done in accordance with O. Reg. 347.

Other Designated Substances

In addition to the four designated substances that have a high probability of being present at the Building, which are discussed in detail in the previous sections, the following seven designated substances as defined in the regulations under the OHSA were included in this survey: acrylonitrile, arsenic, benzene, coke oven emissions, ethylene oxide, isocyanates and vinyl chloride. Based on Golder's professional experience, none of these substances were expected to be present and, as such, no specific observations or sampling of materials potentially containing these substances were undertaken.



APPENDIX B

Methodology



METHODOLOGY

Suspected Asbestos-Containing Materials

Effective November 1, 2005, O. Reg. 278/05, stipulates that a minimum number of samples per “homogeneous material” (a material that is uniform in colour and texture) are required to verify the presence or absence of asbestos.

The number of samples of each “homogeneous material” was collected in accordance with Bulk Material Samples of O. Reg. 278/05 summarized in Table B.1 below:

Table B.1: Bulk Material Samples – Asbestos

Type of Material	Size of Area of Homogeneous Material	Minimum Number of Samples
Surfacing material, including without limitation material that is applied to surfaces by spraying, by troweling or otherwise. Examples include acoustical plaster on ceilings and fireproofing materials on structural members	Less than 90 m ² (969 ft ²)	3
	90 or more m ² , but less than 450 m ² (4,844 ft ²)	5
	450 or more m ² (more than 4,844 ft ²)	7
Thermal insulation, except as described below	Any size	3
Thermal insulation patch	Less than 2 linear meters (6.6 ft.) or 0.5 m ² (approximately 5.4 ft ²)	1
Other material	Any size	3

Representative samples of suspected ACMs were submitted to an independent accredited laboratory (EMSL Canada, Inc., 22 Antares Drive, Ottawa, Ontario, NVLAP accreditation #201040-0) for asbestos content analysis. Polarized Light Microscopy was completed in accordance with EPA methodologies and dispersion staining techniques (EPA 600/R-93/116). Sample collection and analysis was conducted as per O. Reg. 278/05. Samples from homogeneous areas were grouped together and analyzed.

Materials reported to contain less than 0.5% asbestos (dry weight), including those referred to as less than the limit of detection (<LOD) or trace, are not considered to be asbestos-containing under current regulations. The LOD is 0.5%.

Suspected Lead-Containing Materials

Analyzing, sampling, and visual assessment of suspected lead-containing materials, specifically paint, was completed as part of the survey. Samples of suspected lead-containing paints were extracted using a clean knife and scraping off a small piece of the material. Care was taken to penetrate all paint layers at each sample location.

Collected samples, if any, were placed in sealed bags and labelled for submission to EMSL Canada, Inc., 2756 Slough Street, Mississauga, Ontario (American Association for Laboratory Accreditation, Accredited Environmental Testing Certificate #2845.08) for lead analysis following EPA method SW 846 3050B/7000B. Each sample is digested, diluted and analyzed by flame atomic absorption spectroscopy.



Suspected Mercury-Containing Materials

An assessment for potential mercury-containing equipment installed at the Site was completed as part of the survey. Mercury-containing thermostats and fluorescent light tubes that may be impacted during the renovation activities were noted, where observed. Elemental mercury may be present in switches and electrical switch gear at the Site. Trace amounts of mercury are present as a vapour within metal halide light bulbs and fluorescent light tubes. These light bulbs and tubes may pose an occupational hazard to unprotected workers if broken.

Suspected Silica-Containing Materials

A visual assessment was completed to determine the potential for silica-containing materials to be present within the renovation areas at the Site.

Other Designated Substances

Other designated substances as defined in O. Reg. 490/09 under the OHSA include acrylonitrile, arsenic, benzene, coke oven emissions, ethylene oxide, isocyanates and vinyl chloride. Based on professional experience, none of these substances were expected to be present and, as such, no specific observations or sampling of materials potentially containing these substances were undertaken as part of this assessment.






APPENDIX C




Spreadsheet of Findings

APPENDIX C
Spreadsheet of Findings - Asbestos Analysis

Table C.1: Summary of Materials Sampled for Asbestos Analysis

Material Description	Material Location	Observed Estimated Quantity	Condition	Friable (Yes / No)	Accessibility	Sample #	Asbestos Concentration (%) and Type	Photograph
Curb/Rail wall joint material – grey	Overpass – Between concrete curb/rail walls	South side: approximately 7 joints North side: assumed to have approximately 7 joints	Fair to Poor	No	A	JM-Wall-01a to 01c	40% Chrysotile	
Cementitious leveling material – light grey	Overpass – Ground – by curb/rail	N/A ⁽¹⁾	N/A	N/A	N/A	CLM-Ground-01a to 01c	None detected	
Cementitious parging material - grey	Around the drain pipe	N/A	N/A	N/A	N/A	CPM-Pipe-01a to 01c	None detected	

APPENDIX C
Spreadsheet of Findings - Asbestos Analysis

Material Description	Material Location	Observed Estimated Quantity	Condition	Friable (Yes / No)	Accessibility	Sample #	Asbestos Concentration (%) and Type	Photograph
Caulking – black	Around the drain pipe connection seam	South side: approximately 12 inches North side: assumed to have approximately 12 inches	Fair to Poor	No	A	CLK- Pipe-01a to 01c	35% Chrysotile	
Wing wall / abutment wall joint material – black	Between wingwall/abutment wall	N/A	N/A	N/A	N/A	JM-Wall- 02a to 02c	None detected	
Asphalt	Overpass asphalt	N/A	N/A	N/A	N/A	Asphlt-01a to 01c	None detected	

Notes: (1) "N/A" indicates not applicable. Sampled material contains <0.5% by weight and is not considered to be an asbestos-containing material (ACM).



APPENDIX D

Laboratory Test Reports



Asbestos Chain of Custody
EMSL Order Number (Lab Use Only):

671701947

EMSL CANADA, INC.
 22 ANTARES DRIVE, SUITE 102
 OTTAWA, ON K2E 7Z6
 PHONE: (343) 882-6076
 FAX: (343) 882-6077

Company Name: <u>Golder</u>		EMSL Customer ID:	
Street: <u>1031 Aberdeen Rd, Ottawa</u>		City: <u>Ottawa</u>	State/Province: <u>ON</u>
Zip/Postal Code: <u>K2H 5R7</u>	Country: <u>CANADA</u>	Telephone #:	Fax # <u>613-592-9601</u>
Report To (Name): <u>Anne Yee + Tim Seibert</u>		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email	
Email Address: <u>Anne.Yee@golder.com</u> <u>Tim.Seibert@golder.com</u>		Purchase Order:	
Project Name/Number: <u>1772182 PH5050</u>		EMSL Project ID (Internal Use Only):	
U.S. State Samples Taken:		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	
EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different - If Bill to is Different note instructions in Comments** Third Party Billing requires written authorization from third party			
Turnaround Time (TAT) Options* - Please Check			
<input type="checkbox"/> 3 Hour	<input type="checkbox"/> 6 Hour	<input type="checkbox"/> 24 Hour	<input type="checkbox"/> 48 Hour <input type="checkbox"/> 72 Hour <input type="checkbox"/> 96 Hour <input checked="" type="checkbox"/> 1 Week <input type="checkbox"/> 2 Week
*For TEM Air 3 hr through 6 hr, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.			
PCM - Air <input type="checkbox"/> Check if samples are from NY <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ OSHA 8hr. TWA PLM - Bulk (reporting limit) <input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) <input type="checkbox"/> NYS 198.1 (friable in NY) <input type="checkbox"/> NYS 198.6 NOB (non-friable-NY) <input type="checkbox"/> NYS 198.8 SOF-V <input type="checkbox"/> NIOSH 9002 (<1%)	TEM - Air <input type="checkbox"/> 4-4.5hr TAT (AHERA only) <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312 TEM - Bulk <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chatfield SOP <input type="checkbox"/> TEM Mass Analysis-EPA 600 sec. 2.5 TEM - Water: EPA 100.2 Fibers >10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking	TEM- Dust <input type="checkbox"/> Microvac - ASTM D 5755 <input type="checkbox"/> Wipe - ASTM D6480 <input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167) Soil/Rock/Vermiculite <input type="checkbox"/> PLM EPA 600/R-93/116 with milling prep (<1%) <input type="checkbox"/> PLM EPA 600/R-93/116 with milling prep (<0.25%) <input type="checkbox"/> TEM EPA 600/R-93/116 with milling prep (<0.1%) <input type="checkbox"/> TEM Qualitative via Filtration Prep <input type="checkbox"/> TEM Qualitative via Drop Mount Prep <input type="checkbox"/> Cincinnati Method EPA 600/R-04/004 - PLM/TEM (BC only) Other: <input type="checkbox"/>	
<input type="checkbox"/> Check For Positive Stop - Clearly Identify Homogenous Group		Filter Pore Size (Air Samples): <input type="checkbox"/> 0.8µm <input type="checkbox"/> 0.45µm	
Samplers Name: <u>Anne Yee</u>		Samplers Signature: <u>[Signature]</u>	
Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
<u>JM-Wall-01a,b,c</u>	<u>Rail/Wall - joint material - grey</u>		<u>SEPT 20, 2017</u>
<u>CLM-Ground-01b,c</u>	<u>Cementitious leveling material - light grey</u>		↓
<u>CPM-Pipe-01a,b,c</u>	<u>Cementitious Parging Material - grey</u>		
<u>CK-Pipe-01a,b,c</u>	<u>CaULKing - black</u>		
<u>JM-Wall-01a,b,c</u>	<u>Wing Wall / Abutment Wall - joint material - black</u>		
Client Sample # (s): <u>18</u>		Total # of Samples: <u>18</u>	
Relinquished (Client): <u>Anne Yee</u>		Date: <u>Sept 20, 2017</u>	Time: <u>2:45 pm</u>
Received (Lab): <u>Walton Ottawa</u>		Date: <u>9/20/17</u>	Time: <u>2:50 pm</u>
Comments/Special Instructions:			



EMSL Canada Inc.

22 Antares Drive Suite 102 Ottawa, ON K2E 7Z6
Phone/Fax: 343-882-6076 / (343) 882-6077
<http://www.EMSL.com> / ottawalab@EMSL.com

EMSL Canada Order 671701947
Customer ID: 55GOLA78
Customer PO:
Project ID:

Attn: Ann Yee
Golder Associates, Ltd.
1931 Robertson Road
Ottawa, ON K2H 5B7

Phone: (613) 592-9600
Fax: (613) 592-9601
Collected: 9/20/2017
Received: 9/20/2017
Analyzed: 9/26/2017

Proj: 1772182 PH5050

Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

Client Sample ID:	JM-WALL-01A	Lab Sample ID:	671701947-0001
Sample Description:	RAIL/WALL-JOINT MATERIAL-GREY		
TEST	Analyzed Date	Color	Non-Asbestos Fibrous Non-Fibrous Asbestos Comment
PLM	9/26/2017	Gray	0% 60% 40% Chrysotile
Client Sample ID:	JM-WALL-01B	Lab Sample ID:	671701947-0002
Sample Description:	RAIL/WALL-JOINT MATERIAL-GREY		
TEST	Analyzed Date	Color	Non-Asbestos Fibrous Non-Fibrous Asbestos Comment
PLM	9/26/2017	Gray	0% 60% 40% Chrysotile
Client Sample ID:	JM-WALL-01C	Lab Sample ID:	671701947-0003
Sample Description:	RAIL/WALL-JOINT MATERIAL-GREY		
TEST	Analyzed Date	Color	Non-Asbestos Fibrous Non-Fibrous Asbestos Comment
PLM	9/26/2017	Gray	0% 60% 40% Chrysotile
Client Sample ID:	CLM-GROUND-01A	Lab Sample ID:	671701947-0004
Sample Description:	CEMENTIOUS LEVELING MATERIAL-LIGHT GREY		
TEST	Analyzed Date	Color	Non-Asbestos Fibrous Non-Fibrous Asbestos Comment
PLM	9/26/2017	Gray	0% 100% None Detected
Client Sample ID:	CLM-GROUND-01B	Lab Sample ID:	671701947-0005
Sample Description:	CEMENTIOUS LEVELING MATERIAL-LIGHT GREY		
TEST	Analyzed Date	Color	Non-Asbestos Fibrous Non-Fibrous Asbestos Comment
PLM	9/26/2017	Gray	0% 100% None Detected
Client Sample ID:	CLM-GROUND-01C	Lab Sample ID:	671701947-0006
Sample Description:	CEMENTIOUS LEVELING MATERIAL-LIGHT GREY		
TEST	Analyzed Date	Color	Non-Asbestos Fibrous Non-Fibrous Asbestos Comment
PLM	9/26/2017	Gray	0% 100% None Detected
Client Sample ID:	CPM-PIPE-01A	Lab Sample ID:	671701947-0007
Sample Description:	CEMENTIOUS PARGING MATERIAL-GREY		
TEST	Analyzed Date	Color	Non-Asbestos Fibrous Non-Fibrous Asbestos Comment
PLM	9/26/2017	Gray	0% 100% None Detected



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EMSL Canada Order 671701947
Customer ID: 55GOLA78
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

Client Sample ID: CPM-PIPE-01B **Lab Sample ID:** 671701947-0008
Sample Description: CEMENTIOUS PARGING MATERIAL-GREY

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	9/26/2017	Gray	0%	100%	None Detected	

Client Sample ID: CPM-PIPE-01C **Lab Sample ID:** 671701947-0009
Sample Description: CEMENTIOUS PARGING MATERIAL-GREY

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	9/26/2017	Gray	0%	100%	None Detected	

Client Sample ID: CLK-PIPE-01A **Lab Sample ID:** 671701947-0010
Sample Description: CAULKING-BLACK

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	9/26/2017	Black	0%	65%	35% Chrysotile	

Client Sample ID: CLK-PIPE-01B **Lab Sample ID:** 671701947-0011
Sample Description: CAULKING-BLACK

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	9/26/2017	Black	0%	65%	35% Chrysotile	

Client Sample ID: CLK-PIPE-01C **Lab Sample ID:** 671701947-0012
Sample Description: CAULKING-BLACK

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	9/26/2017	Black	0%	65%	35% Chrysotile	

Client Sample ID: JM-WALL-02A **Lab Sample ID:** 671701947-0013
Sample Description: WING WALL/ ABUTMENT WALL-JOINT MATERIAL-BLACK

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	9/26/2017	Brown	95%	5%	None Detected	

Client Sample ID: JM-WALL-02B **Lab Sample ID:** 671701947-0014
Sample Description: WING WALL/ ABUTMENT WALL-JOINT MATERIAL-BLACK

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	9/26/2017	Brown	95%	5%	None Detected	

Client Sample ID: JM-WALL-02C **Lab Sample ID:** 671701947-0015
Sample Description: WING WALL/ ABUTMENT WALL-JOINT MATERIAL-BLACK

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	9/26/2017	Brown	95%	5%	None Detected	



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Customer ID: 55GOLA78
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Project ID:

Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

Client Sample ID: ASPHT-01A **Lab Sample ID:** 671701947-0016
Sample Description: BRIDGE ASHPALT-GREY/BLACK

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	9/26/2017	Gray/Black	0%	100%	None Detected	

Client Sample ID: ASPHT-01B **Lab Sample ID:** 671701947-0017
Sample Description: BRIDGE ASHPALT-GREY/BLACK

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	9/26/2017	Gray/Black	0%	100%	None Detected	

Client Sample ID: ASPHT-01C **Lab Sample ID:** 671701947-0018
Sample Description: BRIDGE ASHPALT-GREY/BLACK

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	9/26/2017	Gray/Black	0%	100%	None Detected	

Analyst(s): _____

Ewa Krupinska PLM (12)
Simon Parent PLM (6)

Reviewed and approved by:

Simon Parent, Laboratory Manager
or Other Approved Signatory

None Detected = <0.1%. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above 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. Samples received in good condition unless otherwise noted. This report must not be used to claim product endorsement by NVLAP of any agency of the U.S. Government.

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