MAPLE ENVIRONMENTAL INC.
ENVIRONMENT, HEALTH & SAFETY CONSULTANTS

LIMITED DESIGNATED SUBSTANCE SURVEY REPORT (Roof)

Durham District School Board
Vaughan Willard Public School
1911 Dixie Road North
Pickering, Ontario

Presented to:
Durham District School Board
400 Taunton Road East
Whitby, Ontario
L1R 2K6

Attention: Richard Racioppa

April 2019

Maple Project No. 17894

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EXECUTIVE SUMMARY

Maple Environmental Inc. ('Maple') was retained by the Durham District School Board (DDSB) to perform a survey for Designated Substances as well as polychlorinated biphenyls (PCBs) and mould within the selected areas of Vaughan Willard Public School located at 1911 Dixie Road North, Pickering, Ontario (the 'Site'). It is our understanding that the building requires a survey to identify possible hazardous building materials that may be disturbed during the proposed roof replacement.

The survey was limited to: the 1956 Roof and the 1965 Roof. The findings of the current survey are summarized below. Please refer to the main body of this report for details on all materials.

Asbestos

No asbestos-containing materials (ACM) were identified within the surveyed area at the time of the assessment.

It should be noted that due to the presence of solid walls and ceilings (i.e. masonry walls and above solid ceilings) throughout the survey area, access for viewing within the walls was not always possible. Suspect asbestos-containing materials may be present within wall cavities that were not identified but are suspected to be present in this report. Caution should be taken when demolishing solid walls and ceilings within the areas being surveyed.

Lead

Based on the Laboratory Analysis Report for lead samples and visual confirmation observation made during the fieldwork:

- One (1) bulk sample was collected of the predominant paint colour and the results indicated that the painted surface is to be considered "low-level lead" (virtually safe).
- It should be noted that lead may also be present in wiring connectors, electric cable sheathing, solder joints on copper piping, ceramic glazes, lead sheeting, masonry mortar, and as sub-surface layers to the most recent paint layers currently applied, where present at the Site.

Silica

- Free crystalline silica, present as common construction sand, is present in all concrete and masonry products where present within the surveyed areas.

Mould

- No visible mould growth was observed to be present within the surveyed area at the time of the assessment.

- It is possible that mould growth is present in concealed areas such as wall cavities, pipe chases, etc. or in areas not currently assessed by Maple. The client should notify Maple should any water damage or suspect mould growth be discovered.

PCBs

- No lights were observed to be present within the surveyed area.

Recommendations

Based on the Laboratory Analytical Results and observations made on Site, Maple provides the following recommendations.

- Low Level Lead paints (0.1% or less) are considered virtually safe provided that;
    - airborne lead concentrations are kept below 0.05 mg/m^3
    - general dust suppression and worker hygiene procedures are utilized
    - torching or other activities that create fumes are not completed
- Disturbance of paints that are considered Lead-Containing or Lead-Based should be completed using Lead abatement procedures as appropriate in accordance with EACO and Ministry of Labour Guidelines as outlined in Section 5.0 of the Report.
- Further, prior to disposal it is recommended that materials containing lead should be sampled and analyzed for Metals/Inorganics using the Toxicity Characteristic Leaching Procedure (TCLP) as described under O. Reg. 347. The testing is required to determine waste classification in accordance with Ontario Regulation 347 of R.R.O. 1990 made under the Environmental Protection Act amending Reg. 558/00.
- Proper dust suppression techniques and other safety precautions to control possible generation of silica dust from the demolition of concrete and masonry products present in the surveyed area should follow those outlined in the Ministry of Labour Guideline- Silica on Construction Projects, 2004.

Appropriate procedures for asbestos, lead, mercury, silica, mould and PCBs must be observed if these materials are likely to be disturbed by scheduled renovations. Please refer to Section 5.0 of the report to review the required procedures.

Consideration should be given to assessing other areas of the building that could be associated with the current project, including travel path, mechanical or electrical ties in the areas outside of the immediate project area, and penetrations through the slab impacting floors below or above.

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1.0 INTRODUCTION

Maple Environmental Inc. ('Maple') was retained by Durham District School Board (DDSB) to perform a survey for Designated Substances as well as polychlorinated biphenyls (PCBs) and mould within selected areas of Vaughan Willard Public School located at 1911 Dixie Road North, Pickering, Ontario (the 'Site'). It is Maple's understanding that the building requires a survey to identify possible hazardous building materials that may be disturbed during the proposed roof replacement.

The survey was limited to, the 1956 and the 1965 roof sections.

Section 30 of the Ontario Occupational Health and Safety Act requires that the following Designated Substances be included in a Designated Substance Survey:

Asbestos	***Benzene***
Lead	***Acrylonitrile***
Mercury	***Coke Oven Emissions***
Silica	***Arsenic***
Isocyanates	***Ethylene Oxide***
Vinyl Chloride Monomer	

Additional detailed information with respect to asbestos was collected at the time of the survey to ensure compliance with Ontario Regulation 278/05.

The assessment was performed by Scott Knight of Maple on April 23, 2019.

2.0 APPLICABLE ONTARIO REGULATIONS

Applicable Ontario Regulations for each of the materials included in the investigation are briefly described below.

2.1 Designated Substances and Other Hazardous Materials

Section 30 of the Occupational Health and Safety Act requires building owners or their agents (architects, general contractors, etc.) to prepare or have prepared a Designated Substance report for specified potentially hazardous materials possibly present in a facility. The owner must ensure that a prospective constructor has received a Designated Substance report before entering into a binding contract with the contractor. The owner is liable to the contractor for damages and costs arising from unreported materials (of which the owner should reasonably have been aware) and could also be subject to orders and fines from the Ministry of Labour.

The disturbance of asbestos materials on construction projects is controlled by Ministry of Labour Regulation R.R.O. 2005/278. The disposal of asbestos waste is controlled by Ministry of Environment Regulation, R.R.O. 1990/347.

There are no specific Ministry of Labour regulations for control of the other Designated Substances on construction projects. However, the Ministry of Labour actively enforces the general duty clause of the Health and Safety Act which protects workers and provides guidance on exposure monitoring, permissible exposure levels, medical monitoring, etc. for all Designated Substances.

Although Regulations exist for many of the Designated Substances, they apply to industry settings using Designated Substances in manufacturing processes, and do not apply to general property management, renovation or maintenance of buildings.

Polychlorinated Biphenyls ("PCBs") and mould were also included in the investigation, which are not specifically named as Designated Substances. No specific regulations are attached to these materials but are generally governed by the due diligence section of the Health and Safety Act for employers to protect their workers.

2.2 Ontario Regulation 278/05 (Asbestos)

Ontario Regulation 278/05 applies to buildings with regards to maintenance, renovations or demolition work where asbestos-containing materials (ACM) is present and may be disturbed. The Regulation requires that a detailed asbestos inventory be performed in all buildings where friable and non-friable asbestos materials are present. The inventory must be available at the work place and must identify the type of asbestos, and location of asbestos on a room-by-room basis. The following report meets or exceeds the requirements for an asbestos survey under Ontario Regulation 278/05.

In addition, the regulation requires all buildings where asbestos has been used as part of the building to implement an Asbestos Management Program (AMP).

The major requirements of the AMP include:

- Preparation and maintenance of an on-site record of where asbestos material is located;
- Written notification provided to tenants or lessees occupying space where asbestos is present;
- Advise workers of the owner, other staff and outside contractors of the presence and location of ACM;
- Institute and maintain a program for the training and instruction of every worker employed in the building that is likely to work in close proximity to and may disturb asbestos.
- Update the asbestos report (minimum annually)
- Preparation of written asbestos work practices;
- Repair or removal of all damaged asbestos where it may be disturbed; and
- Other record keeping.

2.3 Ontario Regulation 347

Ontario Regulation 347 applies to the transport of waste from the location of generation to a landfill site authorized to receive specific wastes. The regulation also prescribes procedures on how the specific wastes are to be handled at the landfill site.

The major requirements of the building owner and the person(s) removing the waste are to ensure that:

- The waste is appropriately packaged and labelled;
- The transport vehicle is appropriately placard; and

- The waste is to be transported as directly as possible to the landfill site once it leaves the site.

Some wastes require the owner to register a Generator (of waste) number and many wastes require classification that can restrict or even prohibit their disposal in landfill.

It is important to note that the building owner can be held responsible for the waste until the waste disposal site accepts it.

2.4 Ontario Regulation 362

Ontario Regulation 362, made under the Ontario Environmental Protection Act applies to the waste management and transport of PCB waste from the location of generation to a landfill site authorized to receive specific wastes. The regulation also prescribes procedures on how the specific wastes are to be handled at the landfill site.

3.0 SURVEY SCOPE AND METHODOLOGY

The survey was limited to: the 1956 roof and the 1965 roof. The methodology included the assessment for hazardous materials and how the assessment was performed is outlined below.

In order to determine the location of materials included in the assessment, the project technologist entered the room where practical (i.e. where access was possible without the demolition of walls, roof or ceilings or destruction of flooring). Representative views were made above accessible suspended ceiling systems. Cavities within solid ceiling and wall systems were accessed via existing access panels only. The inventory did not include demolition of building systems or finishes to check on possible hidden conditions.

3.1 Asbestos-Containing Building Materials (ACM)

The scope of the survey included all friable asbestos products and all major non-friable asbestos materials. The term friable is applied to a material that can be readily reduced to dust or powder by hand or moderate pressure. Asbestos materials that are friable have a much greater potential to release airborne asbestos fibres when disturbed.

Typical friable asbestos materials include: sprayed fireproofing or thermal insulation, textured (stippled) plaster, and thermal mechanical insulation. Typical non-friable materials include: asbestos cement (transite) products, vinyl floor tiles, asbestos textiles and gaskets. Additional materials such as ceiling tiles, drywall joint compounds and vinyl sheet flooring are classified as non-friable, but because of their ability to release dust when disturbed are considered as “potentially friable” for the purpose of this report.

Bulk samples of materials suspected to contain asbestos were collected for analysis during the survey. Specifically, a small volume of material was removed either from a damaged section of suspect material or taken from intact material. In these latter cases, the material from which the sample was collected was sealed with tape to temporarily prevent fibre release. Samples were placed in plastic bags and sealed until receipt by an independent laboratory. To ensure quality results, the independent laboratory chosen successfully participates in an "Asbestos Proficiency Analytical

Testing Program". As such, these independent laboratories are responsible for their findings.

Bulk samples were collected in accordance with regulatory sampling requirements and with sufficient frequency to obtain a general pattern of asbestos use within the building. Due to building renovations or modifications that may have occurred in the past, the consistency of the application of asbestos materials may not be uniform throughout the entire Site. It is important to note that without sampling each individual wall, pipe section, ceiling tile etc. it is not possible to identify the asbestos content of every material present in the selected areas. For this reason, visually similar materials are considered to be homogenous with those already sampled elsewhere in the building without additional analysis.

O. Reg. 278/05 prescribes that a minimum number of samples be collected of materials suspected to contain asbestos. These minimum sampling requirements are summarized in Table 1, below.

Table 1 - Suspect ACM Bulk Sampling Requirements

Type of Material	Quantity of Material Present	Minimum # of Bulk Samples Required
Surfacing Materials (i.e. sprayed fireproofing, drywall joint compound, texture coat, and plaster)	Up to 90 sq. m. (1000 sq. ft.)	3
	From 90 sq. m. (1000 sq. ft.) to 450 sq. m. (5000 sq. ft.)	5
	Greater than 450 sq. m. (5000 sq. ft.)	7
All other potential ACM	Any	3

Excluding surfacing materials, the laboratory was instructed to cease analysis within Sample Groups of homogenous materials when one of the samples in the group is found to contain asbestos. For example, if three samples of a type of vinyl floor tile are collected (as required by O. Reg. 278/05) and submitted for analysis and the first sample is positively identified as containing asbestos, the balance of the sample group is not analysed.

EMC Scientific Inc. ('EMC'), an independent laboratory, was selected to analyse the collected bulk suspect asbestos samples. EMC successfully participates in an "Asbestos Proficiency Analytical Testing Program" and as such, is responsible for its findings. EMC followed the Code of Practice for the identification of asbestos in bulk material, as detailed in O. Reg. 278/05. Bulk samples were analysed using the Polarized Light Microscopy ("PLM") Technique with Dispersion Staining. The identification of asbestos fibre in bulk material is based on a collective set of parameters dependent on the unique shape and crystallographic properties of each fibre as viewed through the microscope. This method is useful for the qualitative identification of asbestos and the semi-quantitative determination of asbestos content in bulk materials expressed as a percent of projected area. The method identifies types of asbestos and also measures percent of asbestos as perceived by the analyst in comparison to standard area projections or trained experience.

The recommendations made as part of this report with respect to asbestos have taken into consideration: the condition and accessibility of the material, vibration, air movement, and general activities likely to occur within the vicinity of the ACM.

In each area or room inventoried, the technician recorded the quantity, condition (GOOD, FAIR, or POOR) of each suspect asbestos-containing material.

The definitions for condition and accessibility of the asbestos-containing items are as follows:

GOOD Material is intact with no visible signs of damage.

FAIR Material is visibly damaged but can be repaired.

POOR Material is damaged beyond repair and likely needs to be removed.

Where ACM is found to be in GOOD condition and not likely to deteriorate or fall, the general recommendation would be to re-evaluate the condition of the material on an annual basis (required by O. Reg. 278/05). This recommendation can be subject to change if the material is located in a manner that persons untrained in asbestos awareness could physically damage it.

Where ACM is found to be damaged (i.e. FAIR or POOR condition), a recommendation to have the material cleaned-up, repaired, removed, enclosed, or encapsulated is offered. The recommendation will also indicate which asbestos procedure should be used to perform the remedial work (i.e. Type 1, Type 2, Type 3, or Glove Bag Removal Methods).

3.2 Lead

The investigation included the collection and analysis of all major paint colour applications for the presence of lead in the paint. Other materials that possibly contain lead were identified by known historic use, where relevant. The lead in paint samples were analysed by EMSL Canada ('EMSL'), using atomic absorption spectrophotometry. EMSL is AIHA (American Industrial Hygiene Association) and NIOSH (National Institute of Occupational Safety and Health) accredited for this type of analysis. The Laboratory Analysis Report for lead in paint samples is included with this Report as Appendix II.

3.3 Mercury

The assessment included a visual identification of fluorescent light tubes, switches, electrical controls, heating system thermostats, thermometers, and other components historically known to contain mercury.

3.4 Other Designated Substances

Other materials listed in Section 1.0 of this Report were identified on a visual basis where present, as part of the current assessment. It should be noted that no manufacturing or heavy industrial activities are known by Maple to occur at the Site. Therefore, Designated Substances associated with these activities (i.e. those other than Asbestos, Lead, Mercury, and Silica) would not be expected to be present in the selected areas.

3.5 Mould

The assessment for mould was conducted in accordance with standard industry practice as set out in the Canadian Construction Association (CCA) "Mould Guidelines for the Canadian Construction Industry" for a visual assessment. Although there are no regulatory requirements in Ontario for such an assessment, the CCA Guidelines, and similar guidelines from other agencies have been accepted as the industry standard by most experts, consultants, the Ontario Ministry of Labour, and the Canadian Construction Association.

All guidelines and protocols for mould investigations indicate that investigations should be performed largely on a visual basis with limited collection of bulk and/or air samples. The Ontario Ministry of Labour has consistently enforced the removal of all mould from buildings regardless of mould genus or species, and therefore bulk samples or air samples for confirmation of mould are not typically collected for investigative purposes where mould is visible.

3.6 Polychlorinated Biphenyls

Manufacturers labels/codes collected from fluorescent lamp ballasts suspected of containing Polychlorinated Biphenyls ("PCBs") are compared with Environment Canada's document titled "Identification of Lamp Ballasts Containing PCBs", which identifies PCB-containing ballasts.

3.7 Limitations and Omissions from Scope

Due to the nature of building construction some limitations exist as to the possible thoroughness of any building materials inventory. The field observations, measurements, and analysis are considered sufficient in detail and scope to form a reasonable basis for the findings presented in this report. Maple warrants that the findings and conclusions contained herein have been made in accordance with generally accepted evaluation methods in the industry and applicable regulations at the time of the performance of the inventory.

It is possible that conditions may exist which could not be reasonably identified within the scope of the inventory or which were not apparent during the Site investigation. Maple believes that the information collected during the investigation concerning the property is reliable. No other warranties are implied or expressed.

During a standard ACM inventory performed for the purposes of regulatory compliance, it is industry practice to exclude certain suspect asbestos-containing materials from sampling. These materials are often excluded from sampling due to the risk of compromising the health and safety of the technician, other building occupants, or the integrity of the systems with which these materials are associated. Examples of such materials include; elevator brakes, roofing felts and mastics, high voltage wiring, mechanical packing and gaskets, underground services or piping, fire-doors, window caulking and levelling compound. Where observed, these materials were presumed to be ACM.

3.8 Drawings

Drawings included in Appendix III will indicate the locations of any major applications of an asbestos-containing material with the exception of mechanical insulations, drywall, plaster finishes and transite (which cannot be accurately depicted on drawings). The information depicted on the drawings is not to scale and is only

meant to provide a general representation of the locations of asbestos-containing materials.

4.0 INVENTORY FINDINGS

The findings of the survey are presented separately below for each of the eleven Designated Substances as well as microbial growth (mould), and polychlorinated biphenyls. Asbestos is further detailed by typical applications of asbestos.

4.1 Asbestos

The following is a brief discussion of the extent to which ACM was identified in the surveyed area. The discussion is organized under the headings of materials that are generally suspected of containing asbestos. The sample numbers refer to the laboratory analysis report presented as Appendix I and summarised in Table 2 below. Twenty-one (21) bulk samples were collected for the determination of asbestos content and submitted to the lab to be analysed. Due to the presence of more than one phase of material in some of the original samples the laboratory may have performed multiple analyses for some samples. As a result, a total of twenty-seven (27) samples were analyzed.

Table 2 - Summary of Analysis of Asbestos Bulk Samples

Sample No.	Room Name	Sample Description	Result
S01A	Wall	Grey Caulking	None Detected
S01B	Wall	Grey Caulking	None Detected
S01C	Wall	Grey Caulking	None Detected
S02A	Roof Vents	Orange Caulking	None Detected
S02B	Roof Vents	Orange Caulking	None Detected
S02C	Roof Vents	Orange Caulking	None Detected
S03A	Roof Vents	White Caulking	None Detected
S03B	Roof Vents	White Caulking	None Detected
S03C	Roof Vents	White Caulking	None Detected
S04A	Roof Vents	Grey Caulking	None Detected
S04B	Roof Vents	Grey Caulking	None Detected
S04C	Roof Vents	Grey Caulking	None Detected
S05A	Air Handling Unit	Brown Caulking	None Detected
S05B	Air Handling Unit	Brown Caulking	None Detected
S05C	Air Handling Unit	Brown Caulking	None Detected
R1	Roof Sample 1956 Building	Black Tar	None Detected
		Black Tar with Fibres	None Detected
R2	Roof Sample 1956 Building	Black Tar	None Detected
		Black Tar with Fibres	None Detected
R3	Roof Sample 1956 Building	Black Tar	None Detected
		Black Tar with Fibres	None Detected
R4	Roof Sample 1965 Building	Black Tar	None Detected
		Black Tar with Fibres	None Detected

Sample No.	Room Name	Sample Description	Result
R5	Roof Sample 1965 Building	Black Tar	None Detected
		Black Tar with Fibres	None Detected
R6	Roof Sample 1965 Building	Black Tar	None Detected
		Black Tar with Fibres	None Detected

No Asbestos-containing materials (ACM) are present within the surveyed area at the time of the assessment.

It should be noted that due to the presence of solid walls and ceilings (i.e. cinder block walls and above solid ceilings) throughout the survey area, access for viewing within the wall and ceiling cavities was not always possible. Suspect asbestos-containing materials may be present within wall and ceiling cavities that were not identified but are suspected to be present in this report. Caution should be taken when demolishing solid walls and ceilings within the areas being surveyed.

4.1.1 Sprayed Fireproofing

No sprayed fireproofing was identified within the surveyed area at the time of the assessment.

4.1.2 Thermal Mechanical Insulation (Friable)

No asbestos-containing mechanical insulations were present within the surveyed area.

Piping Systems:

No asbestos-containing pipe systems were identified within the surveyed area at the time of the assessment.

Pipe systems observed within the surveyed area were either not insulated.

Pipe Fittings:

No pipe fittings were found within the surveyed area at the time of the assessment.

Pipe Straights:

All pipe straights observed were either insulated with non-asbestos fibreglass and PVC or were un-insulated.

Duct Systems

Duct systems observed throughout the surveyed area were observed to be present and externally un-insulated.

Mechanical Equipment

The air handling unit was observed to be externally un-insulated.

4.1.3 Texture Finish (Friable)

No textured finishes were identified within the surveyed area at the time of the assessment.

4.1.4 Acoustic Ceiling Tiles (Potentially Friable)

No acoustic ceiling tiles were present in the surveyed area at the time of the assessment.

4.1.5 Vinyl Sheet Flooring (Potentially Friable)

No vinyl sheet flooring finishes were identified within the surveyed area at the time of the assessment.

4.1.6 Vinyl Floor Tile (Non-Friable)

No vinyl floor tile systems were identified within the surveyed area at the time of the assessment.

4.1.7 Asbestos Cement Products "Transite" (Non-Friable)

No asbestos cement products (Transite), were identified within the surveyed area at the time of the assessment.

4.1.8 Drywall Joint Compound (DJC) (Potentially Friable)

No drywall joint compound was identified within the surveyed area at the time of the assessment.

4.1.9 Plaster (Potentially Friable)

No plaster finishes were identified within the surveyed area.

4.1.10 Vermiculite (Friable)

No vermiculite insulation was observed to be present within the surveyed area at the time of the assessment. It should be noted that loose fill vermiculite insulation can often be present within voids of masonry and possibly some pre-manufactured surveyed area components that would not be identified during the course of this assessment.

4.1.11 Other

- Grey Caulking

  Grey caulking was observed to be applied to the exterior walls. Three (3) representative samples of grey caulking were collected (Sample Set S-01) and analyzed for asbestos. Analysis of Sample Set S-01 found that the samples do not contain asbestos.

- Orange Caulking

  Orange caulking was observed to be applied to rooftop vents. Three (3) representative samples of orange caulking were collected (Sample Set S-02) and analyzed for asbestos. Analysis of Sample Set S-02 found that the samples do not contain asbestos.

- White Caulking

  White caulking was observed to be applied to the rooftop vents. Three (3) representative samples of white caulking were collected (Sample Set S-03) and analyzed for asbestos. Analysis of Sample Set S-03 found that the samples do not contain asbestos.

- Grey Caulking

  Grey caulking was observed to be applied to the rooftop vents. Three (3) representative samples of grey caulking were collected (Sample Set S-04) and analyzed for asbestos. Analysis of Sample Set S-04 found that the samples do not contain asbestos.

- Brown Caulking

  Brown caulking was observed to be applied to the air handling unit. Three (3) representative samples of brown caulking were collected (Sample Set S-05) and analyzed for asbestos. Analysis of Sample Set S-05 found that the samples do not contain asbestos.

- Roof Core Samples

  Six (6) representative samples of roof core were collected (Sample Sets R1-R6) and analyzed for asbestos. Samples R1-R3 were collected from the 1956 roof section while samples R4-R6 were collected from the 1965 roof section. Analysis of Sample Sets R1-R6 found that the samples do not contain asbestos.

4.2 Lead

One (1) bulk paint sample was collected for determination of lead content and submitted to EMSL for analysis during the assessment. The sample number refers to the Certificate of Analysis Report presented as Appendix II and summarised in Table 3 below.

Table 3 – Summary of Analysis of Lead-in-Paint Samples

Sample No.	Locations	Sample Description	Result (%)
LBP1	Roof Top Vents	Green Paint	0.033

No regulations currently exist in Ontario defining the lower limit of lead-containing material. The Ontario Ministry of Labour (MOL) has issued a guideline for lead abatement, entitled Guideline – Lead on Construction Projects (2004) which is considered enforceable. The Guideline does not specify what constitutes a material as "lead-containing". Instead, it outlines procedures based on the concentration of airborne lead encountered during removal, as well as provides procedures and/or specific operations for lead-containing material removal. However, the Environmental Abatement Council of Ontario (EACO) Lead Guideline for Construction, Renovation, Maintenance or Repair document classifies paint as either Low-Level, Lead-Containing, or Lead-Based as follows:

TABLE 4 EACO Classification of Lead Paint	
Concentration of Lead (%)	**Definition**
0.1 or less	Low Level Lead (Virtually Safe)
Greater than 0.1 but less than 0.5	Lead-Containing
0.5 or greater	Lead-Based

Based on these criteria and the results of the sample analysis, the paint sample is considered to be "Low-Level Lead" (virtually safe).

4.3 Mercury

No mercury sources were observed at the time of the current assessment.

4.4 Silica

Free crystalline silica, present as common construction sand, is present in all concrete and masonry products where present in the Select areas surveyed.

4.5 Isocyanates

Free isocyanate compounds would not be expected to be found in a non-manufacturing facility.

4.6 Vinyl Chloride Monomer

Vinyl chloride monomer would not be expected to be found in a non-manufacturing facility.

4.7 Benzene

Benzene would not be expected to be found in a non-manufacturing facility.

4.8 Acrylonitrile

Acrylonitrile would not be expected to be found in a non-manufacturing facility.

4.9 Coke Oven Emissions

Coke oven emissions would not be expected to be found in a non-manufacturing facility.

4.10 Arsenic

Arsenic would not be expected to be found in a non-manufacturing facility.

4.11 Ethylene Oxide

Ethylene oxide would not be expected to be found in a non-manufacturing facility.

4.12 Mould

No visible mould growth was observed at the time of the assessment.

It is possible that mould growth is present in concealed areas such as wall or ceiling cavities, pipe chases, etc. or in areas not currently assessed by Maple. The client should notify Maple should any water damage or suspect mould growth be discovered.

4.13 Polychlorinated Biphenyls (PCBs)

No lights that were observed to be present within the surveyed area.

5.0 RECOMMENDATIONS

5.1 Asbestos

No known asbestos-containing materials were identified within the surveyed area at the time of the survey.

5.2 Lead

No paint finishes sampled were found to be lead-containing.

Low Level Lead paints (0.1% or less) are considered virtually safe provided that;

- airborne lead concentrations are kept below 0.05 mg/m^3
- general dust suppression and worker hygiene procedures are utilized
- torching or other activities that create fumes are not completed

Further, prior to disposal it is recommended that materials containing lead should be sampled and analyzed for Metals/Inorganics using the Toxicity Characteristic Leaching Procedure (TCLP) as described under O. Reg. 347. The testing is required to determine waste classification in accordance with Ontario Regulation 347 of R.R.O. 1990 made under the Environmental Protection Act amending Reg. 558/00.

5.3 Silica

Proper dust suppression techniques and other safety precautions to control possible generation of silica dust from the demolition of concrete and masonry products present in the building should follow those outlined in the Ministry of Labour Guideline- Silica on Construction Projects, 2004.

6.0 LIMITATIONS

Due to the nature of building construction some limitations exist as to the possible thoroughness of the subject investigation. The field observations are considered sufficient in detail and scope to form a reasonable basis for the findings presented in this report. Maple warrants that the findings and conclusions contained herein have been made in accordance with generally accepted evaluation methods in the industry and applicable regulations at the time of the performance of the assessment.

It is possible that conditions may exist which could not be reasonably identified within the scope of the investigation or which were not apparent during the site investigation. Maple believes that the information collected during the investigation period concerning the property is reliable. No other warranties are implied or expressed.

Information provided by Maple is intended for Client use ONLY. Any use by a third party, of reports or documents authored by Maple, or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. Maple accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted.

The liability of Maple or its staff will be limited to the lesser of the fees paid or actual damages incurred by the Client. Maple will not be responsible for any consequential or indirect damages. Maple will only be liable for damages resulting from negligence of Maple; all claims by the Client shall be deemed relinquished if not made within two years after last date of services provided.

Please contact Maple Environmental Inc. at (905) 257-4408 for inquiries regarding this project.

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APPENDIX I

LABORATORY ANALYSIS REPORT - ASBESTOS

emcscientific
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Laboratory Analysis Report

To:

Scott Knight
Maple Environmental Inc.
482 South Service Road East, Suite 116
Oakville, Ontario
L6J 2X6

EMC LAB REPORT NUMBER: A48509r
Job/Project Name: DDSB – Vaughan Willard Roof DSUB
Analysis Method: Polarized Light Microscopy – EPA 600
Date Received: Apr 24/19 **Date Analyzed:** Apr 24/19
Analyst: Jayoda Perera, *Analyst*
Reviewed By: Malgorzata Sybydlo, *Laboratory Manager*

Job No: 17894
Number of Samples: 21
Date Reported: Apr 24/19

Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)			
				Asbestos Fibres		Non-asbestos Fibres	Non-fibrous Material
S01A	A48509-1	Grey caulking on wall	Grey, caulking	**ND**			100
S01B	A48509-2	Grey caulking on wall	Grey, caulking	**ND**			100
S01C	A48509-3	Grey caulking on wall	Grey, caulking	**ND**			100
S02A	A48509-4	Orange caulking on vent	Red, caulking	**ND**			100
S02B	A48509-5	Orange caulking on vent	Red, caulking	**ND**			100
S02C	A48509-6	Orange caulking on vent	Red, caulking	**ND**			100
S03A	A48509-7	White caulking on vent	White, caulking	**ND**			100
S03B	A48509-8	White caulking on vent	White, caulking	**ND**			100
S03C	A48509-9	White caulking on vent	White, caulking	**ND**			100
S04A	A48509-10	Grey caulking on vent	Grey, caulking	**ND**			100
S04B	A48509-11	Grey caulking on vent	Grey, caulking	**ND**			100
S04C	A48509-12	Grey caulking on vent	Grey, caulking	**ND**			100
S05A	A48509-13	Brown caulking on AHU	Brown, caulking	**ND**			100
S05B	A48509-14	Brown caulking on AHU	Brown, caulking	**ND**			100

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Client's Job/Project Name/No.: 17894
Analyst: Jayoda Perera, *Analyst*

Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)			
				Asbestos Fibres		Non-asbestos Fibres	Non-fibrous Material
S05C	A48509-15	Brown caulking on AHU	Brown, caulking	**ND**			100
R1	A48509-16	Roofing samples on 1956 building	2 Phases: a) Black, tar b) Black, tar with fibres	 **ND** **ND**		 15	 100 85
R2	A48509-17	Roofing samples on 1956 building	2 Phases: a) Black, tar b) Black, tar with fibres	 **ND** **ND**		 15	 100 85
R3	A48509-18	Roofing samples on 1956 building	2 Phases: a) Black, tar b) Black, tar with fibres	 **ND** **ND**		 15	 100 85
R4	A48509-19	Roofing samples on 1965 addition	2 Phases: a) Black, tar b) Black, tar with fibres	 **ND** **ND**		 20	 100 80
R5	A48509-20	Roofing samples on 1965 addition	2 Phases: a) Black, tar b) Black, tar with fibres	 **ND** **ND**		 20	 100 80
R6	A48509-21	Roofing samples on 1965 addition	2 Phases: a) Black, tar b) Black, tar with fibres	 **ND** **ND**		 20	 100 80

Note:
1. Bulk samples are analyzed using Polarized Light Microscopy (PLM) and dispersion staining techniques. The analytical procedures are in accordance with EPA 600/R-93/116 method.
2. The results are only related to the samples analyzed. **ND** = None Detected (no asbestos fibres were observed), **NA** = Not Analyzed (analysis stopped due to a previous positive result).
3. This report may not be reproduced, except in full without the written approval of EMC Scientific Inc. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.
4. The Ontario Regulatory Threshold for asbestos is 0.5%. The limit of quantification (LOQ) is 0.5%.

APPENDIX II

LABORATORY ANALYSIS REPORT – LEAD

EMSL Canada Inc.
2756 Slough Street, Mississauga, ON L4T 1G3
Phone/Fax: (289) 997-4602 / (289) 997-4607
http://www.EMSL.com torontolab@emsl.com

EMSL Canada Or	551904723
CustomerID:	55MAPL78
CustomerPO:	17894
ProjectID:	

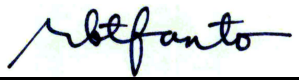
Attn: **Scott Knight**
Maple Environmental, Inc.
482 South Service Road East
Suite 116
Oakville, ON L6J 2X6

Phone:	(905) 257-4408
Fax:	(905) 257-8865
Received:	04/24/19 10:21 AM
Collected:	4/23/2019

Project: **DDSB - Vaughn Willard - 17894**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*Weight*	*RDL*	*Lead Concentration*
LBP1	4/23/2019	4/24/2019	0.2430 g	0.0082 % wt	0.033 % wt
551904723-0001	Site: Vent on Roof - Green Paint				



Rowena Fanto, Lead Supervisor
or other approved signatory

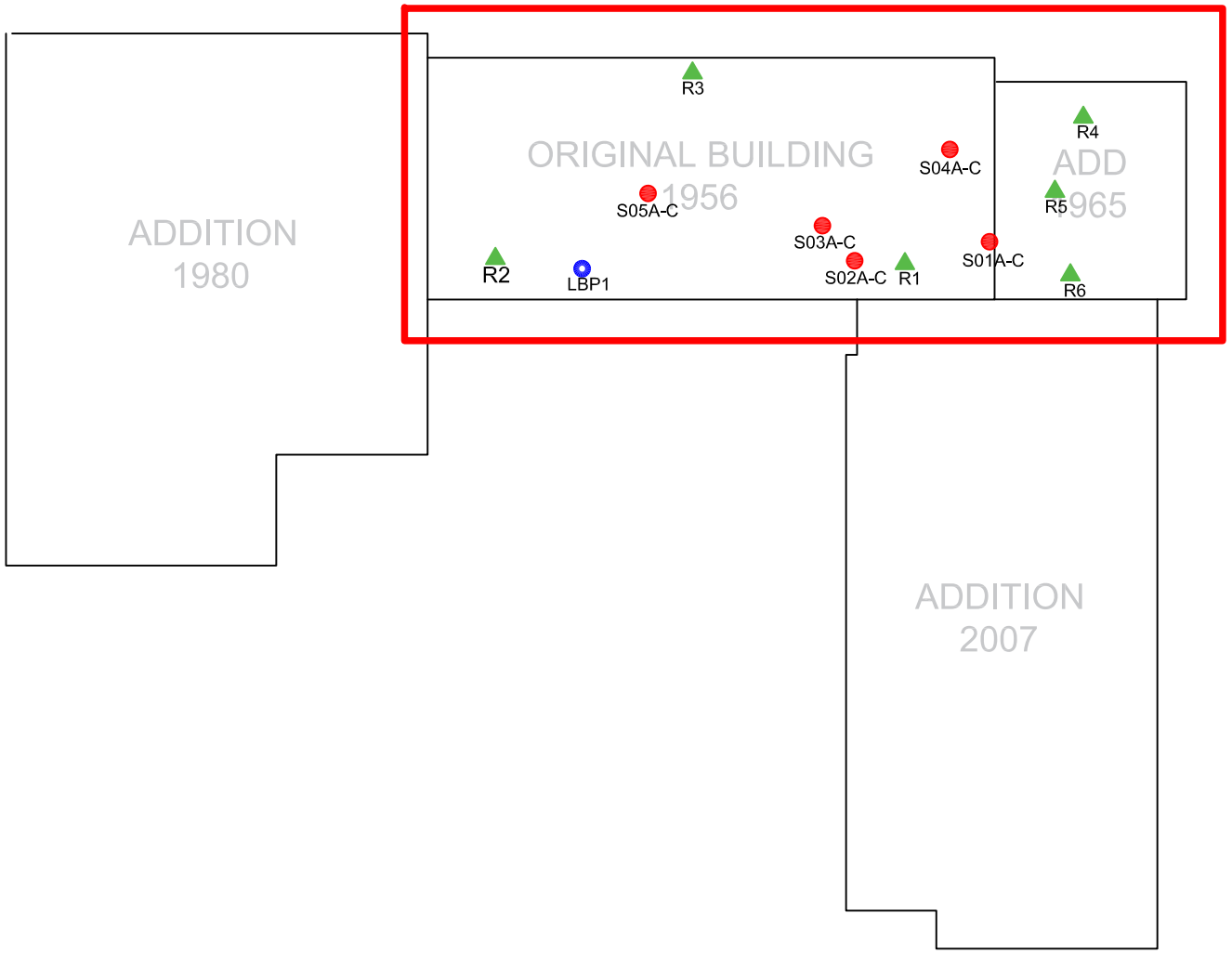
*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Cert #2845.08; AIHA-LAP, LLC - ELLAP #196142

Initial report from 04/25/2019 08:58:07

APPENDIX III

DRAWINGS



MAPLE ENVIRONMENTAL INC.
ENVIRONMENT, HEALTH & SAFETY CONSULTANTS

482 South Service Rd. E. - Suite 116
Oakville - Ontario - L6J-2X6
Tel: (905) 257 4408 - Fax: (905) 257 8865

www.MapleEnvironmental.com

PROJECT NO.:
17894

Drawn By:
L. Pallett

Checked By:
B. Panzer

SAMPLE LOCATIONS

SYMBOL	DESCRIPTION
	ASBESTOS BULK SAMPLE: S##
	LEAD BULK SAMPLE: L##
	ACM BULK ROOF SAMPLE: R##

SYMBOL	DESCRIPTION
	SURVEY AREA

Roof Designated Substance Survey

Durham District School Board

Vaughan Willard Public School
1911 Dixie Road North,
Pickering, ON L1V 1V4

Roof Plan

SCALE
NTS

SHEET
DS-01

DATE:
April 24, 2019