Designated Substances Survey
Mulock Farm
16780 Yonge Street
Newmarket, ON

Town of Newmarket

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Executive Summary

R.J. Burnside & Associates Limited (Burnside) was retained by the Town of Newmarket (the Town) to conduct a Designated Substances Survey (DSS) of the four buildings at Mulock Farm, located at 16780 Yonge Street, Newmarket, Ontario.

A DSS was conducted by Burnside on August 30, 2017 to determine the presence of designated substances and potential concerns regarding other hazardous building materials. In accordance with Section 30 of the Occupational Health and Safety Act (OHSA) "Duty of Project Owners", the owner of a property must provide to any renovation/demolition contractor(s) and/or subcontractor(s) a list of any or all designated substances present on the Site, regardless of whether the owner intends to demolish or retain the existing building(s).

This DSS was conducted based on current conditions and the understanding of the potential future use of the facility as a workplace as defined in the OHSA and used by the public. For the purposes of this DSS, the provisions of the protection of workers as defined in the OHSA is assumed to be sufficient for the public, as the public would spend less time in the facility and would not be conducting workplace activities such as renovations, maintenance and cleaning.

The DSS consisted of the following:

- A survey of the accessible areas within the four buildings occupying the property;
- Sampling and testing of suspect materials (e.g., suspected asbestos containing materials and lead-based paints);
- Submission of samples to an accredited laboratory for analysis;
- Interpretation of analytical data and identification of designated substances; and
- A review of site-specific management considerations and recommendations.

The following designated substances were identified:

- Asbestos was detected in pipe wrap, flooring and underlying mastic (adhesive);
- Lead was detected in the majority of paint samples collected from interior and exterior locations of the four buildings (main house, pool house, garage and shed).
- Mercury in small amounts, sealed in compact fluorescent lightbulbs (CFL) and thermostat;
- Silica (silica sand) as a component of concrete, masonry and brick; and
- Benzene as a component of fuel oil in four aboveground storage tanks (ASTs).

No other designated substances were suspected to be present or identified. No significant environmental issues or hazardous materials were suspected or noted.

It is noted that in accordance with Ontario Regulation (O. Reg.) 490/09 and O. Reg. 278/05, the Site is currently defined as a workplace and due to the presence of asbestos

containing materials, it is out of compliance with regulations. The OHSA and regulations require the owner/employer to bring the workplace into compliance with regulations.

Based on the findings, the following recommendations are provided:

1. Asbestos – The owner is required by O. Reg. 490/09 and O. Reg. 278/05 to bring the workplace into compliance with regulations. The recommended option (although the owner may wish to pursue other options) is to prepare an Asbestos Management Plan (AMP) with a detailed inventory of asbestos containing materials (ACMs) to manage asbestos in accordance with applicable regulations (Occupational Health and Safety Act; O. Reg. 278/05 Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations).

   The estimated cost to prepare an AMP is $3,800.

   Should the Town take ownership of the building, this would be the recommended action and cost.

2. Lead – As the majority (88%) of paint samples collected from interior and exterior locations of the four buildings contained concentrations of lead, appropriate worker precautions should be taken as per the OHSA when handling paints containing lead.
3. Mercury – Remove CFL bulbs and thermostats prior to renovation or demolition.
4. Silica - Appropriate worker precautions should be taken as per the OHSA when cutting, coring or breaking up materials containing silica such as concrete, brick and masonry.
5. Benzene – Does not require special handling other than normally required for fuel.

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1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) was retained by the Town of Newmarket (the Town) to conduct a Designated Substances Survey (DSS) of the buildings at Mulock Farm, located at 16780 Yonge Street, Newmarket, Ontario.

In accordance with Section 30 of the Occupational Health and Safety Act (OHSA) "Duty of Project Owners", the owner of a property must provide to any renovation/demolition contractor(s) and/or subcontractor(s) a list of any or all designated substances present on the Site, regardless of whether the owner intends to demolish or retain the existing building(s). Proposed renovations and/or partial demolition of any part of the structure(s) are subject to this section.

2.0 Site Description

The Mulock Farm property is occupied by four buildings. The main building is a two storey single family residential heritage building, and the other buildings consist of a single storey pool building, a single storey garage and a single storey shed. The total property area is 4.7 hectares.

The main house was reportedly constructed in 1867 (MPAC report). A historical map dated 1878 shows that a residence with an orchard occupied the property. The kitchen wing was constructed in the late 1800s. The ages of the three remaining buildings were estimated based on constructions materials. The shed was likely constructed in the early 1900s, the pool house in the 1960's and the garage in the 1970's.

3.0 Scope of Work

A DSS was conducted by Burnside on August 30, 2017 to determine the presence of designated substances and potential concerns regarding other hazardous building materials prior to an acquisition of the property.

An inspection of the four buildings was conducted to document the potential presence of the 11 Designated Substances which include:

- Asbestos
- Lead
- Silica
- Mercury
- Ethylene oxide
- Vinyl chloride
- Benzene
- Arsenic
- Coke Oven Emissions

- Acrylonitrile
- Isocyanates

Samples of materials were collected to submit for asbestos analysis and lead analysis. Photographs are provided in Appendix A.

The building inspection included a visual assessment for the presence of hazardous materials and additional items which, under provincial or federal regulations, require special handling and/or disposal during or after the renovation or demolition of buildings, such as polychlorinated biphenyls (PCBs), ozone depleting substances (ODS) and mould (in gross amounts).

The inspection excluded tools and equipment that are not part of the structure. It is assumed that tools and equipment would be moved prior to renovation or demolition of the building.

This DSS was conducted based on current conditions and the understanding of the potential future use of the facility as a workplace as defined in the OHSA and used by the public. For the purposes of this DSS, the provisions of the protection of workers as defined in the OHSA is assumed to be sufficient for the public, as the public would spend less time in the facility and not be conducting workplace activities such as renovations, maintenance and cleaning.

4.0 Applicable Regulations, Codes and Standards

A DSS is conducted in accordance with Section 30 of the Occupational Health and Safety Act (OHSA) “Duty of Project Owners”.

The main purpose of the OHSA is to protect workers from health and safety hazards on the job. It sets out duties for all workplace parties and rights for worker. It establishes procedures for dealing with workplace hazards and provides for enforcement of the law where compliance has not been achieved voluntarily. Fundamental to the successful working of OHSA, is the workplace Internal Responsibility System (IRS).

The OHSA applies to almost every worker, supervisor, employer and workplace in Ontario, including workplace owners, constructors and suppliers of equipment or materials to workplaces covered by the Act.

The OHSA does not apply to work done by the owner or occupant, or a servant, in a private residence or on the connected land [Section 3(1)].

In this case, the Mulock Farm can be considered a “workplace” as the owner hires staff to come and carry out paid duties such as maintenance and grounds keeping.

A future owner of the property may also consider employing workers on the property and so it would continue to be defined as a “workplace”.

There are two specific regulations that are relevant to a DSS:

- O. Reg. 490/09: DESIGNATED SUBSTANCES filed December 16, 2009 under Occupational Health and Safety Act, R.S.O. 1990, c. O.1
- O. Reg. 278/05: DESIGNATED SUBSTANCE - ASBESTOS ON CONSTRUCTION PROJECTS AND IN BUILDINGS AND REPAIR OPERATIONS under Occupational Health and Safety Act, R.S.O. 1990, c. O.1

These regulations are applied where relevant in this DSS report.

4.1 O. Reg. 490/09: Designated Substances

4.1.1 Designated substances

The following chemical agents are prescribed as designated substances:

1. Acrylonitrile.
2. Arsenic.
3. Asbestos.
4. Benzene.
5. Coke oven emissions.
6. Ethylene oxide.
7. Isocyanates.
8. Lead.
9. Mercury.
10. Silica.
11. Vinyl chloride.

4.1.2 Application

The application of this regulation with respect to these substances is as follows:

- **Acrylonitrile**

  3. (1) Subject to subsection (2), this Regulation applies, with respect to acrylonitrile, to every employer and worker at a workplace where acrylonitrile is present, produced, processed, used, handled or stored and at which a worker is likely to be exposed to acrylonitrile.

  (2) With respect to acrylonitrile, this Regulation does not apply to an employer or the workers of an employer at a workplace where acrylonitrile is not produced, processed or used, if a worker's exposure to acrylonitrile results only from the presence, use, handling or storage of goods made in the last stage of a process using polymers made from acrylonitrile.

- **Arsenic**

  4. (1) Subject to subsection (2), this Regulation applies, with respect to arsenic, to every employer and worker at a workplace at which arsenic is produced, processed, used, handled or stored or is a waste product or by-product of a process and at which a worker is likely to be exposed to arsenic.

  (2) With respect to arsenic, this Regulation does not apply to mining operations, including concentrating, milling, washing, crushing, grinding, sifting or conveying of a metallic or non-metallic mineral or mineral-bearing substance or rock, unless the operations are carried on,

  (a) in a plant where smelting, roasting or refining is carried on; or

  (b) in or at a place that is contiguous with a plant where smelting, roasting or refining is carried on.

- **Asbestos**

  5. (1) This Regulation applies, with respect to asbestos to:

  (a) every employer operating a mine or mining plant for the purpose of mining, crushing, grinding or sifting asbestos and to those workers of such an employer who are likely to be exposed to asbestos;

  (b) every employer processing, adapting or using asbestos in connection with the manufacturing or assembling of goods or products and to those workers of such an employer who are likely to be exposed to asbestos;

  (c) every employer engaged in the activities set out in subsection (2), and to those workers of such an employer who are engaged in those activities and are likely to be exposed to asbestos, if

  (i) on or before December 16, 1985, the employer,

  (A) put into effect and maintained measures and procedures to control the exposure of workers to asbestos, and

  (B) incorporated the measures and procedures into an asbestos control program in accordance with the regulations, and

  (ii) the employer has maintained the control program referred to in sub-subclause (i) (B) in accordance with the regulations.

  (2) The activities mentioned in clause (1) (c) are:

  1. The repair, alteration or maintenance of machinery, equipment, aircraft, ships, locomotives, railway cars and vehicles.

  2. Work on a building that is necessarily incidental to the repair, alteration or maintenance of machinery or equipment.

- **Benzene**

  6. (1) Subject to subsection (2), this Regulation applies, with respect to benzene, to every employer and worker at a workplace where a worker is likely to be exposed to benzene or a product containing benzene,

  (a) during its transportation or transfer; or

  (b) during its manufacture, processing, use, handling or storage.

  (2) With respect to benzene, this Regulation does not apply to the delivery of gasoline by a gasoline pump into the fuel tank of a motor vehicle, motor boat or other water craft or into a portable container at a service station or other premises.

- **Coke oven emissions**

  7. This Regulation applies, with respect to coke oven emissions, to every employer and worker who works at a metallurgical coke oven and is likely to be exposed to coke oven emissions.

- **Ethylene oxide**

  8. This Regulation applies, with respect to ethylene oxide, to every employer and worker at a workplace where ethylene oxide is present.

- **Isocyanates**

  9. This Regulation applies, with respect to isocyanates, to every employer and worker at a workplace where isocyanates are produced, used, handled or stored and at which a worker is likely to be exposed to isocyanates.

- **Lead**

  10. This Regulation applies, with respect to lead, to every employer and worker at a workplace where lead is present, produced, processed, used, handled or stored and at which a worker is likely to be exposed to lead.

- **Mercury**

  11. (1) Subject to subsection (2), this Regulation applies, with respect to mercury, to every employer and worker at a workplace where mercury is present, produced, processed, used, handled or stored and at which a worker is likely to be exposed to mercury.

  (2) With respect to mercury, this Regulation does not apply to,

  (a) an employer,

  (i) who is engaged in the practice of dentistry, within the meaning of the Dentistry Act, 1991, or

  (ii) who has one or more workers who engage in the practice of dentistry, within the meaning of the Dentistry Act, 1991;

  (b) a worker who works in the office of an employer described in clause (a).

- **Silica**

  12. This Regulation applies, with respect to silica, to every employer and worker at a workplace where silica is present, produced, processed, used, handled or stored and at which a worker is likely to be exposed to silica.

- **Vinyl chloride**

  13. This Regulation applies, with respect to vinyl chloride, to every employer and worker at a workplace where vinyl chloride is present, produced, processed, used, handled or stored and at which a worker is likely to be exposed to vinyl chloride.

This DSS report assesses the designated substances in accordance to the requirements of an owner/employer under the regulation.

4.1.3 Assessment

The DSS is designed to meet the following assessment requirements of an owner/employer as outlined in the regulation:

19. (1) 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.

(2) In carrying out the assessment, the employer shall consider and take into account,

(a) in the case of acrylonitrile, benzene, ethylene oxide, isocyanates or vinyl chloride, the methods and procedures used or to be used in the production, processing, use, handling and storage of the acrylonitrile, benzene, ethylene oxide, isocyanates or vinyl chloride;

(b) in the case of arsenic, lead, mercury or silica, the methods and procedures used or to be used in the processing, use, handling and storage of the arsenic, lead, mercury or silica;

(c) in the case of asbestos, the methods and procedures used or to be used in the processing, mining, use, handling and storage of the asbestos;

(d) in the case of coke oven emissions, the methods and procedures used or to be used in the metallurgical coking operation;

(e) the extent and potential extent of a worker's exposure to the designated substance; and

(f) the measures and procedures that are necessary to control exposure to the designated substance by means of engineering controls, work practices and hygiene facilities and practices.

(3) The employer shall carry out the assessment in consultation with the joint health and safety committee and the committee may make recommendations respecting the assessment.

(4) The employer shall provide a copy of the assessment to every member of the joint health and safety committee.

4.2 O. Reg. 278/05: Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations

It is the duty of an owner/employer to follow the requirements of this regulation when asbestos containing materials are identified or suspected as defined in the regulation.

The DSS identifies the presence or potential presence of asbestos containing materials and indicates if the site is in compliance with regulations. A DSS does not include such things as asbestos abatement (remediation) or any actions to bring a facility into compliance with regulations such as the preparation of an Asbestos Management Plan.

4.3 Environmental Abatement Council of Ontario Lead Guideline

In Ontario, industrial organizations such as the Environmental Abatement Council of Ontario (EACO) have developed guidelines for lead concentrations in paint. The EACO is a contractor based organization formed by professionals within the environmental abatement industry In the absence of any specific provincial or federal regulation regarding lead containing materials in the workplace the EACO Lead Guideline, October 2014 is an accepted industry standard in Ontario. This DSS refers to this guideline in the assessment of lead.

4.4 Other

The scope of the DSS is in accordance with O. Reg. 490/09 as described above. Depending on the findings, Burnside will include comments relating to other regulations or standards, such as O. Reg. 278/05 and the EACO Lead Guideline. When applicable, Burnside will note any significant issues relating to materials and waste management regulations and guidelines such as:

- PCB Regulations (SOR/2008-273) – if PCB containing materials are identified.
- O. Reg. 347 General - Waste Management – if hazardous or registerable wastes are identified.
- O. Reg. 463/10 Ozone Depleting Substances and other halocarbons – should refrigerants and other similar substances be identified.
- ECAO Mould Abatement Guidelines - if gross amounts of mould are identified (as per section 25(2)(h) of the Occupational Health and Safety Act to take every precaution reasonable in the circumstances for the protection of workers).

This DSS references the Standards, Test Methods and Protocols that relate to specific laboratory analysis as required by the above noted regulations and standards such as:

- United States Environmental Protection Agency (U.S. EPA) Test Method EPA/600/R 93/116 for asbestos containing materials.
- U.S. EPA Flame Atomic Absorption (AA) Method SW846-7000B for lead in paint.

5.0 Sampling Methodology

5.1 Overview

The sampling methodology varies for each designated substance and the material or compound that is suspected to be, or contain, a designated substance in accordance with the requirements of the regulations. For example, silica is a ubiquitous component in all concrete, cement, stone, pavement etc. and can be readily identified by a competent person as defined in the Act, such as a trained experienced Professional Geoscientist.

Other suspected DSS are also evaluated in various methods as per the applicable regulations and standards. In some cases, such as suspected asbestos containing materials or suspected lead containing paint, the determination of the constituents of the material requires laboratory analysis following a prescribed method.

Some designated substances are a known component (for example benzene is a known component of gasoline and fuel oils) with a specified amount detailed on the Material Safety Data Sheet (MSDS) for the product provided by the manufacturer, and requires no further testing to confirm.

Although mould is not a designated substance, it is included as an additional component of Burnside's DSS, as it can be a significant workplace issue and is important to owners. Typically the mould of concern at a workplace is gross amounts that have the potential to impact the air quality and is indicative of a serious moisture control problem.

Gross mould is typically long term growth that covers or penetrates a substrate fueled by constant moisture and air temperatures conducive to growth. Minor mould is defined as surficial, in a limited area, and a result of limited moisture and growth potential such as along the edge of a window that lacks caulking.

As outlined in the regulations above, not all designated substances have threshold levels in material content. Many only have thresholds for workplace air quality based on time weighted averages in the workplace. For this reason, the focus of a DSS is more often related to the presence or absence in a material form that could impact the workplace, as outlined in the regulations.

In this DSS, sampling for laboratory analysis was conducted wherever there were materials that were suspected, but could not be confirmed, to contain designated substances in the form or at the threshold levels as outlined in the regulations.

5.2 Asbestos Containing Materials

Asbestos is the one designated substance specifically governed by two regulations under the Act – O. Reg. 490/09 (per above) and Ontario Regulation 278/05, entitled "Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations". Under Ontario Regulation 278/05, "asbestos-containing material" (ACM) is defined as material that contains 0.5% or more asbestos by dry weight.

Although asbestos was generally phased out of building materials in the late 1970's, there is the possibility for ACM to be present in newer buildings if older materials were used in construction. By the early 1980's, ACM are not expected in most construction. The use of asbestos in gaskets and sealants continued for a longer period. The most likely substances where ACM may be found are pipe fittings, gaskets, insulation, floor tiles, ceiling tiles, plaster, cement or concrete finishes.

For materials suspected of containing asbestos, the following sample collection procedures were followed:

- A small volume of suspect material was collected from a damaged piece of material.
- Each sample was placed into a clear, polyethylene bag. Individual sample bags were sealed and labelled accordingly, then placed within a larger polyethylene bag and sealed and labelled "asbestos analysis".

A chain of custody form was completed and submitted with the asbestos samples to EMSL Canada Inc. for asbestos analysis. All samples were analyzed for asbestos content using the accepted U.S. EPA Test Method EPA/600/R-93/116 protocols.

5.3 Lead in Paint

Although there is no regulation in Ontario detailing the assessment and handling of specific concentrations of lead in paint and finished surfaces, there are various guidelines and publications that provide guidance for various industries. The Canadian and U.S. governments have been limiting the amount of lead in certain new paints since the 1970's, although there are exclusions for anti-corrosive and anti-weathering paints.

Samples of peeling paint were collected from the exterior and interior of building surfaces. Each paint sample was placed into a clear, polyethylene bag. Individual sample bags were sealed and labelled accordingly, then placed within a larger polyethylene bag and sealed and labelled "lead analysis". A chain of custody form was completed and submitted with the paint samples to EMSL Canada Inc. for lead analysis. All samples were analyzed for lead content using U.S. EPA Flame Atomic Absorption (AA) Method SW846-7000B.

6.0 Results

6.1 Asbestos

The main house was reportedly constructed in 1867 (MPAC report). The kitchen wing was constructed in the late 1800s. The ages of the three remaining buildings were estimated based on constructions materials. The shed was likely constructed in the early 1900s, the pool house in the 1960's and the garage in the 1970's.

Samples of shingles, pipe wrap, flooring, mastic (adhesive) and attic insulation were collected and submitted to EMSL Canada Inc. for asbestos analysis. The majority of samples submitted for asbestos analysis were collected in the main house. Descriptions and analytical results for samples containing asbestos (reported as chrysotile) are summarized in Table 1.

Table 1: Sample Descriptions and Asbestos Analysis Results

Sample	Sample Description	Asbestos Analysis Results	Photograph
A7	Pipe insulation wrap in furnace room (basement)	50% chrysotile	Photo 1
A8	Floor tile (beige) in back kitchen	20% chrysotile	Photo 2
A10	Floor tile under carpet in upstairs bathroom near foyer	8% chrysotile	Photo 3
A10	Mastic/adhesive under floor tile under carpet in upstairs bathroom near foyer	2% chrysotile	Photo 3

Photographs are presented in Appendix A. The EMSL Test Report with detailed asbestos analysis results is provided in Appendix B.

It should be noted that some items, such as pipe gaskets and sealants could contain asbestos; however, these components could not be sampled as pipes were sealed and in use. It is expected that gaskets and sealants would be removed as a component within the valves and piping during renovation or demolition. Precautions should be taken when dismantling these components.

6.2 Lead

In Ontario, industrial organizations such as the Environmental Abatement Council of Ontario (EACO) have developed guidelines for lead concentrations in paint. The EACO Lead Guideline, October 2014 provides a good due diligence approach.

For the purposes of this DSS, we consider:

- Paint containing less than 1,000 ppm (ug/g) lead (less than 0.1% lead) is considered “low-level lead paint”;
- Paint containing from 1,000 ppm (ug/g) to 5,000 ppm (ug/g) lead (0.1 to 0.5% lead) is considered “lead-containing paint”; and
- Paint containing in excess of 5,000 ppm (ug/g) lead (more than 0.5% lead) is considered “lead-based paint”.

Although all paints that contain lead must be given consideration when there is worker exposure, it is the lead-based paints that are of most concern to workers and specifically identified as an item of concern when assessing the results of a DSS.

Paint samples were collected from the four buildings on the subject property; the pool house, garage, shed, and main house; and submitted to EMSL Canada Inc. laboratories for lead analysis.

The laboratory results indicate:

- Three (3) paint samples were below detectable limits for lead;
- Four (4) samples are considered “low-level lead paints (tested positive for lead but less than 0.1% lead);
- Six (6) samples were determined to be “lead-containing paint” with concentrations between 0.1% and 0.5% lead; and
- Thirteen (13) samples exceeded 5,000 ppm (0.5 % lead) and, as such, are classified as “lead-based paints”.

As the majority (88%) of paint samples contained concentrations of lead, it would be prudent to assume that most paint surfaces likely contain lead. Table 2 describes the location, analytical results for lead and corresponding photograph numbers for paint samples that qualified as either “lead-containing paint” or “lead-based paint”.

Table 2: Sample Descriptions and Lead Analysis Results

Sample	Sample Description	Lead Analysis Results	Photograph
L1	Pool house siding (white paint)	36,000 ppm (> 0.5 %)	Photo 4
L2	Pool house eaves (white paint)	3,300 ppm (0.1 to 0.5%)	Photo 5
L3	Pool house door trim (white paint)	39,000 ppm (> 0.5 %)	Photo 6
L7	Wooden lattice fencing near pool (white paint)	4,700 ppm (0.1 to 0.5%)	Photo 7
L9	Interior walls of garage (white paint)	29,000 ppm (> 0.5 %)	Photo 8
L10	Hinged shed door (white paint)	270,000 ppm (> 0.5 %)	Photo 9
L11	Slate roof shingle from house (green paint)	47,000 ppm (> 0.5 %)	Photo 10
L12	Exterior walls of house (white paint)	2,400 ppm (0.1 to 0.5%)	Photo 11
L13	Porch base/siding on house (green paint)	110,000 ppm (> 0.5 %)	Photo 12
L14	Porch floor boards on house (white paint)	24,000 ppm (> 0.5 %)	Photo 13
L15	Skirting of porch on house (white paint)	28,000 ppm (> 0.5 %)	Photo 14
L16	Hallway walls in basement (white paint)	1,300 ppm (0.1 to 0.5%)	Photo 15
L17	Foundation walls in laundry room (green paint)	7,400 ppm (> 0.5 %)	Photo 16
L19	Hallway walls along back stairs (blue paint)	4,700 ppm (0.1 to 0.5%)	Photo 17
L20	Window trim in back kitchen (white paint)	200,000 ppm (> 0.5 %)	Photo 18
L22	Radiator in back small bedroom (white paint)	2,200 ppm (0.1 to 0.5%)	Photo 19
L24	Door to balcony in sunroom off of kids bedroom (white paint)	54,000 ppm (> 0.5 %)	Photo 20
L25	Baseboard trim in bedroom right of dressing room (white paint)	190,000 ppm (> 0.5 %)	Photo 21
L26	Window trim in bedroom by attic access (white paint)	60,000 ppm (> 0.5 %)	Photo 22

Photographs are presented in Appendix A. The EMSL Test Report with lead analysis results is provided in Appendix C.

6.3 Mercury

Mercury is most commonly present in buildings as a liquid in thermostats, switches and switchgears, pressure and/or temperature gauges, flow relays, pressure transmitter

units. Compact fluorescent light (CFL) bulbs contain a small amount of mercury sealed within the glass tubing.

As per the DSS regulations the concern with mercury is the potential for airborne exposure so the inspection focused on identifying raw mercury or mercury compounds with the potential to become airborne. Visual inspection and identification of materials was used to determine the potential presence of mercury. No suspected materials were identified that required laboratory analysis.

No bulk or significant amounts of mercury were noted in any of the four buildings inspected.

It is expected that small quantities of mercury may be contained within equipment, thermostats, switches and gauges. It is expected that equipment would be removed from the building prior to renovation or demolition. Thermostats and gauges containing mercury should be removed prior to renovation or demolition. Compact fluorescent light (CFL) bulbs should be disposed of according to packaging instructions.

6.4 Silica

Free crystalline silica in the form of silica sand is commonly used in the construction of concrete block, poured concrete, brick and masonry products within structures.

As per the DSS regulations, the concern with silica is the potential for airborne exposure so the inspection focused on identifying silica compounds with the potential to become airborne. Visual inspection and identification of materials was used to determine the potential presence of silica. Many silica containing materials were identified. No suspected materials that required laboratory analysis were noted.

Coring, sawing or breaking up the materials containing silica should be completed only with appropriate dust suppression methods, proper respiratory protection and general worker safety precautions as outlines in the Occupational Health and Safety Act.

6.5 Acrylonitrile

Acrylonitrile may be present in stable form within paints, adhesives and piping (i.e., black plumbing piping known as ABS - Acrylonitrile Butadiene Styrene). If present on-site in adhesives or as piping, these stable forms of acrylonitrile would not be expected to be a source of concern during demolition work related to any portion of the buildings. Should acrylonitrile be present within the materials, it would not impact workers in accordance with regulations as it would not become airborne at concentrations above regulatory limits. Visual inspection and identification of materials was used to determine the potential presence of acrylonitrile. No suspected materials were identified that required laboratory confirmatory analysis.

6.6 Arsenic

Arsenic would not be expected in the buildings or building materials and was not noted during the inspection. No suspected arsenic containing materials were noted that required laboratory confirmatory analysis.

6.7 Benzene

Benzene is a component in petroleum-based products such as hydraulic oils and fuels (gasoline, diesel, fuel oil); however, no evidence of bulk benzene was noted.

Two standard sized (900 L) aboveground storage tanks (ASTs) containing fuel oil were located in the basement furnace room for the purpose of providing a fuel source for a large boiler used for the home's hydronic heating system. This room was clean and well maintained indicating good housekeeping practices. A fuel oil AST (900 L) was situated behind the pool house and a cylindrical AST was situated behind the garage with a capacity of approximately 2,000 L. All areas around the fuel storage tanks were clean with no evidence of staining.

Benzene may be present in stable form within roofing materials, paints and adhesives. Should benzene be present within the materials, it would not impact workers in accordance with regulations as it would not become airborne at concentrations above regulatory limits.

Benzene was positively identified in the fuel. No suspected benzene containing materials were noted that required laboratory confirmatory analysis.

6.8 Coke Oven Emissions

Coke oven emissions would not be expected related to the structure and no evidence was noted during the inspection.

No suspected materials were identified that would require confirmatory analysis.

6.9 Ethylene Oxide

Ethylene oxide would not be expected in the structure and no evidence was noted during the inspection.

No suspected materials were identified that would require confirmatory analysis.

6.10 Isocyanates

Free isocyanate compounds would not be expected with the exception of the possible inclusion of small amounts in paint finishes. Should isocyanate compounds be present

within the materials, it would not impact workers in accordance with regulations as it would not become airborne at concentrations above regulatory limits.

No bulk or significant amounts of isocyanates were suspected or noted.

No suspected materials were identified that would require confirmatory analysis.

6.11 Vinyl Chloride Monomer

Vinyl chloride monomer is typically a component of PVC piping and conduits. Should vinyl chloride monomer compounds be present within the materials, it would not impact workers in accordance with regulations as it would not become airborne at concentrations above regulatory limits.

Vinyl chloride monomer would not be expected in these buildings and was not noted in any form during the inspection.

6.12 Other Substances of Potential Environmental Concern

6.12.1 Polychlorinated Biphenyls (PCBs)

Fluorescent light ballasts and transformers are a potential source of PCBs. Ballasts containing PCBs were phased out by manufacturers prior to July 1980. Based on the age of the buildings, PCBs may be present in some of the electrical equipment, fluorescent light ballasts and capacitors. It is expected that during renovation or demolition, any electrical equipment would be removed as a whole component without dismantling.

No suspected PCB containing materials were identified that required confirmatory sampling to determine if the content met regulatory requirements.

6.12.2 Ozone Depleting Substances

Older air conditioning units or systems may use ODS as refrigerant. No suspected ozone depleting substances were noted.

6.12.3 Radioactive Materials

Ionization smoke detectors use a small amount of radioactive material to make the air within the sensing chamber conduct electricity. Prior to any construction activities involving ionization smoke detectors, these devices should be removed.

6.12.4 Urea Formaldehyde Foam Insulation (UFFI)

No evidence of the presence of UFFI was identified.

6.12.5 Mould

Although mould is not a designated substance, it is included as an additional component of Burnside's DSS as it can be a significant workplace issue and is important to owners. Typically the mould of concern at a workplace is gross amounts that have the potential to impact the air quality and is indicative of a serious moisture control problem.

Gross mould is typically long term growth that covers or penetrates a substrate fueled by constant moisture and air temperatures conducive to growth. Minor mould is defined as surficial, in a limited area, and a result of limited moisture and growth potential such as along the edge of a window that lacks caulking.

No significant amounts of mould (in gross amounts) or significant mould related issues were observed during the inspection. No sampling of suspected mould containing materials or air quality testing was deemed necessary.

7.0 Conclusions

A DSS was conducted at the Site on August 30, 2017. The building was inspected to determine if any of the 11 substances, as designated by the OHSA and regulations, were present or potentially present.

The inspection also included other items that may also require special handling during renovations or demolition.

The following designated substances were identified:

- Asbestos was detected in pipe insulation wrap (50% chrysotile) sampled in the basement furnace room. All pipe insulation wrap appeared to be similar throughout the building therefore, all of the pipe insulation wrap is assumed to be ACM;
- Asbestos was detected in beige flooring in the back kitchen (20% chrysotile);
- Asbestos was detected in black floor tiles (8% chrysotile) that were in two of the bathrooms and the underlying tile mastic/adhesive (2% chrysotile). It is assumed that the black and white floor tiles in the sunroom also contain asbestos;
- Lead was detected in the majority (88%) of paint samples collected from interior and exterior locations of the four buildings (main house, pool house, garage and shed), therefore it would be prudent to assume that most paint surfaces likely contain lead.
- Mercury in small amounts, sealed in compact fluorescent lightbulbs (CFL) and thermostat;
- Silica (silica sand) as a component of concrete, masonry and brick; and
- Benzene as a component of fuel oil in four ASTs.

No other designated substances were suspected to be present or identified.

No significant environmental issues or hazardous materials were suspected or noted.

It is noted that in accordance with by O. Reg. 490/09 and O. Reg. 278/05, the Site is currently defined as a workplace and due to the presence of asbestos containing materials it is out of compliance with regulations. The OHSA and regulations require the owner/employer to bring the workplace into compliance with regulations.

This DSS was conducted based on current conditions and the understanding of the potential future use of the facility as a workplace as defined in the OHSA and used by the public. For the purposes of this DSS the provisions of the protection of workers as defined in the OHSA is assumed to be sufficient for the public, as the public would spend less time in the facility and not be conducting workplace activities such as renovations, maintenance and cleaning.

8.0 Recommendations and Costs

Based on the findings, the following recommendations are provided:

1. Asbestos – The owner is required by O. Reg. 490/09 and O. Reg. 278/05 to bring the workplace into compliance with regulations. The recommended option (although the owner may wish to pursue other options) is to prepare an Asbestos Management Plan (AMP) with a detailed inventory of asbestos containing materials (ACMs) to manage asbestos in accordance with applicable regulations (Occupational Health and Safety Act; O. Reg. 278/05 Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations).

   The estimated cost to prepare an AMP is $3,800.

   Should the Town take ownership of the building this would be the recommended action and cost.

2. Lead – As the majority (88%) of paint samples collected from interior and exterior locations of the four buildings contained concentrations of lead, appropriate worker precautions should be taken as per the OHSA when handling paints containing lead.
3. Mercury – Remove CFL bulbs and thermostats prior to renovation or demolition.
4. Silica - Appropriate worker precautions should be taken as per the OHSA when cutting, coring or breaking up materials containing silica such as concrete, brick and masonry.
5. Benzene – Does not require special handling other than normally required for fuel oil.

9.0 Limitations and Use of Report

R. J. Burnside & Associates Limited (Burnside) has conducted this study in accordance with generally accepted standards and field practices.

The conclusions in this report are professional opinions based upon visual observations of the Site conditions and data existing at the time of our assessment. Burnside does not guarantee the accuracy and reliability of the information provided by other persons or agencies and does not claim responsibility for undisclosed or non-visible environmental concerns that may result in costs for environmental clean-up or remediation.

This report was prepared for the exclusive use of the Town of Newmarket and its contractors and consultants. Any use of, reliance on or decisions based on this report by a third party are the responsibility of such third parties. Burnside accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. Reports or memoranda resulting from this assignment are not to be used, in whole or in part, outside the client's organization without prior written permission.

10.0 References

Environmental Abatement Council of Ontario. Lead Guideline for Construction, Renovation, Maintenance or Repair.

Environmental Abatement Council of Ontario. Mould Abatement Guidelines.

Ontario Occupational Health and Safety Act.

Ontario Regulation 278/05: Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations.

Ontario Regulation 347: General – Waste Management.

Ontario Regulation 463/10: Ozone Depleting Substances and Other Halocarbons.

Ontario Regulation 490/09: Designated Substances.

PCB Regulations (SOR/2008-273).

United States Environmental Protection Agency, Test Method EPA/600/R 93/116.

United States Environmental Protection Agency, Flame Atomic Absorption (AA) Method SW846-7000B.

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Appendix A

Photographs

Photo 1: Asbestos-containing (50% chrysotile) pipe insulation wrap in basement furnace room.

Photo 2: Asbestos-containing floor tile (20% chrysotile) in back kitchen.

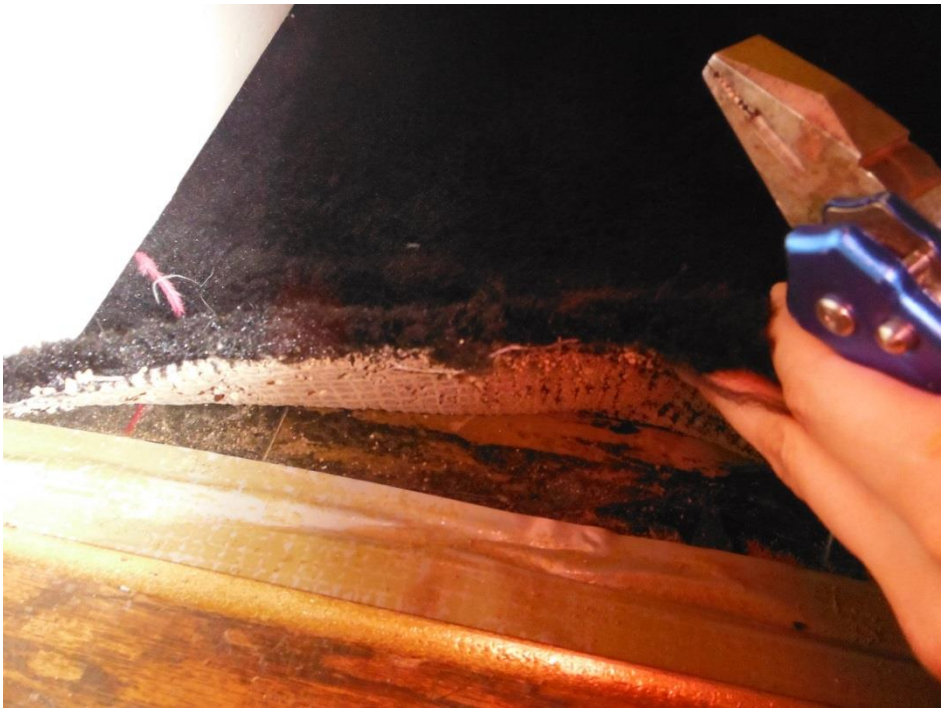

Photo 3: Black floor tile (8% chrysotile) and mastic/adhesive (2% chrysotile) was observed in two bathrooms. Sample collected from beneath black carpet in upstairs bathroom near foyer.

Photo 4: Lead-based white paint (36,000 ppm) on siding of pool house.

Photo 5: Lead-containing white paint (3,300 ppm) on pool house eaves.

Photo 6: Lead-based white paint (39,000 ppm) on door trim at rear of pool house.

Photo 7: Lead-containing white paint (4,700 ppm) on wooden lattice fencing near pool.

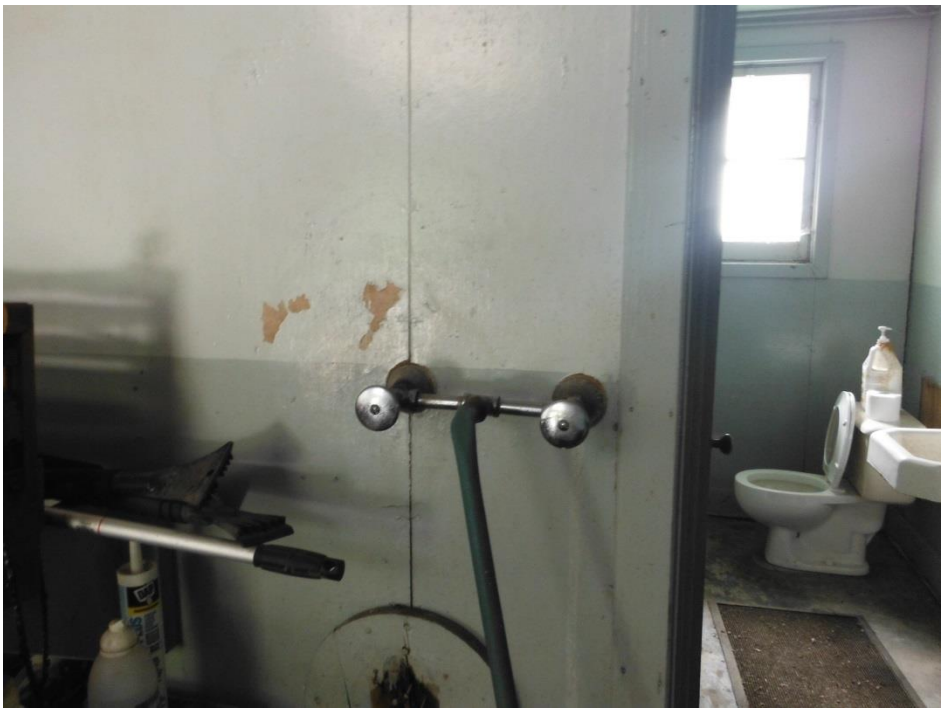

Photo 8: Lead-based paint (29,000 ppm) on interior garage walls.

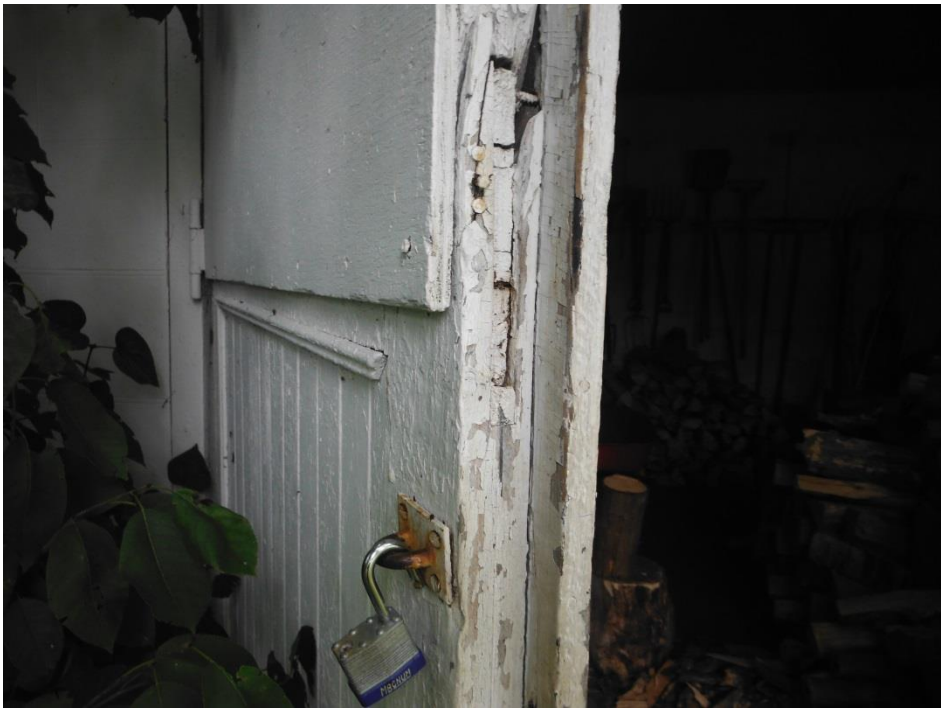

Photo 9: Lead-based (270,000 ppm) white paint on hinged shed door.

Photo 10: Lead-based green paint (47,000 ppm) on slate roof shingle of house.

Photo 11: Lead-containing white paint (2,400 ppm) on exterior walls of house.

Photo 12: Lead-based green paint (110,000 ppm) of porch base/siding on house.

Photo 13: Lead-based gray paint (24,000 ppm) on deck boards of porch on house.

Photo 14: Lead-based white paint (28,000 ppm) on skirting of porch on house.

Photo 15: Lead-containing white paint (1,300 ppm) on brick wall on right in basement hallway.

Photo 16: Lead-based green paint (7,400 ppm) on foundation wall in laundry room.

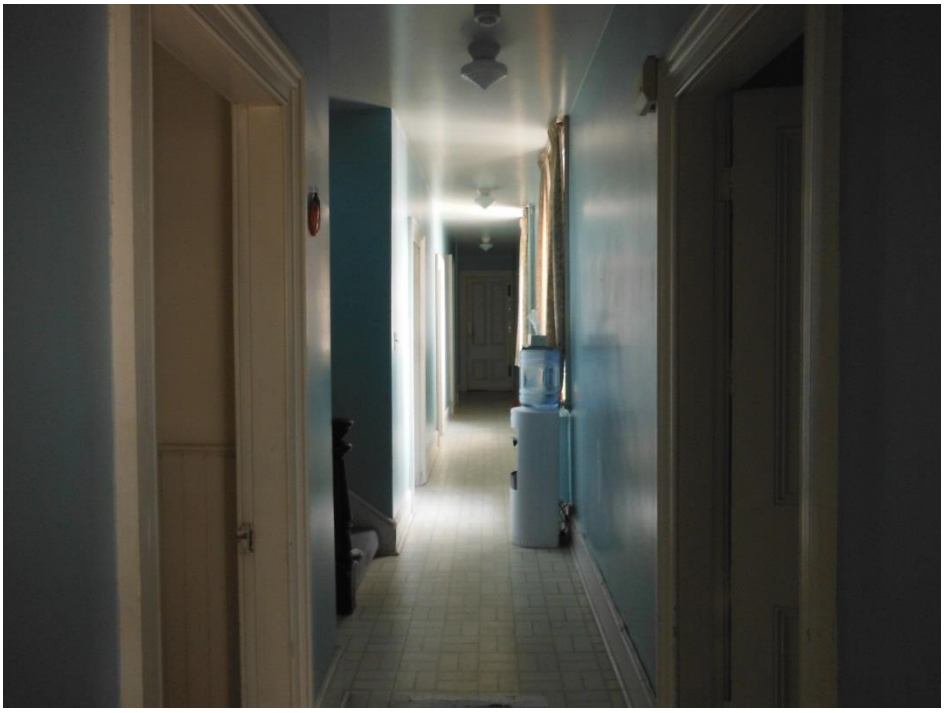

Photo 17: Lead-containing blue paint (4,700 ppm) on walls by back stairs.

Photo 18: Lead-based white paint (200,000 ppm) on window sill in back kitchen (on left in photo).

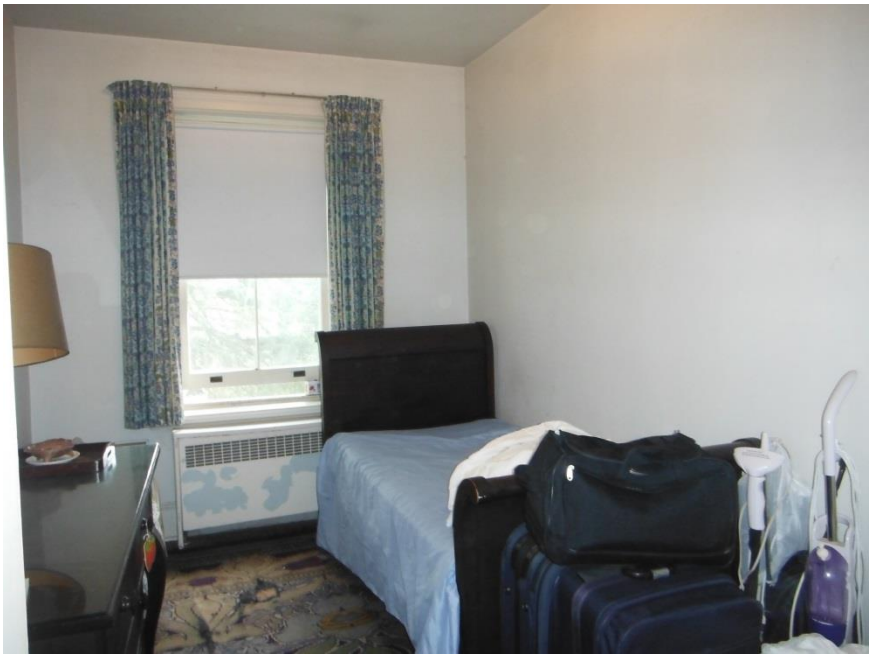

Photo 19: Lead-containing white paint (2,200 ppm) on radiator in small back bedroom on main level.

Photo 20: Lead-based white paint (54,000 ppm) on door to balcony in sunroom off of kids' bedroom.

Photo 21: Lead-based white paint (190,000 ppm) on baseboard trim in bedroom right of dressing room.

Photo 22: Lead-based white paint (60,000 ppm) on wood window trim in bedroom by attic access.

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Appendix B

EMSL Test Reports – Asbestos Analysis

EMSL Canada Inc.

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http://www.EMSL.com / torontolab@emsl.com

EMSL Canada Order 551709969
Customer ID: 55BNSD42
Customer PO: 300041305.0000
Project ID:

Attn: Kathleen Langstaff
Burnside & Associates Ltd.
15 Townline
Orangeville, ON L9W 3R4

Phone: (519) 941-5331
Fax: (519) 941-8120
Collected: 8/30/2017
Received: 9/01/2017
Analyzed: 9/15/2017

Proj: 300041305 TOWN OF NEWMARKET

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

Client Sample ID: A1-A ***Lab Sample ID:*** **551709969-0001**
Sample Description: Sloped Roof Of Pool House/Shingle (Black)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Black	5%	95%	None Detected	

Client Sample ID: A1-B ***Lab Sample ID:*** **551709969-0002**
Sample Description: Sloped Roof Of Pool House/Shingle (Black)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Black	30%	70%	None Detected	

Client Sample ID: A1-C ***Lab Sample ID:*** **551709969-0003**
Sample Description: Sloped Roof Of Pool House/Shingle (Black)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/15/2017	Black	15%	85%	None Detected	

Client Sample ID: A2-A ***Lab Sample ID:*** **551709969-0004**
Sample Description: Flat Roof Of Pool House/Shingle (Reddish Brown)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Black	30%	70%	None Detected	

Client Sample ID: A2-B ***Lab Sample ID:*** **551709969-0005**
Sample Description: Flat Roof Of Pool House/Shingle (Reddish Brown)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Black	10%	90%	None Detected	

Client Sample ID: A2-C ***Lab Sample ID:*** **551709969-0006**
Sample Description: Flat Roof Of Pool House/Shingle (Reddish Brown)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/15/2017	Black	10%	90%	None Detected	

Client Sample ID: A3-A ***Lab Sample ID:*** **551709969-0007**
Sample Description: Under Carpet In Pool House/Adhesive Foam (Blue)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Brown/Yellow	20%	80%	None Detected	

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EMSL Canada Order 551709969
Customer ID: 55BNSD42
Customer PO: 300041305.0000
Project ID:

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

Client Sample ID: A3-B ***Lab Sample ID:*** **551709969-0008**
Sample Description: Under Carpet In Pool House/Adhesive Foam (Blue)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Blue/Yellow	20%	80%	None Detected	

Client Sample ID: A3-C ***Lab Sample ID:*** **551709969-0009**
Sample Description: Under Carpet In Pool House/Adhesive Foam (Blue)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/15/2017	Yellow	0%	100%	None Detected	

Client Sample ID: A4-A ***Lab Sample ID:*** **551709969-0010**
Sample Description: Garage/Insulation (Beige)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Tan	90%	10%	None Detected	

Client Sample ID: A4-B ***Lab Sample ID:*** **551709969-0011**
Sample Description: Garage/Insulation (Beige)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Tan	90%	10%	None Detected	

Client Sample ID: A4-C ***Lab Sample ID:*** **551709969-0012**
Sample Description: Garage/Insulation (Beige)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/15/2017	Gray	90%	10%	None Detected	

Client Sample ID: A5-A ***Lab Sample ID:*** **551709969-0013**
Sample Description: Garage (Green)/Shingle

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Black/Green	10%	90%	None Detected	

Client Sample ID: A5-B ***Lab Sample ID:*** **551709969-0014**
Sample Description: Garage (Green)/Shingle

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Black/Green	20%	80%	None Detected	

Client Sample ID: A5-C ***Lab Sample ID:*** **551709969-0015**
Sample Description: Garage (Green)/Shingle

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/15/2017	Black	10%	90%	None Detected	

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EMSL Canada Order 551709969
Customer ID: 55BNSD42
Customer PO: 300041305.0000
Project ID:

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

Client Sample ID: A6-A ***Lab Sample ID:*** **551709969-0016**
Sample Description: Exterior Walls Of House (White)/Compound

TEST	Analyzed Date	Color	Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	White	0%	100%	None Detected	

Client Sample ID: A6-B ***Lab Sample ID:*** **551709969-0017**
Sample Description: Exterior Walls Of House (White)/Compound

TEST	Analyzed Date	Color	Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	White	0%	100%	None Detected	

Client Sample ID: A6-C ***Lab Sample ID:*** **551709969-0018**
Sample Description: Exterior Walls of House (White)/Compound

TEST	Analyzed Date	Color	Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/15/2017	White	0%	100%	None Detected	

Client Sample ID: A7-A ***Lab Sample ID:*** **551709969-0019**
Sample Description: Pipes In Furnace Room/Insulation (Beige)

TEST	Analyzed Date	Color	Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	White	0%	50%	**50% Chrysotile**	

Client Sample ID: A7-B ***Lab Sample ID:*** **551709969-0020**
Sample Description: Pipes In Furnace Room/Insulation (Beige)

TEST	Analyzed Date	Color	Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017			Positive Stop (Not Analyzed)		

Client Sample ID: A7-C ***Lab Sample ID:*** **551709969-0021**
Sample Description: Pipes In Furnace Room/Insulation (Beige)

TEST	Analyzed Date	Color	Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017			Positive Stop (Not Analyzed)		

Client Sample ID: A8-A ***Lab Sample ID:*** **551709969-0022**
Sample Description: Back Kitchen/Floor Tile (Beige)

TEST	Analyzed Date	Color	Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Beige	0%	80%	**20% Chrysotile**	

Client Sample ID: A8-B ***Lab Sample ID:*** **551709969-0023**
Sample Description: Back Kitchen/Floor Tile (Beige)

TEST	Analyzed Date	Color	Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017			Positive Stop (Not Analyzed)		

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Customer ID: 55BNSD42
Customer PO: 300041305.0000
Project ID:

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

Client Sample ID: A8-C ***Lab Sample ID:*** **551709969-0024**
Sample Description: Back Kitchen/Floor Tile (Beige)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017				Positive Stop (Not Analyzed)	

Client Sample ID: A9-A-Floor Tile ***Lab Sample ID:*** **551709969-0025**
Sample Description: Upstairs Back Bathroom/Floor Tile (Beige)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Beige	0%	100%	None Detected	

Client Sample ID: A9-A-Mastic ***Lab Sample ID:*** **551709969-0025A**
Sample Description: Upstairs Back Bathroom/Floor Tile (Beige)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Yellow	5%	95%	None Detected	

Client Sample ID: A9-B-Floor Tile ***Lab Sample ID:*** **551709969-0026**
Sample Description: Upstairs Back Bathroom/Floor Tile (Beige)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Beige	3%	97%	None Detected	

Client Sample ID: A9-B-Mastic ***Lab Sample ID:*** **551709969-0026A**
Sample Description: Upstairs Back Bathroom/Floor Tile (Beige)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Yellow	5%	95%	None Detected	

Client Sample ID: A9-C-Floor Tile ***Lab Sample ID:*** **551709969-0027**
Sample Description: Upstairs Back Bathroom/Floor Tile (Beige)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/15/2017	Beige	0%	100%	None Detected	

Client Sample ID: A9-C-Mastic ***Lab Sample ID:*** **551709969-0027A**
Sample Description: Upstairs Back Bathroom/Floor Tile (Beige)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/15/2017	Yellow	0%	100%	None Detected	

Client Sample ID: A10-A-Floor Tile ***Lab Sample ID:*** **551709969-0028**
Sample Description: Under Carpet In Upstairs Bathroom Near Foyer/Floor Tile (Black)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Brown/Black	0%	92%	**8% Chrysotile**	

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Customer ID: 55BNSD42
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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: A10-A-Mastic ***Lab Sample ID:*** **551709969-0028A**

Sample Description: Under Carpet In Upstairs Bathroom Near Foyer/Floor Tile (Black)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Yellow	0%	98%	**2% Chrysotile**	

Client Sample ID: A10-B-Floor Tile ***Lab Sample ID:*** **551709969-0029**

Sample Description: Under Carpet In Upstairs Bathroom Near Foyer/Floor Tile (Black)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017				Positive Stop (Not Analyzed)	

Client Sample ID: A10-B-Mastic ***Lab Sample ID:*** **551709969-0029A**

Sample Description: Under Carpet In Upstairs Bathroom Near Foyer/Floor Tile (Black)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017				Positive Stop (Not Analyzed)	

Client Sample ID: A10-C-Floor Tile ***Lab Sample ID:*** **551709969-0030**

Sample Description: Under Carpet In Upstairs Bathroom Near Foyer/Floor Tile (Black)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017				Positive Stop (Not Analyzed)	

Client Sample ID: A10-C-Mastic ***Lab Sample ID:*** **551709969-0030A**

Sample Description: Under Carpet In Upstairs Bathroom Near Foyer/Floor Tile (Black)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017				Positive Stop (Not Analyzed)	

Client Sample ID: A11-A ***Lab Sample ID:*** **551709969-0031**

Sample Description: Bathroom Floor Near Kids Room/Floor Tile (Beige)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Beige	0%	100%	None Detected	

Client Sample ID: A11-B ***Lab Sample ID:*** **551709969-0032**

Sample Description: Bathroom Floor Near Kids Room/Floor Tile (Beige)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Beige	0%	100%	None Detected	

Client Sample ID: A11-C ***Lab Sample ID:*** **551709969-0033**

Sample Description: Bathroom Floor Near Kids Room/Floor Tile (Beige)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/15/2017	Beige	0%	100%	None Detected	

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EMSL Canada Order 551709969
Customer ID: 55BNSD42
Customer PO: 300041305.0000
Project ID:

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

Client Sample ID: A12-A ***Lab Sample ID:*** **551709969-0034**
Sample Description: Attic In House/Insulation (Beige)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Yellow	70%	30%	None Detected	

Client Sample ID: A12-B ***Lab Sample ID:*** **551709969-0035**
Sample Description: Attic In House/Insulation (Beige)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/14/2017	Yellow	75%	25%	None Detected	

Client Sample ID: A12-C ***Lab Sample ID:*** **551709969-0036**
Sample Description: Attic In House/Insulation (Beige)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/15/2017	Gray	60%	40%	None Detected	

Analyst(s):

Anne Balayboa PLM (24)
Shorthri Kalikutty PLM (10)

Reviewed and approved by:

Matthew Davis
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.

Samples analyzed by EMSL Canada Inc. Mississauga, ON NVLAP Lab Code 200877-0

Initial report from: 09/15/201711:19:11

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix C

EMSL Test Reports – Lead Analysis

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	551709970
CustomerID:	55BNSD42
CustomerPO:	300041305.0000
ProjectID:	

Attn: **Kathleen Langstaff**
Burnside & Associates Ltd.
15 Townline
Orangeville, ON L9W 3R4

Phone:	(519) 941-5331
Fax:	(519) 941-8120
Received:	09/01/17 9:00 AM
Collected:	8/30/2017

Project: **300041305 TOWN OF NEWMARKET**

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

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*
L1	*551709970-0001*	8/30/2017	9/12/2017	36000 ppm
	Site: Pool House Siding Desc: Paint (White)			
L2	*551709970-0002*	8/30/2017	9/12/2017	3300 ppm
	Site: Pool House Eaves Desc: Paint (White)			
L3	*551709970-0003*	8/30/2017	9/12/2017	39000 ppm
	Site: Pool House Door Trim Desc: Paint (White)			
L4	*551709970-0004*	8/30/2017	9/12/2017	<90 ppm
	Site: Pool House Door Desc: Paint (White)			
L5	*551709970-0005*	8/30/2017	9/12/2017	170 ppm
	Site: Men's Shower In Pool House Desc: Paint (White)			
L6	*551709970-0006*	8/30/2017	9/12/2017	710 ppm
	Site: Fountain Near Pool Desc: Paint (Blue)			
L7	*551709970-0007*	8/30/2017	9/12/2017	4700 ppm
	Site: Wooden Lattice Fence Near Pool Desc: Paint (White)			
L8	*551709970-0008*	8/30/2017	9/12/2017	150 ppm
	Site: Exterior Walls of Garage Desc: Paint (White)			
L9	*551709970-0009*	8/30/2017	9/12/2017	29000 ppm
	Site: Interior Walls of Garage Desc: Paint (White)			
L10	*551709970-0010*	8/30/2017	9/12/2017	270000 ppm
	Site: Hinged Shed Door Desc: Paint (White)			
L11	*551709970-0011*	8/30/2017	9/12/2017	47000 ppm
	Site: Slate Roof Shingle from House Desc: Paint (Green)			

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 Environmental Testing Cert #2845.08

Initial report from 09/15/2017 08:28:06

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	551709970
CustomerID:	55BNSD42
CustomerPO:	300041305.0000
ProjectID:	

Attn: **Kathleen Langstaff**
Burnside & Associates Ltd.
15 Townline
Orangeville, ON L9W 3R4

Phone:	(519) 941-5331
Fax:	(519) 941-8120
Received:	09/01/17 9:00 AM
Collected:	8/30/2017

Project: **300041305 TOWN OF NEWMARKET**

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

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*
L12	*551709970-0012*	8/30/2017	9/12/2017	2400 ppm
	Site: Exterior Walls of House Desc: Paint (White)			
L13	*551709970-0013*	8/30/2017	9/12/2017	110000 ppm
	Site: Porch Siding on House Desc: Paint (Green)			
L14	*551709970-0014*	8/30/2017	9/12/2017	24000 ppm
	Site: Porch Floor Boards On House Desc: Paint (Gray)			
L15	*551709970-0015*	8/30/2017	9/12/2017	28000 ppm
	Site: Porch On House Desc: Paint (White)			
L16	*551709970-0016*	8/30/2017	9/12/2017	1300 ppm
	Site: Hallway Walls In Basement Desc: Paint (White)			
L17	*551709970-0017*	8/30/2017	9/12/2017	7400 ppm
	Site: Foundation Walls In Laundry Room Desc: Paint (Green)			
L18	*551709970-0018*	8/30/2017	9/12/2017	<90 ppm
	Site: Storage Room In Basement Next To Walk In Freezer Desc: Paint (White)			
L19	*551709970-0019*	8/30/2017	9/12/2017	4700 ppm
	Site: Hallway Walls Along Back Stairs Desc: Paint (Blue)			
L20	*551709970-0020*	8/30/2017	9/12/2017	200000 ppm
	Site: Window Trim In Back Kitchen Desc: Paint (White)			
L21	*551709970-0021*	8/30/2017	9/12/2017	<90 ppm
	Site: Walls In Back Small Bedroom Desc: Paint (White)			
L22	*551709970-0022*	8/30/2017	9/12/2017	2200 ppm
	Site: Radiator In Back Small Bedroom Desc: Paint (White)			

Rowena Fanto, Lead Supervisor
or other approved signatory

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Initial report from 09/15/2017 08:28:06

EMSL Canada Inc.
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EMSL Canada Or	551709970
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Attn: **Kathleen Langstaff**
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Phone:	(519) 941-5331
Fax:	(519) 941-8120
Received:	09/01/17 9:00 AM
Collected:	8/30/2017

Project: **300041305 TOWN OF NEWMARKET**

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

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*
L23	*551709970-0023*	8/30/2017	9/12/2017	360 ppm
	Site: Ceiling In Upstairs Sunroom Desc: Paint (White)			
L24	*551709970-0024*	8/30/2017	9/12/2017	54000 ppm
	Site: Door To Balcony In Sunroom Desc: Paint (White)			
L25	*551709970-0025*	8/30/2017	9/12/2017	190000 ppm
	Site: Baseboard Trim In Bedroom Right Of Dressing Room Desc: Paint (White)			
L26	*551709970-0026*	8/30/2017	9/12/2017	60000 ppm
	Site: Window Trim in Bedroom by Attic Access Desc: Paint (White)			

Rowena Fanto, Lead Supervisor
or other approved signatory

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