DESIGNATED SUBSTANCE SURVEY
143-153 ARLINGTON AVENUE, OTTAWA, ONTARIO

Prepared By:

KANELLOS CONSULTING INC
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For:

Centretown Citizens Ottawa Corporation
PO Box 2787, Station D
Ottawa, Ontario
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September 2013

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APPENDICES

1.0 INTRODUCTION

The above noted site is a generally South-facing, three (3) storey split level row house with a below-grade basement, reportedly constructed in 1905. The building consists of twelve (12) units, various common areas, and a furnace room. Considering the age of construction, Kanellos Consulting Inc (KCI) was retained by Centretown Citizens Ottawa Corporation (CCOC) to complete a Designated Substance Survey (DSS) at the above noted site. A DSS is required under Section 30 of the Ontario Occupational Health and Safety Act (OHSA). Section 30 states: "Before beginning a project, the owner shall determine whether any designated substances are present at the project site and shall prepare a list of all designated substances that are present at the site". This designated substance report (DSR) has been prepared using the information provided to KCI by CCOC, information obtained during the site reconnaissance, and analytical laboratory data.

The following are designated substances regulated by Ontario Regulation 490/09 – Designated Substances:

- Acrylonitrile;
- Arsenic;
- Asbestos;
- Benzene;
- Coke Oven Emissions;
- Ethylene Oxide;
- Isocyanates;
- Lead;
- Mercury;
- Silica;
- Vinyl Chloride.

Asbestos is also regulated by Ontario Regulation 278/05 "Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations".
Additionally, the following hazardous building materials are not designated substances regulated by O. Reg. 490/09, but could pose a significant risk to health and safety of workers, occupants, and the environment:

- Ozone Depleting Substances (ODSs) - Federal Halocarbon Regulation 2003
- Polychlorinated Biphenyls (PCBs) - SOR/2008-273

The two above-mentioned hazardous building materials do not have dedicated regulations associated with Section 30 of OHSA. However, the Ministry of Labour (MOL) recognizes them as workplace hazards and enforces worker protection under the General Duty Clause 25(2) (h) of OHSA. Clause 25(2) (h) states that the employers are required to "take every precaution reasonable in the circumstances for the protection of a worker". In such cases the MOL will refer to industry standards and guidelines for the safe handling and management of such materials.

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2.0 SUBJECT SITE

The above noted site is a generally South-facing, three (3) storey split-level row house with a below-grade basement, reportedly constructed in 1905, and is located at 143-153 Arlington Avenue, Ottawa, Ontario. The complex consists of twelve (12) units, as well as a Laundry/Locker room and Furnace room both of which are located in the Basement at 153 Arlington Avenue. There are two sets of additions: three (3) Northern (rear) additions housing the Northern portions of units (Photograph 1); and three Southern (street-facing) additions housing the communal stairwells.

Photograph 1 – 143-153 Arlington Ave., Ottawa, ON, showing the Northern (rear) additions.

Considering the above information, the target areas for potential asbestos containing materials (ACMs) and lead paint were: drywall joint compound (walls and ceilings), ceiling stipple, plaster (where accessible), vinyl floor tiles, window caulking, parging cement, mortar, as well as various painted surfaces.

3.0 SCOPE OF WORK

Field work was completed by KCI staff on September 16th, 2013. Non-destructive survey techniques were employed during the site reconnaissance and the integrity (physical, structural, thermal/moisture properties) of building materials was not compromised. The visual inspection and sampling was limited to readily accessible areas, and samples were collected from discrete locations. A total of forty-seven (47) samples of suspect ACMs were collected and submitted for analysis to Steve Moody Micro Services (SMMS) in Farmers Branch, Texas. Eleven (11) paint samples were submitted for lead analysis to Paracel Laboratories of Ottawa.

KCI was accompanied by a representative of CCOC during the site survey. The following areas were accessed during the survey: all common areas including stairwells, Basement Laundry/Locker room and Furnace room located at 153 Arlington Avenue; and residential units at 1-145, 2-145, 1-151, and 2-151 Arlington Avenue. The designated substances mentioned above may be present in areas not accessed during the survey, and/or in concealed spaces (i.e. wall and ceiling cavities). In addition, KCI would extrapolate quantities based on quantities observed in fully accessible locations.

4.0 FINDINGS AND RECOMMENDATIONS

4.0.1 Asbestos

Asbestos was historically added to many commonly used construction materials such as pipe insulation, fireproofing, plaster, drywall joint compound, flooring material and textured finishes. Suspect materials were observed, documented and sampled during the site inspections. In Ontario, an ACM is identified

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as any material containing 0.5% or more of asbestos. The analytical standard U.S. Environmental Protection Agency (EPA) 600/R-93/116, which is specified by O. Reg 278/05, has a detection limit of 0.5% asbestos.

ACMs are categorized as friable or non-friable. A material that is **friable** is one which can be crumbled, pulverized or powdered by hand pressure. If damaged or disturbed, friable ACM's pose a greater health and safety risk, as asbestos fibres are more easily released into the air. Examples of friable materials include sprayed fireproofing on structural steelwork, thermal insulative materials, ceiling stipple, or other textured finishes. A **non-friable** ACM contains asbestos fibres that are bound into the material, and fibres are not readily released into the air. Such a product would present a risk for fibre release only when it is subject to significant abrasion through activities such as sanding or cutting with electric power tools. Examples of non-friable asbestos products include vinyl composite tiles, acoustic ceiling tiles, roofing shingles, and asbestos cement products.

Suspect ACMs were primarily assessed by visual inspection. On the basis of this inspection, select samples were collected from discrete locations using industry-accepted sampling techniques. The number of samples collected was based on the sampling criteria outlined in Table 1 "Bulk Materials Samples" of O. Reg 278/05. All samples were submitted to SMMS on a regular turnaround basis. A total of forty-six (46) samples of suspect ACMs were collected from discrete, random locations throughout the building and submitted for analysis on a positive stop basis.

4.0.1.1 Interior Wall/Ceiling Finishes

Throughout most of the units, the walls and ceilings consisted of painted gypsum board, and most ceilings were stippled (all units and communal stairwells). The Basement Laundry/Locker room and Furnace room consisted of painted and un-painted concrete walls, as well as unpainted gypsum board walls and ceilings.

According to information provided by the CCOC, the interior gypsum board wall and ceiling finishes for both the original building and the Northern (rear) additions were from the same era of construction and are therefore considered the same contiguous area. The following discrete samples were collected and submitted to the analytical laboratory for analysis:

- Seven (7) drywall joint compound and seven (7) ceiling stipple samples from units 1-145, 2-145, 1-151, and 2-151 Arlington Avenue;
- Three (3) drywall joint compound and three (3) ceiling stipple samples from the communal stairwells at 143-153 Arlington Avenue;
- Three (3) drywall joint compound samples from the Basement Laundry/Locker room and Furnace room at 153 Arlington Avenue;
- Three (3) parging cement samples from the Basement wall at 1-151 Arlington Avenue.

According to the analytical results, all ceiling stipple and parging cement are **NON DETECT** for asbestos. In addition, the drywall joint compound *in the communal stairwells, basement laundry room and furnace room* is **NON DETECT** for asbestos.

The drywall joint compound found in 1-151 Arlington Avenue is **ASBESTOS CONTAINING**. The following sample confirms the presence of asbestos in this material:

Sample Collected September 16th 2013:

- **SA-5 – Drywall Joint Compound – Second Floor South Bedroom Wall, 1-151 Arlington Avenue – 2% Chrysotile.**

NOTE: All drywall joint compound *in the residential areas of the original building and North additions* is assumed to contain asbestos, based on homogeneity.

Analytical results and sample locations are attached in **Appendix A.**

NOTE: Considering the age of the building, it is likely that the original wall and ceiling finishes consisted of plaster, and that the paper-faced gypsum boards were installed subsequent to that. As non-destructive survey techniques were employed during the site reconnaissance, plaster was not observed, however it is possible that plaster may exist behind the gypsum wallboard finishes. If encountered, it is recommended the plaster be sampled for asbestos on a project-specific basis.

4.0.1.2 Interior Floor Finishes

There are various types of flooring throughout the building. Unpainted concrete flooring was observed in the Basement Laundry/Locker room and Furnace room. The communal stairwells consist of painted concrete flooring. In the units, the flooring consisted of: hardwood flooring, carpet overtop plywood, or vinyl floor tiles. The basement level consisted of unpainted concrete flooring in all accessible units.

Three (3) samples of 12”x12” vinyl floor tiles (light beige with blue streaks), three (3) samples of 12”x12” vinyl floor tiles (light beige with brown specks), and three (3) samples of flooring (dark brown) were collected and submitted to the analytical laboratory for analysis.

According to the analytical results, the following flooring building materials are **NON DETECT** for asbestos (Photograph 2):

- 12” x 12” vinyl floor tiles (light beige with blue streaks), Kitchen, 1-145 Arlington Avenue;
- 12” x 12” vinyl floor tiles (light beige with brown specks), Kitchen, 2-145 Arlington Avenue.

The flooring (dark brown) located at 1-151 Arlington Avenue is **ASBESTOS CONTAINING** according to the analytical laboratory (Photograph3). The following sample confirms the presence of asbestos in the flooring:

Photograph 2 - Flooring **NON-DETECT** for asbestos. TOP: 12”x12” vinyl floor tiles (light beige with blue streaks) from the Kitchen at 1-145 Arlington Avenue. BOTTOM: 12’x12” vinyl floor tiles (light beige with brown specks) from the Kitchen at 2-145 Arlington Avenue.

Sample Collected September 16th 2013 (Photograph 3):

- **SA-29 –Flooring (Dark Brown) – First Floor North Bedroom, 1-151 Arlington Avenue – 5% Chrysotile (floor tile).**

Analytical results and sample locations are attached in **Appendix A.**

NOTE: Other floor tiles and/or sheet vinyl flooring not depicted in this report may be asbestos containing. Therefore, flooring materials in question should be sampled for asbestos on a project specific basis.

Photograph 3 – **ASBESTOS CONTAINING** flooring (dark brown) located at 1-151 Arlington Avenue, under the carpet in the 1st Floor, North Bedroom.

4.0.1.3 Mechanical Systems, Air Handling Units and Ductwork

The building is heated by natural gas fired, forced air furnaces. The accessible ductwork was either un-insulated or insulated with non-asbestos applications of fibreglass, and was therefore not a concern with regards to asbestos.

NOTE: Other pipe/heat insulating materials not depicted in this report may be asbestos containing. Therefore, these materials in question should be sampled for asbestos on a project specific basis.

4.0.1.4 Attic

The attic space above the Third Floor was not surveyed as no access panel was found. If suspect asbestos containing materials are encountered in the attic, these should be sampled on a project specific basis.

4.0.1.5 Exterior Finishes

The exterior façade of the building is primarily brick and mortar. Wood panel siding was also observed on the recent South additions containing the communal stairwells. Parging cement was also observed at the exterior of the building. The window and door frames are sealed with caulking. In order to maintain the integrity of the building envelope, three (3) discrete samples of off-white caulking and three (3) discrete samples of grey caulking were collected from the building exterior. Three (3) discrete samples of mortar and three (3) discrete samples of parging cement were also collected from the building exterior.

According to the analytical results, all caulking, parging cement, and mortar were **NON-DETECT** for asbestos.

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Analytical results are attached in **Appendix A.**

4.0.1.6 Roofing Materials

The building consists of two (2) different types of roofs. The original building consists of a mansard roof with shingles, while the addition is of flat roof design. According to reported information, both roofs were replaced in 1997 and are therefore not a concern with regards to asbestos.

4.0.1.7 Recommendations

Prior to renovation or demolition, the project owner must ensure that if ACMs are disturbed and/or removed, asbestos abatement measures and procedures must be followed according to O. Reg. 278/05. Workers conducting these procedures must be adequately trained and supplied with sufficient personal protective equipment, as per O. Reg. 278/05. In addition, the maximum allowable airborne fibre concentration for asbestos should not be exceeded.

Considering the above information, it is recommended:

- **DRYWALL JOINT COMPOUND –** If greater than 1m^2 of drywall finishes are likely to be disturbed then Type 2 asbestos abatement measures and procedures should be implemented. If less than 1m^2 of drywall finishes are likely to be disturbed then Type 1 procedures may be implemented.
- **VINYL FLOOR TILES** –Type 1 asbestos abatement measures and procedures are sufficient for the removal of vinyl floor tiles. However, no power tools may be used. If power tools are required, KCI recommends Type3 measures and procedures be implemented, as per O.Reg. 278/05.

4.0.2 Lead

Lead is a naturally occurring metal that was primarily used in the manufacturing of electric storage batteries, ammunition, solder, radiation shields, pipes and sheaths for electric cables. The most common organic lead compounds are tetraethyl (TEL) and tetramethyl (TML) lead which were used as anti-knock agents in gasoline. Inorganic lead compounds such as lead oxides, chromates, carbonates and nitrates are commonly found in insecticides, pigments, paints, frits, glasses, plastics and rubber compounds. A paint sample must exhibit a concentration **that exceeds 90 parts per million** (ppm) in order to be considered lead-based (Surface Coating Materials Regulation SOR/2005-109).

In 1976, the amount of lead that could be added to interior paint was limited by law in Canada, but exterior paint could still contain high amounts of lead provided it carried a warning label. Under the *Surface Coating Materials Regulations*, which came into force in 2005, the lead limit was reduced to its background level for both interior and exterior paints sold to consumers. Canadian paint manufacturers have been conforming to this background level in their interior and exterior consumer paints since 1991 (Health Canada – Lead and Health, 2007).

Considering that the building was constructed in 1905, KCI collected eleven (11) wall, ceiling, floor, and exterior paint samples from discrete locations throughout the complex.

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The following paint samples were collected and submitted to the analytical laboratory for lead analysis:

- one (1) Brown paint sample (Wood Siding Front/South Balcony/Porch), 143-153 Arlington Avenue);
- one (1) Blue-Grey paint sample (Front/South Balcony/Porch Railing, 143-153 Arlington Avenue);
- one (1) Pale Yellow paint sample (Rear/North Exterior Wall, 143-153 Arlington Avenue);
- one (1) Dark Brown paint sample (Exterior Window Sill, 153 Arlington Avenue);
- one (1) Off-White paint sample (Exterior Brick, Foyer Wall, 143-145 Arlington Avenue);
- one (1) Grey paint sample (Foyer Floor, 143-145 Arlington Avenue);
- one (1) Yellow paint sample (Exterior Door, 1-145 Arlington Avenue);
- one (1) Blue paint sample (Communal Stairwell, 143-145 Arlington Avenue);
- one (1) Green paint sample (Communal Stairwell, 143-145 Arlington Avenue);
- one (1) Off-White paint sample (2nd Floor Washroom Wall, 1-145 Arlington Avenue);
- one (1) Light Brown paint sample (Laundry Room, Exterior Door, 153 Arlington Avenue).

According to the analytical results, the following paint samples were all less than 90 parts per million (ppm), **therefore these paint samples are <u>not</u> considered to be lead-based**:

- Brown (Wood Siding Front/South Balcony/Porch, 143-153 Arlington Avenue);
- Grey (Foyer Floor, 143-145 Arlington Avenue);
- Off-White (2nd Floor Washroom Wall, 1-145 Arlington Avenue).

The following paint samples all exceeded 90 parts per million (ppm), **therefore these paints are considered to be lead-based**.

- Blue-Grey (Front/South Balcony/Porch Railing, 143-153 Arlington Avenue) **– 728ppm**;
- Pale Yellow (Rear/North Exterior Wall, 143-153 Arlington Avenue) **– 94ppm**;
- Dark Brown (Exterior Window Sill, 153 Arlington Avenue) **– 26600ppm**;
- Off-White (Exterior Brick, Foyer Wall, 143-145 Arlington Avenue) **– 261ppm**;
- Yellow (Exterior Door, 1-145 Arlington Avenue) **– 129ppm**;
- Blue (Communal Stairwell, 143-145 Arlington Avenue) **– 1940ppm**;
- Green (Communal Stairwell, 143-145 Arlington Avenue) **– 5130ppm**;
- Light Brown (Laundry Room, Exterior Door, 153 Arlington Avenue) **– 3650ppm**.

The following samples confirm the presence of lead-based paint:

- **PB-2 (1338138-2) – Blue-Grey (Front/South) Balcony/Porch Railing, 143-153 Arlington Avenue) – 728ppm**
- **PB-3 (1338138-3) – Pale Yellow (Rear/North) Exterior Wall, 143-153 Arlington Avenue) – 94ppm**
- **PB-4 (1338138-4) – Dark Brown (Exterior Window Sill, 153 Arlington Avenue) – 26600ppm**
- **PB-5 (1338138-5) – Off-White (Exterior Brick, Foyer Wall, 143-145 Arlington Avenue) – 261ppm**
- **PB-7 (1338138-7) – Yellow (Exterior Door, 1-145 Arlington Avenue) – 129ppm**
- **PB-8 (1338138-8) – Blue (Communal Stairwell, 143-145 Arlington Avenue) – 1940ppm**
- **PB-9 (1338138-9) – Green (Communal Stairwell, 143-145 Arlington Avenue) – 5130ppm**
- **PB-11 (1338138-11) – Light Brown (Laundry Room, Exterior Door, 153 Arlington Avenue) – 3650ppm**

The laboratory analytical reports are presented in **APPENDIX A**.

4.0.2.1 Recommendations

Considering that a confirmed presence of lead-based paints was detected in multiple locations in the building, and that multiple layers of paint may be present, prior to any disturbance of painted surfaces, it is recommended that the paint be sampled and analyzed for lead on a project specific basis.
If work on lead containing materials is likely to produce lead dust or fumes, for example during welding, torch cutting, grinding, sanding or sandblasting, then proper precautions should be followed. Work must be completed in accordance with O. Reg 490/09. It is also recommended that the Ministry of Labour "Guideline for Lead on Construction Projects" be followed when working with potential lead hazards. The Time-Weighted Average Exposure Limits (TWAEL) of a worker to lead is to be maintained at the lowest practical level and to not exceed an eight hour average concentration of 0.05 mg/m³ of air for non tetraethyl lead and 0.10 mg/m³ of air in the case of tetraethyl lead. Disposal of lead waste must be completed in accordance with Ontario Regulation 347 "General – Waste Management".

4.0.3 Mercury

Mercury may be commonly found in thermostats, fluorescent lamp tubes and High Intensity Discharge (HID) light bulbs. The Time-Weighted Average Exposure Limits (TWAEL) of a worker exposed to mercury compounds is to be maintained at the lowest practical level and not to exceed an eight hour average concentration of 0.025 mg/m³ of air for all mercury except alkyl mercury oxide, for which a concentration of 0.01 mg/m³ of air should not be exceeded.

During the site reconnaissance, linear fluorescent lamp tubes were observed in the common areas, including the Basement Laundry/Locker room located at 153 Arlington Avenue. Generally most non-digital thermostats contain mercury. Non-digital thermostats were observed in the units, and are assumed to contain mercury.

4.0.3.1 Recommendations

If mercury is removed or relocated, work must be completed in accordance with the Ontario Regulation 490/09. Mercury-containing items should be treated as hazardous waste. Mercury containing waste must be disposed of/recycled in accordance with Ontario Regulation 347 "General – Waste Management".

4.0.4 Silica

Silica occurs naturally as crystalline or amorphous material. It is normally found in concrete, cement, mortar, stucco finishes, ceiling tiles, asphalt (containing rock or stone) and fiberglass/mineral wool insulation.

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4.0.4.1 Recommendations

If silica containing building materials are to be disturbed/removed, it is recommended the Ministry of Labour "Guideline for Silica on Construction Projects" be followed when working with potential silica hazards.

The Time-Weighted Average Exposure Limits (TWAEL) of a worker exposed to silica dust is to be maintained at the lowest practical level with a view to achieving an ambient air concentration lower than 0.10 mg/m³ of air for quartz & tripoli and 0.05 mg/m³ of air for cristobalite & tridynite.

4.0.5 Polychlorinated Biphenyls (PCBs)

Polychlorinated Biphenyls (PCB's) can be found in equipment such as transformers, capacitors, electromagnets, heat transfer units, hydraulic engines and fluorescent lamp ballasts. The PCB Regulations (SOR/2008-273) outline the requirements for the storage, labeling, reporting and disposal of PCB containing equipment. The use and manufacture of PCBs was banned in North America in 1977. Considering that the building was constructed in 1905, PCBs may be present. It is recommended that a qualified PCB contractor handle all PCB containing equipment.

4.0.6 Ozone Depleting Substances

Chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) have been widely used in many industrial, commercial and residential applications. They can be found in applications such as refrigerants in heat pumps, refrigerators, freezers and air conditioners (A/C); blowing agents for plastics, foam product and insulation; cleaning agents for metals, electronic equipment and components; aerosol spray propellants, fire extinguishing agents and chemical reactants; and as dry-cleaning fluids.
CFCs located within the subject building included refrigerators and air conditioners.

4.0.6.1 Recommendations

The removal, discharge, handling, and/or disposal of the refrigerants is regulated by Ontario's Ozone-Depleting Substances and Other Halocarbon Regulation (O. Reg 463/10) and must be performed by a certified technician.

4.0.7 Other Designated Substances

All other designated substances are generally not found in most buildings, and are usually exclusive to industrial processes. A summary of all other designated substances is provided in **Appendix B.**

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5.0 STATEMENT OF LIMITATIONS

This report has been prepared for the sole benefit of Centretown Citizens Ottawa Corporation and their authorized agents. The contents of this report may not be reproduced in whole or in part, or used or relied upon in whole or in part by any other party for any purpose whatsoever without the express written consent of Kanellos Consulting Inc. Kanellos Consulting Inc. makes no representation or warranty to any other person with regard to this report and the work referred to in it. Any use which a third party makes of this report, or any part thereof, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Kanellos Consulting Inc. accepts no responsibility or duty of care for damages, if any, suffered by any third party as a result of decisions made or actions taken, based on this report.

Professional judgment was exercised in gathering and analyzing the information obtained and in the formulation of the conclusions. Like all professional persons rendering advice, we do not act as absolute insurers of the conclusions reached but commit ourselves to a level of care. This document has been prepared in accordance with generally accepted building science and industrial hygiene principles and or designated substance survey techniques in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions. Nothing in this report is intended to constitute or provide a legal opinion. No other warranties, either expressed or implied, are made as to the professional services provided.

This document is based on an authorized scope of work. The information provided in this report is based on information provided by others, visual observations, non-destructive testing and analysis as identified herein. The data, although comprehensive with respect to scope, does not complete an exhaustive sampling of the structure. The findings cannot be extended to include: previous or future site conditions; portions of the site which were unavailable for direct investigation (including wall, floor and ceiling assemblies); chemical/biological parameters; building materials that have been modified through renovations/maintenance and materials or analysis which were not addressed. Kanellos Consulting Inc. expresses no warranty with respect to the accuracy of the laboratory analyses, methodologies used or the presentation of analytical results by the laboratory. The purpose of this assessment is to screen the affected areas for designated substances, mould growth and/or water damaged building materials. This information is specific to the time of the assessment and therefore could change with time.

Achieving the objectives stated in this document has required us to arrive at conclusions based upon the best information presently known to us. No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information; it can only reduce the possibility to a reasonable level. Therefore, the results and conclusions of this report should be in no way construed as a warranty that all of the designated substances, mould growth and/or water damaged building materials have been identified. This report should be used for informational purposes only and should absolutely not be construed as a comprehensive chemical or biological characterization of the site. Should additional information become available, Kanellos Consulting Inc. requests that the information be brought to our attention so that we may reassess the information.

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CLOSURE

We trust that the above is satisfactory for your purposes at this time. If we can be of any additional assistance with this matter, please feel free to contact the undersigned.

Yours truly,
KANELLOS CONSULTING, INC.

Alex Fisher, B. Eng
Junior Environmental Engineer

Candice Rodger, P. Eng
Project Engineer

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APPENDIX A – ANALYTICAL LABORATORY RESULTS

PLM Summary Report

Steve Moody Micro Services, LLC
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Kanellos Consulting Inc. - Ottawa, ON
Project : 143 - 153 Arlington Avenue, Ottawa, Ontario
Project # : A13091656 Sample Date : 09/16/2013
Identification : Asbestos, Bulk Sample Analysis
Test Method : Polarized Light Microscopy / Dispersion Staining (PLM/DS)
EPA Method 600 / R-93 / 116

Lab Job No. : 13B-10363 002
Report Date : 09/26/2013

On 9/18/2013, forty six (46) bulk material samples were submitted by Alex Fisher of Kanellos Consulting Inc. - Ottawa, ON for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
SA1	Drywall Joint Compound, Unit 145-1, 1st Floor, North Bedroom, Wall	<0.5% Chrysotile - Joint Compound
SA2	Drywall Joint Compound, Unit 145-1, 2nd Floor, North Bedroom, Closet Wall	None Detected - Joint Compound
SA3	Drywall Joint Compound, Unit 145-2, 2nd Floor, Hallway, Wall	None Detected - Joint Compound
SA4	Drywall Joint Compound, Unit 145-2, 3rd Floor, North Bedroom, Closet Wall	None Detected - Joint Compound
SA5	Drywall Joint Compound, Unit 151-1, 2nd Floor, South Bedroom, Wall	2% Chrysotile - Joint Compound
SA6	Drywall Joint Compound, Unit 151-2, 2nd Floor, Foyer Wall	Not Analyzed - Positive Stop
SA7	Drywall Joint Compound, Unit 151-2, 3rd Floor, North Bedroom, Closet Wall	Not Analyzed - Positive Stop
SA8	Ceiling Stipple, Unit 145-1, 1st Floor, Central Hallway	None Detected - Stipple
SA9	Ceiling Stipple, Unit 145-1, 2nd Floor, Central Hallway	None Detected - Stipple
SA10	Ceiling Stipple, Unit 145-2, 2nd Floor, Central Hallway	None Detected - Stipple
SA11	Ceiling Stipple, Unit 145-2, 3rd Floor, Central Hallway	None Detected - Stipple
SA12	Ceiling Stipple, Unit 151-1, 1st Floor, Central Hallway	None Detected - Stipple
SA13	Ceiling Stipple, Unit 151-1, 2nd Floor, Central Hallway	None Detected - Stipple
SA14	Ceiling Stipple, Unit 151-2, 2nd Floor, Central Hallway	None Detected - Stipple
SA15	Drywall Joint Compound, Basement, Laundry Room Wall	None Detected - Joint Compound
SA16	Drywall Joint Compound, Basement, Furnace Room Ceiling	None Detected - Joint Compound
SA17	Drywall Joint Compound, Units 143-145 Communal Stairwell	None Detected - Joint Compound

PLM Summary Report

Steve Moody Micro Services, LLC
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Kanellos Consulting Inc. - Ottawa, ON
Project : 143 - 153 Arlington Avenue, Ottawa, Ontario
Project # : A13091656 Sample Date : 09/16/2013
Identification : Asbestos, Bulk Sample Analysis
Test Method : Polarized Light Microscopy / Dispersion Staining (PLM/DS)
EPA Method 600 / R-93 / 116

Lab Job No. : 13B-10363 002
Report Date : 09/26/2013

On 9/18/2013, forty six (46) bulk material samples were submitted by Alex Fisher of Kanellos Consulting Inc. - Ottawa, ON for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
SA18	Drywall Joint Compound, Units 143-145 Communal Stairwell	None Detected - Joint Compound
SA19	Drywall Joint Compound, Units 151-153 Communal Stairwell	None Detected - Joint Compound
SA20	Ceiling Stipple, Units 143-145 Communal Stairwell	None Detected - Stipple
SA21	Ceiling Stipple, Units 143-145 Communal Stairwell	None Detected - Stipple
SA22	Ceiling Stipple, Units 151-153 Communal Stairwell	None Detected - Stipple
SA23	12" x 12" Floor Tile (Light Beige with Blue Streaks), Unit 145-1, 1st Floor, Kitchen	None Detected - Floor Tile None Detected - Yellow Mastic
SA24	12" x 12" Floor Tile (Light Beige with Blue Streaks), Unit 145-1, 1st Floor, Kitchen	None Detected - Floor Tile None Detected - Yellow Mastic
SA25	12" x 12" Floor Tile (Light Beige with Blue Streaks), Unit 145-1, 1st Floor, Kitchen	None Detected - Floor Tile None Detected - Yellow Mastic
SA26	12" x 12" Floor Tile (Light Beige with Brown Specks), Unit 145-2, 2nd Floor, Kitchen	None Detected - Floor Tile No Mastic Present
SA27	12" x 12" Floor Tile (Light Beige with Brown Specks), Unit 145-2, 2nd Floor, Kitchen	None Detected - Floor Tile No Mastic Present
SA28	12" x 12" Floor Tile (Light Beige with Brown Specks), Unit 145-2, 2nd Floor, Kitchen	None Detected - Caulking None Detected - Floor Tile No Mastic Present
SA29	Flooring (Dark Brown), Unit 151-1, 1st Floor, North Bedroom, under Carpet	5% Chrysotile - Floor Tile None Detected - Cream Mastic
SA30	Flooring (Dark Brown), Unit 151-1, 1st Floor, North Bedroom, under Carpet	Not Analyzed - Positive Stop
SA31	Flooring (Dark Brown), Unit 151-1, 1st Floor, North Bedroom, under Carpet	Not Analyzed - Positive Stop
SA32	Parging Cement, Unit 151-1, Basement Wall	None Detected - Parging Cement None Detected - Texture

PLM Summary Report

Steve Moody Micro Services, LLC
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Kanellos Consulting Inc. - Ottawa, ON
Project : 143 - 153 Arlington Avenue, Ottawa, Ontario
Project # : A13091656 Sample Date : 09/16/2013
Identification : Asbestos, Bulk Sample Analysis
Test Method : Polarized Light Microscopy / Dispersion Staining (PLM/DS)
EPA Method 600 / R-93 / 116

Lab Job No. : 13B-10363 002
Report Date : 09/26/2013

On 9/18/2013, forty six (46) bulk material samples were submitted by Alex Fisher of Kanellos Consulting Inc. - Ottawa, ON for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
SA33	Parging Cement, Unit 151-1, Basement Wall	None Detected - Parging Cement None Detected - Texture
SA34	Parging Cement, Unit 151-1, Basement Wall	None Detected - Parging Cement None Detected - Texture
SA35	Caulking (Off-white), Exterior, Windows	None Detected - Caulking
SA36	Caulking (Off-white), Exterior, Windows	None Detected - Caulking
SA37	Caulking (Off-white), Exterior, Windows	None Detected - Caulking
SA38	Caulking (Grey), Exterior, Laundry Room Door Frame	None Detected - Caulking
SA39	Caulking (Grey), Exterior, Laundry Room Door Frame	None Detected - Caulking
SA40	Caulking (Grey), Exterior, Laundry Room Door Frame	None Detected - Caulking
SA41	Mortar, Exterior	None Detected - Mortar
SA42	Mortar, Exterior	None Detected - Mortar
SA43	Mortar, Exterior	None Detected - Mortar
SA44	Parging Cement, Exterior, Building Unit 143-145, North Side	None Detected - Parging Cement
SA45	Parging Cement, Exterior, Building Unit 147-149, North Side	None Detected - Parging Cement
SA46	Parging Cement, Exterior, Building Unit 151-153, North Side	None Detected - Parging Cement

PLM Summary Report

Steve Moody Micro Services, LLC
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Kanellos Consulting Inc. - Ottawa, ON
Project : 143 - 153 Arlington Avenue, Ottawa, Ontario
Project # : A13091656 Sample Date : 09/16/2013
Identification : Asbestos, Bulk Sample Analysis
Test Method : Polarized Light Microscopy / Dispersion Staining (PLM/DS)
EPA Method 600 / R-93 / 116

Lab Job No. : 13B-10363 002
Report Date : 09/26/2013

On 9/18/2013, forty six (46) bulk material samples were submitted by Alex Fisher of Kanellos Consulting Inc. - Ottawa, ON for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content

NVLAP® LAB #102056-0

Analyst(s): Debra O'Sullivan
Lab Manager : Bruce Crabb Approved Signatory :
Lab Director : Steve Moody Approved Signatory :

Thank you for choosing Steve Moody Micro Services

Steve Moody Micro Services, LLC
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

PLM Detail Report

Supplement to PLM Summary Report

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Kanellos Consulting Inc. - Ottawa, ON
Project : 143 - 153 Arlington Avenue, Ottawa, Ontario
Project # : A13091656

Lab Job No. : 13B-10363
Report Date : 09/26/2013

002

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
SA1	Joint Compound (White)	100%	Chrysotile	<0.5 %	09/23	DO
			Calcite / Talc / Binders	100%		
SA2	Joint Compound (White)	100%	Calcite / Talc / Binders	100%	09/23	DO
SA3	Joint Compound (White)	100%	Calcite / Talc / Binders	100%	09/23	DO
SA4	Joint Compound (White)	100%	Calcite / Talc / Binders	100%	09/23	DO
SA5	Joint Compound (White)	100%	Chrysotile	2%	09/23	DO
			Calcite / Talc / Binders	98%		
SA6	Not Analyzed - Positive Stop	100%			09/23	DO
SA7	Not Analyzed - Positive Stop	100%			09/23	DO
SA8	Stipple (White)	100%	Perlite	20%	09/23	DO
			Calcite / Gypsum Binders	80%		
SA9	Stipple (White)	100%	Perlite	20%	09/23	DO
			Calcite / Gypsum Binders	80%		
SA10	Stipple (White)	100%	Perlite	20%	09/23	DO
			Calcite / Gypsum Binders	80%		
SA11	Stipple (White)	100%	Perlite	20%	09/23	DO
			Calcite / Gypsum Binders	80%		
SA12	Stipple (White)	100%	Perlite	20%	09/23	DO
			Calcite / Gypsum Binders	80%		
SA13	Stipple (White)	100%	Perlite	20%	09/23	DO
			Calcite / Gypsum Binders	80%		
SA14	Stipple (White)	100%	Perlite	20%	09/23	DO
			Calcite / Gypsum Binders	80%		
SA15	DW Tape (White)	5%	Cellulose Fibers	100%	09/23	DO
	Joint Compound (White)	95%	Calcite / Talc / Binders	100%		
SA16	DW Tape (White)	5%	Cellulose Fibers	100%	09/23	DO
	Joint Compound (White)	95%	Calcite / Talc / Binders	100%		

Steve Moody Micro Services, LLC
2051 Valley View Lane
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PLM Detail Report

Supplement to PLM Summary Report

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Kanellos Consulting Inc. - Ottawa, ON
Project : 143 - 153 Arlington Avenue, Ottawa, Ontario
Project # : A13091656

Lab Job No. : 13B-10363
Report Date : 09/26/2013

002

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
SA17	DW Tape (White)	5%	Cellulose Fibers	100%	09/23	DO
	Joint Compound (White)	95%	Calcite / Talc / Binders	100%		
SA18	Joint Compound (White)	100%	Calcite / Talc / Binders	100%	09/23	DO
SA19	DW Tape (White)	5%	Cellulose Fibers	100%	09/23	DO
	Joint Compound (White)	95%	Calcite / Talc / Binders	100%		
SA20	Stipple (White)	100%	Synthetic Foam	30%	09/24	DO
			Calcite / Talc / Binders	70%		
SA21	Stipple (White)	100%	Synthetic Foam	30%	09/24	DO
			Calcite / Talc / Binders	70%		
SA22	Stipple (White)	100%	Synthetic Foam	30%	09/24	DO
			Calcite / Talc / Binders	70%		
SA23	Floor Tile (Light Beige)	100%	Calcite / Vinyl Binders	100%	09/24	DO
	Yellow Mastic (Yellow)	<1%	Glue Binders	100%		
SA24	Floor Tile (Light Beige)	100%	Calcite / Vinyl Binders	100%	09/24	DO
	Yellow Mastic (Yellow)	<1%	Glue Binders	100%		
SA25	Floor Tile (Light Beige)	100%	Calcite / Vinyl Binders	100%	09/24	DO
	Yellow Mastic (Yellow)	<1%	Glue Binders	100%		
SA26	Floor Tile (Light Beige)	100%	Calcite / Vinyl Binders	100%	09/24	DO
	No Mastic Present					
SA27	Floor Tile (Light Beige)	100%	Calcite / Vinyl Binders	100%	09/24	DO
	No Mastic Present					
SA28	Caulking (White)	1%	Calcite	50%	09/24	DO
			Binders / Fillers	50%		
	Floor Tile (Light Beige)	99%	Calcite / Vinyl Binders	100%		
	No Mastic Present					
SA29	Floor Tile (Dark Grey)	90%	Chrysotile	5%	09/24	DO
			Calcite / Vinyl Binders	95%		
	Cream Mastic (Cream)	10%	Glue Binders	100%		
SA30	Not Analyzed - Positive Stop	100%			09/24	DO

Steve Moody Micro Services, LLC
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

PLM Detail Report

Supplement to PLM Summary Report

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Kanellos Consulting Inc. - Ottawa, ON
Project : 143 - 153 Arlington Avenue, Ottawa, Ontario
Project # : A13091656

Lab Job No. : 13B-10363
Report Date : 09/26/2013

002

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
SA31	Not Analyzed - Positive Stop	100%			09/24	DO
SA32	Parging Cement (Grey)	95%	Aggregate	65%	09/24	DO
			Cement Binders	35%		
	Texture (White)	5%	Calcite / Talc / Binders	100%		
SA33	Parging Cement (Grey)	95%	Aggregate	65%	09/24	DO
			Cement Binders	35%		
	Texture (White)	5%	Calcite / Talc / Binders	100%		
SA34	Parging Cement (Grey)	95%	Aggregate	65%	09/24	DO
			Cement Binders	35%		
	Texture (White)	5%	Calcite / Talc / Binders	100%		
SA35	Caulking (White)	100%	Calcite	50%	09/24	DO
			Binders / Fillers	50%		
SA36	Caulking (White)	100%	Calcite	50%	09/24	DO
			Binders / Fillers	50%		
SA37	Caulking (White)	100%	Calcite	50%	09/24	DO
			Binders / Fillers	50%		
SA38	Caulking (Dark Brown)	100%	Binders / Fillers	100%	09/24	DO
SA39	Caulking (Dark Brown)	100%	Binders / Fillers	100%	09/24	DO
SA40	Caulking (Dark Brown)	100%	Binders / Fillers	100%	09/24	DO
SA41	Mortar (Pink)	100%	Aggregate	65%	09/24	DO
			Cement Binders	35%		
SA42	Mortar (Pink)	100%	Aggregate	65%	09/24	DO
			Cement Binders	35%		
SA43	Mortar (Pink)	100%	Aggregate	65%	09/24	DO
			Cement Binders	35%		
SA44	Parging Cement (Grey)	100%	Aggregate	65%	09/24	DO
			Cement Binders	35%		
SA45	Parging Cement (Grey)	100%	Aggregate	65%	09/24	DO
			Cement Binders	35%		

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PLM Detail Report

Supplement to PLM Summary Report

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Kanellos Consulting Inc. - Ottawa, ON
Project : 143 - 153 Arlington Avenue, Ottawa, Ontario
Project # : A13091656

Lab Job No. : 13B-10363
Report Date : 09/26/2013

002

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
SA46	Parging Cement (Grey)	100%	Aggregate	65%	09/24	DO
			Cement Binders	35%		

PLM Summary Report

Steve Moody Micro Services, LLC
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Kanellos Consulting Inc. - Ottawa, ON
Project : 143 - 153 Arlington Avenue, Ottawa, Ontario
Project # : A13091656 Sample Date : 09/16/2013
Identification : Asbestos, Bulk Sample Analysis
Test Method : Polarized Light Microscopy / Dispersion Staining (PLM/DS)
EPA Method 600 / R-93 / 116

Lab Job No. : 13B-10363S
Report Date : 10/02/2013

On 10/2/2013, one (1) bulk material sample was submitted by Andrew Dalby of Kanellos Consulting Inc. - Ottawa, ON for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
SA16b	Drywall Joint Compound, Basement, Furnace Room Ceiling	None Detected - Joint Compound

NVLAP® LAB #102056-0

Analyst(s): Bruce Crabb

Lab Manager : Heather Lopez Approved Signatory : Heather Lopez

Lab Director : Bruce Crabb Approved Signatory : Bruce Crabb

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Steve Moody Micro Services, LLC
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

PLM Detail Report

Supplement to PLM Summary Report

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Kanellos Consulting Inc. - Ottawa, ON
Project : 143 - 153 Arlington Avenue, Ottawa, Ontario
Project # : A13091656

Lab Job No. : 13B-10363S
Report Date : 10/02/2013

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
SA16b	DW Tape (White)	5%	Cellulose Fibers	100%	10/02	BC
	Joint Compound (White)	95%	Calcite / Talc / Binders	100%		

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www.paracellabs.com

Certificate of Analysis

Kanellos Consulting Inc.
582 Somerset St. West
Ottawa, ON K1R 5K2
Attn: Andrew Daley

Phone: 613-860-8880
Fax: (613) 894-6698

Client PO: 143-153 Arlington, Ottawa, ON
Project: A13091656
Custody: 10602

Report Date: 20-Sep-2013
Order Date: 17-Sep-2013
Order #: 1338138

This Certificate of Analysis contains analytical data applicable to the following samples submitted:

Paracel ID	Client ID
1338138-01	PB-1 Brown Wooden Siding Front Porch
1338138-02	PB-2 Blue-Grey Front (South) Porch Railing
1338138-03	PB-3 Pale Yellow Rear (North) Ext. Wall
1338138-04	PB-4 Dark Brown Ext. Window Sill
1338138-05	PB-5 Off-White Unit 143-145 Ext. Brickwall Foyer
1338138-06	PB-6 Grey Unit 143-145 Foyer Floor
1338138-07	PB-7 Yellow Unit 145-1 Door Ext.
1338138-08	PB-8 Blue Unit 143-145 Stairwell
1338138-09	PB-9 Green Unit 143-145 Stairwell
1338138-10	PB-10 Off-White Unit 145-1 W/C Wall
1338138-11	PB-11 Light Brown Laundry Room Ext. Door

Approved By: Mark Foto

Mark Foto, M.Sc. For Dale Robertson, BSc
Laboratory Director

PARACEL LABORATORIES LTD.

Order #: 1338138

Certificate of Analysis

Report Date: 20-Sep-2013
Order Date:17-Sep-2013

Client: **Kanellos Consulting Inc.**
Client PO: 143-153 Arlington, Ottawa, ON Project Description: A13091656

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Metals, ICP-OES	based on MOE E3470, ICP-OES	20-Sep-13	20-Sep-13

Sample and QC Qualifiers Notes

1- GEN01 :Elevated Reporting Limits due to limited sample volume.

Sample Data Revisions

None

Work Order Revisions/Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

PARACEL LABORATORIES LTD.

Order #: 1338138

Certificate of Analysis

Report Date: 20-Sep-2013
Order Date:17-Sep-2013

Client: **Kanellos Consulting Inc.**
Client PO: 143-153 Arlington, Ottawa, ON Project Description: A13091656

Sample Results

Lead

Matrix: Paint
Sample Date: 16-Sep-13

Paracel ID	Client ID	Units	MDL	Result
1338138-01	PB-1 Brown Wooden Siding Front Porch	ug/g	20	<31 [1]
1338138-02	PB-2 Blue-Grey Front (South) Porch Railing	ug/g	20	728
1338138-03	PB-3 Pale Yellow Rear (North) Ext. Wall	ug/g	20	94
1338138-04	PB-4 Dark Brown Ext. Window Sill	ug/g	20	26600
1338138-05	PB-5 Off-White Unit 143-145 Ext. Brickwall Foyer	ug/g	20	261
1338138-06	PB-6 Grey Unit 143-145 Foyer Floor	ug/g	20	<20
1338138-07	PB-7 Yellow Unit 145-1 Door Ext.	ug/g	20	129
1338138-08	PB-8 Blue Unit 143-145 Stairwell	ug/g	20	1940
1338138-09	PB-9 Green Unit 143-145 Stairwell	ug/g	20	5130
1338138-10	PB-10 Off-White Unit 145-1 W/C Wall	ug/g	20	<20
1338138-11	PB-11 Light Brown Laundry Room Ext. Door	ug/g	20	3650

Laboratory Internal QA/QC

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Matrix Blank									
Lead	ND	20	ug/g						
Matrix Duplicate									
Lead	4350	20	ug/g	4190			3.7	30	
Matrix Spike									
Lead	247		ug/L	ND	98.6	70-130			

APPENDIX B – OTHER DESIGNATED SUBSTANCES

Acrylonitrile O. Reg. 835/90 as amended by O. Reg. 101/04

Acrylonitrile is used to produce polymers such as acrylonitrile-butadiene-styrene (ABS) resins. These polymers are used in the manufacturing of a wide range of commercial products (i.e., automotive parts, clothing, carpets, etc.). The Time-Weighted Average Exposure Limits (TWAEL) of a worker exposed to airborne acrylonitrile is to be maintained at the lowest practical level and not exceed an eight hour average concentration of 4.3 mg/m³ of air (2 ppmv).

In its hardened polymer form, acrylonitrile is not expected to release emissions that would exceed the allowable limits. Pure acrylonitrile was not identified at the subject property.

Arsenic O. Reg. 836/90 as amended by O. Reg. 102/04

Arsenic can be found in paint on roofing flashings, floors, walls and on the underside of the concrete ground floor structures in old buildings. The Time-Weighted Average Exposure Limits (TWAEL) of a worker exposed to airborne arsenic is to be maintained at the lowest practical level and not exceed an eight hour average concentration of 10 μg/m³ of air.

Considering the age of the building, arsenic could be present in the above listed materials. However, there is a low probability of finding arsenic-based coatings and minor amounts of this metal did not justify that the sampling be performed in the present assessment.

Benzene O. Reg. 839/90 as amended by O. Reg. 105/04

Benzene is typically found in petroleum based products such as gasoline and diesel fuels, asphalt and other hydrocarbon based products. The Time-Weighted Average Exposure Limits (TWAEL) of a worker exposed to airborne benzene is to be maintained at the lowest practical level with a view to achieving an ambient air concentration lower than 3.2 mg/m³ of air (1 ppmv) and not exceed an eight hour average concentration of 16 mg/m³ of air (5 ppmv).

Direct sources of benzene emissions were not identified at the subject property.

Coke Oven Emissions O. Reg. 840/90 as amended by O. Reg. 106/04

Coke Oven Emissions result from burning of coke. The Time-Weighted Average Exposure Limits (TWAEL) of a worker exposed to coke oven emissions are to be maintained at the lowest practical level and not to exceed an eight hour average concentration of 0.15 mg/m³ of air.

Direct sources of coke oven emissions were not identified at the subject property.

Ethylene Oxide O. Reg. 841/90 as amended by O. Reg. 107/04

Ethylene Oxide is a common by-product of fumigation or sterilization procedures. The Time-Weighted Average Exposure Limits (TWAEL) of a worker exposed to airborne ethylene oxide is to be maintained at the lowest practical level and not exceed an eight hour average concentration of 1.8 mg/m³ of air (1 ppmv).

Materials or processes that may release ethylene oxide to ambient air were not identified at the subject property.

Isocyanates O. Reg. 842/90 as amended by O. Reg. 108/04

Isocyanates are mainly used in the manufacture of plastics, foams and coatings. The Time-Weighted Average Exposure Limits (TWAEL) of a worker exposed is isocyanate dust is to be maintained at the lowest practical level and not exceed an eight hour average concentration of 0.2 µmoles/m³ of air (0.005 ppmv).

Manufactured products under normal conditions do not typically pose a health risk. However, sawing or scraping uncured polyurethane that still contains some unreacted-NCO groups will release isocyanate dust. Uncured polyurethanes were not identified at the subject property.

Vinyl Chloride O. Reg. 846/90 as amended by O. Reg. 112/04

Vinyl Chloride is found in many applications such as PVC pipes and fittings. The Time-Weighted Average Exposure Limits (TWAEL) of a worker exposed to vinyl chloride emission is to be maintained at the lowest practical level and not exceed and eight hour average concentration of 5.2 mg/m³ of air (1 ppmv).

Vinyl chloride in the PVC compound is bound in a solid matrix that is unlikely to become airborne. Vinyl chloride emissions are not likely to exceed the prescribed limits at the subject property.