HAZARDOUS MATERIALS SURVEY AND 2022 REASSESSMENT
100 THOMAS MORE AVENUE, OTTAWA, ON

Project No.: Z2021101HZ / CCC-230252-00

Prepared for:

University of Ottawa

Prepared by:

McIntosh Perry Limited (MPL)

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Date:

September 14, 2022

McINTOSH PERRY

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REASSESSMENT SURVEY 2022

McIntosh Perry Limited **(MPL)** was retained by the University of Ottawa, to complete a Hazardous Materials Survey for the building located at 100 Thomas More Avenue (Brooks Building). MPL was also retained to reassess the condition of hazardous build materials found. The survey was conducted on March 20th, 23rd, and 24th, 2020. The reassessment was completed on June 17th, 2022.

The purpose of the reassessment was to evaluate the condition and quantity of previously reported asbestos-containing materials (ACM) and develop corrective action plans as required for the purposes of long-term management.

The assessment and reassessment determined the following findings and recommendations.

Summary of the Reassessment Findings:

- ACM Cementous Coating was observed to be in Good Condition in Room 007.
- Suspected ACM in Floor Tile Grout, Concrete Block Mortar and Roofing Material were observed to be in Good Condition throughout the subject building.
- No mould or water damaged materials were observed during the site survey

Summary of Recommendations:

- Perform a reassessment of asbestos materials on an annual basis.
- Sample any presumed ACM prior to alteration or maintained work if presumed ACM may be disturbed by the work.
- Perform a pre-construction assessment and remove all asbestos-containing materials (ACM) prior to alterations or maintenance work if ACM may be disturbed by the work.
- Follow appropriate safe work procedures when handling or disturbing asbestos.

EXECUTIVE SUMMARY

McIntosh Perry Limited **(MPL)** was retained by the University of Ottawa, to complete a hazardous materials survey for the building located at 100 Thomas More Avenue (Brooks Building). The survey was conducted on March 20th, 23rd, and 24th, 2020. **The Reassessment Survey was conducted on June 17th, 2022.**

The purpose of the survey was to determine the presence of building materials containing Designated Substances and other hazardous materials, as defined under the Ontario Occupational Health and Safety Act. Designated Substances are eleven chemical agents prescribed under Ontario Regulation 490/09.

Based on the assessment conducted by MPL, the following ACMs were identified or suspected to be present in the building:

Table A: Summary of Asbestos-Containing Materials Identified

Material Description	Friable?	Location	Type of Asbestos
Cementitious Coating	Yes	Specific Areas Only	Chrysotile
Concrete Block Mortar	-	Throughout Building	Suspected
Ceramic Wall/Tile Grout	-	Specific Areas Only	Suspected
Fire Doors	-	Throughout Building	Suspected
Roofing Material	-	Roof	Suspected

Note: Please refer to the complete report for specific details and recommendations.

All repairs or removal of asbestos-containing materials must be conducted according to Ontario Regulation 278/05, Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations - made under the Occupational Health and Safety Act. Asbestos containing waste must also be handled and disposed of according to Ontario Regulation 347/90 as amended – made under the Environmental Protection Act. Any suspect building materials encountered that were not assessed as part of this survey, should be assumed to contain asbestos until proven otherwise by analytical testing;

Sub-trades working with or in close proximity to asbestos-containing material should be informed of its presence;

Given that asbestos containing materials (ACMs) have been identified and will likely remain in place, an Asbestos Management Plan (AMP) is therefore required and an inventory of ACMs must be kept on site. All ACMs must be routinely inspected to ensure no damage has occurred, and the inventory must be updated once in each 12-month period and as may be required based on expected changing site conditions, abatement and/or renovation activities.

Based on the assessment conducted by MPL, the following Designated Substances were identified or suspected to be present in the building:

Table B: Summary of Designated Substances & Hazardous Materials Identified

Material Description	Location
Lead Paint	Specific Areas Only
Lead Acid Batteries	Specific Equipment
Mercury Vapour	Specific Equipment
Mercury Liquid	Specific Equipment
Above Ground Storage Tanks (AST)	Specific Areas Only
Radioactive Materials	Specific Equipment
Ozone Depleted Substances	Specific Equipment
Water Damage	Specific Areas Only
Silica	Throughout Building

Note: Please refer to the complete report for specific details and recommendations.

Designated Substances area regulated under Ontario Regulation 490/09 — Designated Substances, made under the Ontario Health and Safety Act, which applies to controlling designated substances in the workplace.

In addition to Ontario Regulation 490/09, the following guidelines must also be adhered to when conducting work activities that that involve disturbance of the above-mentioned materials:

- Guideline: Lead on Construction Projects, issued April 2011 by the Occupational Health and Safety branch of the Ministry of Labour
- Guideline: Silica on Construction Projects issued April 2011 by the Occupational Health and Safety branch of the Ministry of Labour.
- Environmental Abatement Council of Ontario (EACO) Mould Abatement Guidelines.

Prior to any renovations or demolition activities within building, designated substances and hazardous materials must be decommissioned by a licensed contractor such that they are contained and not released to the environment during decommissioning as per O. Reg. 347/09- made under the Environmental Protection Act.

Any suspect building materials encountered that were not assessed as part of this survey, should be assumed to contain designated substances or hazardous materials until proven otherwise by analytical testing.

This report should be made available to contractors tendering on any renovation or demolition work. In turn, all contractors requesting tenders from subcontractors shall furnish this report to subcontractors.

This executive summary is not to be used alone. This report should be reviewed in its entirety.

McINTOSH PERRY

September 14, 2022

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via email: joel.lajeunesse@uottawa.ca

Attention: Joel Lajeunesse, Project Manager

Re: 100 Thomas More Avenue (Brooks Building), Ottawa, ON
Hazardous Materials Survey
McIntosh Perry Limited Reference No. Z2021101HZ / CCC-230252-00

1.0 INTRODUCTION

In accordance with your instructions, McIntosh Perry Limited (MPL) carried out a Hazardous Materials Survey at the institutional building located at 100 Thomas More Avenue (Brooks Building). The site is situated on the southeast corner of King Edward Avenue and Osgoode Street. The survey of the building was conducted on March 20th, 23rd, and 24th, 2020. **The Reassessment Survey was conducted on June 17th, 2022.**

The purpose of the survey was to determine the presence of building materials containing Designated Substances and other hazardous materials, as defined under the Ontario Occupational Health and Safety Act. Designated Substances are eleven chemical agents prescribed under Ontario Regulation 490/09. In addition, a visual assessment was conducted for the presence of polychlorinated biphenyls (PCBs), radioactive materials, ozone depleting substances (ODSs), other halocarbons and mould.

MPL completed the following,

- Visual review of the building to identify materials which could contain Designated Substances and hazardous materials;
- Bulk sampling and analysis of building materials suspected of containing asbestos (if required);
- Bulk sampling and analysis of representative paints and finishes suspected of containing lead (if required);
- Review of previously completed Hazardous Materials Survey(s) and historical building record(s); and,
- Recommendations for appropriate action where required.

2.0 PROPERTY DESCRIPTION

The subject building is a four-storey building with an underground parking garage that was built in 1987 and is 35,973 square feet. The subject building was observed to be constructed with a poured concrete foundation. The exterior walls are finished with brick, and the has a flat roof. Within the subject building, interior walls and ceilings were observed to be mainly drywall and concrete. The floors were generally vinyl floor tile, vinyl sheet flooring carpet and concrete.

3.0 FINDINGS & RECOMMENDATIONS

Designated Substances

3.1 Asbestos

Findings

A total of sixty-one (61) bulk samples were collected during the survey and sent to an accredited laboratory for analysis. A summary of potential asbestos-containing samples collected along with the sample location, type and friability are presented in Table 1.

Laboratory certificates of analysis for asbestos are included in Appendix C.

Table 1:

Asbestos Laboratory Results

Sample ID	Location	Material	Type and Content	Friability
BS 1.1	Room 002	Drywall Joint Compound	None Detected	N/A
		Drywall Joint Compound- Second Layer	None Detected	N/A
BS 1.3	Room 120A	Drywall Joint Compound	None Detected	N/A
BS 1.3	Room 203	Drywall Joint Compound	None Detected	N/A
BS 1.4	Room 235	Drywall Joint Compound	None Detected	N/A
BS 1.5	Room 304	Drywall Joint Compound	None Detected	N/A
		Drywall Joint Compound- Second Layer	None Detected	N/A
BS 1.6	Room 305	Drywall Joint Compound	None Detected	N/A
BS 1.7	Room 416	Drywall Joint Compound	None Detected	N/A
BS 2.1	Room 019A	Cementitious Coating (Grey)	None Detected	N/A
BS 2.2	Room 019A	Cementitious Coating (Grey)	None Detected	N/A
BS 2.3	Room 019A	Cementitious Coating (Grey)	None Detected	N/A
BS 2.4	Room 019A	Cementitious Coating (Grey)	None Detected	N/A
BS 2.5	Room 019A	Cementitious Coating (Grey)	None Detected	N/A
BS 2.6	Room 019A	Cementitious Coating (Grey)	None Detected	N/A
BS 2.7	Room 019A	Cementitious Coating (Grey)	None Detected	N/A

Sample ID	Location	Material	Type and Content	Friability
BS 3.1	Room 105	Wallpaper (White, Textured)	None Detected	N/A
BS 3.2	Room 105	Wallpaper (White, Textured)	None Detected	N/A
		Joint Compound	None Detected	N/A
BS 3.3	Room 105	Wallpaper (White, Textured)	None Detected	N/A
BS 4.1	Room 333	Carpet Mastic (Yellow)	None Detected	N/A
BS 4.2	Room 333	Carpet Mastic (Yellow)	None Detected	N/A
BS 4.3	Room 327	Carpet Mastic (Yellow)	None Detected	N/A
BS 5.1	Room 106	VSF (Granite Pattern)	None Detected	N/A
BS 5.2	Room 106	VSF (Granite Pattern)	None Detected	N/A
BS 5.3	Room 106	VSF (Granite Pattern)	None Detected	N/A
BS 6.1	Room 110	VFT (12”x12”- Beige w/ White Flakes)	None Detected	N/A
		Mastic/Leveler (Tan/Yellow)	None Detected	N/A
BS 6.2	Room 110	VFT (12”x12”- Beige w/ White Flakes)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A
		Leveler (Grey)	None Detected	N/A
BS 6.3	Room 110	VFT (12”x12”- Beige w/ White Flakes)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A
BS 7.1	Room 113	VFT (12”x12”-White w/ Multi-Colour Flakes)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A
BS 7.2	Room 113	VFT (12”x12”-White w/ Multi-Colour Flakes)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A
BS 7.3	Room 113	VFT (12”x12”-White w/ Multi-Colour Flakes)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A
BS 8.1	Room 113	VFT (12”x12”-Blue w/ White Flakes)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A
BS 8.2	Room 113	VFT (12”x12”-Blue w/ White Flakes)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A
BS 8.3	Room 113	VFT (12”x12”-Blue w/ White Flakes)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A
BS 9.1	Room 306	VFT (12”x12”-White w/ Black Flakes)	None Detected	N/A
BS 9.2	Room 306	VFT (12”x12”-White w/ Black Flakes)	None Detected	N/A
BS 9.3	Room 306	VFT (12”x12”-White w/ Black Flakes)	None Detected	N/A
		Caulking (White)	None Detected	N/A
BS 10.1	Room 308	VFT (12”x12”- Dark Grey w/ Light and Dark Spots)	None Detected	N/A

Sample ID	Location	Material	Type and Content	Friability
		Mastic (Yellow)	None Detected	N/A
BS 10.2	Room 308	VFT (12”x12”-Dark Grey w/ Light and Dark Spots)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A
BS 10.3	Room 308	VFT (12”x12”-Dark Grey w/ Light and Dark Spots)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A
BS 11.1	Room 332	VFT (12”x12”-Blue with Light and Dark Swirls)	None Detected	N/A
		Mastic (Black)	None Detected	N/A
BS 11.2	Room 332	VFT (12”x12”-Blue with Light and Dark Swirls)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A
BS 11.3	Room 332	VFT (12”x12”-Blue with Light and Dark Swirls)	None Detected	N/A
BS 12.1	Room 333	VFT (12”x12”-Pink)	None Detected	N/A
BS 12.2	Room 333	VFT (12”x12”-Pink)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A
BS 12.3	Room 333	VFT (12”x12”-Pink)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A
BS 13.1	Room 102D	VSF (Grey/Brown Mix)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A
BS 13.2	Room 102D	VSF (Grey/Brown Mix)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A
BS 13.3	Room 102D	VSF (Grey/Brown Mix)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A
BS 14.1	Room 105	VSF (Brown Square Pattern)	None Detected	N/A
BS 14.2	Room 105	VSF (Brown Square Pattern)	None Detected	N/A
BS 14.3	Room 105	VSF (Brown Square Pattern)	None Detected	N/A
		Mastic (Beige)	None Detected	N/A
BS 15.1	Room 313	VSF (Grey Square Pattern)	None Detected	N/A
		Mastic (Beige)	None Detected	N/A
BS 15.2	Room 313	VSF (Grey Square Pattern)	None Detected	N/A
		Mastic (Beige)	None Detected	N/A
BS 15.3	Room 313	VSF (Grey Square Pattern)	None Detected	N/A
		Mastic (Beige)	None Detected	N/A
BS 16.1	Room 110B	VSF (Blue/Grey Pattern)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A

Sample ID	Location	Material	Type and Content	Friability
BS 16.2	Room 110B	VSF (Blue/Grey Pattern)	None Detected	N/A
		Mastic/ Leveler (Yellow/Grey)	None Detected	N/A
BS 16.3	Room 110B	VSF (Blue/Grey Pattern)	None Detected	N/A
		Mastic (Yellow)	None Detected	N/A
		Leveler (Grey)	None Detected	N/A
BS 17.1	**Room 007**	**Cementitious Wall Coating (White)**	**0.75% Chrysotile**	**Friable**
BS 17.2	**Room 007**	**Cementitious Wall Coating (White)**	**Stop Positive**	**Friable**
BS 17.3	**Room 007**	**Cementitious Wall Coating (White)**	**Stop Positive**	**Friable**
BS 17.4	**Room 007**	**Cementitious Wall Coating (White)**	**Stop Positive**	**Friable**
BS 17.5	**Room 007**	**Cementitious Wall Coating (White)**	**Stop Positive**	**Friable**

N/A – Not Applicable
VFT – Vinyl Floor Tiles
Stop Positive – Material considered being asbestos-containing as per O. Reg. 278/05.

Please refer to Appendix E – Asbestos-Containing Materials Checklist for material conditions, quantities (where applicable), and recommended actions.

The following building materials (if present) were investigated for asbestos content:

3.1.1 Fireproofing

No fireproofing was observed in the subject building.

3.1.2 Mechanical Pipe Insulation

3.1.2.1 Mechanical Pipe Straight Insulation

Mechanical pipe straight insulation was observed throughout the subject building. MPL made several incisions throughout to investigate its composition, and it was visually identified as fiberglass, and therefore not suspected of containing asbestos.

3.1.2.2 Mechanical Piping Elbows/Fittings Insulation

Mechanical pipe elbow/fitting insulation was observed throughout the subject building. MPL made several incisions throughout to investigate its composition, and it was visually identified as fiberglass, and therefore not suspected of containing asbestos.

3.1.2.3 Mechanical Piping Hangers Insulation

Mechanical pipe hanger insulation was observed throughout the subject building. MPL made several incisions throughout to investigate its composition, and it was visually identified as fiberglass, and therefore not suspected of containing asbestos.

3.1.2.4 HVAC Duct Insulation

HVAC duct insulation was observed throughout the subject building. MPL made several incisions throughout to investigate its composition, and it was visually identified as fiberglass, and therefore not suspected of containing asbestos.

3.1.2.5 Other Mechanical Insulation

No other mechanical insulation was observed in the subject building.

3.1.3 Flexible Duct Connector

No flexible duct connectors were observed in the subject building.

3.1.4 Heat Shield or Heat Shield Insulation

No potential asbestos-containing heat shield insulation were observed in the subject building.

3.1.5 Plaster

Plaster was not observed in the subject building.

3.1.6 Drywall Joint Compound

Drywall joint compound was observed and sampled throughout the subject building. The laboratory analytical results indicate that this material does not contain asbestos.

3.1.7 Ceiling Tiles

Several different ceiling tiles were observed within the subject building as follows:

- Suspended ceiling tiles (2'x'4 – Pinholes and Small Fissures) were observed in Room 239. The date stamp on the back of these tiles indicated that they were manufactured in 2013 and therefore, this material is not considered to contain asbestos.

- Suspended ceiling tiles (2'x'4 – Pinholes and Large Fissures) were observed in Room 110A. The date stamp on the back of these tiles indicated that they were manufactured in 2005 and therefore, this material is not considered to contain asbestos.

- Suspended ceiling tiles (2'x'4 – Pinholes and Medium Fissures) were observed in Room 313. The date stamp on the back of these tiles indicated that they were manufactured in 2006 and therefore, this material is not considered to contain asbestos.

- Suspended ceiling tiles (2'x'4 – Pinholes and Medium Fissures) were observed in Room 435. The date stamp on the back of these tiles indicated that they were manufactured in 2005 and therefore, this material is not considered to contain asbestos.

3.1.8 Vinyl Floor Tiles

Several different vinyl floor tiles were observed and sampled within the subject building as follows:

- Vinyl floor tiles (12" x 12"- Beige with White Flakes) were observed and sampled in Room 110. The laboratory analytical results indicate that this material does not contain asbestos. The associated mastic/levelling compound (Tan/Yellow/Grey) was also found not to contain asbestos.

- Vinyl floor tiles (12" x 12"- White with Multi-Colour Flakes) were observed and sampled in Room 113. The laboratory analytical results indicate that this material does not contain asbestos. The associated mastic/levelling compound (Yellow) was also found not to contain asbestos.

- Vinyl floor tiles (12" x 12"- Blue with White Flakes) were observed and sampled in Room 113. The laboratory analytical results indicate that this material does not contain asbestos. The associated mastic/levelling compound (Yellow) was also found not to contain asbestos.

- Vinyl floor tiles (12" x 12"- White with Black Flakes) were observed and sampled in Room 306. The laboratory analytical results indicate that this material does not contain asbestos. The associated caulking (White) was also found not to contain asbestos.

- Vinyl floor tiles (12" x 12"- Dark Grey with Light and Dark Spots) were observed and sampled in Room 308. The laboratory analytical results indicate that this material does not contain asbestos. The associated mastic (Yellow) was also found not to contain asbestos.

- Vinyl floor tiles (12" x 12"- Blue with Light and Dark Swirls) were observed and sampled in Room 332. The laboratory analytical results indicate that this material does not contain asbestos. The associated mastics (Black/Yellow) was also found not to contain asbestos.

- Vinyl floor tiles (12" x 12"- Pink) were observed and sampled in Room 333. The laboratory analytical results indicate that this material does not contain asbestos. The associated mastic (Yellow) was also found not to contain asbestos.

3.1.9 Vinyl Sheet Flooring

Several different vinyl sheet floors were observed and sampled within the subject building as follows:

- Vinyl sheet flooring (Granite Pattern) was observed and sampled in Room 106. The laboratory analytical results indicate that this material does not contain asbestos.

- Vinyl sheet flooring (Grey/Brown Mix) was observed and sampled in Room 102D. The laboratory analytical results indicate that this material does not contain asbestos. The associated mastic (Yellow) was also found not to contain asbestos.

- Vinyl sheet flooring (Brown Square Pattern) was observed and sampled in Room 105. The laboratory analytical results indicate that this material does not contain asbestos. The associated mastic (Beige) was also found not to contain asbestos.
- Vinyl sheet flooring (Grey Square Pattern) was observed and sampled in Room 313. The laboratory analytical results indicate that this material does not contain asbestos. The associated mastic (Beige) was also found not to contain asbestos.
- Vinyl sheet flooring (Grey Square Pattern) was observed and sampled in Room 313. The laboratory analytical results indicate that this material does not contain asbestos. The associated mastic (Beige) was also found not to contain asbestos.
- Vinyl sheet flooring (Blue/Grey Pattern) was observed and sampled in Room 110B. The laboratory analytical results indicate that this material does not contain asbestos. The associated mastic/levelling compound (Yellow/Grey) was also found not to contain asbestos.

3.1.10 Mastic

Carpet mastic (Yellow) was observed and sampled in Room 327 and 333. The laboratory analytical results indicate that this material does not contain asbestos.

3.1.11 Wallpaper

Wallpaper was observed and sampled in Room 105. The laboratory analytical results indicate that this material does not contain asbestos.

3.1.12 Brick/Stone Mortar

To avoid damage and compromising the integrity of the structure, no bulk samples of the brick/stone mortar were collected. Prior to renovation/demolition, brick mortar should be examined and tested for asbestos content. Brick/stone mortar should therefore be considered to contain asbestos until bulk samples and analysis proves otherwise.

3.1.13 Concrete Block Mortar

To avoid damage and compromising the integrity of the structure, no bulk samples of the concrete block mortar were collected. Prior to renovation/demolition, concrete block mortar should be examined and tested for asbestos content. Concrete block mortar should therefore be considered to contain asbestos until bulk samples and analysis proves otherwise.

3.1.14 Ceramic Wall / Floor Tile Grout

To avoid damage and compromising the integrity of the structure, no bulk samples of the ceramic wall/floor tiles grout were collected. Prior to renovation/demolition, ceramic wall/floor tiles grout should be examined and tested for asbestos content. Ceramic wall/floor tiles grout should therefore be considered to contain asbestos until bulk samples and analysis proves otherwise.

3.1.15 Transite (Asbestos Cement)

No transite materials were observed in the subject building.

3.1.16 Caulking

No caulking materials were observed in the subject building.

3.1.17 Cementitious Coating

Several different cementitious coatings were observed and sampled within the subject building as follows:

- Cementitious wall coating (White) was observed and sampled in Room 007. The laboratory analytical results of the cementitious coating samples collected from Room 007 indicate that this material **contains 0.75% Chrysotile asbestos**. Since texture coat is a homogeneous material, all areas must be treated as asbestos-containing unless additional bulk sampling and analysis proves otherwise. This material was observed in good condition.

- Cementitious wall and ceiling coating (Grey) was observed and sampled in Room 019A. The laboratory analytical results indicate that this material does not contain asbestos.

3.1.18 Fire Doors

Fire doors were observed at various locations throughout the subject building. To avoid possible damage, no bulk samples of the internal door insulation materials were collected. Prior to removal and/or replacement, fire doors should be examined and tested for asbestos content. Fire doors should be considered to contain asbestos until bulk samples and analysis proves otherwise. All fire doors were observed to be in good condition.

3.1.19 Roofing Material

To avoid damage and compromising the integrity of roofing material, no bulk samples of the roofing materials were collected. Prior to removal and/or replacement, roofing materials should be examined and tested for asbestos content. Roofing materials should be considered to contain asbestos until bulk samples and analysis proves otherwise.

Recommendations

- Materials identified to contain asbestos that are in good condition and do not pose a risk to workers or occupants can be managed in place. Prior to renovation/demolition activities that may disturb the ACMs, these materials must be removed following appropriate Type 1/2/3 asbestos abatement work procedures as detailed in O. Reg. 278/05 and disposed of as asbestos waste under O. Reg. 347;

- Please refer to Appendix E – Asbestos-Containing Materials Checklist for material conditions, quantities (where applicable), and recommended actions;

- Prior to renovation/demolition of materials which are assumed to be asbestos-containing (suspect materials which were not sampled, i.e., roofing material, brick/stone mortar, and ceramic wall/tile grout), these materials must either be tested for asbestos content or removed following appropriate asbestos abatement work procedures (Type 1/2/3) as detailed in O. Reg. 278/05 and disposed of as asbestos waste under O. Reg. 347;

- All repairs or removal of asbestos-containing materials must be conducted according to Ontario Regulation 278/05, Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations - made under the Occupational Health and Safety Act. Asbestos containing waste must also be handled and disposed of according to Ontario Regulation 347/90 as amended – made under the Environmental Protection Act. Any suspect building materials encountered that were not assessed as part of this survey, should be assumed to contain asbestos until proven otherwise by analytical testing;

- Sub-trades working with or in close proximity to asbestos-containing material should be informed of its presence; and

- Given that asbestos containing materials (ACMs) have been identified and will likely remain in place, an Asbestos Management Plan (AMP) is therefore required and an inventory of ACMs must be kept on site. All ACMs must be routinely inspected to ensure no damage has occurred, and the inventory must be updated once in each 12-month period and as may be required based on expected changing site conditions, abatement and/or renovation activities.

3.2 Lead

Findings

3.2.1 Paint Finishes

A total of thirteen (13) paint samples from the subject building were collected and analyzed for lead content. Results of bulk sampling testing are summarized in Table 2 and the laboratory certificate of analysis can be found in Appendix C.

Table 2:

Lead Sampling Locations and Laboratory Results

Sample I.D.	Location	Material	Colour	Lead Concentration Weight by Conc. (%)
Pb01	Room 002	Wall Paint	White	0.012
Pb02	Room 019	Wall Paint	Yellow	3.8
Pb03	Room 019	Wall Paint	Green	<0.012
Pb04	Room 105	Door Paint	Pink	<0.018

Sample I.D.	Location	Material	Colour	Lead Concentration Weight by Conc. (%)
Pb05	Room 106	Door Paint	Maroon	<0.027
Pb06	Room 113	Wall Paint	Dark Grey	<0.0080
Pb07	Room 120A	Wall Paint	Light Blue	<0.0080
Pb08	Room 400B	Wall Paint	Dark Red	<0.013
Pb09	Room 304	Wall Paint	Beige	<0.0082
Pb10	Room 305	Wall Paint	Light Blue	<0.028
Pb11	Room 305	Doorframe Paint	Dark Blue	<0.0096
Pb12	Room 305	Wall Paint	Light Grey	<0.0099
Pb13	Room 001	Floor	Light Grey	0.016

The paint finishes highlighted in blue in the above table were determined to contain low concentrations of lead which are less than or equal to 0.1%. These paint finishes were observed to be in fair and good condition.

The paint finishes highlighted in pink in the above table are considered lead-containing paints or surface coatings with concentrations greater than 0.1% lead by weight. These paint finishes were observed to be in fair condition.

All other paints throughout the subject building that are not mentioned in this report must be considered to be lead-containing unless sampling and analysis proves otherwise.

3.2.2 Battery Packs

MPL identified lead-containing acid battery packs throughout the subject building. These battery packs were observed on walls and above exits within the subject building.

Lead may also be present in the following materials in the building:

- Solder used on copper domestic water lines;
- Solder used in bell fittings for cast iron pipes;
- Solder used in electrical equipment;
- Ceramic tile glaze; and
- Concrete and mortar products, etc.

Recommendations

Paints identified to contain lead that are in fair condition should be either repaired (where possible) and/or closely monitored for signs of further deterioration.

Paints identified to contain lead that are in good condition and do not pose a risk to workers or occupants can be managed in place.

Detailed worker protection protocols are outlined in the OMOL Guideline "Lead on Construction Projects" dated April 2011. Generally, the removal of the lead-based paint with the use of a chemical gel or paste, or a power tool equipped with a HEPA filter is considered a Type 1 operation. The removal of lead-based paint by scraping or sanding using non-powered hand tools is considered a Type 2 operation. The removal of lead-based paint using abrasive blasting, or power tools without a HEPA filter, is considered a Type 3 operation, and requires the most stringent worker protection protocols (similar to asbestos); Furthermore, high temperature cutting or welding would also require Type 3 Operations under the Guideline for Lead on Construction Projects. If this type of work is required, it may be prudent to chemically remove the lead paint in selected locations prior to performing any high temperature cutting or welding.

All lead materials that are removed must follow the Ministry of Labour and Environmental Abatement Council of Ontario Lead Guidelines.

Please refer to Appendix F – Hazardous Materials Checklist for material conditions, quantities (where applicable), and recommended actions.

Precautions should be taken as required during major renovations and demolition projects to ensure that workers' exposure levels to airborne lead does not exceed 0.05 mg/m3. This can be achieved by:

- providing workers with proper training;
- providing the workers with respiratory protection;
- wetting the surface of the materials to prevent dust emissions; and,
- providing workers with hygiene facilities to properly wash prior to exiting the work area.

Sub-trades working with or in close proximity to lead based paint should be informed of its presence.

All waste material must be handled and disposed of according to the Revised Regulation of Ontario 347/90 as amended – made under the Environmental Protection Act. Lead waste generated may also be subject to Leachate Criteria (Schedule 4) of this regulation.

3.3 Mercury

Findings

3.3.1 Thermostat Switches

MPL observed thermostats containing liquid mercury within the subject building.

3.3.2 Fluorescent Light Tubes

MPL identified fluorescent light fixtures throughout the surveyed area containing 2 to 4 fluorescent light tubes per fixture. Mercury is likely to be present in vapor form in the fluorescent light tubes.

3.3.3 Pressure Gauges and Float Switches

MPL identified any pressure gauges containing liquid mercury throughout the subject building.

Recommendations

Please refer to Appendix F – Hazardous Materials Checklist for equipment conditions, quantities (where applicable), and recommended actions.

3.4 Silica

Findings

Silica is expected to be present in building materials such as concrete, brick, mortar and ceramic tiles located throughout the structures. Free crystalline silica (α-Quartz) may be a component in ceiling tiles and gypsum board. Silica (including free crystalline silica) may also be a component of concrete and brick surfaces noted in the building.

Recommendations

Please refer to Appendix F – Hazardous Materials Checklist for equipment conditions, quantities (where applicable), and recommended actions.

Precautions should be taken as required during major renovations and demolition projects on concrete (i.e. coring through concrete slabs, demolition of masonry, etc.) to ensure that workers' exposure levels to airborne silica does not exceed 0.05 mg/m^3.

This can be achieved by:

- providing workers with proper training;
- providing the workers with respiratory protection;
- wetting the surface of the materials to prevent dust emissions; and,
- providing workers with facilities to properly wash prior to exiting the work area.

Demolition work that is likely to impact silica-containing materials should be carried out in accordance with the requirement detailed in the Ontario Ministry of Labour document entitled "Guideline: Silica on Construction Projects", dated April 2011.

Other Hazardous Materials

3.5 Polychlorinated Biphenyls (PCBs)

Findings

3.5.1 Light Ballasts

The subject building is illuminated by LED and fluorescent lights. MPL assessed representative ballasts in the building, and these ballasts were identified as non-PCBs content.

3.5.2 Transformers

MPL did not observe any PCBs containing electrical transformers within the subject building. Transformers that could be assessed were observed to be dry-type.

Recommendations

Since no PCB-containing equipment was observed or suspected to be present during the site survey, no further action is required.

3.6 Ozone Depleting Substances (ODSs) and Other Halocarbon

Findings

A visual assessment for equipment potentially containing ODSs and other halocarbons was conducted. Equipment containing ODSs or other halocarbons was observed in the subject building.

Recommendations

Please refer to Appendix F – Hazardous Materials Checklist for equipment conditions, approximate quantities (where applicable), and recommended actions.

Under the management of a licensed contractor, equipment containing R410a, R32, and R-134a does not represent a significant threat to human health or the environment however, a licensed contractor must decommission equipment such that CFCs are contained and not released to the environment during servicing or operation.

3.7 Radioactive Materials

Findings

A visual assessment of the subject building was conducted to determine if any electrical components containing radioactive materials were present. MPL observed Kiddie brand smoke detectors, which contains small quantities of radioactive material.

Recommendations

The radioactive sources in smoke alarms are sealed and contained within a metal case inside the smoke detector and must not be damaged or tampered with. These materials do not pose a hazard as long as they remain contained and properly disposed at the time of removal or replacement.

Prior to any renovations or demolition of the building, all equipment containing radioactive materials must be decommissioned by a licensed contractor such that radioactive materials are contained and not released to the environment during decommissioning as per O.Reg. 347/09.

Since no radioactive materials were observed or suspected to be present during the site survey, no further action is required.

3.8 Underground and Above Ground Storage Tanks (USTs and ASTs)

Findings

A visual survey of the subject building was conducted to determine if any USTs and ASTs were present. MPL observed an above ground diesel storage tank within the subject building.

Recommendations

Please refer to Appendix F – Hazardous Materials Checklist for equipment conditions, quantities (where applicable), and recommended actions.

Prior to any renovation/demolition in the building, all USTs and ASTs equipment must be decommissioned by a licensed contractor such that substances are contained and not released to the environment during decommissioning.

3.9 Mould

Findings

3.9.1 Mould

A visual survey of the subject building was conducted to determine if any mould was present. MPL did not identify any areas with mould growth.

3.9.2 Water Damage

A visual survey of the subject building was conducted to determine if any water damaged was present. MPL identified select areas throughout the subject building, where materials were affected by water damage.

Recommendations

Please refer to Appendix F – Hazardous Materials Checklist for equipment conditions, quantities (where applicable), and recommended actions.

Water stained/damaged ceiling tiles observed throughout the subject building should be replaced as part of regular maintenance and the underlying cause of the water leakage should be identified and repaired.

This report should be made available to contractors tendering on any renovation or demolition work. In turn, all contractors requesting tenders from subcontractors shall furnish this report to subcontractors

4.0 GENERAL CONSIDERATIONS AND LIMITATIONS

The information presented in this report is based on information provided by others, direct visual observation made by personnel with **McIntosh Perry Limited (MPL)**, and the results of laboratory testing as identified herein.

It should be noted that there might be hazardous materials in locations not visible during our investigation. In the event such material is encountered during demolition operations in the building, this material should be tested and dealt with accordingly.

The findings detailed in this report are based upon the information available at the time of preparation of the report. No investigative method eliminates the possibility of obtaining imprecise or incomplete information. Professional judgement was exercised in gathering and analyzing the information obtained and in the formulation of our conclusions and recommendations.

MPL does not certify or warrant the environmental status of the property nor the building on the property.

Please note that the passage of time affects the information provided in the report. Environmental conditions of a site can change. Opinions relating to the site conditions are based upon information that existed at the time that the conclusions were formulated.

The client expressly agrees that it has entered into this agreement with MPL, both on its own behalf and as agent on behalf of its employees and principals.

The client expressly agrees that MPL's employees and principals shall have no personal liability to the client in respect of a claim, whether in contract, tort and/or any other cause of action in law. Accordingly, the client expressly agrees that it will bring no proceedings and take no action in any court of law against any of MPL's employees or principals in their personal capacity.

We trust that we have detailed our findings clearly and that we have satisfactorily addressed the scope of work you require at this time. In the event you wish us to review our findings with you, or require our services further in this regard, please do not hesitate to contact our office.

Yours truly,

MCINTOSH PERRY LIMITED

Lauren Hamilton
Project Technician
Hazardous Materials/ Environmental Health & Safety

John Tufts, B.Sc.
Project Manager
Hazardous Materials/ Environmental Health & Safety

APPENDIX A

Regulatory Requirements

REGULATORY REQUIREMENTS

In Ontario, there is a total of eleven Designated Substances. These substances have been regulated under Ontario Regulation 490/09 — Designated Substances, made under the Ontario Health and Safety Act, which applies to controlling designated substances in the workplace.

In addition to the Ontario Regulation 490/09 noted above, the following were observed for this survey:

Guideline: Lead on Construction Projects, issued April 2011 by the Occupational Health and Safety branch of the Ministry of Labour

Guideline: Silica on Construction Projects issued April 2011 by the Occupational Health and Safety branch of the Ministry of Labour.

The Occupational Health and Safety Act (OHSA), R.S.O. 1990, c.0.1, s.30 (1) specifies that: "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.

Section 30 of The Act requires that the list of Designated Substances be provided to prospective contractors and subcontractors who may do work on a site and come into contact at the site with Designated Substances.

The Ministry of Labour has designated the following substances:

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

Ontario Regulation 278/05 (O. Reg. 278/05), the Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations, made under the Occupational Health and Safety Act (OHSA), requires owners of a building to identify Asbestos-containing Materials (ACMs) prior to potential disturbance of the materials.

In addition, an owner of a building is required to have an Asbestos Management Plan (AMP) if ACMs (friable or non-friable) are present in the building and are to remain in place. An inventory of ACMs must be kept on site. All ACMs must be routinely inspected to ensure no damage has occurred, and the inventory must be updated once in each 12-month period and as may be required based on expected changing site conditions, abatement and/or renovation activities. Removal of all asbestos-containing materials is required prior to building demolition.

In addition to the Designated Substances, the building was also surveyed for the presence of other hazardous materials such as polychlorinated biphenyls (PCBs), radioactive materials, ozone depleting substances (ODSs), other halocarbons, and mould.

We understand that this survey has been conducted to comply with the regulatory requirements of Ontario Regulation 278/05.

APPENDIX B

Survey Methodology & Background Information

SURVEY METHODOLOGY

For the purpose of this survey, not all Designated Substances or suspect hazardous material were sampled. Selective sampling was carried out only for substances that were suspected to be present or those deemed to have a likely source of origin in the survey areas.

Materials that were homogeneous in nature and/or similar in appearance to other materials tested were considered to be of similar composition. The likelihood of ACMs being present in inaccessible areas such as above gypsum board ceilings or behind gypsum wallboards was determined by assessing the presence of asbestos-containing systems in adjacent areas. Equipment such as boilers, motors, blowers, electrical panels, fire doors etc., were not de-energized or disassembled to examine internal components or materials. These items should be considered to contain hazardous materials until proven otherwise.

During the survey, representative samples of suspect building materials were collected and sent to AIHA accredited independent laboratory for analysis. Laboratory Certificate of Analysis are attached in Appendix A.

Other potential hazardous materials were identified by visual observation and/or by reviewing Material Safety Data Sheets (MSDS) and/or safety labels where available.

Investigated Areas

The survey included all accessible areas and ceiling space within 100 Thomas More Avenue as required under our scope of work. No destructive investigations were performed as part of this survey. Photographs of the areas investigated can be found in Appendix D.

The assessment was directed on the interior structure and finishes of the building. It did not consider current or past owner or occupant articles within the building (i.e. contents, furniture, etc.) and does not report on possible contaminants in the soil under and surrounding the building, or contents of vessels, drums, etc. that may be concealed.

Sampling and Assessment Methodologies

Sampling was conducted as part of this assessment. Results for asbestos and lead samples can be found in the Findings & Recommendation Section 3.0.

A historical review of previous designated substance survey reports and abatement reports was examined as part of this survey. Due to concerns regarding certain historical analytical results, mainly in 2008 and prior years, confirmatory re-sampling was conducted for selected materials previously identified not to contain asbestos. However, building materials previously identified to be asbestos-containing were not re-sampled. The reports are listed as follows,

- Designated Substance Survey, 100 Thomas More Avenue, Ottawa, Ontario, prepared by Conestoga-Rovers & Associates (dated August 2008, reference # 045870 (97));
- Type 1 & 2 Asbestos Abatement, prepared by EHS Partnership Limited (dated March 2013, reference # 04-0033-12-027);

Asbestos

Background Information on Asbestos

Asbestos is a generic name that has been given to a group of naturally occurring fibrous minerals. In the past, asbestos was commonly used as a component in building materials such as insulation, fireproofing and acoustic or decorative panels. Although there are many types of asbestos, the three main forms of commercial importance in Ontario are chrysotile, amosite and crocidolite.

An Asbestos-Containing Material (ACM) is defined by O. Reg. 278/05 as a material that contains 0.5% or more asbestos by dry weight. ACMs are placed into two general classes, "friable" and "non-friable" ACMs. Friable ACMs are those materials that when dry can be crumbled, pulverized and reduced to powder by hand pressure. Typical friable ACMs include acoustical or decorative texture coats, fireproofing and thermal insulation. Non-friable ACMs are much more durable as they are held together by a binder such as cement, vinyl or asphalt. Typical non-friable ACMs include floor tiles, fire blankets, roofing materials and cementitious products such as wallboards, pipes or siding.

It has been recognized that hazardous situations may exist in buildings where asbestos-containing materials are found. This is especially true where asbestos fibres may become airborne as a result of material ageing, physical damage, and water damage or air movement.

In contrast, there is little reason for concern if the asbestos is in good condition, has not been damaged and is not in a location where it is likely to be disturbed.

Asbestos Survey Methodology

The asbestos survey included the identification of potential friable and non-friable asbestos-containing materials within the surveyed areas of the subject building.

The likelihood of ACMs being present in inaccessible areas such as above gypsum wallboard ceilings and walls was determined by assessing the presence of asbestos-containing materials in adjacent areas.

Fiberglass insulation was not submitted for analysis as it can be identified visually as non-asbestos material.

Building materials suspected of containing asbestos were identified and representative sampling and laboratory testing of these materials was conducted. The number of bulk material samples collected from a homogeneous area was in accordance with Table 1. O. Reg. 278/05 s. 3 (3) below. Building materials suspected of containing asbestos were collected using wetting techniques and hand sampling tools.

Table 1 - O. Reg. 278/05 s. 3(3): Minimum Asbestos Bulk Material Sample Requirements

Item	Type of material	Size of area of homogeneous material	Minimum number of bulk material samples to be collected
1.	Surfacing material, including without limitation, material that is applied to surfaces by spraying, by troweling or	Less than 90 square metres	3
		90 or more square metres, but less than 450 square metres	5

	otherwise, such as acoustical plaster on ceilings and fireproofing materials on structural members	450 or more square metres	7
2.	Thermal insulation, except as described in item 3	any size	3
3.	Thermal insulation patch	Less than 2 linear metres or 0.5 square metres	1
4.	Other material	Any size	3

Preliminary identification of the samples was made using polarized light microscopy (PLM), with confirmation of presence and type of asbestos made by dispersion staining optical microscopy. This analytical procedure follows the U.S. Environmental Protection Agency Test Method EPA/600/R-93/116 Method for the Determination of Asbestos in Bulk Building Materials, June 1993.

All bulk samples were analysed for asbestos content by EMSL Canada Inc. (EMSL), an independent laboratory. EMSL is an independent laboratory accredited by National Institute of Standards and Technology/National Voluntary Laboratory Accreditation (NIST/NVLAP) (Lab Code #200877-0).

Vinyl floors tiles were analyzed using the phase light microscopy (PLM) method of analysis. However, given the composition of vinyl floor products, the PLM analysis method may be prone to yielding false negative analytical results. Therefore, prior to removal or replacement, vinyl floor products previously identified to be negative, should undergo additional analysis by Transmission Electron Microscopy (TEM) to confirm asbestos content, if any.

Materials identified to contain asbestos were assessed on the relative possibility of fibre release into the air due to a combination of their condition and accessibility.

Evaluation of ACMs Based on Condition

In evaluating an ACM's condition, the following criteria was applied:

- Good – Material shows no signs of damage and/or is encapsulated. Asbestos-containing material could remain in place until eventual building demolition or major renovation.
- Fair – Material shows signs of minor damage (<5% damage) or otherwise near the end of useful life. This includes minor shrinking, cracking, delamination and/ or other damage. Material should be monitored closely and scheduled to be repaired, encapsulated or removed.
- Poor – Damage is greater than 5% to any ACM material and is highly recommended to be removed, repaired or encapsulated.

Note: The above evaluation criteria was also applied to other hazardous materials where applicable. Please refer to the Asbestos and Hazardous Materials Checklist in Appendix E & F for further details.

Lead

Background Information on Lead

Lead was a common additive in exterior and hard-wearing paint applications. Lead was used to prolong shelf life of paint and to increase its flexibility and durability to wear and weather. Acute exposure to lead by inhalation or ingestion may cause headaches, fatigue, nausea, abdominal cramps and joint pain. Chronic

exposures can cause reduced haemoglobin production and reduced lifespan. It has also been known to impact the body's central and peripheral nervous systems and brain function and has been linked to learning disabilities in children.

Currently in Ontario, there is no regulatory limit that determines what concentration of lead constitutes a "lead containing material". On October 21, 2010, Health Canada, under the Hazardous Products Act, stated that the lead content in surface-coating materials, furniture, toys and other articles for children, should not exceed 90 mg/kg (0.009%, 90 ppm). However, this is intended for the importation or sale of products within Canada. Therefore, this is not to be misconstrued as a limit established to define a lead-containing material or a limit with respect to lead on construction projects.

The Environmental Abatement Council of Ontario (EACO) has also developed the "Lead Guideline for Construction, Renovation, Maintenance or Repair" dated October 2014, which discusses the classification, handling, disturbance and removal of lead-containing materials. For the purpose of this guideline, paints or surface coatings containing less than or equal to 0.1% lead by weight (1000 mg/kg or 1000 ppm) are considered low-level lead paints or surface coatings. If these materials (and their respective surfaces) are disturbed in a non-aggressive manner and performed using adequate dust control procedures, then worker protection from the inhalation of lead is not required.

Furthermore, paints or surface coatings containing greater than 0.1% lead by weight are considered lead-containing paints or surface coatings. If these materials (and their respective surfaces) are disturbed, appropriate lead abatement procedures must always be followed.

Exposure to lead-containing materials is regulated under Ontario Regulation 490/09, Designated Substances - made under the Occupational Health and Safety Act. Care must be taken to prevent lead-containing particles from becoming airborne during the disturbance of lead-containing surfaces (i.e., during renovation or demolition projects). All lead abatement work must follow procedures outlined in the Guideline Lead on Construction Projects, issued in September 2004 (amended in April 2011) by the Occupational Health and Safety branch of the Ministry of Labour (Type 1-3). Similarly, the lead abatement work procedures outlined in the EACO Lead Guideline for Construction, Renovation, Maintenance or Repair (October 2014) may also be implemented (Class 1-3).

Lead is known to have been used in solder on copper plumbing fixtures, in lead conduit pipes, in lead-calcium battery plates, ammunition, and in nuclear and X-ray shielding devices. However, these materials were not sampled during this investigation, but were noted where applicable.

To verify lead content in paints, representative bulk samples of paint and finishes suspected of containing lead were collected. Bulk samples were scraped down to the building base structure, with all possible layer's present, placed in sealed plastic bags and labeled; and then submitted to an independent laboratory for analysis. Samples were treated with a dilute nitric acid sample digestion prior to filtration. Analysis utilized for lead detection in filtered samples was inductively coupled plasma optical emission spectrometry (ICP-OES).

Mercury

Background Information on Mercury

Mercury is known to cause poisoning in humans through the inhalation of vapours, ingestion of contaminated materials or skin absorption through direct contact with the liquid.

Precautions must be taken to prevent mercury vapours from becoming airborne during renovations or demolition of the building. Exposure to airborne mercury is regulated under the Revised O. Reg. 490/09 as amended – Regulation respecting Mercury – made under the Occupational Health and Safety Act; and under O. Reg. 558, which amended O. Reg. 347/90 (General - Waste Management), mercury is classified as a Schedule 2(b) Hazardous Waste Chemical. Its hazardous waste number is U151.

Mercury is found in products such as thermostats, temperature and pressure gauges, fluorescent lamps and batteries. Mercury in products can be released to the environment through breakage, or disposal at the end of a product's useful life. Improper disposal of these mercury products poses a health and environmental risk to everyone. In addition, the disposal of mercury-containing products can create wastes that are often classified as hazardous. Wastes that leach mercury in concentrations exceeding Ontario Regulation 347/90 (General - Waste Management) limits are also considered hazardous.

The mercury in thermostats switch contains approximately 3-4 grams of mercury in a glass ampoule, typically attached to a metal coil. Mercury-containing switches have been used in thermostats for over 40 years.

Mercury is an essential component in fluorescent lamps and HID lamps. The mercury is in a vapour form and in the phosphor coating on the lamp tube. Estimates of the mercury content contained in compact, 4 foot, and 8-foot lamps are 10 mg, 23 mg, and 46 mg respectively.

Most fluorescent lamps qualify as hazardous waste when removed from service and are therefore prohibited from disposal in the solid waste stream. Fluorescent lamps would be classified as 146T on your facility Generator Registration Report under O. Reg. 347/90 - General Waste Management, as amended by O. Reg. 558/00. Under this regulation, if the leachate results exceed 0.1 milligrams of mercury per litre for a given waste, then the facility must treat the waste as hazardous waste. Most fluorescent and HID lamps will exceed the leachate toxicity limit; therefore, these wastes must be registered and treated as hazardous waste or sent for recycling.

Silica

Background Information on Silica

Silica is expected to be present in building materials such as concrete, brick, mortar and ceramic tiles located throughout the structures. Free crystalline silica (□-Quartz) may be a component in ceiling tiles and gypsum board. Silica (including free crystalline silica) may also be a component of concrete and brick surfaces noted in the building.

Exposure to airborne silica is regulated under Ontario Regulation 490/09, Designated Substances - made under the Occupational Health and Safety Act.

Polychlorinated Biphenyls (PCBs)

Background Information on PCBs

Polychlorinated Biphenyls (PCBs) were commonly used as dielectric insulating fluid in electrical equipment such as transformers and capacitors, and in the fluorescent and HID lamp ballasts. The production of PCBs in the North America started in 1929 and was banned at the beginning of 1979. After 1981, no manufacturers produced fluorescent and HID lamps with PCB-containing ballasts.

PCBs are not a designated substance under the Occupational Health and Safety Act.

PCB Regulations (SOR/2008-273)

The PCB Regulations (the Regulations) set specific deadlines for ending the use of PCBs in concentrations at or above 50 mg/kg, eliminating all PCBs and equipment containing PCBs currently in storage and limiting the period of time PCBs can be stored before being destroyed. The Regulations also establish sound practices for the better management of the remaining PCBs in use (i.e. those with content of less than 50 mg/kg), until their eventual elimination, to prevent contamination of dielectric fluids and dispersion of PCBs in small quantities into other liquids.

Ozone Depleting Substances (ODSs) and Other Halocarbons

Background Information on ODSs

Within Ontario, the general use of ozone depleting substances (ODSs) and other halocarbons is controlled through Regulation 463/10 of the Environmental Protection Act. Production of ODSs in the form of hydro chlorofluorocarbons (HCFCs) and chlorofluorocarbons (CFCs) ceased in Canada in 1993 as a result of their ozone-depleting characteristics. Importation of CFCs into Canada ceased in 1997 and total ban was placed on their use since 2010. The use of these materials is still permitted in existing equipment, but equipment must be serviced by a licensed contractor such that CFCs are contained and not released to the environment during servicing or operation.

Radioactive Materials

There are two types of smoke detectors commonly found in building (residential, institutional, commercial, industrial, etc). Photoelectric-type smoke detectors detect smoke using an optical sensor, whereas ionization-type smoke detectors use an ionization chamber containing radioactive material. The ionization type is cheaper and is particularly common in older buildings. A typical modern detector contains about 1.0 microcurie of the radioactive element americium, a decrease from 3 microcurie in 1978. The use of sealed radioactive material sources in fire detection systems is still permitted and regulated by the Canadian Nuclear Safety Commission (CNSC) and the Canadian Nuclear Safety Act. The radioactive sources in smoke alarms are sealed and contained within a metal case inside the smoke detector and must not be damaged or tampered with.

Mould & Water Damage

Mould growth inside buildings is due to excess moisture caused by leakages, condensation or capillary movement of water into the building. Toxic moulds such as Stachybotrys chartarum and some species of Aspergillus spp. are greenish-black, wet and slimy moulds that grow on soaking wet cellulose-based materials. They are often found near water leaks or where drying is very slow and can form after flooding if insufficient cleanup and drying occurred. They will generally not occur if materials are kept dry.

MPL conducted a general visual assessment for any obvious signs of visible mould and/or water damage. Based on our visual observations, the following guidelines were used in providing our recommendations for remedial action where required:

- Institute of Inspection Cleaning and Restoration Certification (IICRC) S520 Standard and Reference for Professional Mould Remediation,

- The Canadian Construction Association (CCA) Mould Guidelines for the Canadian construction industry (CCA document 82-2004)
- Environmental Abatement Council of Ontario (EACO) Mould Abatement Guidelines.

Other Designated Substances

Select Designated Substances (acrylonitrile, arsenic, coke oven emissions, ethylene oxide, isocyanates, benzene, or vinyl chloride) are not expected to be present in the building in matrix or sufficient quantities to cause an exceedance of Ministry of Labour exposure guidelines. As such, no sampling was conducted for these materials.

Vinyl Chloride

Vinyl chloride (monomer) is likely to be present in stable form within poly vinyl-chloride (PVC) piping and conduits and as a component of interior finishes. Such building materials are not considered to be hazardous in their current matrix/composition.

Acrylonitrile

Acrylonitrile or ACN (also known as vinyl cyanide) is an explosive, flammable liquid used in the manufacture of acrylic fibres, rubber-like materials and pesticide fumigants. Acrylonitrile was not noted and would not be expected to be present in the project specific area/surveyed area/subject building.

Arsenic

Arsenic is used in metallurgy for hardening copper, lead and alloys, in pigment production, in the manufacture of certain types of glass, in insecticides, fungicides and rodenticides, as a by-product in the smelting of copper ores, and as a dopant material in semiconductor manufacturing. Arsenic or arsenic compounds were not noted and are not expected to be present in the project specific area/surveyed area/subject building.

Benzene

Benzene or benzol is a colourless liquid. It is used as an intermediate in the production of styrene, phenol, cyclohexane, and other organic chemicals, and in the manufacture of detergents, pesticides, solvents, and paint removers. It is also found in gasoline. Benzene may be present in stable form in roofing materials, paints and adhesives located throughout the subject building. Such building materials are not considered to be hazardous in their current matrix/composition.

Coke Oven Emissions

Coke oven emission is benzene soluble fraction of total particulate matter of the substances emitted into the atmosphere from metallurgical coke ovens.

Ethylene Oxides

Ethylene oxide is a colourless gas liquefying below 12°C. It is used generally as a fumigant and sterilizing agent for medical equipment. It is used generally as a fumigant and sterilizing agent for medical equipment.

Isocyanates

Isocyanates compounds may be present in stable form in paint finishes, varnishes, and polyurethane plastics, synthetic rubbers, foams and adhesives. Such building materials are not considered to be hazardous in their current matrix/composition.

In order to reduce the potential for exposure to workers or occupants, any suspect hazardous building material(s) that are not detailed within this survey due to inaccessibility and/or are discovered during renovation/demolition activities, must be properly assessed and/or tested prior to their disturbance.

APPENDIX C

Laboratory Analytical Reports

EMSL Canada Inc.

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

EMSL Canada Order 672000617
Customer ID: 55CTCS25B
Customer PO: 0Z2-021101
Project ID: Ottawa DSS

Attn: Stefan Holik
McIntosh Perry Consulting Engineers Ltd
115 Walgreen Rd RR 3
Carp, ON K0A 1L0

Phone: (613) 836-2184
Fax:
Collected: 3/24/2020
Received: 3/30/2020
Analyzed: 4/06/2020

Proj: University of Ottawa 0Z2-021101 (100 Thomas Moore) (Ottawa DSS)

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

Client Sample ID: 1.1-Joint Compound 1 ***Lab Sample ID:*** **672000617-0001**
Sample Description: 100 Thomas Moore/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 1.1-Joint Compound 2 ***Lab Sample ID:*** **672000617-0001A**
Sample Description: 100 Thomas Moore/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 1.2 ***Lab Sample ID:*** **672000617-0002**
Sample Description: 100 Thomas Moore/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 1.3 ***Lab Sample ID:*** **672000617-0003**
Sample Description: 100 Thomas Moore/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 1.4 ***Lab Sample ID:*** **672000617-0004**
Sample Description: 100 Thomas Moore/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 1.5-Joint Compound 1 ***Lab Sample ID:*** **672000617-0005**
Sample Description: 100 Thomas Moore/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 1.5-Joint Compound 2 ***Lab Sample ID:*** **672000617-0005A**
Sample Description: 100 Thomas Moore/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

EMSL Canada Inc.

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http://www.EMSL.com / ottawalab@EMSL.com

EMSL Canada Order 672000617
Customer ID: 55CTCS25B
Customer PO: 0Z2-021101
Project ID: Ottawa DSS

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

Client Sample ID: 1.6 ***Lab Sample ID:*** **672000617-0006**
Sample Description: 100 Thomas Moore/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 1.7 ***Lab Sample ID:*** **672000617-0007**
Sample Description: 100 Thomas Moore/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 2.1 ***Lab Sample ID:*** **672000617-0008**
Sample Description: 100 Thomas Moore/Texture Coat

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 2.2 ***Lab Sample ID:*** **672000617-0009**
Sample Description: 100 Thomas Moore/Texture Coat

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 2.3 ***Lab Sample ID:*** **672000617-0010**
Sample Description: 100 Thomas Moore/Texture Coat

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 2.4 ***Lab Sample ID:*** **672000617-0011**
Sample Description: 100 Thomas Moore/Texture Coat

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 2.5 ***Lab Sample ID:*** **672000617-0012**
Sample Description: 100 Thomas Moore/Texture Coat

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 2.6 ***Lab Sample ID:*** **672000617-0013**
Sample Description: 100 Thomas Moore/Texture Coat

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

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Client Sample ID: 2.7 ***Lab Sample ID:*** **672000617-0014**
Sample Description: 100 Thomas Moore/Texture Coat

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 3.1 ***Lab Sample ID:*** **672000617-0015**
Sample Description: 100 Thomas Moore/Wallpaper, white textured

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	90.0%	10.0%	None Detected	

Client Sample ID: 3.2-Wallpaper ***Lab Sample ID:*** **672000617-0016**
Sample Description: 100 Thomas Moore/Wallpaper, white textured

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	90.0%	10.0%	None Detected	

Client Sample ID: 3.2-Joint Compound ***Lab Sample ID:*** **672000617-0016A**
Sample Description: 100 Thomas Moore/Wallpaper, white textured

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 3.3 ***Lab Sample ID:*** **672000617-0017**
Sample Description: 100 Thomas Moore/Wallpaper, white textured

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	90.0%	10.0%	None Detected	

Client Sample ID: 4.1 ***Lab Sample ID:*** **672000617-0018**
Sample Description: 100 Thomas Moore/Carpet Mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 4.2 ***Lab Sample ID:*** **672000617-0019**
Sample Description: 100 Thomas Moore/Carpet Mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 4.3 ***Lab Sample ID:*** **672000617-0020**
Sample Description: 100 Thomas Moore/Carpet Mastic

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

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Client Sample ID: 5.1 ***Lab Sample ID:*** **672000617-0021**
Sample Description: 100 Thomas Moore/VSF - Granite patterns

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 5.2 ***Lab Sample ID:*** **672000617-0022**
Sample Description: 100 Thomas Moore/VSF - Granite patterns

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 5.3 ***Lab Sample ID:*** **672000617-0023**
Sample Description: 100 Thomas Moore/VSF - Granite patterns

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 6.1-Vinyl Floor Tile ***Lab Sample ID:*** **672000617-0024**
Sample Description: 100 Thomas Moore/VFT - Beige with white flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White/Beige	0.0%	100.0%	None Detected	

Client Sample ID: 6.1-Mastic/Leveler ***Lab Sample ID:*** **672000617-0024A**
Sample Description: 100 Thomas Moore/VFT - Beige with white flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Tan/Yellow	0.0%	100.0%	None Detected	Inseparable layers

Client Sample ID: 6.2-Vinyl Floor Tile ***Lab Sample ID:*** **672000617-0025**
Sample Description: 100 Thomas Moore/VFT - Beige with white flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 6.2-Mastic ***Lab Sample ID:*** **672000617-0025A**
Sample Description: 100 Thomas Moore/VFT - Beige with white flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 6.2-Leveler ***Lab Sample ID:*** **672000617-0025B**
Sample Description: 100 Thomas Moore/VFT - Beige with white flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Gray	4.0%	96.0%	None Detected	

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Client Sample ID: 6.3-Vinyl Floor Tile **Lab Sample ID:** **672000617-0026**
Sample Description: 100 Thomas Moore/VFT - Beige with white flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 6.3-Mastic **Lab Sample ID:** **672000617-0026A**
Sample Description: 100 Thomas Moore/VFT - Beige with white flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 7.1-Vinyl Floor Tile **Lab Sample ID:** **672000617-0027**
Sample Description: 100 Thomas Moore/VFT - White with multicolour flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 7.1-Mastic **Lab Sample ID:** **672000617-0027A**
Sample Description: 100 Thomas Moore/VFT - White with multicolour flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 7.2-Vinyl Floor Tile **Lab Sample ID:** **672000617-0028**
Sample Description: 100 Thomas Moore/VFT - White with multicolour flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 7.2-Mastic **Lab Sample ID:** **672000617-0028A**
Sample Description: 100 Thomas Moore/VFT - White with multicolour flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 7.3-Vinyl Floor Tile **Lab Sample ID:** **672000617-0029**
Sample Description: 100 Thomas Moore/VFT - White with multicolour flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 7.3-Mastic **Lab Sample ID:** **672000617-0029A**
Sample Description: 100 Thomas Moore/VFT - White with multicolour flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

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Client Sample ID: 8.1-Vinyl Floor Tile **Lab Sample ID:** **672000617-0030**
Sample Description: 100 Thomas Moore/VFT - Blue with white flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Blue	0.0%	100.0%	None Detected	

Client Sample ID: 8.1-Mastic **Lab Sample ID:** **672000617-0030A**
Sample Description: 100 Thomas Moore/VFT - Blue with white flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 8.2-Vinyl Floor Tile **Lab Sample ID:** **672000617-0031**
Sample Description: 100 Thomas Moore/VFT - Blue with white flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White/Blue	0.0%	100.0%	None Detected	

Client Sample ID: 8.2-Mastic **Lab Sample ID:** **672000617-0031A**
Sample Description: 100 Thomas Moore/VFT - Blue with white flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 8.3-Vinyl Floor Tile **Lab Sample ID:** **672000617-0032**
Sample Description: 100 Thomas Moore/VFT - Blue with white flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Blue	0.0%	100.0%	None Detected	

Client Sample ID: 8.3-Mastic **Lab Sample ID:** **672000617-0032A**
Sample Description: 100 Thomas Moore/VFT - Blue with white flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 9.1-Vinyl Floor Tile **Lab Sample ID:** **672000617-0033**
Sample Description: 100 Thomas Moore/VFT - White with black flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White/Black	0.0%	100.0%	None Detected	

Client Sample ID: 9.1-Mastic **Lab Sample ID:** **672000617-0033A**
Sample Description: 100 Thomas Moore/VFT - White with black flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020				Insufficient Material	

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Client Sample ID: 9.2 ***Lab Sample ID:*** **672000617-0034**

Sample Description: 100 Thomas Moore/VFT - White with black flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White/Black	0.0%	100.0%	None Detected	

Client Sample ID: 9.3-Vinyl Floor Tile ***Lab Sample ID:*** **672000617-0035**

Sample Description: 100 Thomas Moore/VFT - White with black flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White/Black	0.0%	100.0%	None Detected	

Client Sample ID: 9.3-Mastic ***Lab Sample ID:*** **672000617-0035A**

Sample Description: 100 Thomas Moore/VFT - White with black flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020				Insufficient Material	

Client Sample ID: 9.3-Caulking ***Lab Sample ID:*** **672000617-0035B**

Sample Description: 100 Thomas Moore/VFT - White with black flakes

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 10.1-Vinyl Floor Tile ***Lab Sample ID:*** **672000617-0036**

Sample Description: 100 Thomas Moore/VFT - Dark grey with light and dark sports

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 10.1-Mastic ***Lab Sample ID:*** **672000617-0036A**

Sample Description: 100 Thomas Moore/VFT - Dark grey with light and dark sports

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 10.2-Vinyl Floor Tile ***Lab Sample ID:*** **672000617-0037**

Sample Description: 100 Thomas Moore/VFT - Dark grey with light and dark sports

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 10.2-Mastic ***Lab Sample ID:*** **672000617-0037A**

Sample Description: 100 Thomas Moore/VFT - Dark grey with light and dark sports

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

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Client Sample ID: 10.3-Vinyl Floor Tile **Lab Sample ID:** **672000617-0038**
Sample Description: 100 Thomas Moore/VFT - Dark grey with light and dark sports

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 10.3-Mastic **Lab Sample ID:** **672000617-0038A**
Sample Description: 100 Thomas Moore/VFT - Dark grey with light and dark sports

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 11.1-Vinyl Floor Tile **Lab Sample ID:** **672000617-0039**
Sample Description: 100 Thomas Moore/Blue with light and dark swirls

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Blue	0.0%	100.0%	None Detected	

Client Sample ID: 11.1-Mastic **Lab Sample ID:** **672000617-0039A**
Sample Description: 100 Thomas Moore/Blue with light and dark swirls

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Black	0.0%	100.0%	None Detected	

Client Sample ID: 11.2-Vinyl Floor Tile **Lab Sample ID:** **672000617-0040**
Sample Description: 100 Thomas Moore/Blue with light and dark swirls

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 11.2-Mastic **Lab Sample ID:** **672000617-0040A**
Sample Description: 100 Thomas Moore/Blue with light and dark swirls

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 11.3-Vinyl Floor Tile **Lab Sample ID:** **672000617-0041**
Sample Description: 100 Thomas Moore/Blue with light and dark swirls

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 11.3-Mastic **Lab Sample ID:** **672000617-0041A**
Sample Description: 100 Thomas Moore/Blue with light and dark swirls

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020				Insufficient Material	

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Client Sample ID: 12.1 ***Lab Sample ID:*** **672000617-0042**
Sample Description: 100 Thomas Moore/VFT - Pink camo

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Pink	0.0%	100.0%	None Detected	

Client Sample ID: 12.2-Vinyl Floor Tile ***Lab Sample ID:*** **672000617-0043**
Sample Description: 100 Thomas Moore/VFT - Pink camo

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Pink	0.0%	100.0%	None Detected	

Client Sample ID: 12.2-Mastic ***Lab Sample ID:*** **672000617-0043A**
Sample Description: 100 Thomas Moore/VFT - Pink camo

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 12.3-Vinyl Floor Tile ***Lab Sample ID:*** **672000617-0044**
Sample Description: 100 Thomas Moore/VFT - Pink camo

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Pink	0.0%	100.0%	None Detected	

Client Sample ID: 12.3-Mastic ***Lab Sample ID:*** **672000617-0044A**
Sample Description: 100 Thomas Moore/VFT - Pink camo

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 13.1-Vinyl Sheet Flooring ***Lab Sample ID:*** **672000617-0045**
Sample Description: 100 Thomas Moore/VSF - Grey/brown mix

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Brown/Gray	40.0%	60.0%	None Detected	

Client Sample ID: 13.1-Mastic ***Lab Sample ID:*** **672000617-0045A**
Sample Description: 100 Thomas Moore/VSF - Grey/brown mix

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 13.2-Vinyl Sheet Flooring ***Lab Sample ID:*** **672000617-0046**
Sample Description: 100 Thomas Moore/VSF - Grey/brown mix

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Brown/Gray	40.0%	60.0%	None Detected	

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Client Sample ID: 13.2-Mastic **Lab Sample ID:** **672000617-0046A**
Sample Description: 100 Thomas Moore/VSF - Grey/brown mix

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 13.3-Vinyl Sheet Flooring **Lab Sample ID:** **672000617-0047**
Sample Description: 100 Thomas Moore/VSF - Grey/brown mix

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Brown/Gray	40.0%	60.0%	None Detected	

Client Sample ID: 13.3-Mastic **Lab Sample ID:** **672000617-0047A**
Sample Description: 100 Thomas Moore/VSF - Grey/brown mix

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 14.1-Vinyl Sheet Flooring **Lab Sample ID:** **672000617-0048**
Sample Description: 100 Thomas Moore/VSF - Brown square pattern

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Brown	35.0%	65.0%	None Detected	

Client Sample ID: 14.1-Mastic **Lab Sample ID:** **672000617-0048A**
Sample Description: 100 Thomas Moore/VSF - Brown square pattern

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020				Insufficient Material	

Client Sample ID: 14.2-Vinyl Sheet Flooring **Lab Sample ID:** **672000617-0049**
Sample Description: 100 Thomas Moore/VSF - Brown square pattern

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Brown	40.0%	60.0%	None Detected	

Client Sample ID: 14.2-Mastic **Lab Sample ID:** **672000617-0049A**
Sample Description: 100 Thomas Moore/VSF - Brown square pattern

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020				Insufficient Material	

Client Sample ID: 14.3-Vinyl Sheet Flooring **Lab Sample ID:** **672000617-0050**
Sample Description: 100 Thomas Moore/VSF - Brown square pattern

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Brown	40.0%	60.0%	None Detected	

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http://www.EMSL.com / ottawalab@EMSL.com

EMSL Canada Order 672000617
Customer ID: 55CTCS25B
Customer PO: 0Z2-021101
Project ID: Ottawa DSS

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

Client Sample ID: 14.3-Mastic ***Lab Sample ID:*** **672000617-0050A**
Sample Description: 100 Thomas Moore/VSF - Brown square pattern

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 15.1-Vinyl Sheet Flooring ***Lab Sample ID:*** **672000617-0051**
Sample Description: 100 Thomas Moore/VSF - Grey square pattern

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Gray	40.0%	60.0%	None Detected	

Client Sample ID: 15.1-Mastic ***Lab Sample ID:*** **672000617-0051A**
Sample Description: 100 Thomas Moore/VSF - Grey square pattern

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 15.2-Vinyl Sheet Flooring ***Lab Sample ID:*** **672000617-0052**
Sample Description: 100 Thomas Moore/VSF - Grey square pattern

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Gray	45.0%	55.0%	None Detected	

Client Sample ID: 15.2-Mastic ***Lab Sample ID:*** **672000617-0052A**
Sample Description: 100 Thomas Moore/VSF - Grey square pattern

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 15.3-Vinyl Sheet Flooring ***Lab Sample ID:*** **672000617-0053**
Sample Description: 100 Thomas Moore/VSF - Grey square pattern

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Gray	45.0%	55.0%	None Detected	

Client Sample ID: 15.3-Mastic ***Lab Sample ID:*** **672000617-0053A**
Sample Description: 100 Thomas Moore/VSF - Grey square pattern

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 16.1-Vinyl Sheet Flooring ***Lab Sample ID:*** **672000617-0054**
Sample Description: 100 Thomas Moore/VSF - Blue/grey pattern

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Gray/Blue	35.0%	65.0%	None Detected	

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EMSL Canada Order 672000617
Customer ID: 55CTCS25B
Customer PO: 0Z2-021101
Project ID: Ottawa DSS

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

Client Sample ID: 16.1-Mastic **Lab Sample ID:** **672000617-0054A**
Sample Description: 100 Thomas Moore/VSF - Blue/grey pattern

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 16.2-Vinyl Sheet Flooring **Lab Sample ID:** **672000617-0055**
Sample Description: 100 Thomas Moore/VSF - Blue/grey pattern

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Gray/Blue	45.0%	55.0%	None Detected	

Client Sample ID: 16.2-Mastic/Leveler **Lab Sample ID:** **672000617-0055A**
Sample Description: 100 Thomas Moore/VSF - Blue/grey pattern

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Gray/Yellow	0.0%	100.0%	None Detected	Inseparable layers

Client Sample ID: 16.3-Vinyl Sheet Flooring **Lab Sample ID:** **672000617-0056**
Sample Description: 100 Thomas Moore/VSF - Blue/grey pattern

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Gray/Blue	35.0%	65.0%	None Detected	

Client Sample ID: 16.3-Mastic **Lab Sample ID:** **672000617-0056A**
Sample Description: 100 Thomas Moore/VSF - Blue/grey pattern

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Beige	0.0%	100.0%	None Detected	

Client Sample ID: 16.3-Leveler **Lab Sample ID:** **672000617-0056B**
Sample Description: 100 Thomas Moore/VSF - Blue/grey pattern

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 17.1 **Lab Sample ID:** **672000617-0057**
Sample Description: 100 Thomas Moore/Texture coat - Cementitious

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020	Gray/White	0.0%	100.0%	**<1% Chrysotile**	
400 PLM Pt Ct	4/06/2020	Gray/White	0.00%	99.25%	**0.75% Chrysotile**	

Client Sample ID: 17.2 **Lab Sample ID:** **672000617-0058**
Sample Description: 100 Thomas Moore/Texture coat - Cementitious

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020				Positive Stop (Not Analyzed)	

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EMSL Canada Order 672000617
Customer ID: 55CTCS25B
Customer PO: 0Z2-021101
Project ID: Ottawa DSS

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

Client Sample ID: 17.3 ***Lab Sample ID:*** **672000617-0059**

Sample Description: 100 Thomas Moore/Texture coat - Cementitious

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020			Positive Stop (Not Analyzed)		

Client Sample ID: 17.4 ***Lab Sample ID:*** **672000617-0060**

Sample Description: 100 Thomas Moore/Texture coat - Cementitious

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020			Positive Stop (Not Analyzed)		

Client Sample ID: 17.5 ***Lab Sample ID:*** **672000617-0061**

Sample Description: 100 Thomas Moore/Texture coat - Cementitious

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	4/06/2020			Positive Stop (Not Analyzed)		

Analyst(s):

Ewa Krupinska PLM (59)
Simon Parent PLM (30)
400 PLM Pt Ct (1)

Reviewed and approved by:

Simon Parent, Laboratory Manager
or Other Approved Signatory

None Detected = <0.1%. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. This report must not be used to claim product endorsement by NVLAP of any agency or the U.S. Government

Samples analyzed by EMSL Canada Inc. Ottawa, ON

Initial report from: 04/06/202016:18:34

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EMSL Canada Or	552003660
CustomerID:	55CTCS25B
CustomerPO:	0Z2-021101
ProjectID:	

Attn: **Stefan Holik**
McIntosh Perry Consulting Engineers Ltd
115 Walgreen Rd RR 3
Carp, ON K0A 1L0

Phone: (613) 836-2184
Fax:
Received: 03/31/20 10:45 AM
Collected:

Project: **University of Ottawa 0Z2-021101 Ottawa DSS**

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

Client SampleDescription	Collected	Analyzed	Weight	RDL	Lead Concentration
PB1		4/1/2020	0.2466 g	0.0081 % wt	0.012 % wt
552003660-0001	Site: White Paint - Room 002				
PB2		4/1/2020	0.2498 g	0.16 % wt	3.8 % wt
552003660-0002	Site: Yellow - Room 019				
PB3		4/1/2020	0.1702 g	0.012 % wt	<0.012 % wt
552003660-0003	Site: Green - Room 019				
PB4		4/1/2020	0.1102 g	0.018 % wt	<0.018 % wt
552003660-0004	Site: Pink Door Paint, Light Blue Underneath - Room 105				
PB5		4/1/2020	0.0730 g	0.027 % wt	<0.027 % wt
552003660-0005	Site: Maroon Door Paint, Dark Turquoise Underneath - Room 106				
PB6		4/1/2020	0.2508 g	0.0080 % wt	<0.0080 % wt
552003660-0006	Site: Dark Grey Wall - Room 113				
PB7		4/1/2020	0.2493 g	0.0080 % wt	<0.0080 % wt
552003660-0007	Site: Light Blue Wall - Room 120A				
PB8		4/1/2020	0.1486 g	0.013 % wt	<0.013 % wt
552003660-0008	Site: Dark Red Wall - Room 400B				
PB9		4/1/2020	0.2446 g	0.0082 % wt	<0.0082 % wt
552003660-0009	Site: Beige - Room 304				
PB10		4/1/2020	0.0709 g	0.028 % wt	<0.028 % wt
552003660-0010	Site: Light Blue - Room 305				
PB11		4/1/2020	0.2078 g	0.0096 % wt	<0.0096 % wt
552003660-0011	Site: Dark Blue Door Frame - Room 305				

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 0.008 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the results, it will be noted on the reoprt. "<" (less than) result signifies 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 AIHA-LAP, LLC - ELLAP #196142

Initial report from 04/07/2020 08:53:52

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EMSL Canada Or	552003660
CustomerID:	55CTCS25B
CustomerPO:	0Z2-021101
ProjectID:	

Attn: **Stefan Holik**
McIntosh Perry Consulting Engineers Ltd
115 Walgreen Rd RR 3
Carp, ON K0A 1L0

Phone: (613) 836-2184
Fax:
Received: 03/31/20 10:45 AM
Collected:

Project: **University of Ottawa 0Z2-021101 Ottawa DSS**

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

Client SampleDescription	*Collected*	*Analyzed*	*Weight*	*RDL*	*Lead Concentration*
PB12		4/1/2020	0.2021 g	0.0099 % wt	<0.0099 % wt
552003660-0012	Site: Light Grey Wall - Room 305				
PB13		4/1/2020	0.1451 g	0.014 % wt	0.016 % wt
552003660-0013	Site: Light Grey - Room 001				

Insufficient sample to reach reporting limit for samples #552003660-0003/-0004/-0005/-0008/-0010/-0011/-0012.

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 0.008 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. 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. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the results, it will be noted on the reoprt. "<" (less than) result signifies 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 AIHA-LAP, LLC - ELLAP #196142

Initial report from 04/07/2020 08:53:52

APPENDIX D

Site Photographs

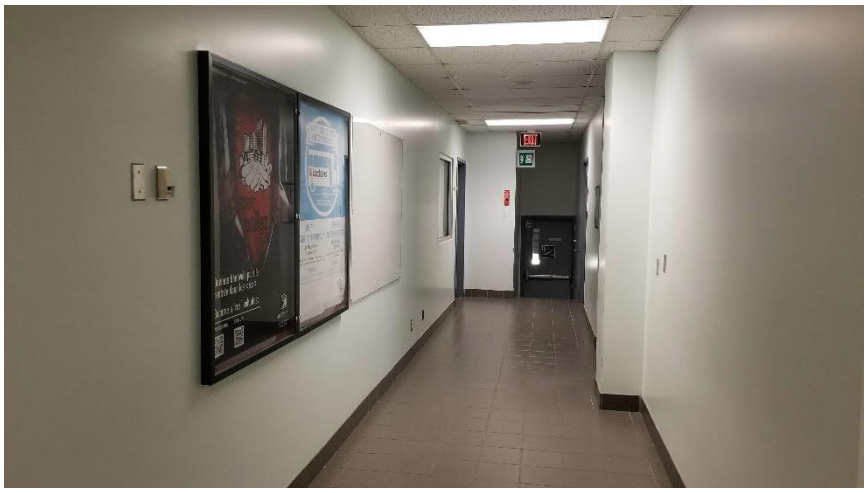


Photo 1: Representative view of the interior finishes observed in the subject building.

Photo 2: Representative view of the interior classroom finishes observed throughout the subject building.

Photo 3: Representative view of the non-asbestos vinyl floor tiles and carpet mastic observed in the subject building.

Photo 4: Representative view of the non-asbestos ceiling tiles identified throughout the subject building.

Photo 5: View of the above ground diesel storage tank identified in Room 005.

Photo 6: Representative view of the equipment containing ODSs identified throughout the subject building.

Photo 7: Representative view of the smoke detectors containing radioactive materials observed in the subject building.

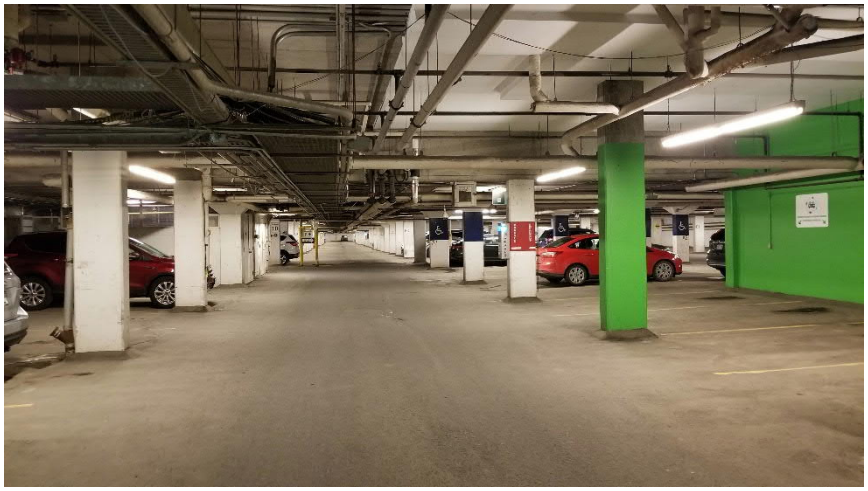


Photo 8: Representative view of the interior finishes observed throughout the subject building.

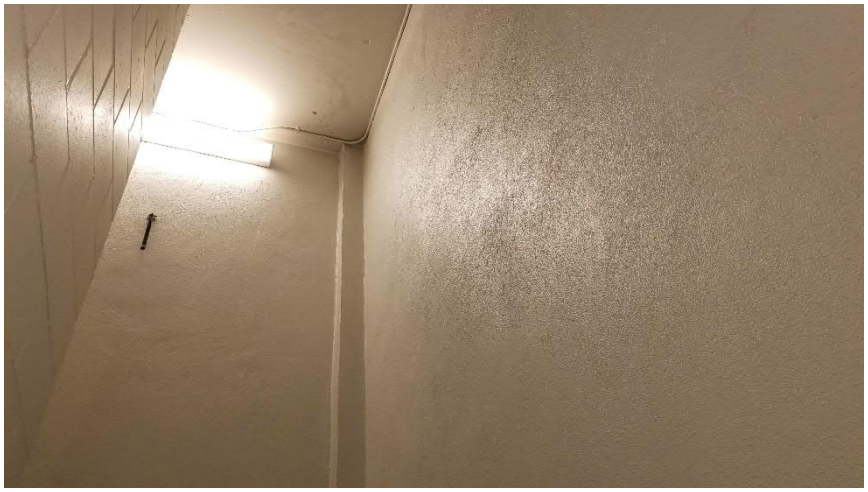


Photo 9: View of the asbestos-containing cementitious coating (White) identified in Room 007.

Photo 10: Representative view of the ODS containing air conditioning units observed throughout the subject building.

Photo 11: Representative view of the non-asbestos pipe straight insulation observed throughout the subject building.

Photo 12: View of the non-PCB dry-type transformers observed throughout the subject building.

Photo 13: Representative view of the mercury-containing thermostat switches identified in Room 019.

Photo 14: Representative view of the non-asbestos cementitious coating observed in Room 007.

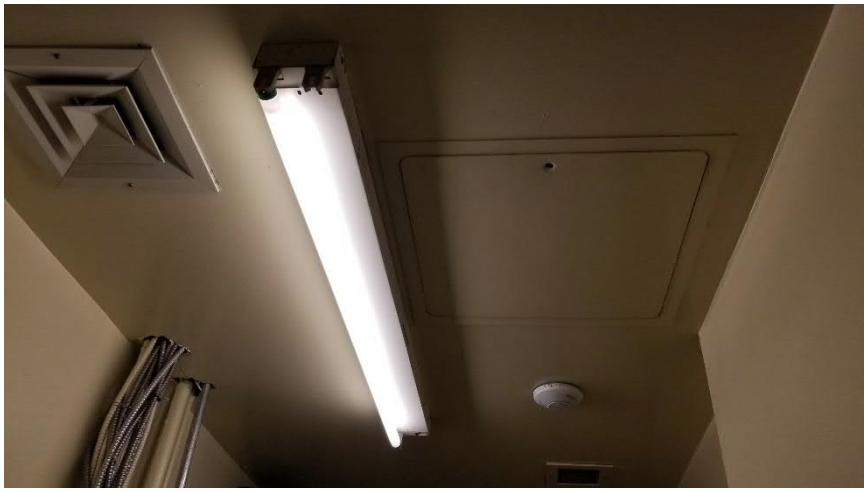


Photo 15: Representative view of the fluorescent light fixtures containing mercury vapour, observed throughout the subject building.

APPENDIX E

Asbestos-Containing Materials Checklists

Floor/Level	Room	ID	Type of ACM	Description	Asbestos Confirmed/ Suspected	Friable/Non-Friable	Damaged/ Deteriorated	Accessibility	Level of Work Near Material	Approx. Quantity	Unit	Recommended Action	Estimated Abatement Cost	Comments
0	Room	007	Cementitious Coating	White	Confirmed	Friable	Good Condition	Easy	Low	-	-	Manage in Place		
0	Throughout Level	-	Concrete Block Mortar	-	Suspected	-	Good Condition	Easy	Low	-	-	Manage in Place		
1	Room	102S	Cementitious Coating	White	Confirmed	Friable	Good Condition	Easy	Low	-	-	Manage in Place		
1	Throughout Level	-	Concrete Block Mortar	-	Suspected	-	Good Condition	Easy	Low	-	-	Manage in Place		
1	Throughout Level	-	Ceramic Wall/Floor Tile Grout	-	Suspected	-	Good Condition	Easy	Low	-	-	Manage in Place		
2	Throughout Level	-	Concrete Block Mortar	-	Suspected	-	Good Condition	Easy	Low	-	-	Manage in Place		
2	Throughout Level	-	Ceramic Wall/Floor Tile Grout	-	Suspected	-	Good Condition	Easy	Low	-	-	Manage in Place		
3	Throughout Level	-	Concrete Block Mortar	-	Suspected	-	Good Condition	Easy	Low	-	-	Manage in Place		
3	Throughout Level	-	Ceramic Wall/Floor Tile Grout	-	Suspected	-	Good Condition	Easy	Low	-	-	Manage in Place		
4	Throughout Level	-	Concrete Block Mortar	-	Suspected	-	Good Condition	Easy	Low	-	-	Manage in Place		
4	Throughout Level	-	Ceramic Wall/Floor Tile Grout	-	Suspected	-	Good Condition	Easy	Low	-	-	Manage in Place		
5	Throughout Level	-	Roofing Materials	-	Suspected	-	Good Condition	Easy	Low	-	-	Manage in Place		
All	Throughout Level	-	Fire Doors	-	Suspected	-	Good Condition	Easy	Low	-	-	Manage in Place		

APPENDIX F

Hazardous Containing Materials Checklists

Floor/Level	Room	ID	DS Type	Component	Colour	Condition	Manufacturer	Approx. Quantity	Unit	Confirmed/Suspected	Recommended Action	Estimated Abatement Cost	Comments
0	Room	016	Mercury	Thermostat	N/A	Good Condition	Honeywell	1	C	Confirmed	Manage in Place		
0	Room	019	Mercury	Thermostat	N/A	Good Condition	Honeywell	10	C	Confirmed	Manage in Place		
0	Room	016	Mercury	Pressure Gauge	N/A	Good Condition	N/A	-	-	Suspected	Manage in Place		
0	Room	004	Mercury	Pressure Gauge	N/A	Good Condition	N/A	-	-	Suspected	Manage in Place		
0	Room	003	Mercury	Pressure Gauge	N/A	Good Condition	N/A	-	-	Suspected	Manage in Place		
0	Throughout Level	-	Silica	Concrete, Mortar, Etc.	N/A	Good Condition	N/A	-	-	Confirmed	Manage in Place		
0	Throughout Level	-	Mercury	Fluorescent Light Tubes	N/A	Good Condition	N/A	-	-	Suspected	Manage in Place		
0	Room	002	Lead	Wall Paint	White	Good Condition	N/A	-	-	Confirmed	Manage in Place		
0	Room	001	Lead	Floor Paint	Light Grey	Fair Condition	N/A	-	-	Confirmed	Monitor Condition of Material.		
0	Throughout Level	-	Lead	Battery Pack	N/A	Good Condition	Lumacell	-	-	Confirmed	Manage in Place		
0	Room	019	Lead	Wall Paint	Yellow	Fair Condition	N/A	-	-	Confirmed	Monitor Condition of Material.		
0	Room	005	USTs/ASTs	Diesel Storage Tank	N/A	Good Condition				Confirmed	Manage in Place		

Floor/Level	Room	ID	DS Type	Component	Colour	Condition	Manufacturer	Approx. Quantity	Unit	Confirmed/Suspected	Recommended Action	Estimated Abatement Cost	Comments
0	Room	019	Ozone Depleting Substances (ODS)	Air Conditioning Unit	N/A	Good Condition	Mitsubishi	1	C	Confirmed	Manage in Place		R410a
0	Room	009	Ozone Depleting Substances (ODS)	Air Conditioning Unit	N/A	Good Condition	Friedrich	1	C	Confirmed	Manage in Place		R32
1	Throughout Level	-	Silica	Concrete, Mortar, Etc.	N/A	Good Condition	N/A	-	-	Confirmed	Manage in Place		
1	Throughout Level	-	Mercury	Fluorescent Light Tubes	N/A	Good Condition	N/A	-	-	Suspected	Manage in Place		
1	Throughout Level	-	Lead	Battery Pack	N/A	Good Condition	Lumacell	-	-	Confirmed	Manage in Place		
1	Room	104	Ozone Depleting Substances (ODS)	Water Fountain	N/A	Good Condition	Cordley	1	C	Confirmed	Manage in Place		R134a
1	Room	105	Water Damage	Ceiling Tiles	N/A	Poor Condition	N/A	2	C	Confirmed	Should be replaced as part of regular maintenance.	$ 250.00	
1	Room	106	Ozone Depleting Substances (ODS)	Refrigerator	N/A	Good Condition	TRUE	2	C	Confirmed	Manage in Place		R134a
1	Room	108	Radioactive Materials	Smoke Detector	N/A	Good Condition	Kiddie	1	C	Confirmed	Manage in Place		

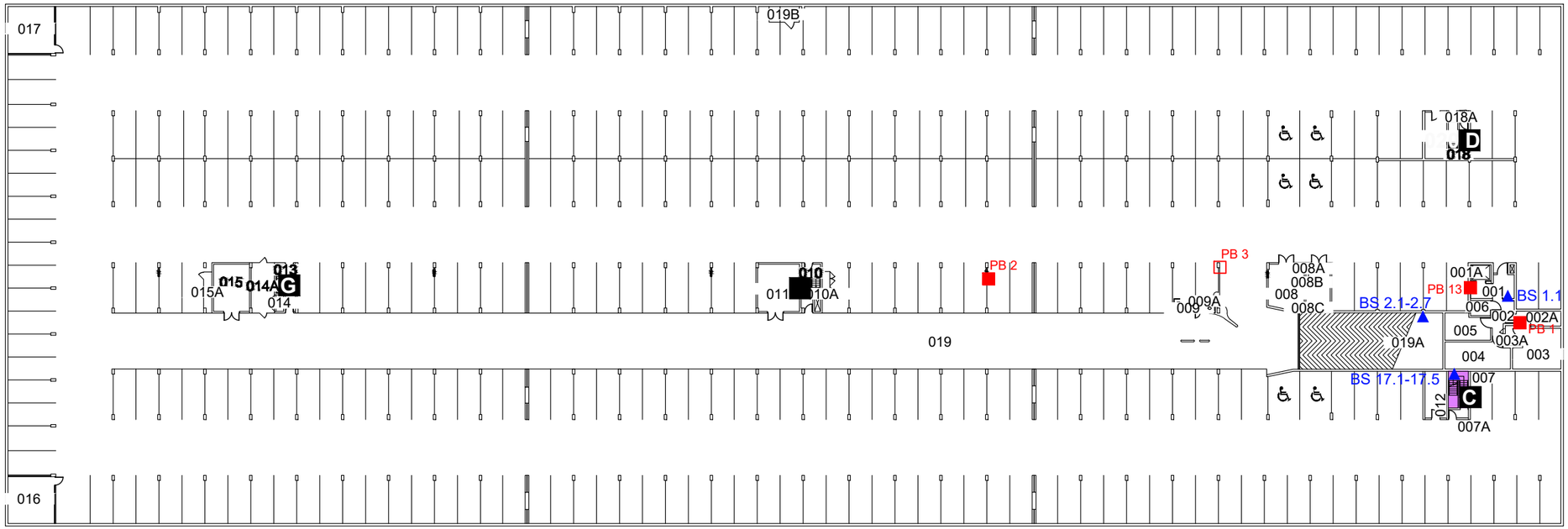
Floor/Level	Room	ID	DS Type	Component	Colour	Condition	Manufacturer	Approx. Quantity	Unit	Confirmed/Suspected	Recommended Action	Estimated Abatement Cost	Comments
1	Room	109	Water Damage	Ceiling Tiles	N/A	Poor Condition	N/A	2	C	Confirmed	Should be replaced as part of regular maintenance.	$ 250.00	
1	Room	110A	Radioactive Materials	Smoke Detector	N/A	Good Condition	Kiddie	1	C	Confirmed	Manage in Place		
1	Room	113	Radioactive Materials	Smoke Detector	N/A	Good Condition	Kiddie	1	C	Confirmed	Manage in Place		
2	Room	201D	Ozone Depleting Substances (ODS)	Refrigerator	N/A	Good Condition	RCA	1	C	Confirmed	Manage in Place		R134a
2	Room	203	Ozone Depleting Substances (ODS)	Water Fountain	N/A	Good Condition	Cordley	1	C	Confirmed	Manage in Place		R134a
2	Throughout Level	-	Silica	Concrete, Mortar, Etc.	N/A	Good Condition	N/A	-	-	Confirmed	Manage in Place		
2	Room	222	Radioactive Materials	Smoke Detector	N/A	Good Condition	Kiddie	1	C	Confirmed	Manage in Place		
2	Room	225A	Water Damage	Ceiling Tiles	N/A	Poor Condition	N/A	2	C	Confirmed	Should be replaced as part of regular maintenance.	$ 250.00	
2	Throughout Level	-	Mercury	Fluorescent Light Tubes	N/A	Good Condition	N/A	-	-	Suspected	Manage in Place		
2	Throughout Level	-	Lead	Battery Pack	N/A	Good Condition	Lumacell	-	-	Confirmed	Manage in Place		

Floor/Level	Room	ID	DS Type	Component	Colour	Condition	Manufacturer	Approx. Quantity	Unit	Confirmed/Suspected	Recommended Action	Estimated Abatement Cost	Comments
3	Throughout Level	-	Silica	Concrete, Mortar, Etc.	N/A	Good Condition	N/A	-	-	Confirmed	Manage in Place		
3	Throughout Level	-	Mercury	Fluorescent Light Tubes	N/A	Good Condition	N/A	-	-	Suspected	Manage in Place		
3	Throughout Level	-	Lead	Battery Pack	N/A	Good Condition	Lumacell	-	-	Confirmed	Manage in Place		
3	Room	304	Ozone Depleting Substances (ODS)	Water Fountain	N/A	Good Condition	Cordley	1	C	Confirmed	Manage in Place		R134a
3	Room	305	Ozone Depleting Substances (ODS)	Refrigerator	N/A	Good Condition	Danby	1	C	Confirmed	Manage in Place		R134a
3	Room	329	Ozone Depleting Substances (ODS)	Water Cooler	N/A	Good Condition	Greenway	1	C	Confirmed	Manage in Place		R134a
3	Room	322	Ozone Depleting Substances (ODS)	Refrigerator	N/A	Good Condition	Danby	1	C	Confirmed	Manage in Place		R134a
4	Room	400B	Ozone Depleting Substances (ODS)	Water Fountain	N/A	Good Condition	Cordley	1	C	Confirmed	Manage in Place		R134a

Floor/Level	Room	ID	DS Type	Component	Colour	Condition	Manufacturer	Approx. Quantity	Unit	Confirmed/Suspected	Recommended Action	Estimated Abatement Cost	Comments
4	Room	410	Ozone Depleting Substances (ODS)	Refrigerator	N/A	Good Condition	Frigidaire	1	C	Confirmed	Manage in Place		R134a
4	Throughout Level	-	Silica	Concrete, Mortar, Etc.	N/A	Good Condition	N/A	-	-	Confirmed	Manage in Place		
4	Throughout Level	-	Mercury	Fluorescent Light Tubes	N/A	Good Condition	N/A	-	-	Suspected	Manage in Place		
4	Throughout Level	-	Lead	Battery Pack	N/A	Good Condition	Lumacell	-	-	Confirmed	Manage in Place		

APPENDIX G

Site Sampling & Location Plans



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Toll Free: 1.888.348.8991 www.mcintoshperry.com

Legend:

- ▲ Asbestos Bulk Sample
- □ Lead Paint Sample <LOD
- ■ Lead Paint Sample >LOD
- ACM Cementitious Coating

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: 100 THOMAS MOORE
HAZARDOUS MATERIALS SURVEY

TITLE: SAMPLE LOCATIONS
LEVEL PI

SCALE: 1:300

DATE: JULY 08, 2020

DRAWN: D.B.

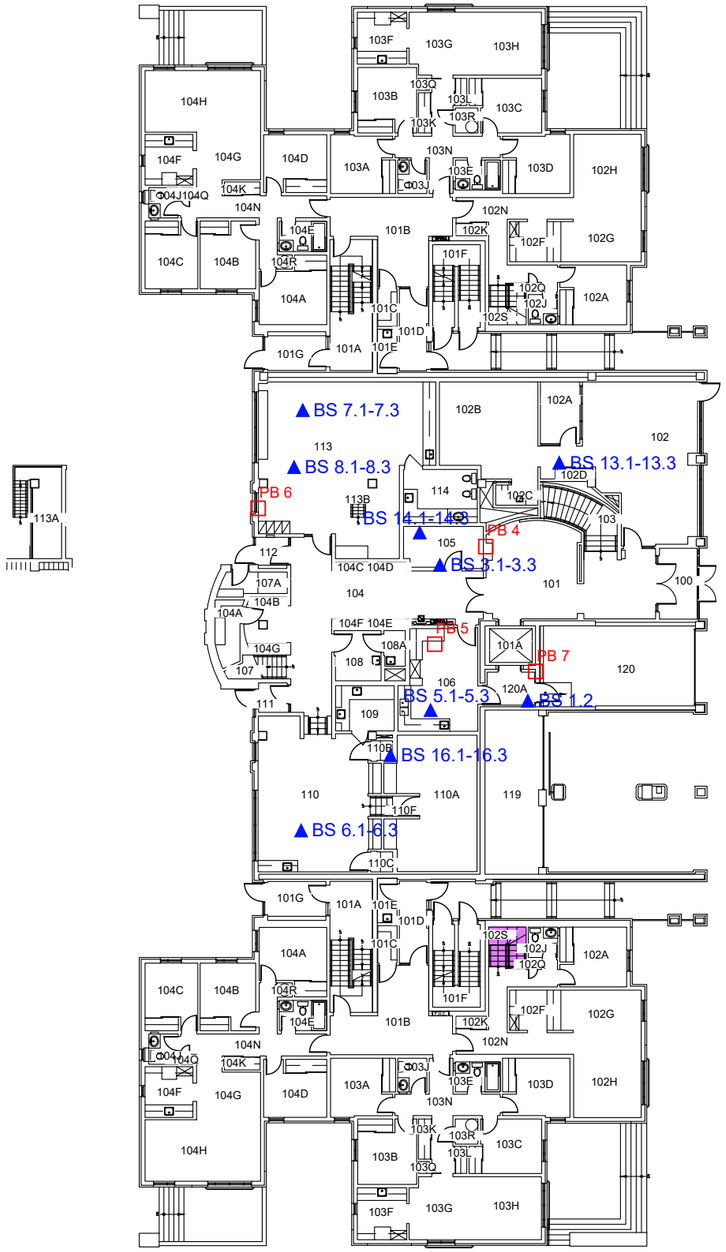
CHECKED: M.M.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

DRAWING NUMBER: AP0

REV.:

C:\USERS\DIANA\ONEDRIVE - MCINTOSH PERRY\LMG DRAFTING\5. 100 THOMAS MOORE\DWG - SAMPLE LOCATION - 100 THOMAS MOORE.DWG



McINTOSH PERRY
6240 HIGHWAY 7 SUITE 200 WOODBRIDGE ON L4H 4G3
Tel: 905.856.5200 Fax: 905.695.0221
Toll Free: 1.888.348.8991 www.mcintoshperry.com

Legend:

- ▲ Asbestos Bulk Sample
- □ Lead Paint Sample <LOD
- ■ Lead Paint Sample >LOD
- ACM Cementitious Coating

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: 100 THOMAS MOORE
HAZARDOUS MATERIALS SURVEY

TITLE: SAMPLE LOCATIONS
LEVEL 1

SCALE: 1:300

DATE: JULY 08, 2020

DRAWN: D.B.

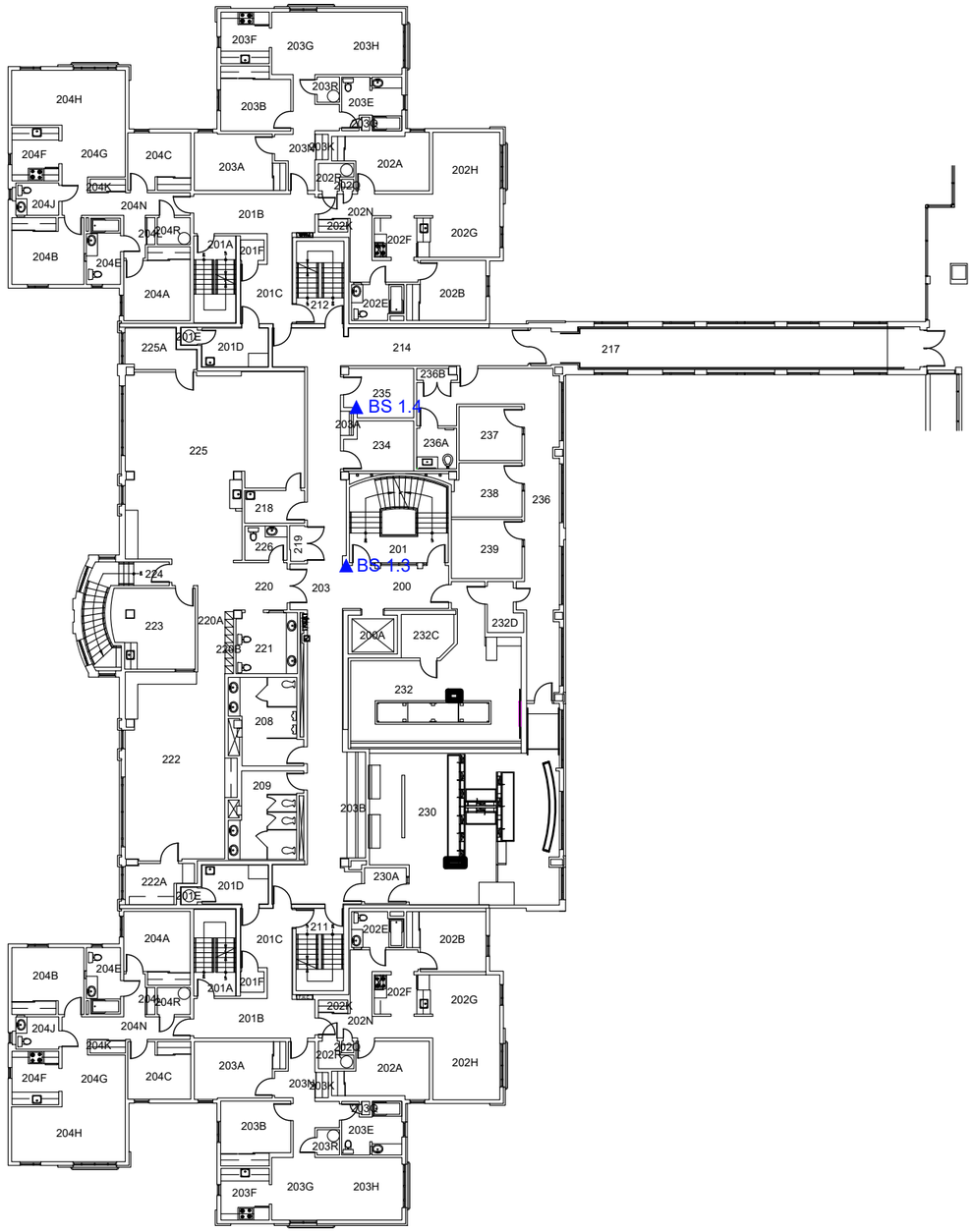
CHECKED: M.M.

DRAWING NUMBER: A1

REV.:

REV. NO.	DESCRIPTION	DATE	BY	APPD.

C:\USERS\DIANAB\ONEDRIVE - MCINTOSH PERRY\LMG DRAFTING\5. 100 THOMAS MOORE\DWG - SAMPLE LOCATION - 100 THOMAS MOORE.DWG



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- ■ Lead Paint Sample >LOD
- ACM Cementitious Coating

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: 100 THOMAS MOORE
HAZARDOUS MATERIALS SURVEY

TITLE: SAMPLE LOCATIONS LEVEL 2

SCALE: 1:300

DATE: JULY 08, 2020

DRAWN: D.B.

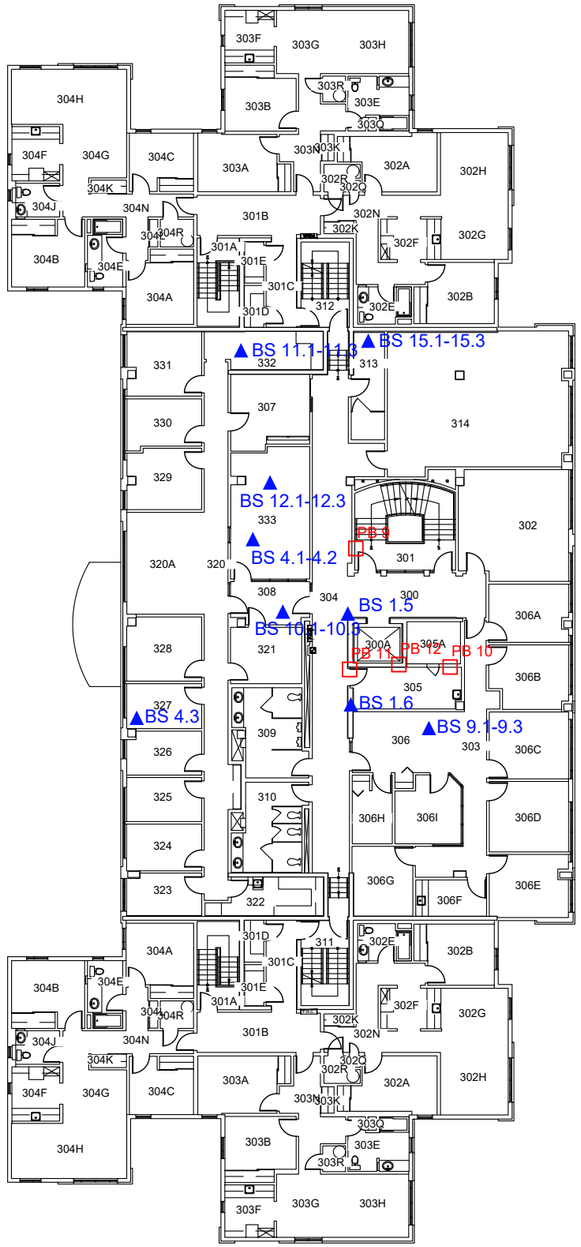
CHECKED: M.M.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

DRAWING NUMBER: A2

REV.:

C:\USERS\DIANAB\ONEDRIVE - MCINTOSH PERRY\LMG DRAFTING\5. 100 THOMAS MOORE\DWG - SAMPLE LOCATION - 100 THOMAS MOORE.DWG



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Toll Free: 1.888.348.8991 www.mcintoshperry.com

Legend:

- ▲ Asbestos Bulk Sample
- □ Lead Paint Sample <LOD
- ■ Lead Paint Sample >LOD
- ACM Cementitious Coating

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: 100 THOMAS MOORE
HAZARDOUS MATERIALS SURVEY

TITLE: SAMPLE LOCATIONS LEVEL 3

SCALE: 1:300

DATE: JULY 08, 2020

DRAWN: D.B.

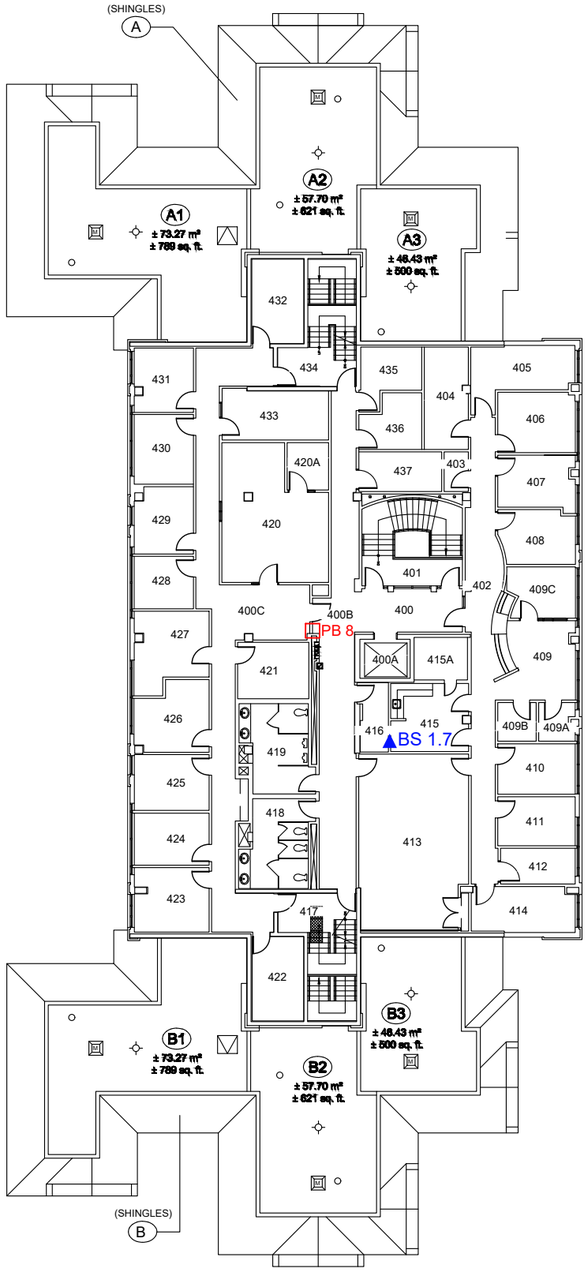
CHECKED: M.M.

DRAWING NUMBER: A3

REV. NO.	DESCRIPTION	DATE	BY	APPD.

REV.:

C:\USERS\DIANAB\ONEDRIVE - MCINTOSH PERRY\LMG DRAFTING\5. 100 THOMAS MOORE\DWG - SAMPLE LOCATION - 100 THOMAS MOORE.DWG



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Tel: 905.856.5200 Fax: 905.695.0221
Toll Free: 1.888.348.8991 www.mcintoshperry.com

Legend:

- ▲ Asbestos Bulk Sample
- □ Lead Paint Sample <LOD
- ■ Lead Paint Sample >LOD
- ACM Cementitious Coating

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: 100 THOMAS MOORE
HAZARDOUS MATERIALS SURVEY

TITLE: SAMPLE LOCATIONS
LEVEL 4

SCALE: 1:300

DATE: JULY 08, 2020

DRAWN: D.B.

CHECKED: M.M.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

DRAWING NUMBER: A4

REV.:

C:\USERS\DIANAB\ONEDRIVE - MCINTOSH PERRY\LMG DRAFTING\5. 100 THOMAS MOORE\DWG - SAMPLE LOCATION - 100 THOMAS MOORE.DWG