HAZARDOUS MATERIALS SURVEY AND 2022 REASSESSMENT
554 & 556 KING EDWARD 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:

December 16, 2022

McINTOSH PERRY

TABLE OF CONTENTS

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 554 & 556 King Edward Avenue in Ottawa, Ontario. MPL was also retained to reassess the condition of hazardous building materials found. The survey was conducted on July 6th, 7th and August 19th, 2020. The reassessment was completed on June 21st, 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 Vinyl Floor Tile were observed to be in Good Condition within Rooms 100E, 110 and 303.
- ACM Suspended Ceiling Tile were observed to be in Good Condition within Room B4.
- ACM Ceiling Texture Coat was observed to be in Good Condition within Rooms 203 and 206.
- ACM Drywall Joint Compound was observed to be in Good Condition throughout the subject buildings.
- Suspected ACM Plaster was observed to be in Good Condition throughout the subject Building.
- Suspected ACM in Floor Tile Grout 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 554 & 556 King Edward Avenue in Ottawa, Ontario. The survey was conducted on July 6th, 7th and August 19th, 2020. **The Reassessment Survey was conducted on June 21st, 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
Vinyl Floor Tile	Non-Friable	Throughout Building	Chrysotile
Drywall Joint Compound	-	Throughout Building	Chrysotile
Ceiling Tile	Friable	Specific Areas Only	Amosite
Ceiling Texture Coat	Friable	Specific Areas Only	Chrysotile
Plaster	-	Throughout Building	Suspected
Brick/Stone Mortar	-	Specific Areas Only	Suspected
Roofing Materials	-	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 and hazardous materials 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
Mercury Vapour	Specific Equipment
PCBs	Specific Equipment
Silica	Throughout Building
Ozone Depleting Substances	Specific Equipment
Radioactive Materials	Specific Equipment

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 Canada (EACC) 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 22, 2022

University of Ottawa
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via email: joel.lajeunesse@uottawa.ca

Attention: Joel Lajeunesse, Project Manager

Re: 554 & 556 King Edward Avenue
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 residential building located at 554 & 556 King Edward Avenue, Ottawa, Ontario The site is situated on the west side of King Edward Avenue between Osgoode Street and Laurier Avenue East. The survey of the building was conducted on July 6th, 7th and August 19th, 2020. **The Reassessment Survey was conducted on June 21st, 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 two connected three-storey buildings. The subject building was built sometime in the 1920's and is approximately 4,700 square feet. The subject building was observed to be constructed on a concrete block and stone foundation. The house is constructed of wooden framing and has an asphalt shingle roof. The exterior walls are finished with stucco or brick cladding, and the interior walls and ceiling are plaster. Additionally, some drywall is also present within the building.

3.0 FINDINGS & RECOMMENDATIONS

Designated Substances

3.1 Asbestos

Findings

A total of fifty-eight (58) 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 of Building 554

Sample ID	Location	Material	Type and Content	Friability
1.1	**100E**	**VFT – grey with dark streaks**	**Chrysotile – 1%**	**Non-Friable**
1.2	**100E**	**VFT – grey with dark streaks**	**Not Analyzed – Stop Positive**	**Non-Friable**
1.3	**100E**	**VFT – grey with dark streaks**	**Not Analyzed – Stop Positive**	**Non-Friable**
2.1	B1	Grey Skim Coat	None Detected	N/A
2.2	B1	Grey Skim Coat	None Detected	N/A
2.3	B1	Grey Skim Coat	None Detected	N/A
3.1 – Joint Compound 1	**B4A**	**Drywall Joint Compound (tan)**	**Chrysotile – 3%**	**Friable**
3.1 – Joint Compound 2	B4A	Drywall Joint Compound (white)	None Detected	N/A
3.2	**B9**	**Drywall Joint Compound**	**Not Analyzed – Stop Positive**	**Friable**

Sample ID	Location	Material	Type and Content	Friability
3.3	**B3**	**Drywall Joint Compound**	**Not Analyzed – Stop Positive**	**Friable**
3.4	**B3**	**Drywall Joint Compound**	**Not Analyzed – Stop Positive**	**Friable**
3.5	**100**	**Drywall Joint Compound**	**Not Analyzed – Stop Positive**	**Friable**
3.6	**305**	**Drywall Joint Compound**	**Not Analyzed – Stop Positive**	**Friable**
3.7	**207**	**Drywall Joint Compound**	**Not Analyzed – Stop Positive**	**Friable**
4.1	102	Yellow Carpet Mastic	None Detected	N/A
4.2	102	Yellow Carpet Mastic	None Detected	N/A
4.3	102	Yellow Carpet Mastic	None Detected	N/A
5.1 – Mastic	B2	Vinyl Floor Tile – Grey with Beige Marks	None Detected	N/A
5.2	B2	Vinyl Floor Tile – Grey with Beige Marks	None Detected	N/A
5.3	B2	Vinyl Floor Tile – Grey with Beige Marks	None Detected	N/A
5.3 - Mastic	B2	Vinyl Floor Tile – Grey with Beige Marks	None Detected	N/A
6.1	**B4**	**Ceiling Tile – Pinholes with no fissures**	**Amosite – 3%**	**N/A**
6.2	**B4**	**Ceiling Tile – Pinholes with no fissures**	**Not Analyzed – Stop Positive**	**N/A**
6.3	**B4**	**Ceiling Tile – Pinholes with no fissures**	**Not Analyzed – Stop Positive**	**N/A**
7.1	B9	Plaster	None Detected	N/A
7.2	B9	Plaster	None Detected	N/A
7.3	B3	Plaster	None Detected	N/A
7.4 – Skim Coat	207A	Plaster	None Detected	N/A
7.4 – Base Coat	207A	Plaster	None Detected	N/A
7.5 – Skim Coat	202	Plaster	None Detected	N/A
7.5 – Base Coat	202	Plaster	None Detected	N/A
7.6 – Skim Coat	304	Plaster	None Detected	Plaster
7.6 – Base Coat	304	Plaster	Chrysotile – <0.25%	N/A

Sample ID	Location	Material	Type and Content	Friability
7.7 – Skim Coat	304	Plaster	None Detected	N/A
7.7 – Base Coat	304	Plaster	Chrysotile – 0.25%	N/A
8.1	B5	Vinyl Floor Tile – Grey with light and dark marks	None Detected	N/A
8.2	B5	Vinyl Floor Tile – Grey with light and dark marks	None Detected	N/A
8.3	B5	Vinyl Floor Tile – Grey with light and dark marks	None Detected	N/A
9.1	B5	Vinyl Floor Tile – Blue	None Detected	N/A
9.2	B5	Vinyl Floor Tile – Blue	None Detected	N/A
9.3	B5	Vinyl Floor Tile – Blue	None Detected	N/A
9.3 – mastic	B5	Vinyl Floor Tile – Blue	Insufficient Material	N/A
10.1	B4	Insulation	None Detected	N/A
10.2	B4	Insulation	None Detected	N/A
10.3	B4	Insulation	None Detected	N/A
11.1- VFT	100	Vinyl Floor Tile – White with grey marks	None Detected	N/A
11.1 – Mastic	100	Vinyl Floor Tile – White with grey marks	None Detected	N/A
11.2- VFT	100	Vinyl Floor Tile – White with grey marks	None Detected	N/A
11.2 – Mastic	100	Vinyl Floor Tile – White with grey marks	None Detected	N/A
11.3- VFT	100	Vinyl Floor Tile – White with grey marks	None Detected	N/A
11.3 – Mastic	100	Vinyl Floor Tile – White with grey marks	None Detected	N/A
12.1 – Leveler	208	Leveler Compound	None Detected	N/A
12.1 – Mastic	208	Leveler Compound	None Detected	N/A
12.2 – Leveler	208	Leveler Compound	None Detected	N/A
12.2 – Mastic	208	Leveler Compound	None Detected	N/A
12.3 – Leveler	208	Leveler Compound	None Detected	N/A
12.3 – Mastic	208	Leveler Compound	None Detected	N/A

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.

Table 2:

Asbestos Laboratory Results of Building 556

Sample ID	Location	Material	Type and Content	Friability
BS 1.1	Room 303	VFT (Beige w/ Streaks)	None Detected	N/A
BS 1.2	Room 303	VFT (Beige w/ Streaks)	None Detected	N/A
BS 1.3	Room 302	VFT (Beige w/ Streaks)	None Detected	N/A
BS 2.1	**Room 303**	**VFT (Grey)**	**3% Chrysotile**	**Non-Friable**
		Mastic (Black)	None Detected	
BS 2.2	**Room 303**	**VFT (Grey)**	**Not Analyzed – Stop Positive**	**Non-Friable**
		Mastic (Black)	None Detected	
BS 2.3	**Room 303**	**VFT (Grey)**	**Not Analyzed – Stop Positive**	**Non-Friable**
		Mastic (Black)	None Detected	
BS 3.1	Room 104	Plaster	None Detected	N/A
BS 3.2	Room 104	Plaster	None Detected	N/A
BS 3.3	Room 002-Ceiling	Plaster	<0.25% Tremolite	N/A
BS 3.4	Room 204	Joint Compound	None Detected	N/A
		Skim Coat	None Detected	
		Plaster	None Detected	
BS 3.5	Room 209	Skim Coat	None Detected	N/A
		Plaster	None Detected	
BS 3.6	Room 302	Skim Coat	None Detected	N/A
		Plaster	None Detected	
BS 3.7	Room 302	Plaster	None Detected	N/A
BS 4.1	Room 104	Wallpaper	None Detected	N/A
BS 4.2	Room 104	Wallpaper	None Detected	N/A
BS 4.3	Room 104	Wallpaper	None Detected	N/A
BS 5.1	Room 002	Drywall Joint Compound	None Detected	N/A
BS 5.2	Room 002	Drywall Joint Compound	None Detected	N/A
BS 5.3	Room 001	Drywall Joint Compound	None Detected	N/A
BS 5.4	Room 205	Drywall Joint Compound	None Detected	N/A
BS 5.5	Room 206	Drywall Joint Compound	None Detected	N/A
BS 5.6	Room 209	Drywall Joint Compound	None Detected	N/A
BS 5.7	**Room 302**	**Drywall Joint Compound**	**2% Chrysotile**	**-**
BS 6.1	Room 001	Mortar	None Detected	N/A
BS 6.2	Room 001	Mortar	None Detected	N/A
BS 6.3	Room 001	Mortar	None Detected	N/A
BS 7.1	**Room 110**	**VFT (Grey w/ Brown & White)**	**3% Chrysotile**	**Non- Friable**

Sample ID	Location	Material	Type and Content	Friability
		Mastic (Black)	None Detected	
BS 7.2	**Room 110**	**VFT (Grey w/ Brown & White)**	**Not Analyzed – Stop Positive**	**Non- Friable**
BS 7.3	**Room 110**	**VFT (Grey w/ Brown & White)**	**Not Analyzed – Stop Positive**	**Non- Friable**
		Tar Paper/Mastic (Black)	None Detected	
BS 8.1	Room 102	Mastic (Yellow)	None Detected	N/A
BS 8.2	Room 102	Mastic (Yellow)	None Detected	N/A
BS 8.3	Room 102	Mastic (Yellow)	None Detected	N/A
BS 9.1	Room 109	VFT (White w/ Black & Grey)	None Detected	N/A
BS 9.2	Room 106	VFT (White w/ Black & Grey)	None Detected	N/A
BS 9.3	Room 205	VFT (White w/ Black & Grey)	None Detected	N/A
BS 10.1	Room 107	Texture Coat (Popcorn – White)	None Detected	N/A
BS 10.2	Room 107	Texture Coat (Popcorn – White)	None Detected	N/A
BS 10.3	Room 107	Texture Coat (Popcorn – White)	None Detected	N/A
		Plaster	None Detected	
BS 10.4	**Room 203**	Texture Coat (Popcorn – White)	None Detected	**Friable**
		Joint Compound	**2% Chrysotile**	
BS 10.5	**Room 203**	Texture Coat (Popcorn – White)	None Detected	**Friable**
		Joint Compound	**Not Analyzed – Stop Positive**	
BS 10.6	**Room 203**	Texture Coat (Popcorn – White)	None Detected	**Friable**
		Joint Compound	**Not Analyzed – Stop Positive**	
BS 10.7	**Room 206**	**Texture Coat (Popcorn – Tan)**	**2% Chrysotile**	**Friable**
BS 11.1	Room 107	Wallpaper	None Detected	N/A
BS 11.2	Room 107	Wallpaper	None Detected	N/A
BS 11.3	Room 106	Wallpaper	None Detected	N/A

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

No mechanical pipe straight insulation was observed in the subject building.

3.1.2.2 Mechanical Piping Elbows/Fittings Insulation

No mechanical pipe elbows/fittings insulation was observed in the subject building.

3.1.2.3 Mechanical Piping Hangers Insulation

No mechanical pipe hanger insulation was observed in the subject building.

3.1.2.4 HVAC Duct Insulation

No HVAC duct insulation was observed in the subject building.

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 asbestos-containing heat shield insulation were observed in the subject building.

3.1.5 Texture Finishes

Ceiling texture coating was observed in Room 203 and 206 of Building 556. The laboratory analytical results of ceiling texture coat samples collected from Rooms 203 and 206 indicate that this material **contains 2% Chrysotile asbestos joint compound**. This material is considered to be friable and was observed in good condition.

Ceiling texture coating was observed in Room 107 of Building 556. The laboratory analytical results of the texture coat samples collected from Room 107 indicate that this material does not contain asbestos.

3.1.6 Plaster

Ceiling/Wall plaster was observed and sampled throughout the subject building. The laboratory analytical results of ceiling/wall plaster samples collected from the subject building (Room B5, B9, 202, 207 and 304A of Building 554, and Room 002, 104, 204, 209, 302 of Building 556) indicate that this material does not contain

asbestos. Three of the samples from building 554 were found to contain vermiculite which is a problem matrix; additional analysis by TEM prior to renovation or demolition is recommended.

3.1.7 Grey Sheeting

No grey sheeting was observed in the subject building.

3.1.8 Drywall Joint Compound

Drywall joint compound was observed in the basement of Building 554 and throughout Building 556.

The laboratory analytical results of drywall joint compound samples collected from B1, B3 and B9 of Building 554 and of Room 302 in Building 556 indicate that this material **contains 3% Chrysotile asbestos**. Since drywall joint compound 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.

3.1.9 Ceiling Tiles

Suspended ceiling tiles were observed in various locations throughout the subject building:

- Suspended ceiling tiles (Pinholes with no fissure) were observed in Room B4 of Building 554. The laboratory analytical results of ceiling tile samples collected from B4 indicate that this material **contains 3% Amosite**. This material was observed in good condition.

3.1.10 Vinyl Floor Tiles

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

- Vinyl floor tiles (grey with dark streaks) were observed in Room 100E of Building 554. The laboratory analytical results of the vinyl floor tile samples collected from the Room 100E indicate that this material contains **1% Chrysotile asbestos** and is considered to be non-friable. This material was observed to be in good condition.

- Vinyl floor tiles (Grey with beige marks) were observed in Room B2 of Building 554. The laboratory analytical results of the vinyl floor tile samples and mastic collected from Room B2 indicate that this material does not contain asbestos.

- Vinyl floor tiles (Grey with light and dark marks) were observed in Room B5 of Building 554. The laboratory analytical results of the vinyl floor tile samples collected from Room B5 indicate that this material does not contain asbestos.

- Vinyl floor tiles (Blue) were observed in Room B5 of Building 554. The laboratory analytical results of the vinyl floor tile samples collected from Room B5 indicate that this material does not contain asbestos.

- Vinyl floor tiles (White with grey marks) were observed in Room 100 of Building 554. The laboratory analytical results of the vinyl floor tile samples and mastic collected from Room 100 indicate that this material does not contain asbestos.

- Vinyl floor tiles (12”x12” – Grey) were observed in Room 303 of Building 556. The laboratory analytical results of vinyl floor tile samples collected indicate that this material **contains 3.0% Chrysotile asbestos**. The associated mastic (black) does not contain asbestos. This material is considered to be non-friable and was observed in good condition.

- Vinyl floor tiles (12”x12” – Grey w/ Brown & White) were observed in Room 110 of Building 556. The laboratory analytical results of vinyl floor tile samples collected indicate that this material **contains 3.0% Chrysotile asbestos**. The associated mastic (black) does not contain asbestos. This material is considered to be non-friable and was observed in good condition.

- Vinyl floor tiles (12”x12” – Beige w/ Streaks) were observed in Rooms 302 and 303 of Building 556. The laboratory analytical results of the vinyl floor tile samples collected indicate that this material does not contain asbestos.

- Vinyl floor tiles (12”x12” – White w/ Black & Grey) were observed in Rooms 106, 109, and 205 of Building 556. The laboratory analytical results of the vinyl floor tile samples collected indicate that this material does not contain asbestos.

3.1.11 Vinyl Sheet Flooring

No vinyl sheet flooring was observed in the subject building.

3.1.12 Parquet Flooring

No parquet flooring was observed in the subject building.

3.1.13 Brick/Stone Mortar

To avoid damage and compromising the integrity of the structure, no bulk samples of the brick/stone mortar were collected from Building 554. 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.

Brick mortar was sampled in the basement of Building 556. Laboratory analytical results indicate that this material does not contain asbestos.

3.1.14 Concrete Block Mortar

No concrete block mortar was observed in the subject building.

3.1.15 Ceramic Wall / Floor Tile Grout

No ceramic wall/floor tile grout was observed in the subject building.

3.1.16 Transite (Asbestos Cement)

No transite materials were observed in the subject building.

3.1.17 Caulking

No caulking materials were observed in the subject building.

3.1.18 Cementitious Coating

No cementitious coating finishes were observed in the subject building.

3.1.19 Glazing

No glazing materials suspected of containing asbestos were observed in the subject building.

3.1.20 Fire Doors

No fire doors were observed within the subject building.

3.1.21 Roofing Material

To avoid damage and compromising the integrity of additional 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 and brick/stone mortar), 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 five (5) paint samples from the subject building were collected and analyzed for lead content in Building 554. Results of bulk sampling testing are summarized in Table 3 and the laboratory certificate of analysis can be found in Appendix C.

Results of the previous bulk sampling testing are summarized below in Table 3.

Table 3:

Lead Sampling Locations and Laboratory Results of Building 554

Sample I.D.	Location	Material	Colour	Lead Concentration Weight by Conc. (%)
Pb1	B1	Door	Blue	0.0095
Pb2	B3	Wall	Light Blue	0.071
Pb3	Basement	Door	Purple/Grey	0.052
Pb4	Basement	Stairs	Grey	1.3
Pb5	103	Wall	White	0.17
Previously Identified Lead Paint Finishes				
PC-01	3rd Floor	Wall	Beige/grey	18
PC-02	2nd Floor	Wall	Beige/grey	8.3
PC-03	1st Floor	Wall	Beige/grey	12
215-B-LBP-041807-01	B4	Wall	Beige	<0.01

Sample I.D.	Location	Material	Colour	Lead Concentration Weight by Conc. (%)
215-B-LBP-041807-02	208	Doors and Frames	Grey	0.07
215-B-LBP-041807-03	308	Wall	Beige	19

MPL did not identify any potential lead-containing paints within Building 556 besides those previously identified on the top floor of the subject building. Previously identified lead-containing paints were no longer observed on the first floor of the subject building.

Results of the previous bulk sampling testing are summarized below in Table 4.

Table 4:

Lead Sampling Locations and Laboratory Results of Building 556

Sample I.D.	Location	Material	Colour	Lead Concentration Weight by Conc. (%)
Previously Identified Lead Paint Finishes				
217-3-LBP-081707-07	303	Wall	White	0.12

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 good condition with the exception of select areas that were observed in poor 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 good condition with the exception of select areas that were observed in poor 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 did not observe lead-containing acid battery packs throughout 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 poor condition must be immediately repaired and/or stabilized following a minimum Type 1/2 lead abatement procedures as per OMOL "Lead on Construction Project" dated April 2011.

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 did observed one (1) thermostat suspected to contain liquid mercury in Room 106 of Building 554. It was observed to be in good condition.

3.3.2 Fluorescent Light Tubes

MPL observed 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 a pressure gauge suspected to contain liquid mercury in Room B3 of Building 554. It was observed to be in good condition.

MPL did not identify any suspected float switches that may contain liquid mercury within 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 fluorescent lights. These light fixtures may contain PCB-containing light ballasts. These ballasts were not investigated during the survey as they could not be readily or safely disassembled.

3.5.2 Transformers

MPL did not observe any PCBs containing electrical transformers 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 renovations, all light ballasts containing or suspected of containing PCBs that will be affected by the work, must be decommissioned by a licensed contractor such that PCBs are contained and not released to the environment during decommissioning and properly disposed of.

3.6 Ozone Depleting Substances (ODSs) and Other Halocarbon

Findings

A visual assessment for equipment potentially containing ODSs and other halocarbons was conducted. MPL observed equipment such as refrigerators and window air condition units which are suspected of containing ODSs or other halocarbons.

Recommendations

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

Under the management of a licensed contractor, equipment containing R-22 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 smoke detectors throughout the subject building which contain small quantities of radioactive material.

Recommendations

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

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.

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. No USTs and ASTs were present within the subject building.

Recommendations

Since no underground and/or above ground storage tanks (USTs and ASTs) were observed or suspected to be present during the site survey, no further action is required.

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 within the subject building, where materials were affected were by 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 did not find any areas with water damage.

Recommendations

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

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, B.Eng
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 AC.

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 the subject building 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 Inventory by Conestoga-Rovers & Associates (dated April 2008, reference # 45870(70)).
- Designated Substance Survey by Conestoga-Rovers & Associates (dated March 2008, reference # 045870(77));

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 otherwise, such as acoustical plaster on ceilings and fireproofing materials on structural members	Less than 90 square metres	3
		90 or more square metres, but less than 450 square metres	5
		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/compositio

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

EMSL Canada Or	552007489
CustomerID:	55CTCS25B
CustomerPO:	0Z2-021101
ProjectID:	Ottawa DSS

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

Phone: (613) 836-2184
Fax:
Received: 7/2/2020 11:53 AM
Collected:

Project: **University of Ottawa 0Z2-021101 - 554 King Edward - "Ottawa DSS"**

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

Client SampleDescription	Collected	Analyzed	Weight	RDL	Lead Concentration
PB1		7/3/2020	0.2204 g	0.0091 % wt	0.0095 % wt
552007489-0001	Site: 554 King Edward - Blue Door - B1				
PB2		7/3/2020	0.2471 g	0.0081 % wt	0.071 % wt
552007489-0002	Site: 554 King Edward - Light Blue - B3				
PB3		7/3/2020	0.2509 g	0.0080 % wt	0.052 % wt
552007489-0003	Site: 554 King Edward - Purple/Grey - Basement Door				
PB4		7/3/2020	0.2474 g	0.040 % wt	1.3 % wt
552007489-0004	Site: 554 King Edward - Grey - Basement/Stairs				
PB5		7/3/2020	0.2504 g	0.0080 % wt	0.17 % wt
552007489-0005	Site: 554 King Edward - White - 103				

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. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Definitions of modifications are available upon request.
Samples analyzed by EMSL Canada Inc. Mississauga, ON AIHA-LAP, LLC - ELLAP #196142

Initial report from 07/09/2020 09:04:21

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EMSL Canada Order 672001028
Customer ID: 55CTCS25B
Customer PO: 0Z2-021101
Project ID: Ottawa DSS

Attn: Stefan Holik
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Phone: (613) 836-2184
Fax:
Collected: 6/26/2020
Received: 6/30/2020
Analyzed: 7/08/2020

Proj: University of Ottawa 0Z2-021101 (554 King Edward) (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 ***Lab Sample ID:*** **672001028-0001**
Sample Description: 554 KE/VFT - grey with dark streaks - 100E

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Gray	0.0%	99.0%	**1% Chrysotile**	

Client Sample ID: 1.2 ***Lab Sample ID:*** **672001028-0002**
Sample Description: 554 KE/VFT - grey with dark streaks - 100E

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020			Positive Stop (Not Analyzed)		

Client Sample ID: 1.3 ***Lab Sample ID:*** **672001028-0003**
Sample Description: 554 KE/VFT - grey with dark streaks - 100E

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020			Positive Stop (Not Analyzed)		

Client Sample ID: 2.1 ***Lab Sample ID:*** **672001028-0004**
Sample Description: 554 KE/Grey skim coat - B1

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	Gray	2.0%	98.0%	None Detected	Sample is paint only

Client Sample ID: 2.2 ***Lab Sample ID:*** **672001028-0005**
Sample Description: 554 KE/Grey skim coat - B1

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	Gray	2.0%	98.0%	None Detected	Sample is paint only

Client Sample ID: 2.3 ***Lab Sample ID:*** **672001028-0006**
Sample Description: 554 KE/Grey skim coat - B1

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	Gray	2.0%	98.0%	None Detected	Sample is paint only

Client Sample ID: 3.1-Joint Compound 1 ***Lab Sample ID:*** **672001028-0007**
Sample Description: 554 KE/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Tan	0.0%	97.0%	**3% Chrysotile**	

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Customer ID: 55CTCS25B
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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: 3.1-Joint Compound 2 ***Lab Sample ID:*** **672001028-0007A**
Sample Description: 554 KE/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 3.2 ***Lab Sample ID:*** **672001028-0008**
Sample Description: 554 KE/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020				Positive Stop (Not Analyzed)	

Client Sample ID: 3.3 ***Lab Sample ID:*** **672001028-0009**
Sample Description: 554 KE/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020				Positive Stop (Not Analyzed)	

Client Sample ID: 3.4 ***Lab Sample ID:*** **672001028-0010**
Sample Description: 554 KE/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020				Positive Stop (Not Analyzed)	

Client Sample ID: 3.5 ***Lab Sample ID:*** **672001028-0011**
Sample Description: 554 KE/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020				Positive Stop (Not Analyzed)	

Client Sample ID: 3.6 ***Lab Sample ID:*** **672001028-0012**
Sample Description: 554 KE/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020				Positive Stop (Not Analyzed)	

Client Sample ID: 3.7 ***Lab Sample ID:*** **672001028-0013**
Sample Description: 554 KE/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020				Positive Stop (Not Analyzed)	

Client Sample ID: 4.1 ***Lab Sample ID:*** **672001028-0014**
Sample Description: 554 KE/Yellow carpet mastic - 102

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Yellow	0.0%	100.0%	None Detected	

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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: 4.2 ***Lab Sample ID:*** **672001028-0015**

Sample Description: 554 KE/Yellow carpet mastic - 102

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 4.3 ***Lab Sample ID:*** **672001028-0016**

Sample Description: 554 KE/Yellow carpet mastic - 102

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 5.1-Vinyl Floor Tile ***Lab Sample ID:*** **672001028-0017**

Sample Description: 554 KE/VFT - grey with beige marks - B2

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Gray/Beige	0.0%	100.0%	None Detected	

Client Sample ID: 5.1-Mastic ***Lab Sample ID:*** **672001028-0017A**

Sample Description: 554 KE/VFT - grey with beige marks - B2

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 5.2 ***Lab Sample ID:*** **672001028-0018**

Sample Description: 554 KE/VFT - grey with beige marks - B2

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Gray/Beige	0.0%	100.0%	None Detected	

Client Sample ID: 5.3-Vinyl Floor Tile ***Lab Sample ID:*** **672001028-0019**

Sample Description: 554 KE/VFT - grey with beige marks - B2

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	Gray/Beige	0.0%	100.0%	None Detected	

Client Sample ID: 5.3-Mastic ***Lab Sample ID:*** **672001028-0019A**

Sample Description: 554 KE/VFT - grey with beige marks - B2

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 6.1 ***Lab Sample ID:*** **672001028-0020**

Sample Description: 554 KE/CT - pinholes with no fissures - B4

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Gray	75.0%	22.0%	**3% Amosite**	

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EMSL Canada Order 672001028
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: 6.2 ***Lab Sample ID:*** **672001028-0021**
Sample Description: 554 KE/CT - pinholes with no fissures - B4

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020			Positive Stop (Not Analyzed)		

Client Sample ID: 6.3 ***Lab Sample ID:*** **672001028-0022**
Sample Description: 554 KE/CT - pinholes with no fissures - B4

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020			Positive Stop (Not Analyzed)		

Client Sample ID: 7.1 ***Lab Sample ID:*** **672001028-0023**
Sample Description: 554 KE/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Gray/Gold	0.0%	100.0%	None Detected	Sample contains vermiculite which is a problem matrix; TEM with milling recommended

Client Sample ID: 7.2 ***Lab Sample ID:*** **672001028-0024**
Sample Description: 554 KE/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Gray/Gold	0.0%	100.0%	None Detected	Sample contains vermiculite which is a problem matrix; TEM with milling recommended

Client Sample ID: 7.3 ***Lab Sample ID:*** **672001028-0025**
Sample Description: 554 KE/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Gray/Gold	0.0%	100.0%	None Detected	Sample contains vermiculite which is a problem matrix; TEM with milling recommended

Client Sample ID: 7.4-Skim Coat ***Lab Sample ID:*** **672001028-0026**
Sample Description: 554 KE/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	White	2.0%	98.0%	None Detected	

Client Sample ID: 7.4-Base Coat ***Lab Sample ID:*** **672001028-0026A**
Sample Description: 554 KE/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Gray	1.0%	99.0%	None Detected	

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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: 7.5-Skim Coat ***Lab Sample ID:*** **672001028-0027**
Sample Description: 554 KE/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 7.5-Base Coat ***Lab Sample ID:*** **672001028-0027A**
Sample Description: 554 KE/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Gray	1.0%	99.0%	None Detected	

Client Sample ID: 7.6-Skim Coat ***Lab Sample ID:*** **672001028-0028**
Sample Description: 554 KE/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 7.6-Base Coat ***Lab Sample ID:*** **672001028-0028A**
Sample Description: 554 KE/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	Gray	1.0%	99.0%	**<1% Chrysotile**	
400 PLM Pt Ct	7/08/2020	Gray	0.0%	100.0%	**<0.25% Chrysotile**	

Client Sample ID: 7.7-Skim Coat ***Lab Sample ID:*** **672001028-0029**
Sample Description: 554 KE/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 7.7-Base Coat ***Lab Sample ID:*** **672001028-0029A**
Sample Description: 554 KE/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	Gray	1.0%	99.0%	**<1% Chrysotile**	
400 PLM Pt Ct	7/08/2020	Gray	0.00%	99.75%	**0.25% Chrysotile**	

Client Sample ID: 8.1 ***Lab Sample ID:*** **672001028-0030**
Sample Description: 554 KE/VFT - grey with light and dark marks - B5

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 8.2 ***Lab Sample ID:*** **672001028-0031**
Sample Description: 554 KE/VFT - grey with light and dark marks - B5

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Gray	0.0%	100.0%	None Detected	

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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: 8.3 ***Lab Sample ID:*** **672001028-0032**
Sample Description: 554 KE/VFT - grey with light and dark marks - B5

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 9.1 ***Lab Sample ID:*** **672001028-0033**
Sample Description: 554 KE/VFT - blue - B5

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Blue	0.0%	100.0%	None Detected	

Client Sample ID: 9.2 ***Lab Sample ID:*** **672001028-0034**
Sample Description: 554 KE/VFT - blue - B5

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Blue	0.0%	100.0%	None Detected	

Client Sample ID: 9.3-Vinyl Floor Tile ***Lab Sample ID:*** **672001028-0035**
Sample Description: 554 KE/VFT - blue - B5

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	Blue	0.0%	100.0%	None Detected	

Client Sample ID: 9.3-Mastic ***Lab Sample ID:*** **672001028-0035A**
Sample Description: 554 KE/VFT - blue - B5

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/08/2020				Insufficient Material	

Client Sample ID: 10.1 ***Lab Sample ID:*** **672001028-0036**
Sample Description: 554 KE/Insulation - B4

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Brown/Black/Yellow	80.0%	20.0%	None Detected	

Client Sample ID: 10.2 ***Lab Sample ID:*** **672001028-0037**
Sample Description: 554 KE/Insulation - B4

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Brown/Black/Yellow	75.0%	25.0%	None Detected	

Client Sample ID: 10.3 ***Lab Sample ID:*** **672001028-0038**
Sample Description: 554 KE/Insulation - B4

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	Brown	80.0%	20.0%	None Detected	

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Customer ID: 55CTCS25B
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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: 11.1-Vinyl Floor Tile **Lab Sample ID:** **672001028-0039**
Sample Description: 554 KE/VFT - white with grey marks

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 11.1-Mastic **Lab Sample ID:** **672001028-0039A**
Sample Description: 554 KE/VFT - white with grey marks

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Black	0.0%	100.0%	None Detected	

Client Sample ID: 11.2-Vinyl Floor Tile **Lab Sample ID:** **672001028-0040**
Sample Description: 554 KE/VFT - white with grey marks

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020	Gray/White	0.0%	100.0%	None Detected	

Client Sample ID: 11.2-Mastic **Lab Sample ID:** **672001028-0040A**
Sample Description: 554 KE/VFT - white with grey marks

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/07/2020				Insufficient Material	

Client Sample ID: 11.3-Vinyl Floor Tile **Lab Sample ID:** **672001028-0041**
Sample Description: 554 KE/VFT - white with grey marks

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	Gray/White	0.0%	100.0%	None Detected	

Client Sample ID: 11.3-Mastic **Lab Sample ID:** **672001028-0041A**
Sample Description: 554 KE/VFT - white with grey marks

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	Black	0.0%	100.0%	None Detected	

Client Sample ID: 12.1-Leveler **Lab Sample ID:** **672001028-0042**
Sample Description: 554 KE/Leveler compound - 208

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 12.1-Mastic **Lab Sample ID:** **672001028-0042A**
Sample Description: 554 KE/Leveler compound - 208

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	Yellow	0.0%	100.0%	None Detected	

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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: 12.2-Leveler **Lab Sample ID:** **672001028-0043**

Sample Description: 554 KE/Leveler compound - 208

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 12.2-Mastic **Lab Sample ID:** **672001028-0043A**

Sample Description: 554 KE/Leveler compound - 208

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 12.3-Leveler **Lab Sample ID:** **672001028-0044**

Sample Description: 554 KE/Leveler compound - 208

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 12.3-Mastic **Lab Sample ID:** **672001028-0044A**

Sample Description: 554 KE/Leveler compound - 208

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	7/08/2020	Yellow	0.0%	100.0%	None Detected	

Analyst(s):

Ewa Krupinska PLM (29)
Simon Parent PLM (17)
400 PLM Pt Ct (2)

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: 07/08/202017:10:54

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Phone: (613) 836-2184
Fax:
Collected: 6/29/2020
Received: 8/25/2020
Analyzed: 9/01/2020

Proj: University of Ottawa 0Z2-021101 (556 KE) (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 ***Lab Sample ID:*** **672001437-0001**
Sample Description: 556 King Edward/VFT - beige with streaks (303, 303, 302)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Beige	50.0%	50.0%	None Detected	

Client Sample ID: 1.2 ***Lab Sample ID:*** **672001437-0002**
Sample Description: 556 King Edward/VFT - beige with streaks (303, 303, 302)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Beige	50.0%	50.0%	None Detected	

Client Sample ID: 1.3 ***Lab Sample ID:*** **672001437-0003**
Sample Description: 556 King Edward/VFT - beige with streaks (303, 303, 302)

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Beige	50.0%	50.0%	None Detected	

Client Sample ID: 2.1-Floor Tile ***Lab Sample ID:*** **672001437-0004**
Sample Description: 556 King Edward/VFT - grey - 303

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Gray	0.0%	97.0%	**3% Chrysotile**	

Client Sample ID: 2.1-Mastic ***Lab Sample ID:*** **672001437-0004A**
Sample Description: 556 King Edward/VFT - grey - 303

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Black	0.0%	100.0%	None Detected	

Client Sample ID: 2.2-Floor Tile ***Lab Sample ID:*** **672001437-0005**
Sample Description: 556 King Edward/VFT - grey - 303

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020				Positive Stop (Not Analyzed)	

Client Sample ID: 2.2-Mastic ***Lab Sample ID:*** **672001437-0005A**
Sample Description: 556 King Edward/VFT - grey - 303

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Black	0.0%	100.0%	None Detected	

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

Client Sample ID: 2.3-Floor Tile **Lab Sample ID:** **672001437-0006**
Sample Description: 556 King Edward/VFT - grey - 303

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020				Positive Stop (Not Analyzed)	

Client Sample ID: 2.3-Mastic **Lab Sample ID:** **672001437-0006A**
Sample Description: 556 King Edward/VFT - grey - 303

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Black	0.0%	100.0%	None Detected	

Client Sample ID: 3.1 **Lab Sample ID:** **672001437-0007**
Sample Description: 556 King Edward/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	5.0%	95.0%	None Detected	

Client Sample ID: 3.2 **Lab Sample ID:** **672001437-0008**
Sample Description: 556 King Edward/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	5.0%	95.0%	None Detected	

Client Sample ID: 3.3 **Lab Sample ID:** **672001437-0009**
Sample Description: 556 King Edward/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	0.0%	100.0%	**<1% Tremolite**	
400 PLM Pt Ct	9/01/2020	White	0.0%	100.0%	**<0.25% Tremolite**	

Client Sample ID: 3.4-Joint Compound **Lab Sample ID:** **672001437-0010**
Sample Description: 556 King Edward/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 3.4-Skim Coat **Lab Sample ID:** **672001437-0010A**
Sample Description: 556 King Edward/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 3.4-Plaster **Lab Sample ID:** **672001437-0010B**
Sample Description: 556 King Edward/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Gray	2.0%	98.0%	None Detected	

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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: 3.5-Skim Coat **Lab Sample ID:** **672001437-0011**
Sample Description: 556 King Edward/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 3.5-Plaster **Lab Sample ID:** **672001437-0011A**
Sample Description: 556 King Edward/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	3.0%	97.0%	None Detected	

Client Sample ID: 3.6-Skim Coat **Lab Sample ID:** **672001437-0012**
Sample Description: 556 King Edward/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 3.6-Plaster **Lab Sample ID:** **672001437-0012A**
Sample Description: 556 King Edward/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	3.0%	97.0%	None Detected	

Client Sample ID: 3.7 **Lab Sample ID:** **672001437-0013**
Sample Description: 556 King Edward/Plaster

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 4.1 **Lab Sample ID:** **672001437-0014**
Sample Description: 556 King Edward/Wallpaper - 104

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Brown	0.0%	100.0%	None Detected	

Client Sample ID: 4.2 **Lab Sample ID:** **672001437-0015**
Sample Description: 556 King Edward/Wallpaper - 104

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Brown	0.0%	100.0%	None Detected	

Client Sample ID: 4.3 **Lab Sample ID:** **672001437-0016**
Sample Description: 556 King Edward/Wallpaper - 104

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Brown	0.0%	100.0%	None Detected	

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

Client Sample ID: 5.1 ***Lab Sample ID:*** **672001437-0017**
Sample Description: 556 King Edward/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 5.2 ***Lab Sample ID:*** **672001437-0018**
Sample Description: 556 King Edward/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 5.3 ***Lab Sample ID:*** **672001437-0019**
Sample Description: 556 King Edward/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 5.4 ***Lab Sample ID:*** **672001437-0020**
Sample Description: 556 King Edward/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 5.5 ***Lab Sample ID:*** **672001437-0021**
Sample Description: 556 King Edward/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 5.6 ***Lab Sample ID:*** **672001437-0022**
Sample Description: 556 King Edward/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 5.7 ***Lab Sample ID:*** **672001437-0023**
Sample Description: 556 King Edward/DJC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White/Beige	0.0%	98.0%	**2% Chrysotile**	

Client Sample ID: 6.1 ***Lab Sample ID:*** **672001437-0024**
Sample Description: 556 King Edward/Mortar - 001

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Gray/Tan	0.0%	100.0%	None Detected	

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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: 6.2 ***Lab Sample ID:*** **672001437-0025**

Sample Description: 556 King Edward/Mortar - 001

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Various	0.0%	100.0%	None Detected	

Client Sample ID: 6.3 ***Lab Sample ID:*** **672001437-0026**

Sample Description: 556 King Edward/Mortar - 001

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Various	0.0%	100.0%	None Detected	

Client Sample ID: 7.1-Floor Tile ***Lab Sample ID:*** **672001437-0027**

Sample Description: 556 King Edward/VFT - grey with brown and white - 110

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Brown/Gray/White	0.0%	97.0%	**3% Chrysotile**	

Client Sample ID: 7.1-Mastic ***Lab Sample ID:*** **672001437-0027A**

Sample Description: 556 King Edward/VFT - grey with brown and white - 110

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Black	0.0%	100.0%	None Detected	

Client Sample ID: 7.2 ***Lab Sample ID:*** **672001437-0028**

Sample Description: 556 King Edward/VFT - grey with brown and white - 110

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020				Positive Stop (Not Analyzed)	

Client Sample ID: 7.3-Floor Tile ***Lab Sample ID:*** **672001437-0029**

Sample Description: 556 King Edward/VFT - grey with brown and white - 110

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020				Positive Stop (Not Analyzed)	

Client Sample ID: 7.3-Tar Paper/Mastic ***Lab Sample ID:*** **672001437-0029A**

Sample Description: 556 King Edward/VFT - grey with brown and white - 110

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Black	50.0%	50.0%	None Detected	inseparable layers

Client Sample ID: 8.1 ***Lab Sample ID:*** **672001437-0030**

Sample Description: 556 King Edward/Yellow carpet mastic - 102

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Yellow	0.0%	100.0%	None Detected	

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

Client Sample ID: 8.2 ***Lab Sample ID:*** **672001437-0031**

Sample Description: 556 King Edward/Yellow carpet mastic - 102

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 8.3 ***Lab Sample ID:*** **672001437-0032**

Sample Description: 556 King Edward/Yellow carpet mastic - 102

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Yellow	0.0%	100.0%	None Detected	

Client Sample ID: 9.1 ***Lab Sample ID:*** **672001437-0033**

Sample Description: 556 King Edward/VFT - white with black and grey - 109, 106, 205

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Gray/White/Black	0.0%	100.0%	None Detected	

Client Sample ID: 9.2 ***Lab Sample ID:*** **672001437-0034**

Sample Description: 556 King Edward/VFT - white with black and grey - 109, 106, 205

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Gray/White/Black	0.0%	100.0%	None Detected	

Client Sample ID: 9.3 ***Lab Sample ID:*** **672001437-0035**

Sample Description: 556 King Edward/VFT - white with black and grey - 109, 106, 205

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Gray/White/Black	0.0%	100.0%	None Detected	

Client Sample ID: 10.1 ***Lab Sample ID:*** **672001437-0036**

Sample Description: 556 King Edward/White texture coat - popcorn

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 10.2 ***Lab Sample ID:*** **672001437-0037**

Sample Description: 556 King Edward/White texture coat - popcorn

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 10.3-Texture ***Lab Sample ID:*** **672001437-0038**

Sample Description: 556 King Edward/White texture coat - popcorn

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	0.0%	100.0%	None Detected	

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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: 10.3-Plaster ***Lab Sample ID:*** **672001437-0038A**
Sample Description: 556 King Edward/White texture coat - popcorn

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Gray	0.0%	100.0%	None Detected	

Client Sample ID: 10.4-Texture ***Lab Sample ID:*** **672001437-0039**
Sample Description: 556 King Edward/White texture coat - popcorn

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 10.4-Joint Compound ***Lab Sample ID:*** **672001437-0039A**
Sample Description: 556 King Edward/White texture coat - popcorn

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White/Beige	0.0%	98.0%	**2% Chrysotile**	

Client Sample ID: 10.5-Texture ***Lab Sample ID:*** **672001437-0040**
Sample Description: 556 King Edward/White texture coat - popcorn

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 10.5-Joint Compound ***Lab Sample ID:*** **672001437-0040A**
Sample Description: 556 King Edward/White texture coat - popcorn

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020				Positive Stop (Not Analyzed)	

Client Sample ID: 10.6-Texture ***Lab Sample ID:*** **672001437-0041**
Sample Description: 556 King Edward/White texture coat - popcorn

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	0.0%	100.0%	None Detected	

Client Sample ID: 10.6-Joint Compound ***Lab Sample ID:*** **672001437-0041A**
Sample Description: 556 King Edward/White texture coat - popcorn

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020				Positive Stop (Not Analyzed)	

Client Sample ID: 10.7 ***Lab Sample ID:*** **672001437-0042**
Sample Description: 556 King Edward/White texture coat - popcorn

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	Tan	0.0%	98.0%	**2% Chrysotile**	

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

Client Sample ID: 11.1 ***Lab Sample ID:*** **672001437-0043**

Sample Description: 556 King Edward/Wallpaper - 107, 107, 106

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	15.0%	85.0%	None Detected	

Client Sample ID: 11.2 ***Lab Sample ID:*** **672001437-0044**

Sample Description: 556 King Edward/Wallpaper - 107, 107, 106

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	15.0%	85.0%	None Detected	

Client Sample ID: 11.3 ***Lab Sample ID:*** **672001437-0045**

Sample Description: 556 King Edward/Wallpaper - 107, 107, 106

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/01/2020	White	15.0%	85.0%	None Detected	

Analyst(s):

Christopher Fleming PLM (52)
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 Analytical, Inc. Rochester, NY

Initial report from: 09/01/202015:46:15

APPENDIX D

Site Photographs

Photo 1: Typical view of building finishes observed within Building 554.

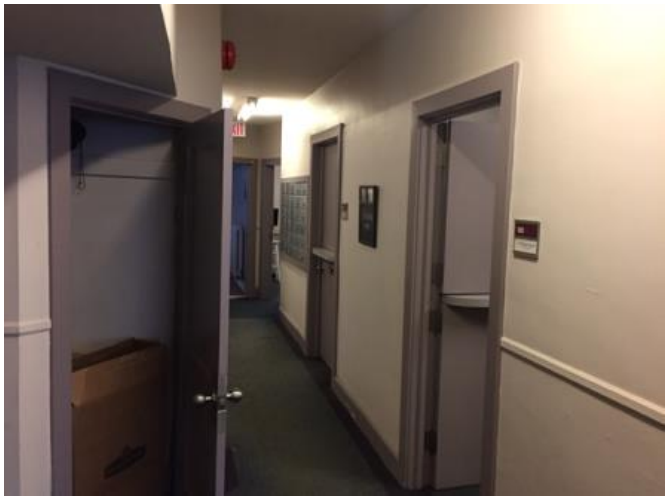


Photo 2: Typical view of building finishes observed within Building 554.

Photo 3: View of ACM 2x4 ceiling tiles (pinholes with no fissures), in Room B4 of Building 554.

Photo 4: View of ACM drywall joint compound, oserved to be in fair to poor condition in Room B3 of Building 554.

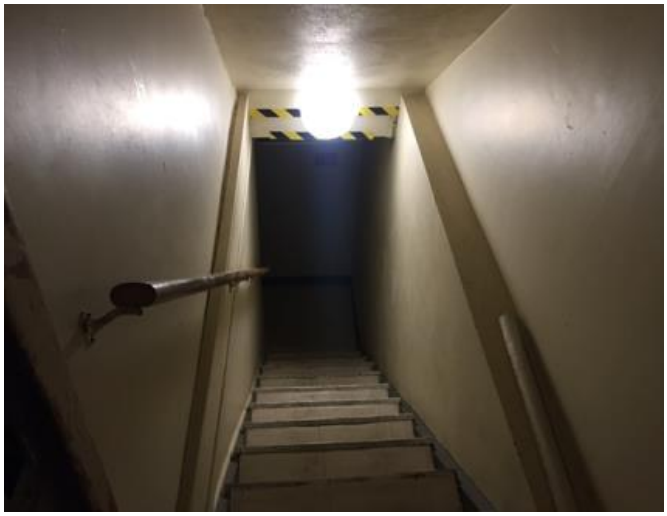


Photo 5: View of ACM vinyl floor tile (grey with dark streaks) 100E of Building 554.

Photo 6: View of a potential mercury containing pressure gauge in Building 554.

Photo 7: View of a potential mercury thermostat in Building 554.

Photo 8: Typical view of building finishes observed within Building 556.

Photo 9: Typical view of building finishes observed within Building 556.

Photo 10: Typical view of building finishes observed within Building 556.

Photo 11: View of asbestos-containing texture coat observed in Room 203 of Building 556.

Photo 12: View of asbestos-containing vinyl floor tiles observed in Room 303 of Building 556.

Photo 13: View of lead-containing paint in Room 303 of Building 556, observed to be in poor condition.

Photo 14: Typical view of smoke detectors containing radioactive materials.

Photo 15: Typical view of ODS containing air-conditioning unit.

APPENDIX E

Asbestos-Containing Materials Checklists

Floor/Level	Room	Type of ACM	Description	Asbestos Confirmed/ Suspected	Friable/Non-Friable	Damaged/ Deteriorated	Accessibility	Level of Work Near Material	Approx. Quantity	Unit	Recommended Action	Comments
Building 554												
B	Room B3	Drywall Joint Compound	-	Confirmed	-	Good Condition	Easy	Low	-	-	Manage in Place	
B	Room B9	Drywall Joint Compound	-	Confirmed	-	Good Condition	Easy	Low	-	-	Manage in Place	
B	Room B4	2' x 4' Suspended Ceiling Tile	Pinholes with no fissures	Confirmed	-	Good Condition	Easy	Low	-	-	Manage in Place	
B	Room B4A	Vinyl Floor Tile	Beige and Brown	Confirmed	Non-Friable	Good Condition	Easy	Low	-	-	Manage in Place	Previously Identified
1	Room 100 E	Vinyl Floor Tile	Grey with dark streaks	Confirmed	Non-Friable	Good Condition	Easy	Low	-	-	Manage in Place	
3	Exterior	Roofing Materials	-	Suspected	-	Good Condition	Difficult	Low	-	-	Manage in Place	
All	Throughout Subject Building	Plaster	-	Suspected	-	Good Condition	Easy	Low	-	-	Manage in Place	Sample results contain vermiculite; additional analysis by TEM prior to renovation or demolition is recommended
All	Throughout Subject Building	Brick/Stone Mortar	-	Suspected	-	Good Condition	Easy	Low	-	-	Manage in Place	
Building 556												
1	Room 110	12" x 12" Vinyl Floor Tile	Grey w/ Brown & White	Confirmed	Non-Friable	Good Condition	Easy	Low	-	-	Manage in Place	
2	Room 203	Wall and Ceiling Texture Coat	Popcorn - White	Confirmed	Friable	Good Condition	Easy	Low	-	-	Manage in Place	
2	Room 206	Wall and Ceiling Texture Coat	Popcorn - Tan	Confirmed	Friable	Good Condition	Easy	Low	-	-	Manage in Place	
3	Room 302	Drywall Joint Compound	-	Confirmed	-	Good Condition	Easy	Low	-	-	Manage in Place	

Floor/Level	Room	Type of ACM	Description	Asbestos Confirmed/ Suspected	Friable/Non-Friable	Damaged/ Deteriorated	Accessibility	Level of Work Near Material	Approx. Quantity	Unit	Recommended Action	Comments
3	Room 303	12" x 12" Vinyl Floor Tile	Grey	Confirmed	Non-Friable	Good Condition	Easy	Low	-	-	Manage in Place	
All	Throughout	Drywall Joint Compound	-	Suspected	-	Good Condition	Easy	Low	-	-	Manage in Place	

APPENDIX F

Hazardous Containing Materials Checklists

Floor/Level	Location	DS Type	Component	Colour	Condition	Manufacturer	Quantity #	Unit	Suspected/ Confirmed	Recommended Action	Comments
Building 554											
B	Room	Lead	Stairs Paint	Grey	Good Condition	n/a		-	Confirmed	Manage in Place	1.3 % wt
1	Room	Lead	Door Frame Paint	Grey	Poor Condition	n/a	3	SF	Confirmed	Paint must be removed and/or stabilized following Class 1/2 or Type 1/2 lead Procedures as per MOL and EACC Guidelines.	
1	Room	Lead	Wall Paint	White	Good Condition	n/a		-	Confirmed	Manage in Place	Assumed present throughout all white wall, trim and ceiling paing
1	Room	Lead	Wall Paint	White	Poor Condition	n/a	1	SF	Confirmed	Paint must be removed and/or stabilized following Class 1/2 or Type 1/2 lead Procedures as per MOL and EACC Guidelines.	

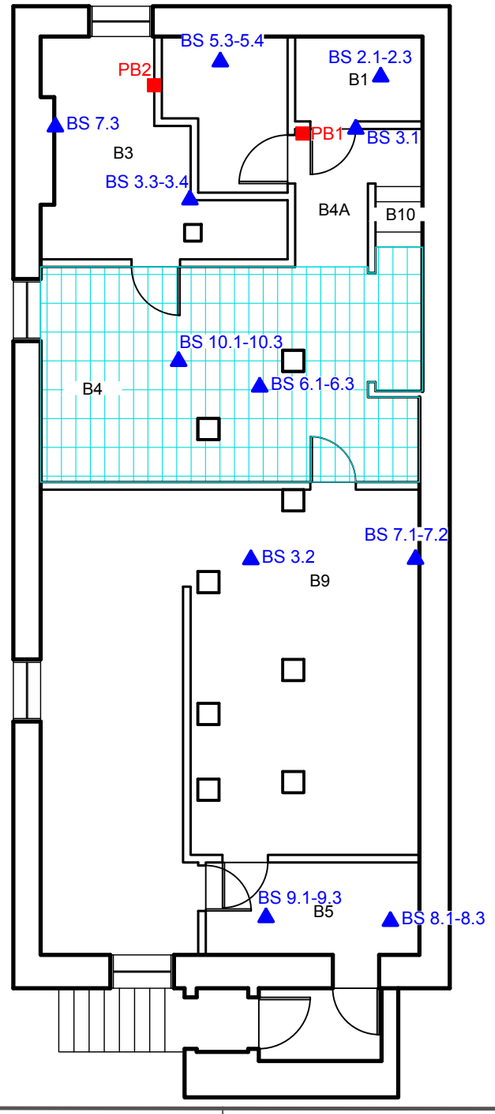
Floor/Level	Location	DS Type	Component	Colour	Condition	Manufacturer	Quantity #	Unit	Suspected/ Confirmed	Recommended Action	Comments
1	Room	Lead	Window Frame Paint	White	Poor Condition	n/a	1	SF	Confirmed	Paint must be removed and/or stabilized following Class 1/2 or Type 1/2 lead Procedures as per MOL and EACC Guidelines.	
1	Room	Lead	Radiator Paint	White	Poor Condition	n/a	1	SF	Confirmed	Paint must be removed and/or stabilized following Class 1/2 or Type 1/2 lead Procedures as per MOL and EACC Guidelines.	
3	Room	Lead	Wall Paint	Beige	Good Condition	n/a		-	Confirmed	Manage in Place	19 % wt (previously identified)
B	Room	Mercury	Pressure Gauge	--	Good Condition	Basco	3	-	Suspected	Manage in Place	
1	Room	Mercury	Thermostat	--	Poor Condition	Rodgers	1	-	Suspected	Manage in Place	
All	Throughout Subject Building	Ozone Depleting Substances (ODS)	Air Conditioning Unit	N/A	Good Condition	N/A	-	-	Suspected	Manage in Place	
All	Throughout Subject Building	Polychlorinated Biphenyls (PCBs)	Light Ballast	N/A	Good Condition	N/A	-	-	Suspected	Manage in Place	

Floor/Level	Location	DS Type	Component	Colour	Condition	Manufacturer	Quantity #	Unit	Suspected/ Confirmed	Recommended Action	Comments
All	Throughout Subject Building	Silica	Concrete, Mortar, Etc.	-	Good Condition	N/A	-	-	Confirmed	Manage in Place	
Building 556											
3	Room 302	Lead	Wall Paint	White	Poor Condition	-	65	SF	Confirmed	Paint must be removed and/or stabilized following Class 1/2 or Type 1/2 lead Procedures as per MOL and EACC Guidelines.	Ref. No. 045870 (77)
3	Room 303	Lead	Wall Paint	White	Poor Condition	-	40	SF	Confirmed	Paint must be removed and/or stabilized following Class 1/2 or Type 1/2 lead Procedures as per MOL and EACC Guidelines.	White & light purple, Ref. No. 045870 (77)
All	Specific Areas Only	Ozone Depleting Substances (ODS)	Refrigerator	N/A	Good Condition	N/A	-	-	Suspected	Manage in Place	
All	Throughout Subject Building	Ozone Depleting Substances (ODS)	Air Conditioning Unit	N/A	Good Condition	N/A	-	-	Suspected	Manage in Place	
All	Throughout Subject Building	Polychlorinated Biphenyls (PCBs)	Light Ballast	N/A	Good Condition	N/A	-	-	Suspected	Manage in Place	

Floor/Level	Location	DS Type	Component	Colour	Condition	Manufacturer	Quantity #	Unit	Suspected/ Confirmed	Recommended Action	Comments
All	Throughout Subject Building	Mercury	Fluorescent Light Tubes	N/A	Good Condition	N/A	-	-	Suspected	Manage in Place	
All	Throughout Subject Building	Radioactive Material	Smoke Detector	N/A	Good Condition	N/A	-	-	Suspected	Manage in Place	
All	Throughout Subject Building	Silica	Concrete, Mortar, Etc.	N/A	Good Condition	N/A	-	-	Confirmed	Manage in Place	

APPENDIX G

Site Sampling & Location Plans



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 Ceiling Tile
ACM Vinyl floor Tile (VFT)

NOTES: Drywall with ACM and ACM plaster compound is present throughout the building.

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: 554 KING EDWARD
DESIGNATED SUBSTANCE SURVEY

TITLE: SAMPLE LOCATIONS
BASEMENT

SCALE: 1:100

DATE: AUGUST 31, 2020

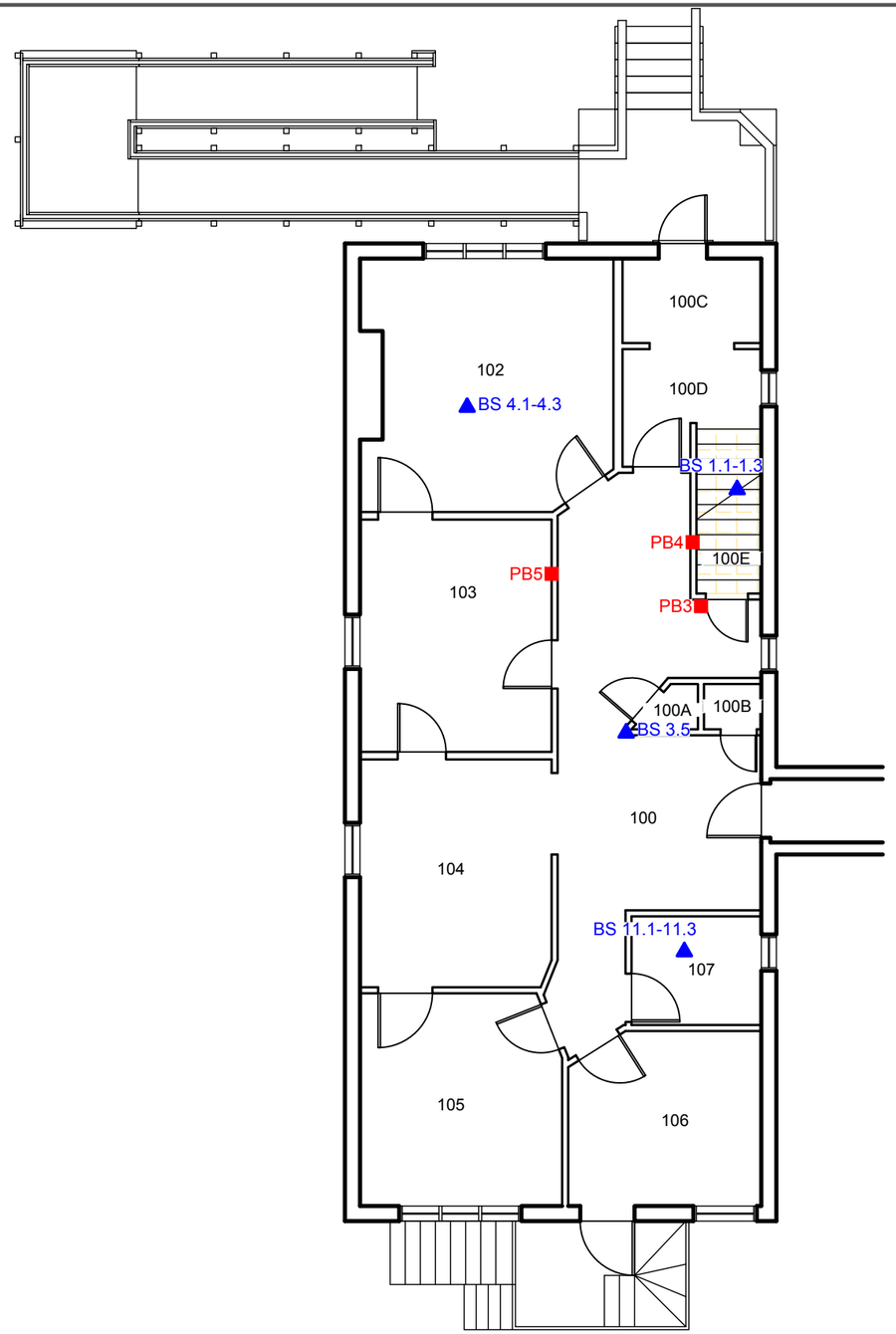
DRAWN: D.B.

CHECKED: M.M.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

DRAWING NUMBER: A0

REV.:



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

NOTES: Drywall with ACM and ACM plaster compound is present throughout the building.

- ACM Ceiling Tile
- ACM Vinyl floor Tile (VFT)

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: 554 KING EDWARD
DESIGNATED SUBSTANCE SURVEY

TITLE: SAMPLE LOCATIONS
IST FLOOR

SCALE: 1:100

DATE: AUGUST 31, 2020

DRAWN: D.B.

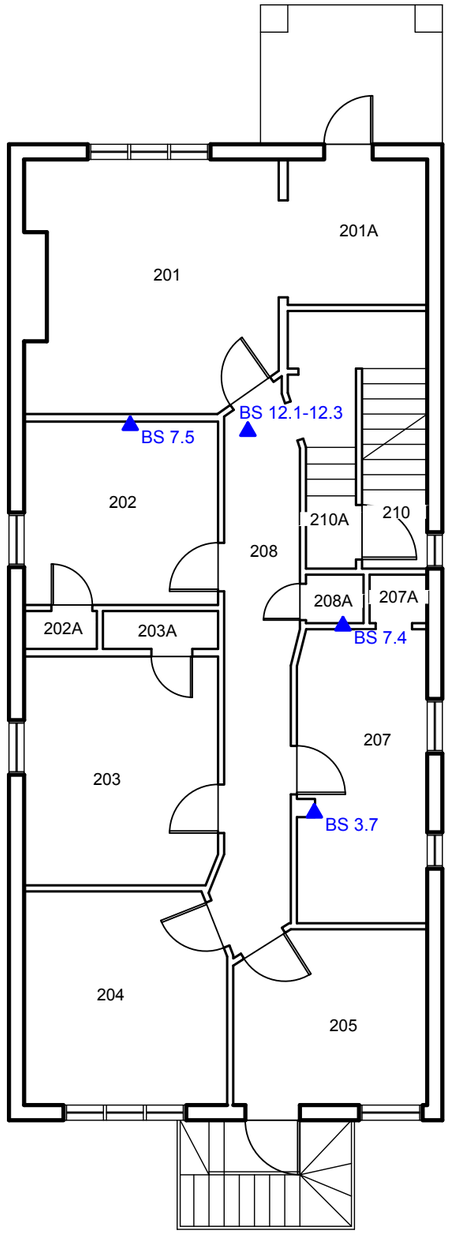
CHECKED: M.M.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

DRAWING NUMBER: AI

REV.:

\\ONAP\USER\CLIENTS\MCINTOSH PERRY\PROJECTS\29. 554 KING EDWARD\DWG - SAMPLE LOCATION - 554 KING EDWARD.DWG



Legend:
- ▲ Asbestos Bulk Sample
- □ Lead Paint Sample <LOD
- ■ Lead Paint Sample >LOD

NOTES: Drywall with ACM and ACM plaster compound is present throughout the building.

- ACM Ceiling Tile
- ACM Vinyl floor Tile (VFT)

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

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: 554 KING EDWARD
DESIGNATED SUBSTANCE SURVEY

TITLE: SAMPLE LOCATIONS
2ND FLOOR

SCALE: 1:100

DATE: AUGUST 31, 2020

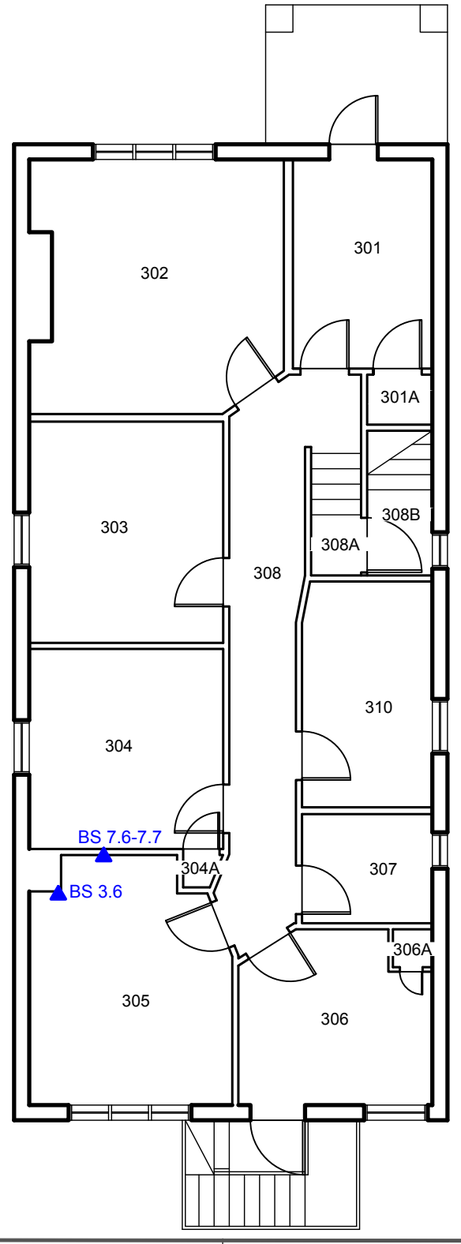
DRAWN: D.B.

CHECKED: M.M.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

DRAWING NUMBER: A2

REV.:



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

NOTES: Drywall with ACM and ACM plaster compound is present throughout the building.

- ACM Ceiling Tile
- ACM Vinyl floor Tile (VFT)

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: 554 KING EDWARD
DESIGNATED SUBSTANCE SURVEY

TITLE: SAMPLE LOCATIONS
3RD FLOOR

SCALE: 1:100

DATE: AUGUST 31, 2020

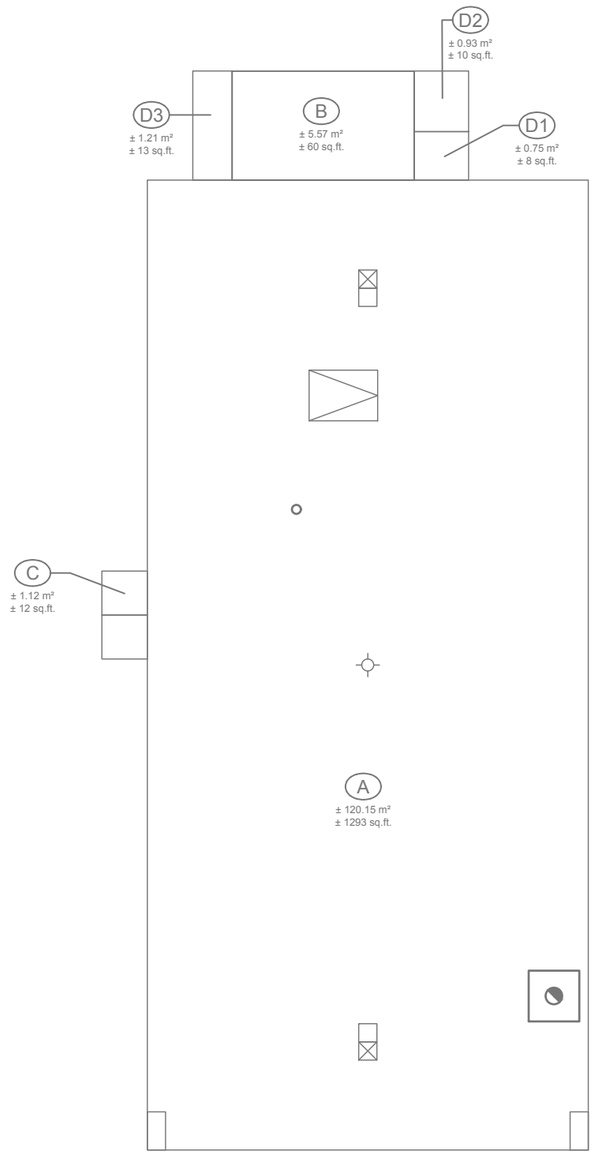
DRAWN: D.B.

CHECKED: M.M.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

DRAWING NUMBER: A3

REV.:



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

NOTES: Drywall with ACM and ACM plaster compound is present throughout the building.

ACM Ceiling Tile

ACM Vinyl floor Tile (VFT)

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: 554 KING EDWARD
DESIGNATED SUBSTANCE SURVEY

TITLE: SAMPLE LOCATIONS
ROOF

SCALE: 1:100

DATE: AUGUST 31, 2020

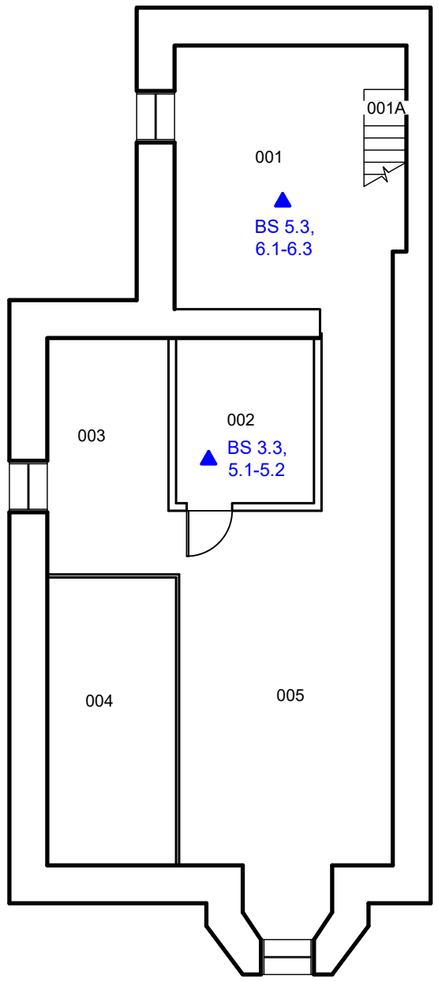
DRAWN: D.B.

CHECKED: M.M.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

DRAWING NUMBER: A4

REV.:



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

NOTES: Drywall with ACM joint compound is present throughout the building.

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: 556 KING EDWARD
DESIGNATED SUBSTANCE SURVEY

TITLE: SAMPLE LOCATIONS
BASEMENT

SCALE: 1:100

DATE: NOVEMBER 24, 2020

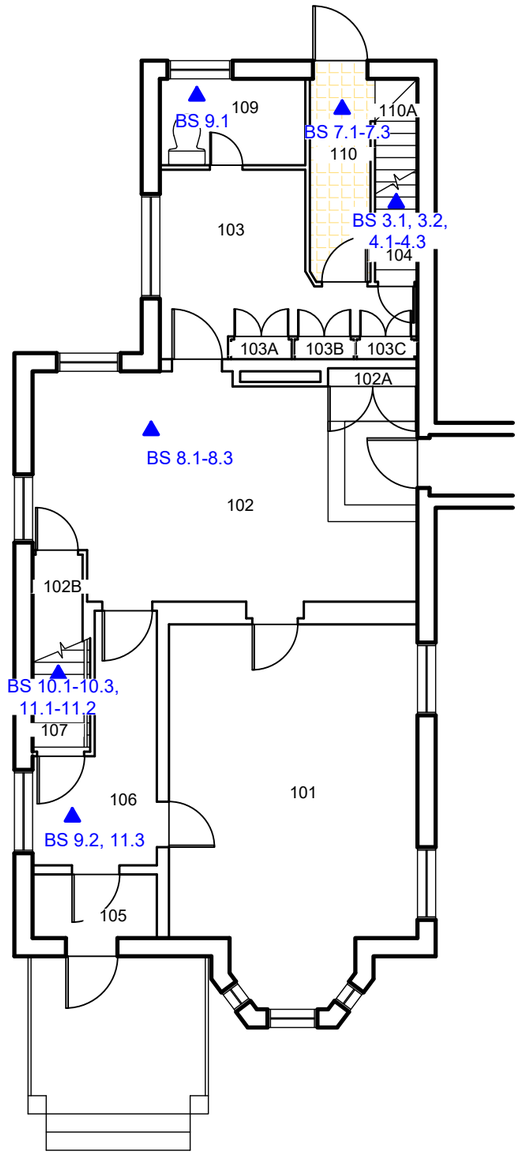
DRAWN: K.B.

CHECKED: M.M.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

DRAWING NUMBER: A0

REV.:



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

ACM Vinyl floor Tile (VFT)

NOTES: Drywall with ACM joint compound is present throughout the building.

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: 556 KING EDWARD
DESIGNATED SUBSTANCE SURVEY

TITLE: SAMPLE LOCATIONS
GROUND FLOOR

SCALE: 1:100

DATE: NOVEMBER 24, 2020

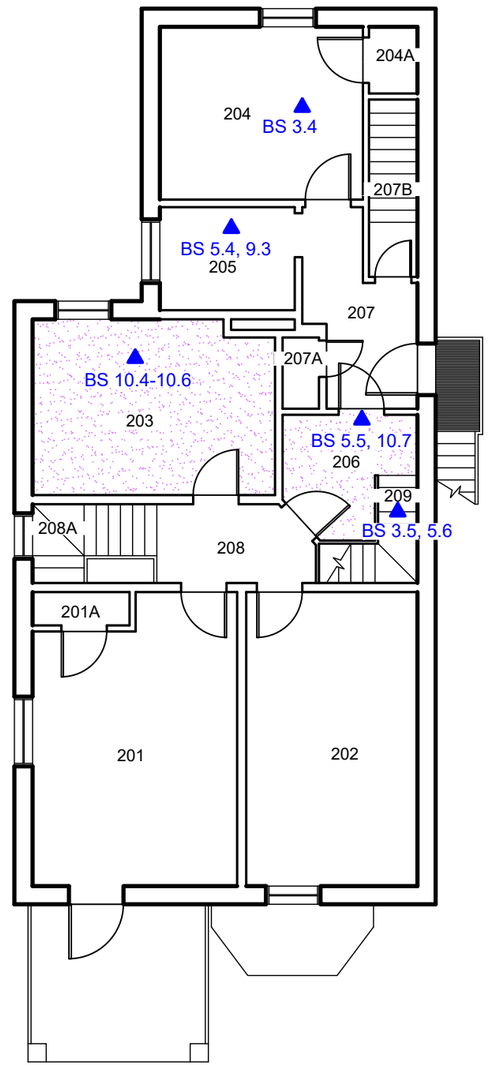
DRAWN: K.B.

CHECKED: M.M.

DRAWING NUMBER: A1

REV. NO.	DESCRIPTION	DATE	BY	APPD.

REV.:



Legend:

▲Asbestos Bulk Sample

ACM Texture Coat

NOTES: Drywall with ACM joint compound is present throughout the building.

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

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: 556 KING EDWARD
DESIGNATED SUBSTANCE SURVEY

TITLE: SAMPLE LOCATIONS
SECOND FLOOR

SCALE: 1:100

DATE: NOVEMBER 24, 2020

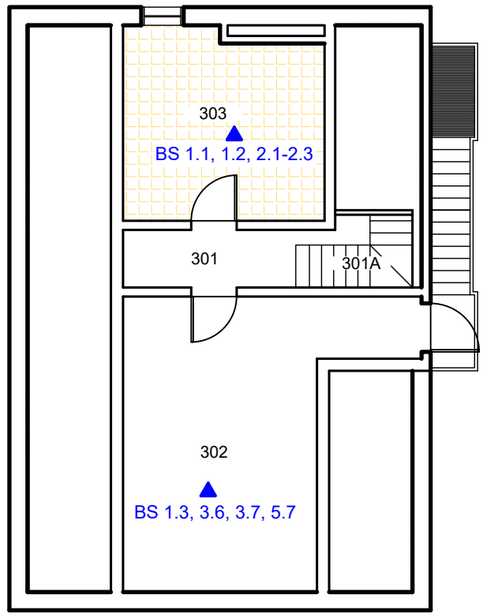
DRAWN: K.B.

CHECKED: M.M.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

DRAWING NUMBER: A2

REV.:



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

ACM Vinyl floor Tile (VFT)

NOTES: Drywall with ACM joint compound is present throughout the building.

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: 556 KING EDWARD
DESIGNATED SUBSTANCE SURVEY

TITLE: SAMPLE LOCATIONS
THIRD FLOOR

SCALE: 1:100

DATE: NOVEMBER 24, 2020

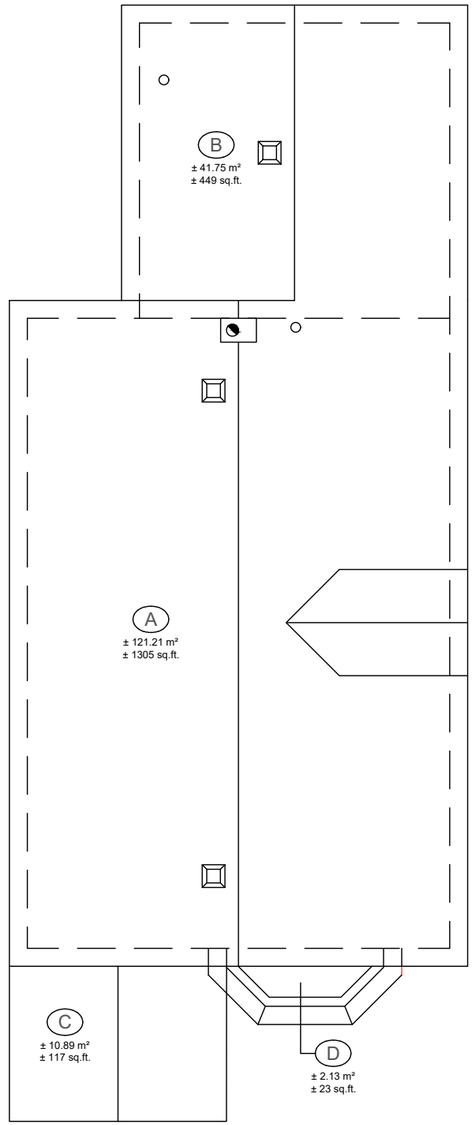
DRAWN: K.B.

CHECKED: M.M.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

DRAWING NUMBER: A3

REV.:



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:

NOTES: Drywall with ACM joint compound is present throughout the building.

CLIENT: UNIVERSITY OF OTTAWA

PROJECT: 556 KING EDWARD
DESIGNATED SUBSTANCE SURVEY

TITLE: SAMPLE LOCATIONS
ROOF

SCALE: 1:100

DATE: NOVEMBER 24, 2020

DRAWN: K.B.

CHECKED: M.M.

REV. NO.	DESCRIPTION	DATE	BY	APPD.

DRAWING NUMBER: A4

REV.: