

APPENDIX A2

Designated Substances Survey

1009 Sheppard Ave. West, Fire Hall No. 143
Issued April 2021, by Fisher Environmental Ltd.



ENGINEERING



LABORATORY



DESIGNATED SUBSTANCES SURVEY FOR ACCESSIBILITY UPGRADES (IBI GROUP)

**FIRE HALL 143
1009 SHEPPARD AVE. WEST
TORONTO, ONTARIO**

400 Esna Park Drive, Unit 15
Markham, ON
L3R 3K2

Tel: (905) 475-7755
Fax: (905) 475-7718
www.fisherenvironmental.com

Project No. FE-P 21-11073

April, 2021

TABLE OF CONTENTS

1.0. EXECUTIVE SUMMARY.....	1
2.0. INTRODUCTION.....	3
3.0. REGULATIONS	3
4.0. METHODOLOGY	4
5.0. REVIEW OF PREVIOUS REPORTS.....	5
6.0. FINDINGS AND RECOMMENDATIONS.....	5
6.1. ACRYLONITRILE	5
6.2. ARSENIC	5
6.3. ASBESTOS	5
6.3.1. General Information	5
6.3.2. Friable vs. Non-Friable ACM.....	6
6.3.3. Regulations.....	7
6.3.4. Findings.....	7
6.3.4.1. Sprayed or Troweled Fireproofing and Thermal Insulation	8
6.3.4.2. Texture Finish	8
6.3.4.3. Mechanical Insulation.....	8
6.3.4.4. Acoustic Ceiling Tile	8
6.3.4.5. Plaster / Drywall Joint Compound.....	8
6.3.4.6. Asbestos Cement Products	8
6.3.4.7. Vinyl Sheet Flooring	8
6.3.4.8. Vinyl Floor Tile	8
6.3.4.9. Other ACM	8
6.3.5. Recommendations.....	8
6.4. BENZENE	9
6.5. COKE OVEN EMISSIONS	9
6.6. ETHYLENE OXIDES	9
6.7. ISOCYANATES.....	9
6.8. LEAD	9
6.8.1. General Information	9
6.8.2. Regulations and Guidelines	10



6.8.3.	<i>Findings</i>	10
6.8.4.	<i>Recommendations</i>	10
6.9.	MERCURY	11
6.9.1.	<i>General Information</i>	11
6.9.2.	<i>Regulations</i>	12
6.9.3.	<i>Findings</i>	12
6.9.4.	<i>Recommendations</i>	12
6.10.	SILICA	12
6.10.1.	<i>General Information</i>	12
6.10.2.	<i>Regulations</i>	12
6.10.3.	<i>Findings</i>	13
6.10.4.	<i>Recommendations</i>	13
6.11.	VINYL CHLORIDE	13
6.12.	MOULD	13
7.0.	LIMITATIONS	14
APPENDIX A – SITE PLAN		A
APPENDIX B – SITE PHOTO		B
APPENDIX C – PREVIOUS DSS REPORT		C



1.0. EXECUTIVE SUMMARY

Fisher Environmental Ltd. ('Fisher') was retained by IBI Group to carry out a survey for the Designated Substances and other potential hazardous materials within specified work area(s) for Fire Hall 143 located at 1009 Sheppard Avenue West, Toronto, Ontario, herein after referred to as the "Site". The site inspection was conducted on March 18, 2021.

IBI Group has been commissioned by the City of Toronto to design and implement accessibility upgrades. The scope of the Designated Substances Survey (DSS) was to identify locations and types of designated substances within the building that may be impacted by the planned renovation work, and to provide recommendations for the safe handling or abatement of these materials, if any, prior to demolition.

The purpose of the project is to do the necessary construction and renovation at the locations are outlined on drawings provided by the IBI Group on March 16, 2021.

The survey was conducted in compliance with the Ontario Ministry of Labour (MOL) regulations for designated substances; O. Reg. 490/09 - *Designated Substances* and O. Reg. 278/05 - *Asbestos on Construction Projects and in Buildings and Repair Operations* made under the Occupational Health and Safety Act (OHSA), R.S.O. 1990.

Asbestos

Fisher was provided with the report of a previous DSS, which was conducted by Fisher Environmental Ltd. on May 19, 2016. This report has indicated the only assumed ACM within the specified work area(s) was caulking.

During the current survey, what appears to be asbestos-containing material (pipe fitting insulation) was identified within the specified work area (under the ceiling, above the exhaust fan). However, this material is not expected to be disturbed based on the scope of work specified. Therefore, no recommendations with regards to ACM are warranted at this time. Provide a copy of this report to contractors bidding on or performing work within the subject work areas.

Note: Fire doors, present within the specific work areas, may contain asbestos-containing thermal insulation inside the door panel. Removal of any asbestos containing fire doors, in intake condition, will require Type 1 to abatement procedures, as outlined in O. Reg. 278/05 and dispose of as asbestos waste.

Lead

Based on the age of the building, it is possible that lead-based paint and lead plumbing are present within the building. Lead can also be present in various ceramic tiles. During the current investigation, no samples were collected for lead analysis.



Fisher recommends that, prior to the planned renovation work, the removal of lead containing materials found within the specified work area(s), must be conducted using the appropriate lead abatement procedures. Lead abatement procedures to be used are determined by the method(s) of disturbance employed. Refer to *MOL Guideline: Lead on Construction Projects*, for details

Mercury

Mercury is presumed to be present in fluorescent light tubes and thermostatic controls. With the exception of fluorescent light bulbs and building thermostats, no other evidence of mercury was noted during the current survey. Prior to the planned renovation work, Fisher recommends that any presumed mercury-containing fluorescent light tubes and thermostats that will be impacted are to be removed and disposed of in accordance with O. Reg. 558/00.

Silica

No sampling for silica was conducted. However, as the building is constructed of concrete, brick and/or block walls with concrete floors, silica is expected to be found within these components of the buildings. If these materials will be disturbed during the planned renovation work, appropriate precautions should be taken to protect workers from inhaling silica dusts and debris. Refer to *MOL Guideline: Silica on Construction Projects* for details.

Other Designated Substances

The other Designated Substances would not be expected to be present at the Site. No immediate actions were recommended with regard to acrylonitrile, arsenic, benzene, coke oven emissions, ethylene oxide, isocyanates, and vinyl chloride.

Mould

During the current survey, no visible mould or favourable conditions for mould growth were observed in the specified work area(s). No action is recommended with regard to mould.



2.0. INTRODUCTION

Fisher Environmental Ltd. ('Fisher') was retained by IBI Group to carry out a survey for the Designated Substances and other potential hazardous materials within specified work area(s) for Fire Hall 143 located at 1009 Sheppard Avenue West, Toronto, Ontario, herein after referred to as the "Site". The site inspection was conducted on March 18, 2021.

IBI Group has been commissioned by the City of Toronto to design and implement accessibility upgrades. The scope of the Designated Substances Survey (DSS) was to identify locations and types of designated substances within the building that may be impacted by the planned renovation work, and to provide recommendations for the safe handling or abatement of these materials, if any, prior to demolition.

The purpose of the project is to do the necessary construction and renovation at the locations are outlined on drawings provided by the IBI Group on March 16, 2021.

3.0. REGULATIONS

The survey was conducted in compliance with the Ontario Ministry of Labour (MOL) regulations for designated substances; O. Reg. 490/09 - *Designated Substances* and O. Reg. 278/05 - *Asbestos on Construction Projects and in Buildings and Repair Operations* made under the Occupational Health and Safety Act (OHSA), R.S.O. 1990.

The OHSA, R.S.O. 1990, under the Ontario MOL, defines a toxic substance as a biological, chemical or physical agent (or a combination of such agents) whose presence in the workplace may endanger the health and safety of a worker. Sections of the Act that deals with toxic substances are intended to:

1. ensure that worker exposure to toxic substances is controlled;
2. ensure that toxic substances in the workplace are clearly identified and that workers are provided with enough information to be capable of handling them safely; and,
3. provide the general public with access to information about toxic substances used by industry in their communities.

The Act makes provision for a toxic substance to be "designated", where its use in the workplace is prohibited, regulated, restricted, limited or controlled. Designation is reserved for eleven substances that are particularly hazardous, covered under O. Reg 490/09 – *Designated Substances* that was implemented on July 1, 2010, and include Acrylonitrile, Arsenic, Asbestos, Benzene, Coke Oven Emissions, Ethylene Oxides, Isocyanates, Lead, Mercury, Silica, and Vinyl Chloride. Formerly, regulations for these substances were passed separately and each outlined exposure limits where workers were likely to inhale, ingest and / or absorb the substance.



O. Reg. 490/09 provides a consistent approach to dealing with existing requirements and provisions, and outlines steps required to control worker exposure to these substances, including by inhalation, ingestion, skin absorption or skin contact. Each designated substance has an allowable level of exposure based on a time-weighted average (TWA) limit, and may also have a short-term exposure limit (STEL) and / or ceiling limit (C) assigned to it. TWA refers to the time-weighted average airborne concentration of a biological or chemical agent to which a worker may be exposed in a work day or work week, STEL refers to the maximum airborne concentration of a biological or chemical agent to which a worker may be exposed in any 15 minute period, and C refers to the maximum airborne concentration of a biological or chemical agent to which a worker may be exposed at any time. Refer to O. Reg. 490/09 – *Designated Substances*.

A supplementary regulation regarding control of asbestos exposures in the construction industry has evolved into O. Reg. 278/05 – *Asbestos on Construction Projects and in Buildings and Repair Operations*. The regulation includes a definition of asbestos-containing materials (ACM), requirements for additional training and clearance air testing, procedures for determining materials that meet the definition of ACM and for the use of glove bags, and provisions for varying from measure and procedures set out in the regulation.

In addition to the OHSA and regulations regarding designated substances, the following regulations, guidelines and standards were also taken into account or referenced:

- O. Reg. 213/91 - *Construction Projects* regulated under the OHSA and last amended by O. Reg. 443/09;
- O. Reg. 558/00 made under the Ministry of Environment (MOE) Environmental Protection Act, amending O. Reg. 347 - *General Waste Management*;
- The Transport of Dangerous Goods Act (TDGA) provides regulations for the transport of asbestos-containing materials and wastes;
- MOL *Guideline: Lead on Construction Projects*, 2011; and,
- MOL *Guideline: Silica on Construction Projects*, 2011.

4.0. METHODOLOGY

Fisher followed the protocols outlined in O. Reg. 278/05 for collecting and analyzing bulk samples of materials suspected to contain asbestos. Visual assessment of the material was the primary method of identification with occasional physical contact for the purpose of collecting bulk samples or examining for underlying layers.

Where applicable, samples of suspect materials were collected in order to establish asbestos or lead content. Samples were grouped according to similarity of appearance (“homogeneous” materials). The frequency at which the samples were collected was sufficient to obtain a general representation of the presence of these materials at the Site. Samples collected are presumed to



be representative of respective building materials in-place at the Site. However, due to potential past renovations, alterations, repairs, or phases of construction, it is possible that individual materials may not be representative of samples collected.

Sampling of roofing materials was not part of the current scope of work. Further, sampling of materials found within operating equipment, portable building articles, or generally non-accessible components such as insulation within electrical switch gears, wiring, motors, light fixtures, elevator brakes, fire door cores, etc. was not performed as part of the current survey.

Samples collected during the survey were placed in plastic zip-lock bags which were labeled and submitted for laboratory analysis. Fisher Environmental Laboratories analysed bulk samples for asbestos type and approximate percent content by performing polarized light microscopy (PLM), as outlined in NIOSH Method 9002. Fisher Environmental Laboratories analysed samples for lead content in paint by performing acid digestion followed by Inductively Coupled Plasma (ICP) analysis.

Site Plan, indicating specific work area, is included in Appendix A. Representative photos of Site conditions encountered at the time of the current survey are included in Appendix B.

5.0. REVIEW OF PREVIOUS REPORTS

Fisher was provided with the report of a previous DSS, which was conducted by Fisher Environmental Ltd. on May 19, 2016. This report has indicated the only assumed ACM within the specified work area(s) was caulking.

6.0. FINDINGS AND RECOMMENDATIONS

6.1. *Acrylonitrile*

Acrylonitrile would not be expected to be present at the Site and was not observed during the current survey. No recommendations for Acrylonitrile are warranted at this time.

6.2. *Arsenic*

Arsenic would not be expected to be present at the Site and was not observed during the current survey. No recommendations for Arsenic are warranted at this time.

6.3. *Asbestos*

6.3.1. General Information

Asbestos is the name given to a group of six different fibrous minerals (amosite, chrysotile, crocidolite, and the fibrous varieties of tremolite, actinolite and anthophyllite) that occur naturally in the environment. Asbestos minerals have separable long fibres that are strong and flexible enough to be spun and woven and are heat resistant.



Because of these characteristics, asbestos has been used for a wide range of manufactured goods, mostly in building materials (roofing shingles, ceiling and floor tiles, paper products, and asbestos cement products), friction products (automobile clutch, brake, and transmission parts), heat-resistant fabrics, packaging, gaskets, and coatings. Some vermiculite or talc products may also contain asbestos.

Asbestos fibres may be released into the air by the disturbance of ACM during product use, renovation or demolition work, building or home maintenance, repair and remodeling. In general, exposure may occur only when the ACM is disturbed in some way to release particles and fibres into the air.

6.3.2. Friable vs. Non-Friable ACM

Based on the requirements of O. Reg. 278/05 and due diligence, an asbestos survey and report must be available at any workplace where asbestos exists identifying locations and types of ACM in the building. The survey must include both friable and non-friable materials confirmed to contain asbestos, as well as any other materials which were not sampled but are suspected (presumed) ACM. The term friable refers to material(s) that could be readily reduced to dust or powder when crushed by hand or moderate pressure. Friable materials have a much greater chance of releasing airborne asbestos fibres when disturbed.

In the past, the most commonly used friable asbestos-containing building materials were surfacing materials (e.g. sprayed on fireproofing, texture, decorative or acoustic plaster) as well as thermal insulation. Examples of manufactured asbestos-containing materials include vinyl floor tiles, ceiling tiles, gasket materials, asbestos cement (transite) pipes or boards, and asbestos textiles. Depending on the above noted formulation, these materials range from non-friable to friable. Although some products are considered non-friable when in Good condition, severe damage or deterioration may cause non-friable materials to generate airborne dust more readily. Severely damaged non-friable materials, or those to be worked on with powered tools, may be considered as friable ACM for abatement purposes.

Examples of common types of ACM by friability include:

- **Friable ACM**
 - Sprayed Materials (or materials installed by roller or trowel), such as fireproofing, thermal insulation, texture finishes, etc.
 - Mechanical Insulation such as boiler and breeching, ductwork, piping, tanks and associated equipment.
 - Plaster
- **Potentially Friable ACM**
 - Acoustic Ceiling Tiles



- Vinyl Sheet Flooring
- Non-Friable ACM
 - Vinyl Floor Tiles
 - Asbestos cement (“transite”) piping or paneling
 - Window Caulking

6.3.3. Regulations

Exposure to asbestos is controlled by two Regulations passed under Ontario’s Occupational Health and Safety Act (OHSA), R.R.O. 1990.

- O. Reg. 490/09 – *Designated Substances* regarding asbestos applies to:
 - every employer operating a mine for the purpose of mining, crushing, grinding or sifting asbestos;
 - every employer processing, adapting or using asbestos in connection with manufacturing or assembling of goods or products;
 - every employer engaged in the repair, alteration or maintenance of machinery, equipment, aircraft, ships, locomotives, railway cars and vehicles;
 - every employer engaged in work on a building that is necessarily incidental to the repair, alteration or maintenance of machinery or equipment; and,
 - to those workers of such employers who are likely to be exposed to asbestos.

Exposure limits for this substance are set at 0.1 f/cc (TWA) for all types of asbestos.

- O. Reg. 278/05 - *Asbestos on Construction Projects and in Buildings and Repair Operations* applies to buildings that contain friable and non-friable ACM and to the repair, alteration and/or maintenance of these buildings.

In addition to regulations for controlling work around asbestos-containing building materials there are regulations for packaging, transportation and disposal of asbestos-containing waste:

- O. Reg. 558/00 made under the Ministry of Environment (MOE) Environmental Protection Act, amending O. Reg. 347 - *General Waste Management*; and,
- The Transport of Dangerous Goods Act (TDGA) provides regulations for the transport of asbestos-containing materials and wastes.

6.3.4. Findings

No building materials within the specified work area(s) which could potentially contain asbestos, was observed. Therefore, Fisher collected no bulk samples for analysis. Findings of all building materials identified within the specified work area(s) are outlined in further detail below.



6.3.4.1. Sprayed or Troweled Fireproofing and Thermal Insulation

No indication of sprayed or troweled fireproofing and / or thermal insulation was noted in any of the specified work area(s) during the current survey.

6.3.4.2. Texture Finish

No texture finish was noted in any of the specified work area(s) during the current survey.

6.3.4.3. Mechanical Insulation

The majority of mechanical insulation observed throughout the building are either not insulated or are insulated with fibreglass which is not suspected to contain asbestos.

During the current survey, what appears to be asbestos-containing material (pipe fitting insulation) was identified within the specified work area (under the ceiling, above the exhaust fan). However, this material is not expected to be disturbed based on the scope of work specified.

6.3.4.4. Acoustic Ceiling Tile

The previous report confirmed that four (4) visually distinct styles of ceiling tiles were sampled for analysis. The results of analysis revealed all styles of ceiling tile do not contain asbestos.

6.3.4.5. Plaster / Drywall Joint Compound

Plaster and Drywall Joint Compound were observed, but not within the specified work areas.

6.3.4.6. Asbestos Cement Products

No asbestos cement products, such as Transite pipe or board, were noted in the specified work area during the current survey.

6.3.4.7. Vinyl Sheet Flooring

No vinyl sheet flooring was noted in the specified work area during the current survey.

6.3.4.8. Vinyl Floor Tile

No vinyl floor tile was noted in the specified work area during the current survey.

6.3.4.9. Other ACM

No other materials suspected to contain asbestos were noted in the specified work area(s).

6.3.5. Recommendations

No asbestos-containing materials were identified in any of the specified work area(s). Therefore, no recommendations with regards to ACM are warranted at this time. Provide a copy of this report to contractors bidding on or performing work within the subject work areas.

Note: Fire doors, present within the specific work areas, may contain asbestos-containing thermal insulation inside the door panel. Removal of any asbestos containing fire doors, in intake



condition, will require Type 1 to abatement procedures, as outlined in O. Reg. 278/05 and dispose of as asbestos waste.

The presence of ACM should be presumed in locations not accessed during this survey. It is possible that ACM is present at the Site that is not identified in this report. Should additional suspected ACM be discovered, it should be presumed as ACM until sample analysis determines asbestos content.

Due to the limited nature of the current scope of work and the presence of solid building finishes (i.e. plaster or drywall walls and ceilings etc.) in many locations, the full extent of ACM may not be confirmed. Precautions should be taken when dismantling solid wall or ceiling finishes, or any other building surfaces which may conceal potential ACM. Such precautions include, but are not limited to, isolation measures and appropriate personal protective equipment.

6.4. Benzene

Benzene would not be expected to be present at the Site and was not observed during the current survey. No recommendations for Benzene are warranted at this time.

6.5. Coke Oven Emissions

Coke oven emissions would not be expected to be present at the Site and were not observed during the current survey. No recommendations for coke oven emissions are warranted at this time.

6.6. Ethylene Oxides

Ethylene oxides would not be expected to be present at the Site and were not observed during the current survey. No recommendations for ethylene oxides are warranted at this time.

6.7. Isocyanates

Isocyanates would not be expected to be present at the Site and were not observed during the current survey. No recommendations for isocyanates are warranted at this time.

6.8. Lead

6.8.1. General Information

Lead is a naturally occurring bluish-gray metal found in small amounts in the earth's crust. Most lead in the environment comes from human activities such as burning fossil fuels, mining and manufacturing. Lead is used in the production of batteries, ammunition, metal products (solder and pipes) and X-ray devices.

Lead does not break down but lead compounds are changed by sunlight, air and water. Exposure occurs when eating food or drinking water that contains lead. Deteriorated lead paint can contribute to lead dust. The main target for lead toxicity is the nervous system.



6.8.2. Regulations and Guidelines

The Ontario MOL has not prescribed criteria defining an analyzed sample of bulk material as “lead-containing”. Further, the MOL has not established a lower limit for concentrations of lead in paint, below which precautions do not need to be considered during construction projects. However, except for very aggressive disturbance of painted finishes, (e.g., abrasive blasting, torch cutting, or grinding), Fisher believes that a lead content below 0.1% by weight (1,000 ug/g or 1000 ppm) represents a concentration in which the lead content is not the limiting hazard for construction hygiene purposes. Regular construction dust suppression techniques and worker hygiene practices are sufficient for disturbance of paint finishes determined to contain less than 0.1% lead by weight, provided that work is limited to non-aggressive operations.

The regulation for the designated substance lead applies to every employer and worker at a workplace where lead is present, produced, processed, used, handled or stored and at which a worker is likely to be exposed to lead. Exposure limits for this substance are set at 0.05 – 0.10 mg/m³ (TWA) depending on the type of lead, and for tetraethyl lead 0.30 mg/m³ (STEL).

Additionally, in 2011 the MOL revised *Guideline: Lead on Construction Projects* outlining practices that should be followed during construction projects to protect workers’ from exposure to lead. This includes the methods and equipment employed in the removal of lead-containing coatings that reduce the creation of dust, providing appropriate facilities for workers to wash after each shift, and providing protective clothing and respirators where necessary.

6.8.3. Findings

Based on the age of the building, it is possible that lead-based paint and lead plumbing are present within the building. Lead can also be present in various ceramic tiles. During the current investigation, no samples were collected for lead analysis.

6.8.4. Recommendations

Where any lead-containing materials may be disturbed or removed, Fisher recommends that appropriate lead abatement procedures be used. The lead abatement procedures to be used are determined by the method(s) of disturbance employed. Regular construction dust suppression techniques and worker hygiene practices are sufficient for disturbance of paint finishes determined to contain less than 0.1% lead by weight, provided that work is limited to non-aggressive operations. The table below outlines lead abatement operations and associated respirator required, as outlined in Ontario MOL guidelines.



Classifications of Lead-Containing Operations and Required Respirator

Type 1 Operations (where concentrations of airborne lead would be expected to be < 0.05 mg/m ³)	
Activities that include; <ul style="list-style-type: none"> • Removal of lead containing coatings with chemical gel or paste and fibrous laminated cloth wrap • Removal of lead containing coatings / materials using power tool that has an effective dust collection system equipped with HEPA filter • Removal of lead containing coatings / materials using non-powered hand tools other than manual scraping or sanding 	Respirators should not be necessary if general procedures are followed and level of air is less than 0.05 mg/m ³ . However, if worker wishes to use a respirator, a half-mask particulate respirator with N-, R- or P-series filter, and 95, 99 or 100% efficiency should be provided.
Type 2a Operations (where concentrations of airborne lead would be expected to be > 0.05 to 0.50 mg/m ³)	
Activities that include; <ul style="list-style-type: none"> • Removal of lead containing coatings / materials by scraping or sanding using non-powered hand tools • Manual demolition of lead painted plaster walls / building components by striking with a sledgehammer or similar tool 	NIOSH APF = 10 Half-mask particulate respirator with N-, R- or P- series filter, and 95, 99 or 100% efficiency.
Type 2b Operations (where concentrations of airborne lead would be expected to be > 0.50 to 1.25 mg/m ³)	
Not applicable to potential renovation activities.	
Type 3a Operations (where concentrations of airborne lead would be expected to be > 1.25 to 2.50 mg/m ³)	
Activities that include; <ul style="list-style-type: none"> • Welding or high temperature cutting of lead-containing coatings or materials indoors or in a confined space. • Dry removal of lead-containing mortar using an electronic or pneumatic cutting device. • Burning of a surface containing lead • Removal of lead containing coatings / materials using power tools without an effective dust collection system equipped with HEPA filter 	NIOSH APF = 50 Full-face piece air-purifying respirator with N-, R- or P- series filter and 100% efficiency. Tight-fitting powered air-purifying respirator with high efficiency filter. Full-face piece supplied-air respirator operated in demand mode. Half-mask or full-face piece supplied air respirator operated in continuous-flow mode.
Type 3b Operations (where concentrations of airborne lead would be expected to be > 2.50 mg/m ³)	
Abrasive blasting of lead-containing coatings or materials.	NIOSH APF ≥1000 Type CE abrasive-blast supplied respirator operated in a positive pressure mode with a tight-fitting half-mask face piece.

Refer to MOL *Guideline: Lead on Construction Projects, 2011*, for details of the Ministry's health and safety guidelines regarding lead.

6.9. Mercury

6.9.1. General Information

Mercury is a naturally occurring metal. It is a shiny, silver-white and odourless liquid. It combines with other elements to form inorganic compounds or salts. Metallic mercury is used to produce chlorine gas and caustic soda, and is used in thermostats and thermometers, fluorescent light bulbs, dental fillings and batteries. Exposure occurs when eating fish or shellfish contaminated with methyl mercury, breathing vapors from spills, incinerators, etc.



The nervous system is very sensitive to all forms of mercury. Exposure to high levels of metallic inorganic or organic mercury can permanently damage the brain, kidneys and developing fetus. Short-term exposure may cause lung damage, nausea, vomiting and diarrhea as well as skin and eye irritation.

6.9.2. Regulations

The regulation for mercury applies to every employer and worker at a workplace where mercury is present, produced, processed, used, handled or stored and at which a worker is likely to be exposed to mercury. Exposure limits for this substance are set at 0.025 – 0.01 mg/m³ (TWA) for all forms of mercury excluding alkyl, and for alkyl compounds of mercury 0.03 mg/m³ (STEL).

6.9.3. Findings

Mercury is presumed to be present in fluorescent light tubes and thermostatic controls. With the exception of fluorescent light bulbs and building thermostats, no other evidence of mercury was noted during the current survey.

6.9.4. Recommendations

Prior to the planned renovation work, Fisher recommends that any presumed mercury-containing fluorescent light tubes and thermostats that will be impacted are to be removed and disposed of in accordance with O. Reg. 558/00.

6.10. Silica

6.10.1. General Information

Silica is a crystalline compound occurring abundantly as quartz, sand, and many other minerals, and used to manufacture a variety of materials, especially glass and concrete. When mining this substance, silica can be deadly when it becomes airborne. If inhaled, silica dust can cause silicosis which can be fatal.

Some of the following industries have a high potential for risk to workers: construction (sandblasting, rock drilling, masonry work, jack hammering, tunneling), mining (cutting or drilling through sandstone or granite), foundry work (grinding, mouldings, shakeout, core room), stone cutting (sawing, abrasive blasting, chipping, grinding), manufacturing and use of abrasives, etc.

6.10.2. Regulations

The regulation for silica applies to every employer and worker at a workplace where silica is present, produced, processed, used, handled or stored and at which a worker is likely to be exposed to silica. Exposure limits for this substance are set at 0.05 - 0.10 mg/m³ (TWA), depending on the type of silica.

Additionally, in 2011 the MOL revised *Guideline: Silica on Construction Projects* outlining practices that should be followed during construction projects to protect workers' from exposure



to silica. This includes the methods and equipment employed in the removal of silica-containing materials that reduce the creation of dust, providing appropriate facilities for workers to wash after each shift, and providing protective clothing and respirators where necessary.

6.10.3. Findings

No sampling for silica was conducted. However, as the building is constructed of concrete, brick and/or block walls with concrete floors, silica is expected to be found within these components of the buildings.

6.10.4. Recommendations

If these materials will be disturbed during the planned renovation work, appropriate precautions should be taken to protect workers from inhaling silica dusts and debris. Refer to MOL *Guideline: Silica on Construction Projects* for details.

6.11. Vinyl Chloride

Vinyl chloride would not be expected to be present at the Site and was not observed during the current survey. No recommendations for vinyl chloride are warranted at this time.

6.12. Mould

During the current survey, no visible mould or favourable conditions for mould growth were observed in the specified work area. No action is recommended with regard to mould.



7.0. LIMITATIONS


Fisher Environmental Ltd. accepts responsibility for the competent performance of its duties in executing this assignment within the normal standards of the profession, but disclaims responsibility for consequential damages, if any.

The scope of the survey is based on prior agreement with the client, and the rationale given in this report. The survey findings rely on professional interpretation of selective sampling and analysis. Sample analysis results have been applied to homogenous materials in unsampled locations; it was not within the scope of work to carry out an exhaustive sampling and analysis program. For non-accessible building spaces, the likelihood of the presence or absence of asbestos and other designated substances has been described, but such assessment is not a definitive statement of presence or absence.

This report was prepared for the IBI Group. The scope of services performed may not be appropriate for the purposes of other users, and any use or reuse of this document or its findings or recommendations represented herein is at the sole risk of any other user.

We trust that the information provided in the report meets your current requirements. If you have any questions or concerns, please do not hesitate to contact the undersigned.

Respectfully submitted,



Renata Stec, M.Sc.
Project Manager

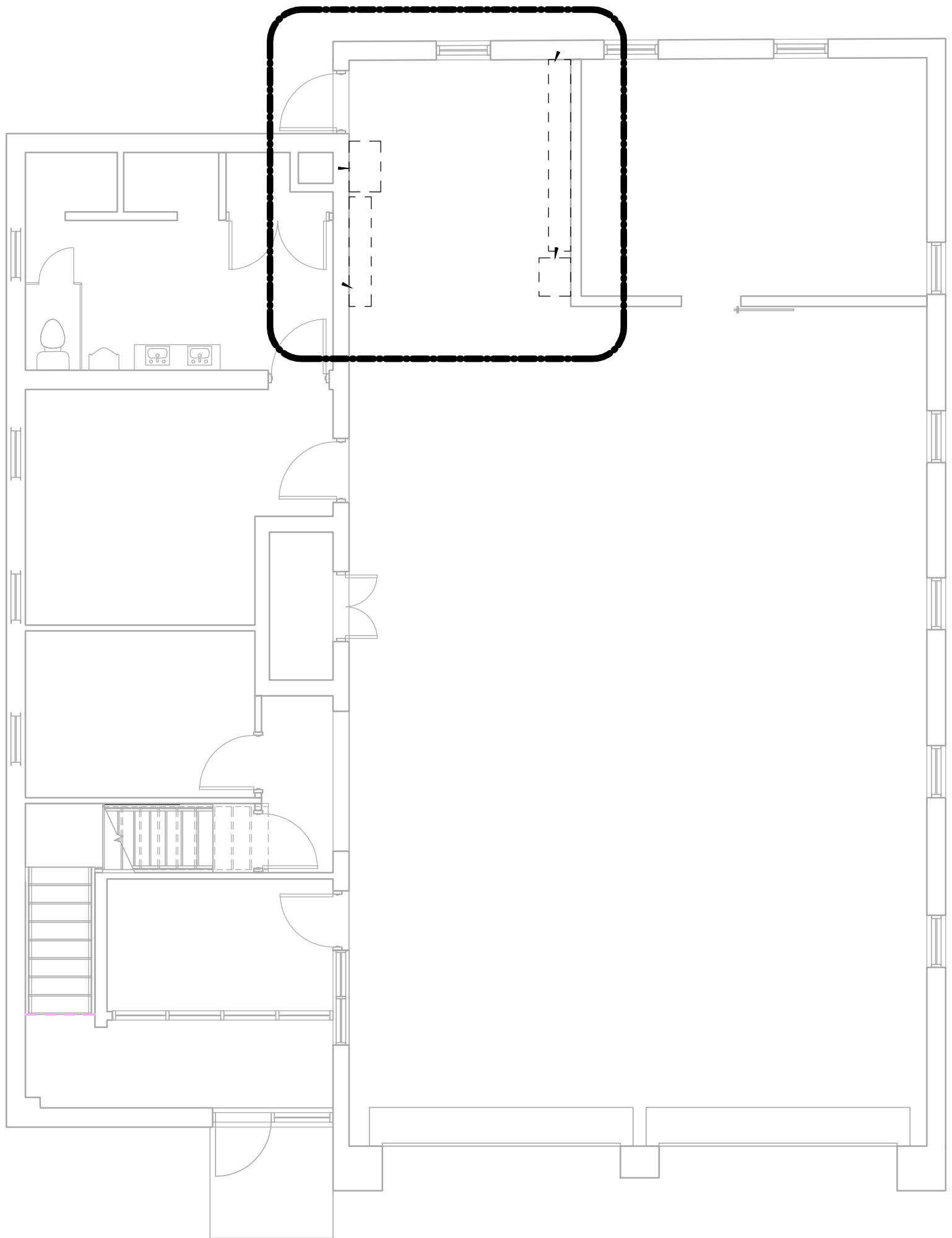


David Fisher, P. Eng., C. Chem.
Principal



APPENDIX A – SITE PLAN





Legend



Area of Work

Figure 1

LOCATION: 1009 Sheppard Avenue West
Toronto, Ontario

BUILDING NAME: Fire Hall NO. 143

First Floor Plan

CLIENT: IBI Group

PROJECT NUMBER: FE-P 21-11073	DATE: March 2021	DRW BY: ZA
CAD FILE: FIG1	SCALE: Not to Scale	CHK BY: RS



400 Esna Park Dr., #15
Markham, Ontario
L3R 3K2

Tel: 905 475-7755
Fax: 905 475-7718

APPENDIX B – SITE PHOTO



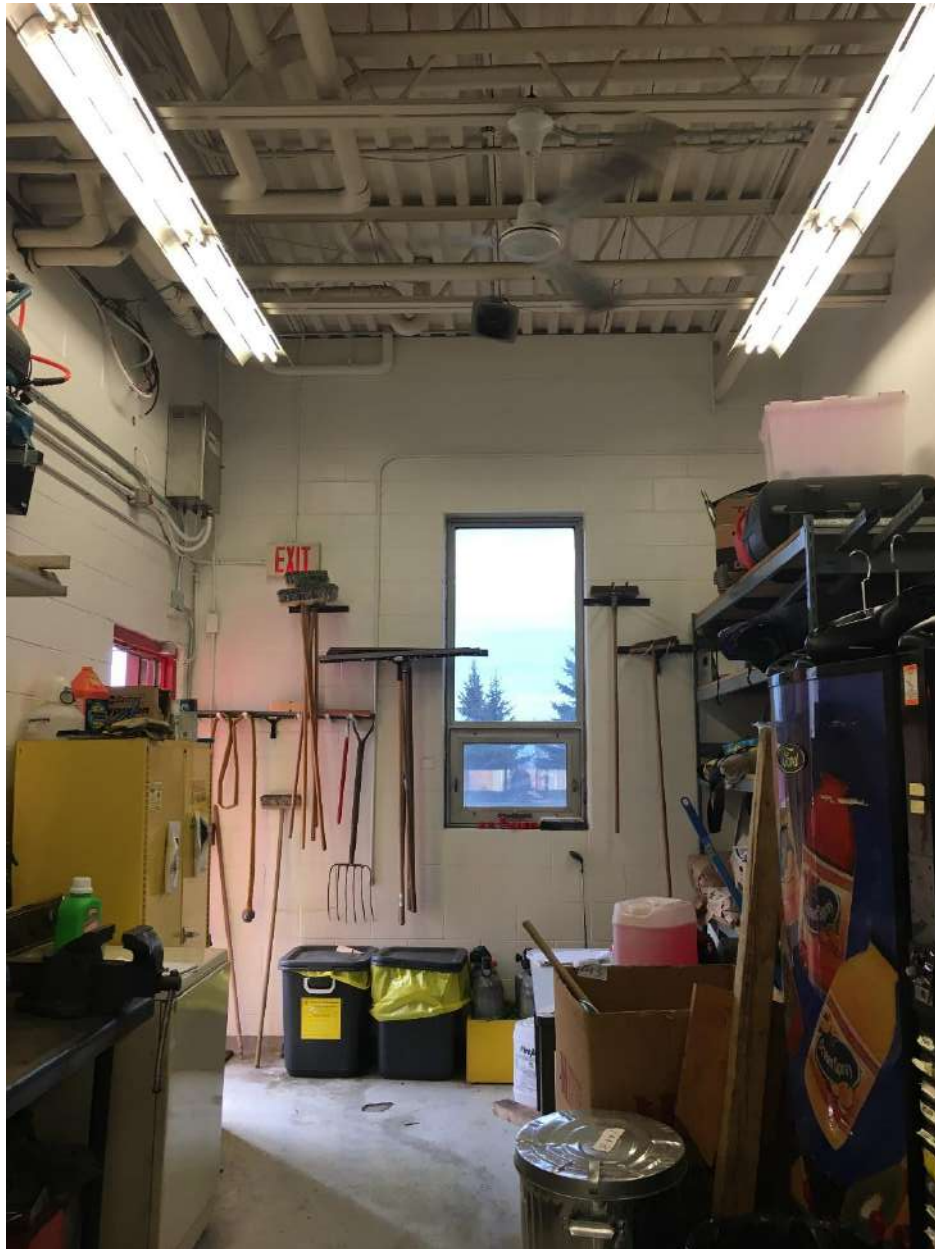


Photo 1 – View of the assumed asbestos-containing pipe fitting insulation under the ceiling.



APPENDIX C – PREVIOUS DSS REPORT





DESIGNATED SUBSTANCE SURVEY



TORONTO FIRE STATION 143 1009 SHEPPARD AVENUE WEST

Toronto, Ontario

Presented to:

Meaghan Aldcroft

City of Toronto
Facilities Management

Fisher Environmental Ltd.
Project Number: FE-P 16-7715

MAY, 2016

TABLE OF CONTENTS

1. INTRODUCTION AND REGULATORY REQUIREMENTS	1
1.1 INTRODUCTION AND SCOPE	1
2. SURVEY METHODOLOGY	1
2.1 GENERAL APPROACH.....	1
2.2 SURVEY METHODOLOGY	1
3. FINDINGS AND RECOMMENDATIONS.....	2
3.1 ASBESTOS	2
3.1.1 Findings	2
3.1.2 Recommendations	3
3.2 LEAD.....	3
3.2.1 Findings	4
3.2.2 Recommendations	4
3.3 ACRYLONITRILE.....	4
3.3.1 Findings	4
3.3.2 Recommendations	4
3.4 ARSENIC	4
3.4.1 Findings	5
3.4.2 Recommendations	5
3.5 BENZENE	5
3.5.1 Findings	5
3.5.2 Recommendations	5
3.6 COKE OVEN EMISSIONS	5
3.6.1 Findings	5
3.6.2 Recommendations	5
3.7 ETHYLENE OXIDES	5
3.7.1 Findings	6
3.7.2 Recommendations	6
3.8 ISOCYANATES	6
3.8.1 Findings	6
3.8.2 Recommendations	6
3.9 MERCURY	6
3.9.1 Findings	6
3.9.2 Recommendations	6
3.10 SILICA	7
3.10.1 Findings	7
3.10.2 Recommendations	7
3.11 VINYL CHLORIDE.....	7
3.11.1 Findings	7
3.11.2 Recommendations	7
3.12 POLYCHLORINATED BIPHENYLS (PCBs).....	7
3.12.1 Findings	8
3.12.2 Recommendations	8
3.13 MOULD	8
3.13.1 Findings	8
3.13.2 Recommendations	9
4. CORRECTIVE ACTIONS	9
5. STATEMENT OF LIMITATIONS	9

TABLE OF CONTENTS

6. SIGN-OFF	10
--------------------------	-----------

APPENDIX I – REASSESSMENT SURVEY FORM

APPENDIX II – RESULTS OF BULK SAMPLE ANALYSIS

APPENDIX III – CORRECTIVE ACTIONS INSPECTION REPORTS

APPENDIX IV – SURVEY DRAWINGS

APPENDIX V – SITE PHOTOGRAPHS

1. INTRODUCTION AND REGULATORY REQUIREMENTS

1.1 Introduction and Scope

Fisher Environmental Ltd. was retained by the City of Toronto, Facilities Management to conduct a Designated Substance Survey of building materials in Toronto Fire Station 143 located at 1009 Sheppard Avenue West in Toronto, Ontario.

The objectives of the Designated Substance Survey (DSS) are to establish locations, conditions and types of designated substances contained within a building and, if necessary, provide recommendations to fulfill requirements set forth under the Ontario Occupational Health and Safety Act (OHSA) to achieve regulatory compliance. Preparation of the DSS report, which includes a brief description of the materials present, and the findings of the DSS, will fulfill the requirements of the Ontario Ministry of Labour (MOL) regulations for designated substances; O. Reg. 490/09 – Designated Substances and O. Reg. 278/05 – Asbestos on Construction Projects and in Buildings and Repair Operations.

The DSS should also include an examination for the presence of polychlorinated biphenyls (PCBs) and visible mould growth. This document should be filed as an addendum to the original survey, which was conducted by ECOH Management Inc. on July 27, 2007.

The *Designated Substance Survey* report is intended for management purposes only to demonstrate compliance with regulations. It is not to be used to establish the designated substance content within building materials before renovation or demolition activities. Prior to any work activities that may disturb building materials, a thorough Pre-Renovation or Pre-Demolition survey of the work area for designated substances and hazardous materials shall be conducted. Muhammad Junayed of Fisher Environmental Ltd. performed the fieldwork on May 19, 2016.

2. SURVEY METHODOLOGY

2.1 General Approach

To ensure familiarity with the building, the Surveyor made reference to the previous assessment and reassessment reports provided by the City of Toronto prior to commencing the survey. The Surveyor also made reference to facility floor plans included in the previous assessment reports, or provided independently by the City of Toronto. Facility drawings identifying locations of asbestos-containing materials, if present, are included in Appendix IV. Site photographs are included in Appendix V.

2.2 Survey Methodology

The City of Toronto provided the consultant with the previous DSS report and / or other survey reports of designated substances identified within the facility, if available. Prior to conducting the DSS, the reports were reviewed by Fisher Environmental Ltd. and updated with all available information regarding ACM, including that from past assessments and reassessments.

The survey was conducted in compliance with the Ontario Ministry of Labour (MOL) regulations for designated substances; O. Reg. 490/09 - *Designated Substances* and O. Reg. 278/05 - *Asbestos*

on Construction Projects and in Buildings and Repair Operations made under the Occupational Health and Safety Act (OHSA), R.S.O. 1990.

The Surveyor conducted a visual reassessment of all known and assumed asbestos-containing materials in all accessible areas of the building, as detailed in past survey reports and the Reassessment Survey Form, and recorded the condition (GOOD, FAIR or POOR) of each known or assumed ACM on the Asbestos Reassessment Survey Form. The Surveyor also recorded detailed descriptions of previously-unidentified potential ACM, if observed. Please refer to Appendix I for the updated Reassessment Survey Form.

Materials confirmed to be asbestos-containing during previous assessments were not sampled for this reassessment survey. Additionally, samples were not collected of materials that were previously confirmed to be non-asbestos by the requirements of Ontario Regulation 278/05.

Any other potential asbestos-containing materials noted during the reassessment survey that had not been identified in a previous survey, or were not sampled in accordance with the requirements of O. Reg. 278/05, were sampled as part of the reassessment.

The DSS is based on a walk-through inspection of the facility and shall be conducted room by room to establish locations, conditions and types of designated substances. The survey shall also include an examination for the presence of polychlorinated biphenyls (PCBs) and visible mould growth.

3. FINDINGS AND RECOMMENDATIONS

3.1 Asbestos

Asbestos fibres may be released into the air by the disturbance of asbestos containing material (ACM) during product use, demolition work, building or home maintenance, repair and remodeling. In general, exposure may occur only when the ACM is disturbed in some way to release particles and fibres into the air.

3.1.1 Findings

Previously identified assumed ACM include the following:

- Plaster,
- Drywall Joint Compound,
- Ceiling Tile – three (3) varieties,
- Roofing Materials, and
- Window Caulking.

All assumed ACM were observed to be in GOOD condition at the time of the reassessment.

Unless previously determined to be non-asbestos, plaster, drywall joint compound, vinyl floor tiles, mastics and window caulking in other areas of the facility should continue to be assumed to be asbestos-containing, and should be sampled prior to renovation and/or demolition activities.

During this reassessment survey, samples of readily accessible materials (excluding roofing materials and window caulking) were collected to meet the bulk sampling requirements outlined in O. Reg. 278/05. Table 1 below summarizes the analytical results for the sampled assumed ACM.

TABLE 1 Summary of Analysis of Bulk Samples collected and analysed during this reassessment			
Sample Number	Sample Description	Sample Location	Analytical Results
16-4393-01	Ceiling Tile 2 - 2' x 4' - Pinhole, Long Fissure	1-07, Washroom	None Detected
16-4393-02	Ceiling Tile 2 - 2' x 4' - Pinhole, Long Fissure	1-07, Washroom	None Detected
16-4393-03	Ceiling Tile 2 - 2' x 4' - Pinhole, Long Fissure	2-02, Kitchen	None Detected

Laboratory analysis determined each material sampled to not contain asbestos. The laboratory analysis report is included with this report as Appendix II.

3.1.2 Recommendations

All assumed ACM were observed in GOOD condition at the time of the reassessment. Therefore, no recommended corrective actions are made at this time.

Any other building materials suspected to contain asbestos which are not outlined in this report should be assumed to be asbestos-containing until sample analysis determines asbestos content.

Ontario Ministry of Labour Regulation 278/05 requires that an Asbestos Management Program (AMP) be implemented as long as asbestos-containing materials are present in a building. The AMP, original survey report and subsequent reassessment reports must be available at the work place, and must identify the type of asbestos, and where asbestos can be found on a room-by-room basis.

NOTE: Interpretation of all sources of asbestos-related information, including but not limited to the original asbestos survey report, asbestos reassessment reports, room-by-room survey data, survey drawings and reports from previous asbestos abatement projects, should be completed by a competent person trained in the historical application of asbestos in building materials, building design and preferably by a person with site-specific knowledge and/or experience.

Information contained within any of the above-noted sources may not relieve the Regulatory responsibility of building Owners, or project Employers/Constructors, to complete a detailed site inspection prior to commencement of a project.

This report should not be used as a substitute for a detailed site inspection to identify asbestos-containing building materials, which must be specifically tailored to the scope and nature of any given project, and completed prior to any maintenance, renovation or demolition work that may cause disturbance to building materials.

3.2 Lead

Most lead in the environment comes from human activities such as burning fossil fuels, mining and manufacturing. Lead is used in the production of batteries, ammunition, metal products such as solder and pipes, and x-ray devices. Exposure happens when eating food or drinking water that contains lead. Deteriorated lead paint can contribute to lead dust. The main target for lead toxicity is the nervous system.

The regulation for lead applies to every employer and worker at a workplace where lead is present, produced, processed, used, handled or stored and at which a worker is likely to be exposed to lead.

Additionally, in 2004 the MOL issued *Guideline: Lead on Construction Projects* outlining practices that should be followed during construction projects to protect workers' from exposure to lead. This includes the methods and equipment employed in the removal of lead containing coatings that reduce the creation of dust, providing appropriate facilities for workers to wash after each shift, and providing protective clothing and respirators where necessary.

3.2.1 Findings

Paint finishes were generally noted to be in Good condition throughout the Site. Based on the age of the building, it is possible that lead-based paint and lead plumbing are present within the building. During the current investigation, no samples were collected for lead analysis.

No other indication of lead containing materials was observed during the building audit, with the exception of that which may be contained within batteries.

3.2.2 Recommendations

During the disturbance of any painted surfaces that contain lead, it would be recommended that appropriate procedures and use of respirators be followed to protect workers.

No immediate corrective actions were recommended with regard to lead.

3.3 Acrylonitrile

Acrylonitrile is used to make other chemicals such as plastics, synthetic rubber and acrylic fibres. Breathing high concentrations of acrylonitrile will cause nose and throat irritation, tightness in chest, difficulty breathing, nausea, dizziness, weakness, headache, impaired judgment and convulsions. These symptoms usually disappear when exposure has stopped. If spilled on the skin, acrylonitrile will burn the skin and cause blisters and redness. Acrylonitrile is believed to be carcinogenic.

3.3.1 Findings

Acrylonitrile based polymers may have been utilized in the production of some of the building construction materials (e.g. paints, sealants, and adhesives). Although these polymers are generally volatile, they are expected to produce significant acrylonitrile exposure only during or shortly after application of the subject material. If present on site, acrylonitrile would not be expected to be a concern during future renovation or demolition works. Acrylonitrile was not evident in its pure form anywhere within the subject areas of the building.

3.3.2 Recommendations

No immediate corrective actions were recommended with regard to acrylonitrile.

3.4 Arsenic

Inorganic arsenic compounds are mainly used to preserve wood. Organic arsenic compounds are used as pesticides. Arsenic occurs naturally in soil and minerals and therefore may enter air and water. Breathing high levels of arsenic may cause sore throat and irritated lungs. Ingesting high levels of arsenic can result in death. Arsenic is a suspected carcinogenic substance.

3.4.1 Findings

Low levels of arsenic may be contained within paints or coatings utilized on building construction materials, however exposure levels resulting from personal contact are not expected to be significant. Arsenic or arsenic containing compounds were not encountered during the building survey works.

3.4.2 Recommendations

No immediate corrective actions were recommended with regard to arsenic.

3.5 Benzene

Benzene is colourless liquid with a sweet odour. Benzene utilization has historically been associated with solvents, paints, stains, adhesives, and in the manufacturing of various rubber products. While its current use in building materials has greatly decreased due to an increased awareness of associated health concerns, it may still be present in trace quantities in various industrial solvents. Gasoline sold in Canada contains approximately 4% benzene.

Breathing very high levels of benzene can result in death, while high levels may cause drowsiness, dizziness, rapid heart rate, headaches, and unconsciousness.

3.5.1 Findings

While it may be expected, given the age of the building, that the original construction materials utilized did contain some trace levels of benzene, it is likely that any has since volatilized and would not exceed the permissible exposure values. During future renovation or demolition works, it would not be expected to be a concern. No evidence of benzene was noted during the building survey, with the exception of that which may be contained in regular gasoline fuel burning equipment.

3.5.2 Recommendations

No immediate corrective actions were recommended with regard to benzene.

3.6 Coke Oven Emissions

Coke oven emissions are released during the carbonization of bituminous coal for the production of coke. Exposure routes include inhalation, skin and / or eye contact. Coke oven emissions are potential occupational carcinogens.

3.6.1 Findings

This substance would not be expected to be found in the building. No evidence of the burning of coke was found during the building survey.

3.6.2 Recommendations

No immediate corrective actions were recommended with regard to coke oven emissions.

3.7 Ethylene Oxides

Ethylene oxide is a man-made chemical used primarily to make ethylene glycol (antifreeze and polyester). Breathing low levels of ethylene oxides for a prolonged period of time causes eye, skin

and respiratory irritations, and can affect nervous system. Higher levels of exposure for shorter time produce symptoms that are similar but more severe.

3.7.1 Findings

This substance would not be expected to be found in the building. No evidence of ethylene oxides was found during the building survey.

3.7.2 Recommendations

No immediate corrective actions were recommended with regard to ethylene oxides.

3.8 Isocyanates

Isocyanates are a family of highly reactive, low molecular weight chemicals. They are widely used in the manufacture of flexible and rigid foams, fibres, and coatings such as paints and varnishes, and elastomers and various building materials (e.g. spray on polyurethane products).

Isocyanates are powerful irritants to the eyes, skin, and respiratory and gastrointestinal tracts.

3.8.1 Findings

Use of isocyanates or isocyanate compounds would not be expected in the building. No evidence of isocyanates was found during the building survey.

3.8.2 Recommendations

No immediate corrective actions were recommended with regard to isocyanates.

3.9 Mercury

Mercury is a naturally occurring metal. It is a shiny, silver-white and odourless liquid. It combines with other elements to form inorganic compounds or salts. Metallic mercury is used to produce chlorine gas and caustic soda, and is used in thermostats and thermometers, fluorescent light bulbs, dental fillings and batteries. Exposure occurs when breathing vapors from spills, incinerators, etc.

The nervous system is very sensitive to all forms of mercury. Exposure to high levels of metallic inorganic or organic mercury can permanently damage the brain, kidneys and developing fetus. Short-term exposure may cause lung damage, nausea, vomiting and diarrhea as well as skin and eye irritation.

3.9.1 Findings

Mercury can be found in fluorescent light bulbs and building thermostats. Prior to future renovation or demolition works, it would be recommended that these products be safely removed. The disposal of mercury containing items are regulated under the Environmental Protection Act, and it would be recommended that for disposal purposes any mercury containing thermostats and fluorescent light bulbs be disposed of at an MOE licensed receiver. With the exception of fluorescent light bulbs and building thermostats, no other evidence of mercury was noted during the building survey.

3.9.2 Recommendations

No immediate corrective actions were recommended with regard to mercury.

3.10 Silica

Silica is a crystalline compound occurring abundantly as quartz, sand, and many other minerals, and used to manufacture a variety of materials, especially glass and concrete. When mining this substance, silica can be deadly when it becomes airborne. If inhaled, silica dust can cause silicosis which can be fatal.

Additionally, in 2004 the MOL issued *Guideline: Silica on Construction Projects* outlining practices that should be followed during construction projects to protect workers' from exposure to silica. This includes the methods and equipment employed in the removal of silica containing materials that reduce the creation of dust, providing appropriate facilities for workers to wash after each shift, and providing protective clothing and respirators where necessary.

3.10.1 Findings

As the building is constructed of concrete block and brick, with concrete floors, silica is expected to be found within these components of the building. During any significant renovation or demolition works where concrete dust is generated, dust suppression techniques should be utilized to control worker exposure to silica. Silica is expected to be present in concrete and masonry products in the building.

3.10.2 Recommendations

No immediate corrective actions were recommended with regard to silica.

3.11 Vinyl Chloride

Vinyl chloride is used to make polyvinyl chloride (PVC) which is found in a variety of plastic products, including pipes, wires, cable coatings and packaging materials. Breathing high levels of vinyl chloride can cause dizziness, unconsciousness and death. Prolonged exposure causes changes in liver, nerve damage, immune reactions and changes in blood flow.

3.11.1 Findings

PVC pipe is generally stable and does not allow for the liberation of vinyl chloride, under normal conditions. During future renovation or demolition works, this substance would not be expected to be a concern. Vinyl chloride was not evident in its pure form, anywhere in the subject dwellings.

3.11.2 Recommendations

No immediate corrective actions were recommended with regard to vinyl chloride.

3.12 Polychlorinated Biphenyls (PCBs)

PCBs are mixtures of synthetic organic chemicals with the same basic chemical structure and similar physical properties ranging from oily liquids to waxy solids. Due to their non-flammability, chemical stability, high boiling point and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications including electrical, heat transfer, and hydraulic equipment; as plasticizers in paints, plastics and rubber products; in pigments, dyes and carbonless copy paper and many other applications.

PCBs have been demonstrated to cause a variety of adverse health effects. PCBs have been shown to cause cancer.

3.12.1 Findings

No PCB containing equipment with the potential exception of fluorescent lighting ballasts was observed on site. Fluorescent lighting was observed in use in several areas of the building and inspection of three random light ballasts revealed that they did not contain PCB's. The disposal of PCB containing equipment is regulated under MOE Reg. 558, and it would be recommended that during any ballast replacement works the generated ballasts be evaluated for PCB content, with any PCB ballasts being consolidated and sent for disposal to an MOE licensed PCB receiver under waste class 243D.

3.12.2 Recommendations

It would be recommended that during any ballast replacement works the generated ballasts be evaluated for PCB content. Any PCB ballasts identified should be consolidated and sent for disposal to an MOE licensed PCB receiver under waste class 243D.

3.13 Mould

Mould contamination inside buildings has become a concern to both building owners and occupants. Exposure to moulds is known to cause a variety of health effects in some people. Many fungal spores are considered to be allergenic to susceptible persons, though individual susceptibility varies greatly.

Elevated levels of indoor mould are usually attributed to the chronic moist conditions due to water leaks, floods or elevated humidity. Under these conditions, already low levels of fungal spores in air from plants and other sources may multiply on cellulose containing materials such as carpets, wallboards, and wood, and result in mould contamination and, if left untreated, can be destructive to certain building materials.

At present, no Federal or Provincial regulations are in effect with respect to reasonable levels of airborne mould spores and other contaminants inside buildings. Health Canada has provided strategies and guidelines related to some indoor contaminants to assist in conducting indoor air quality investigations in their publication *Indoor Air Quality in Office Buildings: A Technical Guide, 1995*. Health Canada recommends that indoor varieties of airborne mould spores should be qualitatively and quantitatively similar to those varieties found outdoors. The presence of one or more fungal species indoors that are not found outdoors suggests the presence of an amplifier in the building.

An additional resource that places numerical limits on acceptable indoor fungal spores is found in the Calgary Health Region's guidelines for *Fungal Air Testing, Investigation and Reporting* for remediated marihuana grow houses. These guidelines suggest that indoor fungal spores are acceptable if found to be elevated by as much as 2 or 3 times the outdoor measurement, depending on the type of mould spore. Refer to attached guidelines.

The Canadian Construction Association (CCA) has provided guidelines regarding investigation and remediation works in *CCA82 - 2004 Mould Guidelines for the Canadian Construction Industry* to protect the health and safety of workers who may be exposed to mould in the course of building renovations.

3.13.1 Findings

During the current investigation, no visible mould or favourable conditions for mould growth were observed in the surveyed areas.

3.13.2 Recommendations

No immediate corrective action is recommended with regard to mould contamination.

4. CORRECTIVE ACTIONS

No corrective actions for Designated Substances were recommended.

5. STATEMENT OF LIMITATIONS

Fisher Environmental Ltd. accepts responsibility for the competent performance of its duties in executing this assignment within the normal standards of the profession, but disclaims responsibility for consequential damages, if any.

The extent of the building survey of asbestos containing materials (ACM) and other designated substances is based on prior agreement of the scope of work with the client, and the rationale given in this report. The building survey findings rely on professional interpretation of selective sampling and analysis. Sample analysis results have been applied to homogenous materials in unsampled locations; it was not within the scope of work to carry out an exhaustive sampling and analysis program. For non-accessible building spaces, the likelihood of the presence or absence of asbestos and other designated substances has been described, but such assessment is not a definitive statement of presence or absence.

This report was prepared for the City of Toronto, Facilities Management. The scope of services performed may not be appropriate for the purposes of other users, and any use or reuse of this document or its findings or recommendations represented herein is at the sole risk of any other user.

We trust that the information provided in the report meets your current requirements. If you have any questions or concerns, please do not hesitate to contact the undersigned.

6. SIGN-OFF

We trust that this report meets with City of Toronto requirements and we thank you for the opportunity to be of service. Should you have any questions, please do not hesitate to contact us.

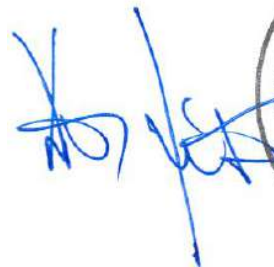
Fisher Environmental Ltd.

Prepared By:



Muhammad Junayed, B.Sc., EP
Project Manager

Reviewed By:




David Fisher, P. Eng., C. Chem.
Principal

APPENDIX I

REASSESSMENT SURVEY FORM

APPENDIX I - REASSESSMENT SURVEY FORM

Building Address:	1009 Sheppard Avenue West	Date(s) of Current Reassessment:	May 19, 2016
Building Name:	Toronto Fire Station 143	Organization Completing Reassessment:	Fisher Environmental Ltd. / Project FE-P 16-7715
Original Survey Conducted By:	ECOH Management Inc.	Name of Surveyor:	Muhammad Junayed
Date(s) of Original Survey:	July 27, 2007	Signature of Surveyor:	

Summary of Findings

All Hazardous Materials were observed to be in GOOD condition.

Location Number	Location Name	Building System	Material Observed	Potential Hazardous Material	Sample ID	Analytical Result	Quantity	Condition	Notes / Recommended Actions
0-00	Exterior	Roof	Roofing Material	Asbestos	Not Sampled	ACM Assumed	2950 SF	Good	
0-00	Exterior	Windows	Window Caulking	Asbestos	Not Sampled	ACM Assumed	All	Good	
0-00	Exterior	Walls	Metal Siding	N/A	N/A	N/A	N/A	N/A	
B-01	Storage	Floor	Concrete	N/A	N/A	N/A	N/A	N/A	
B-01	Storage	Walls	Block	N/A	N/A	N/A	N/A	N/A	
B-01	Storage	Walls	Grey Paint	Lead	16-4003-07*	338 ppm	N/A	N/A	*From Fisher Project No. 16-7706, dated May 2016
B-01	Storage	Ceiling	Not Found	N/A	N/A	N/A	N/A	N/A	Open to Metal structure
B-02	Storage	Floor	Concrete	N/A	N/A	N/A	N/A	N/A	
B-02	Storage	Walls	Block/Concrete	N/A	N/A	N/A	N/A	N/A	
B-02	Storage	Ceiling	Not Found	N/A	N/A	N/A	N/A	N/A	Open to Metal structure
B-03	Crawl Space	NO ACCESS							NO ACCESS
B-04	Mechanical Room	Floor	Concrete	N/A	N/A	N/A	N/A	N/A	
B-04	Mechanical Room	Walls	Block/Concrete	N/A	N/A	N/A	N/A	N/A	
B-04	Mechanical Room	Walls	Grey Paint	Lead	15-2583-01*	72 ppm	N/A	N/A	*From Fisher Project No. 15-7475, dated October 2015
B-04	Mechanical Room	Walls	Off-White Paint	Lead	15-2583-02*	518 ppm	N/A	N/A	*From Fisher Project No. 15-7475, dated October 2015
B-04	Mechanical Room	Ceiling	Concrete	N/A	N/A	N/A	N/A	N/A	
B-04	Mechanical Room	Ceiling	Cementitious Material	Asbestos	16-4003-04 to 06*	None Detected	60 SF	Good	*From Fisher Project No. 16-7706, dated May 2016

APPENDIX I - REASSESSMENT SURVEY FORM

<i>Location Number</i>	<i>Location Name</i>	<i>Building System</i>	<i>Material Observed</i>	<i>Potential Hazardous Material</i>	<i>Sample ID</i>	<i>Analytical Result</i>	<i>Quantity</i>	<i>Condition</i>	<i>Notes / Recommended Actions</i>
B-04	Mechanical Room	Ceiling	Drywall (DJC)	Asbestos	16-4003-01 to 03*	None Detected	40 SF	Good	*From Fisher Project No. 16-7706, dated May 2016
1-01	Vestibule	Floor	Terrazzo	N/A	N/A	N/A	N/A	N/A	
1-01	Vestibule	Walls	Block	N/A	N/A	N/A	N/A	N/A	
1-01	Vestibule	Walls	Drywall (DJC)	Asbestos	Not Sampled	ACM Assumed	50 SF	Good	
1-01	Vestibule	Ceiling	Plaster	Asbestos	Not Sampled	ACM Assumed	80 SF	Good	
1-02	Office	Floor	Terrazzo	N/A	N/A	N/A	N/A	N/A	
1-02	Office	Walls	Block	N/A	N/A	N/A	N/A	N/A	
1-02	Office	Walls	Drywall (DJC)	Asbestos	Not Sampled	ACM Assumed	50 SF	Good	
1-02	Office	Ceiling	Ceiling Tile 1	Asbestos	Homogeneous w/ 11850-B-74-01	None Detected	80 SF	Good	2' x 4' - Random Dot
1-03	Stairwell to Second Floor	Floor	Terrazzo	N/A	N/A	N/A	N/A	N/A	
1-03	Stairwell to Second Floor	Floor	Vinyl Floor Tile 2	Asbestos	Homogeneous w/ 14-9586-06 to 08	None Detected	20 SF	Good	12" x 12" - Brown with Multi-Coloured Fleck
1-03	Stairwell to Second Floor	Walls	Block	N/A	N/A	N/A	N/A	N/A	
1-03	Stairwell to Second Floor	Ceiling	Plaster	Asbestos	Not Sampled	ACM Assumed	100 SF	Good	
1-04	Stairwell to Basement	Floor	Terrazzo	N/A	N/A	N/A	N/A	N/A	
1-04	Stairwell to Basement	Walls	Block	N/A	N/A	N/A	N/A	N/A	
1-04	Stairwell to Basement	Ceiling	Drywall (DJC)	Asbestos	Not Sampled	ACM Assumed	75 SF	Good	
1-05	Office	Floor	Terrazzo	N/A	N/A	N/A	N/A	N/A	
1-05	Office	Walls	Block	N/A	N/A	N/A	N/A	N/A	
1-05	Office	Walls	Plaster	Asbestos	Not Sampled	ACM Assumed	15 SF	Good	
1-05	Office	Ceiling	Ceiling Tile 1	Asbestos	Homogeneous w/ 11850-B-74-01	None Detected	110 SF	Good	2' x 4' - Random Dot
1-06	Fitness Room	Floor	Rubber	N/A	N/A	N/A	N/A	N/A	
1-06	Fitness Room	Walls	Block	N/A	N/A	N/A	N/A	N/A	
1-06	Fitness Room	Ceiling	Ceiling Tile 1	Asbestos	Homogeneous w/ 11850-B-74-01	None Detected	160 SF	Good	2' x 4' - Random Dot

APPENDIX I - REASSESSMENT SURVEY FORM

<i>Location Number</i>	<i>Location Name</i>	<i>Building System</i>	<i>Material Observed</i>	<i>Potential Hazardous Material</i>	<i>Sample ID</i>	<i>Analytical Result</i>	<i>Quantity</i>	<i>Condition</i>	<i>Notes / Recommended Actions</i>
1-07	Washroom	Floor	Terrazzo	N/A	N/A	N/A	N/A	N/A	
1-07	Washroom	Walls	Block	N/A	N/A	N/A	N/A	N/A	
1-07	Washroom	Ceiling	Ceiling Tile 1	Asbestos	Homogeneous w/ 11850-B-74-01	None Detected	110 SF	Good	2' x 4' - Random Dot
1-07	Washroom	Ceiling	Ceiling Tile 2	Asbestos	16-4393-01, 02*	None Detected	40 SF	Good	2' x 4' - Pinhole, Long Fissure *From Fisher Project No. 16-7715, dated May 2016
1-08	Hose Tower	Floor	Concrete	N/A	N/A	N/A	N/A	N/A	
1-08	Hose Tower	Walls	Block	N/A	N/A	N/A	N/A	N/A	
1-08	Hose Tower	Ceiling	Not Found	N/A	N/A	N/A	N/A	N/A	Open to Metal structure
1-09	Vestibule	Floor	Terrazzo	N/A	N/A	N/A	N/A	N/A	
1-09	Vestibule	Walls	Block	N/A	N/A	N/A	N/A	N/A	
1-09	Vestibule	Ceiling	Ceiling Tile 1	Asbestos	Homogeneous w/ 11850-B-74-01	None Detected	25 SF	Good	2' x 4' - Random Dot
1-09	Vestibule	Ceiling	Not Found	N/A	N/A	N/A	N/A	N/A	Open to Metal structure
1-10	Apparatus Bay	Floor	Concrete	N/A	N/A	N/A	N/A	N/A	
1-10	Apparatus Bay	Walls	Block	N/A	N/A	N/A	N/A	N/A	
1-10	Apparatus Bay	Walls	Plaster	Asbestos	Not Sampled	ACM Assumed	180 SF	Good	
1-10	Apparatus Bay	Ceiling	Not Found	N/A	N/A	N/A	N/A	N/A	Open to Metal structure
1-11	Bunker Room	Floor	Ceramic	N/A	N/A	N/A	N/A	N/A	
1-11	Bunker Room	Walls	Block	N/A	N/A	N/A	N/A	N/A	
1-11	Bunker Room	Walls	Plaster	Asbestos	Not Sampled	ACM Assumed	450 SF	Good	
1-11	Bunker Room	Ceiling	Not Found	N/A	N/A	N/A	N/A	N/A	Open to Metal structure
2-01	Corridor	Floor	Vinyl Floor Tile 2	Asbestos	14-9586-06,07,08*	None Detected	190 SF	Good	12" x 12" - Brown with Multi-Coloured Fleck *From Fisher Project No. 14-6915, dated October 2014
2-01	Corridor	Walls	Block	N/A	N/A	N/A	N/A	N/A	
2-01	Corridor	Walls	Drywall (DJC)	Asbestos	14-9586-01*	None Detected	250 SF	Good	*From Fisher Project No. 14-6915, dated October 2014

APPENDIX I - REASSESSMENT SURVEY FORM

Location Number	Location Name	Building System	Material Observed	Potential Hazardous Material	Sample ID	Analytical Result	Quantity	Condition	Notes / Recommended Actions
2-01	Corridor	Ceiling	Ceiling Tile 1	Asbestos	11850-B-74-01a*	None Detected	410 SF	Good	2' x 4' - Random Dot *From Building Environmental Audit, dated October 20, 2007
2-02	Kitchen	Floor	Vinyl Floor Tile 2	Asbestos	Homogeneous w/ 14-9586-06 to 08	None Detected	350 SF	Good	12" x 12" - Brown with Multi-Coloured Fleck
2-02	Kitchen	Walls	Block	N/A	N/A	N/A	N/A	N/A	
2-02	Kitchen	Walls	Drywall (DJC)	Asbestos	Homogeneous w/ 14-9586-01 to 05	None Detected	200 SF	Good	
2-02	Kitchen	Ceiling	Ceiling Tile 1	Asbestos	Homogeneous w/ 11850-B-74-01	None Detected	330 SF	Good	2' x 4' - Random Dot
2-02	Kitchen	Ceiling	Ceiling Tile 2	Asbestos	16-4393-03*	None Detected	10 SF	Good	2' x 4' - Pinhole, Long Fissure *From Fisher Project No. 16-7715, dated May 2016
2-02	Kitchen	Ceiling	Ceiling Tile 3	Asbestos	Not Sampled	ACM Assumed	15 SF	Good	2' x 4' - Medium and Small Pinholes
2-03	Men's Washroom	Floor	Vinyl Floor Tile 1	Asbestos	14-9586-09,10,11*	None Detected	180 SF	Good	12" x 12" - Beige with Brown Fleck *From Fisher Project No. 14-6915, dated October 2014
2-03	Men's Washroom	Walls	Drywall (DJC)	Asbestos	14-9586-02*	None Detected	435 SF	Good	*From Fisher Project No. 14-6915, dated October 2014
2-03	Men's Washroom	Ceiling	Ceiling Tile 1	Asbestos	Homogeneous w/ 11850-B-74-01	None Detected	180 SF	Good	2' x 4' - Random Dot
2-04	Women's Washroom	Floor	Vinyl Floor Tile 1	Asbestos	Homogeneous w/ 14-9586-09 to 11	None Detected	140 SF	Good	12" x 12" - Beige with Brown Fleck
2-04	Women's Washroom	Walls	Drywall (DJC)	Asbestos	14-9586-03*	None Detected	385 SF	Good	*From Fisher Project No. 14-6915, dated October 2014
2-04	Women's Washroom	Ceiling	Ceiling Tile 1	Asbestos	Homogeneous w/ 11850-B-74-01	None Detected	140 SF	Good	2' x 4' - Random Dot
2-05	Vestibule	Floor	Vinyl Floor Tile 1	Asbestos	Homogeneous w/ 14-9586-09 to 11	None Detected	20 SF	Good	12" x 12" - Beige with Brown Fleck
2-05	Vestibule	Walls	Drywall (DJC)	Asbestos	Homogeneous w/ 14-9586-01 to 05	None Detected	130 SF	Good	
2-05	Vestibule	Ceiling	Ceiling Tile 1	Asbestos	Homogeneous w/ 11850-B-74-01	None Detected	20 SF	Good	2' x 4' - Random Dot
2-06	Bedroom	Floor	Vinyl Floor Tile 1	Asbestos	Homogeneous w/ 14-9586-09 to 11	None Detected	140 SF	Good	12" x 12" - Beige with Brown Fleck
2-06	Bedroom	Walls	Drywall (DJC)	Asbestos	Homogeneous w/ 14-9586-01 to 05	None Detected	385 SF	Good	
2-06	Bedroom	Ceiling	Ceiling Tile 1	Asbestos	11850-B-74-01b*	None Detected	140 SF	Good	2' x 4' - Random Dot *From Building Environmental Audit, dated October 20, 2007
2-07	Bedroom	Floor	Vinyl Floor Tile 1	Asbestos	Homogeneous w/ 14-9586-09 to 11	None Detected	375 SF	Good	12" x 12" - Beige with Brown Fleck
2-07	Bedroom	Walls	Drywall (DJC)	Asbestos	Homogeneous w/ 14-9586-01 to 05	None Detected	720 SF	Good	

APPENDIX I - REASSESSMENT SURVEY FORM

Location Number	Location Name	Building System	Material Observed	Potential Hazardous Material	Sample ID	Analytical Result	Quantity	Condition	Notes / Recommended Actions
2-07	Bedroom	Ceiling	Ceiling Tile 1	Asbestos	Homogeneous w/ 11850-B-74-01	None Detected	375 SF	Good	2' x 4' - Random Dot
2-07	Bedroom	Ceiling	Ceiling Tile 4	Asbestos	Not Sampled	ACM Assumed	25 SF	Good	2' x 4' - Crow's Feet
2-08	Office	Floor	Vinyl Floor Tile 1	Asbestos	Homogeneous w/ 14-9586-09 to 11	None Detected	50 SF	Good	12" x 12" - Beige with Brown Fleck
2-08	Office	Walls	Drywall (DJC)	Asbestos	14-9586-04*	None Detected	225 SF	Good	*From Fisher Project No. 14-6915, dated October 2014
2-08	Office	Ceiling	Ceiling Tile 1	Asbestos	Homogeneous w/ 11850-B-74-01	None Detected	50 SF	Good	2' x 4' - Random Dot
2-09	Lounge	Floor	Vinyl Floor Tile 2	Asbestos	Homogeneous w/ 14-9586-06 to 08	None Detected	400 SF	Good	12" x 12" - Brown with Multi-Coloured Fleck
2-09	Lounge	Walls	Drywall (DJC)	Asbestos	Homogeneous w/ 14-9586-01 to 05	None Detected	675 SF	Good	
2-09	Lounge	Ceiling	Ceiling Tile 1	Asbestos	11850-B-74-01c*	None Detected	400 SF	Good	2' x 4' - Random Dot *From Building Environmental Audit, dated October 20, 2007
2-10	Bedroom	Floor	Vinyl Floor Tile 1	Asbestos	Homogeneous w/ 14-9586-09 to 11	None Detected	200 SF	Good	12" x 12" - Beige with Brown Fleck
2-10	Bedroom	Walls	Drywall (DJC)	Asbestos	Homogeneous w/ 14-9586-01 to 05	None Detected	160 SF	Good	
2-10	Bedroom	Walls	Block	N/A	N/A	N/A	N/A	N/A	
2-10	Bedroom	Ceiling	Ceiling Tile 1	Asbestos	Homogeneous w/ 11850-B-74-01	None Detected	200 SF	Good	2' x 4' - Random Dot
2-11	Locker Room	Floor	Vinyl Floor Tile 1	Asbestos	Homogeneous w/ 14-9586-09 to 11	None Detected	165 SF	Good	12" x 12" - Beige with Brown Fleck
2-11	Locker Room	Walls	Drywall (DJC)	Asbestos	14-9586-05*	Trace (<0.5%)	420 SF	Good	*From Fisher Project No. 14-6915, dated October 2014
2-11	Locker Room	Ceiling	Ceiling Tile 1	Asbestos	Homogeneous w/ 11850-B-74-01	None Detected	165 SF	Good	2' x 4' - Random Dot
Surveyor's Field Notes									

APPENDIX II

RESULTS OF BULK SAMPLE ANALYSIS



FISHER ENVIRONMENTAL LABORATORIES

FULL RANGE ANALYTICAL SERVICES • SOIL/WATER/AIR TESTING • ENVIRONMENTAL
COMPLIANCE PACKAGES • 24 HOUR EMERGENCY RESPONSE • CALA ACCREDITED

400 ESNA PARK DRIVE #15
MARKHAM, ONT. L3R 3K2
TEL: 905 475-7755
FAX: 905 475-7718
www.fisherenvironmental.com

Client: City of Toronto
Facilities Management
Address: 2nd Floor, Metro Hall
55 John Street, Toronto, ON
M5V 3C6
Tel.: 416-392-9024
E-mail: maldcro@toronto.ca
Attn: Meaghan Aldcroft

F.E. Job #: 16-4393
Project Name: Annual Reassessment
Project ID: FE-16-7715
Date Sampled: 19-May-16
Date Received: 18-Jul-16
Date Reported: 22-Jul-16
Location: 1009 Sheppard Ave E
Toronto, ON

Certificate of Analysis

Analysis Requested:	Asbestos
Sample Description:	3 Bulk Samples

Client Sample ID	Lab Sample ID	Sample Matrix	Fibre Type	Asbestos Content
01A - CT-2, 2'x4', Pinhole, Long Fissures - Loc: 1-07	16-4393-01	Ceiling Tile		Not Detected
01B - CT-2, 2'x4', Pinhole, Long Fissures - Loc: 1-07	16-4393-02	Ceiling Tile		Not Detected
01C - CT-2, 2'x4', Pinhole, Long Fissures - Loc: 2-02	16-4393-03	Ceiling Tile		Not Detected

Fisher Environmental Laboratories (Lab ID #: 2745) is accredited by CALA (Canadian Association for Laboratory Accreditation Inc.) for asbestos analysis by PLM.

ANALYTICAL METHOD:

Asbestos has been done in accordance with normal professional standard using the following Fisher Environmental Lab Method: Asbestos by PLM (Polarized Light Microscope) F-26, Rev.2.2.

Authorized by:



Roger Lin, Ph. D., C. Chem.
Laboratory Manager



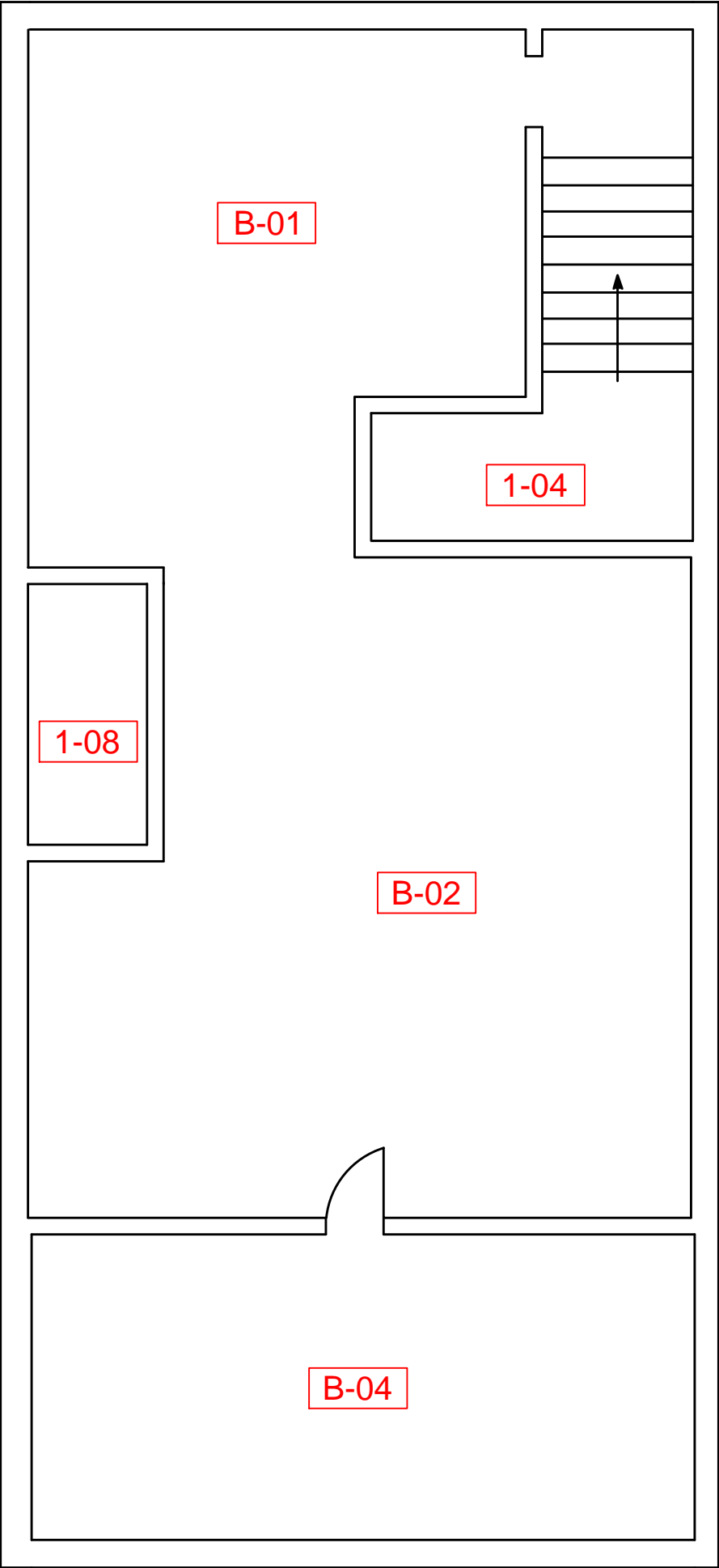
APPENDIX III

CORRECTIVE ACTIONS INSPECTION REPORT

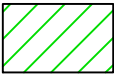
(NO INFORMATION TO REPORT)

APPENDIX IV

SURVEY DRAWINGS



Legend



Asbestos-Containing Material



Location Number



No Access to Room



Asbestos Sample Location



Lead Sample Location

The drawing does not illustrate locations of drywall joint compound, plaster, window caulking or roofing materials, for reasons discussed in Section 6 of the Standard Operating Procedure for Designated Substance Surveys. Please refer to the Designated Substance Survey Form in Appendix I for information regarding the locations and asbestos or lead-content of these materials.

Figure 1

LOCATION:
1009 Sheppard Avenue West
Toronto, Ontario

BUILDING NAME:
Toronto Fire Station 143

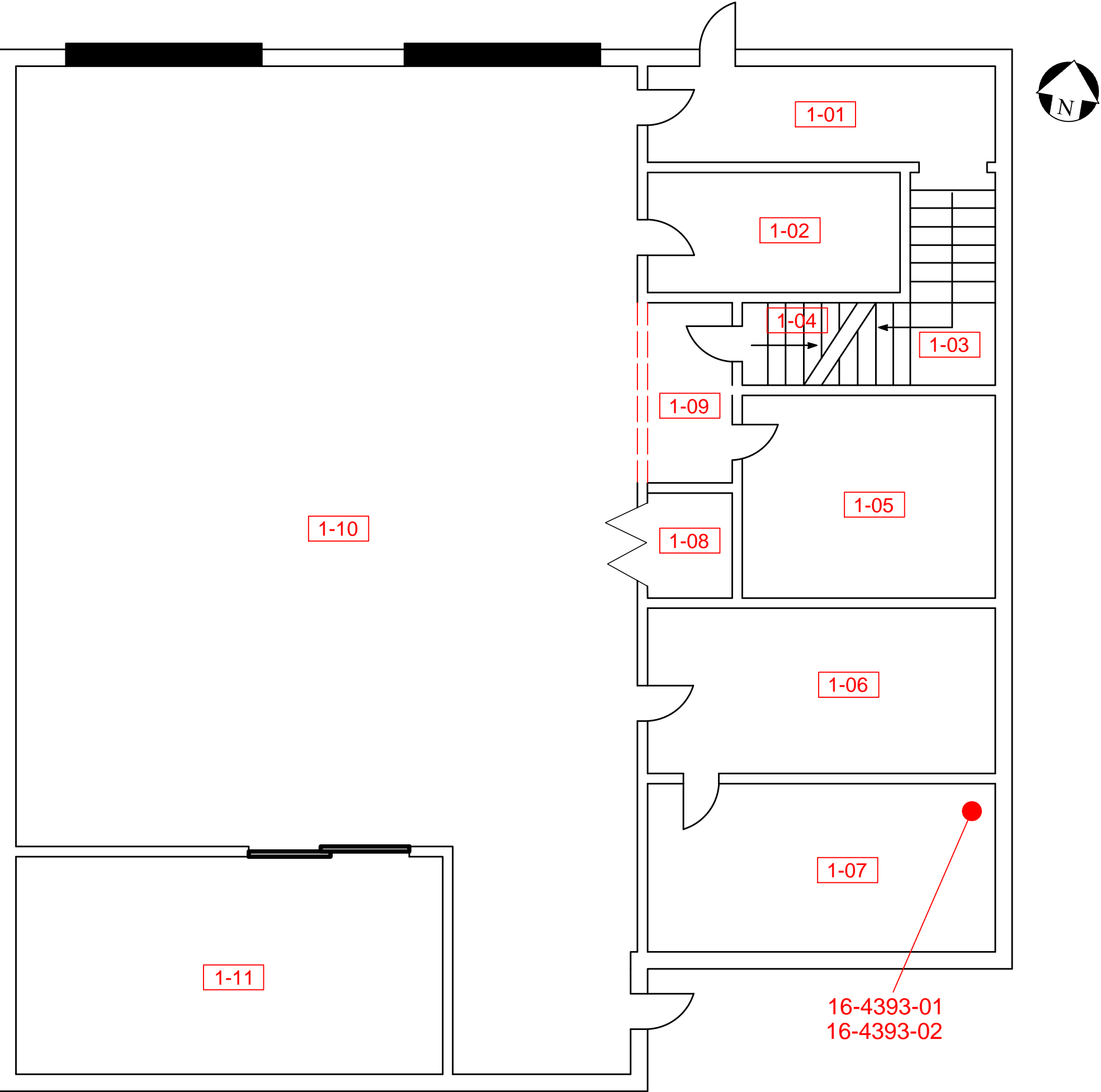
Basement Floor Plan
Asbestos-Containing Material Locations

CLIENT: City of Toronto

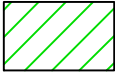
PROJECT NUMBER: FE-P 16-7715	DATE: MAY 2016	DRW BY: AH
------------------------------	----------------	------------

CAD FILE: Basement Floor Plan	SCALE: Not to Scale	CHK BY: MJ
-------------------------------	---------------------	------------







Legend




Asbestos-Containing Material




Location Number



No Access to Room



Asbestos Sample Location



Lead Sample Location

The drawing does not illustrate locations of drywall joint compound, plaster, window caulking or roofing materials, for reasons discussed in Section 6 of the Standard Operating Procedure for Designated Substance Surveys. Please refer to the Designated Substance Survey Form in Appendix I for information regarding the locations and asbestos or lead-content of these materials.

Figure 2

LOCATION:

1009 Sheppard Avenue West
Toronto, Ontario

BUILDING NAME:

Toronto Fire Station 143

First Floor Plan
Asbestos-Containing Material Locations

CLIENT:

City of Toronto

PROJECT NUMBER:

FE-P 16-7715

DATE:

MAY 2016

DRW BY:

AH

CAD FILE:


First Floor Plan

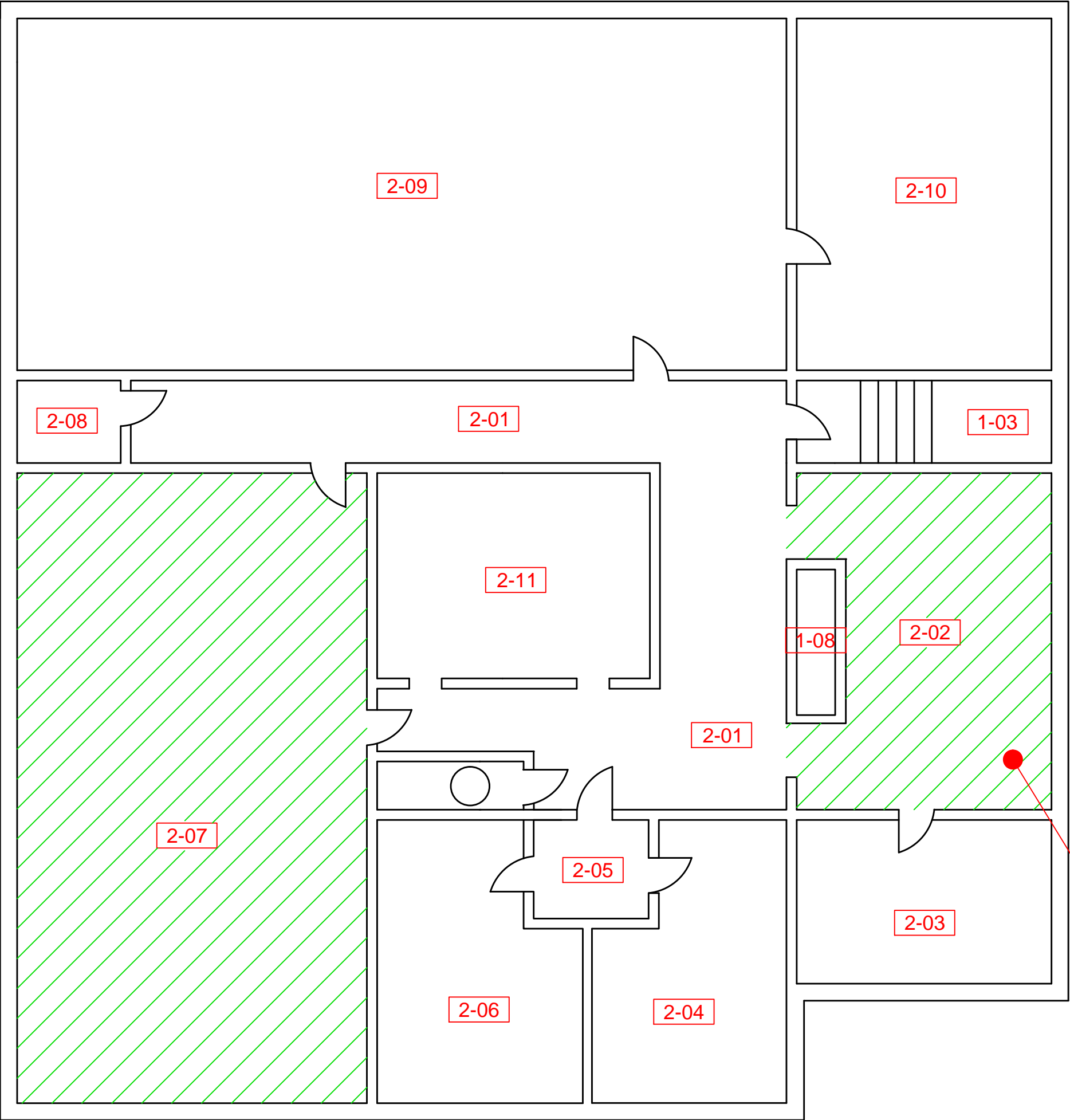
SCALE:

Not to Scale

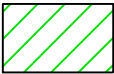
CHK BY:

MJ





Legend



Asbestos-Containing Material

1-01

Location Number

NAR

No Access to Room



Asbestos Sample Location



Lead Sample Location

The drawing does not illustrate locations of drywall joint compound, plaster, window caulking or roofing materials, for reasons discussed in Section 6 of the Standard Operating Procedure for Designated Substance Surveys. Please refer to the Designated Substance Survey Form in Appendix I for information regarding the locations and asbestos or lead-content of these materials.

Figure 3

LOCATION:
1009 Sheppard Avenue West
Toronto, Ontario

BUILDING NAME:
Toronto Fire Station 143

Second Floor Plan
Asbestos-Containing Material Locations

CLIENT: City of Toronto

PROJECT NUMBER: FE-P 16-7715 DATE: MAY 2016 DRW BY: AH

CAD FILE: Second Floor Plan SCALE: Not to Scale CHK BY: MJ



APPENDIX V

SITE PHOTOGRAPHS

(NO INFORMATION TO REPORT)