The United Counties of Leeds and Grenville

Asbestos Program

October 19, 2017

Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

Stantec Consulting Ltd. (Stantec) was retained by United Counties of Leeds and Grenville (Leeds Grenville) to create an Asbestos Management Program (AMP). The creation and establishment of this AMP is to minimize risk and establish control measures for the on-going management of confirmed asbestos-containing materials (ACMs) and presumed asbestos-containing materials (PACMs) that are and/or may be present within the Leeds Grenville facilities. The AMP was created following the identification of ACMs and PACMs based on the findings of the asbestos documentation available for the buildings assessed.

To meet the requirements outlined in this AMP, a list of occurrences or "record" of confirmed and presumed ACMs that have been identified at the buildings are provided in **Appendix A.**

A list of report titles and dates for the asbestos-containing building material documentation including asbestos assessment, designated substances assessments and asbestos-abatement project documentation is provided in **Appendix B.**

The objective of the AMP, which addresses both friable and non-friable ACMs (refer to Section 3.3 for examples of asbestos-containing materials) is to:

- track and maintain an inventory of ACMs and PACMs;
- inform personnel and building occupants of the locations of ACMs and PACMs that may be encountered while performing their required duties;
- monitor the condition of confirmed or presumed ACMs through visual assessment at the building;
- provide the procedures to respond quickly and effectively to any changes in the condition of ACMs and PACMs and to properly maintain or repair any damaged ACMs and PACMs that may be encountered in the future;
- provide the procedures to avoid accidental disturbance of ACMs and PACMs by controlling access to these materials wherever possible and by establishing measures and safe work procedures for activities that may disturb ACMs and PACMs at the property; and,
- provide compliance criteria and intent of applicable legislation and regulations.

Building maintenance and management personnel at the building assessed must become familiar with this AMP. The program provides guidance to building personnel as well as outside contractors when working near confirmed ACMs or PACMs. The program also provides enough general information to enable Leeds Grenville staff to recognize the hazards, understand the risks, and respond accordingly to disturbed/damaged ACMs in the workplace.

The elements of the AMP include:

- roles and responsibilities;
- reassessment of ACMs;
- notification;
- worker training and instruction;
- work controls;
- work procedures for working with asbestos; and,
- record keeping.

Although Stantec developed this AMP to be in accordance with current applicable statutes and regulations in Ontario, it should be customized and maintained/updated to reflect actual site conditions at Leeds Grenville buildings. Furthermore, applicable provincial regulations must be followed during ACM removal/repair.

1.2 LEGISLATION

The following section outlines the relevant legislation in the province of Ontario that is applicable to managing asbestos in the workplace. This AMP is written to meet or exceed the requirements of this legislation.

1.2.1 Under the Occupational Health and Safety Act

1.2.1.1 Ontario Regulation 278/05 Designated Substance – Asbestos on Construction Projects and Repair Operations

Ontario Regulation 278/05 Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations (O. Reg. 278/05), as amended, provides the framework for the AMP. The key elements addressed in the regulation include, but are not limited to:

- definitions of terms including asbestos-containing material, competent worker, friable material, and homogeneous material;
- method and procedures for confirming whether a material is an ACM and for determining the concentration and type of asbestos;
- notification of workers;
- owner's responsibilities before requesting tender or arranging work;
- asbestos control measures and procedures to be followed under three (3) types of asbestos operations, including but not limited to:
  - minimum personal protective equipment (PPE);
  - isolating work areas;
  - decontamination facilities;
- instruction and training requirements of employers;
- outline of the training standards for asbestos training programs and for abatement operations; and,
- medical requirements such as asbestos work reports and asbestos workers registers.

AMPs in Ontario must meet all requirements addressed within this program, as a minimum, and the legislation should be referred to as needed.

1.2.1.2 Regulation 490/09 - Designated Substances

Ontario Regulation, 490/09 Designated Substances, (O. Reg. 490/09), as amended, consolidates the eleven designated substance regulations. For each of the eleven "designated substances", Section 30 requires that prior to beginning a construction or demolition project, the owner is to determine if "designated substances" are present at a site and prepare a list of materials containing "designated substances". If "designated substances" are identified to be present, all potential contractors (and subcontractors) bidding on the project must be provided a copy of the list as part of the tendering information.

Ontario Regulation 490/09 applies mainly to workplaces that process, adapt, or use asbestos in connection with the manufacturing or assembling of goods or products. Included in this regulation are workplaces that engage in the repair, alteration, or maintenance of machinery and equipment that are ACMs or on buildings that are necessarily incidental to this type of work.

This standard applies primarily to industrial establishments, and the only part of this Regulation that has relevance to an AMP is the time weighted average (TWA) limit. Table 1 of the regulation establishes a TWA limit of 0.1 fibres/cc for all forms of asbestos within workplaces to which the regulation applies.

1.2.2 Under the Environmental Protection Act

1.2.2.1 R.R.O. 1990, Regulation 347 General – Waste Management

The general waste management regulation for the province of Ontario is *R.R.O. 1990, Regulation 347 General - Waste Management*, (R.R.O. 1990, 347), as amended. "Asbestos waste" is established as a special class of waste by defining it as a solid or liquid that results from the removal of asbestos-containing construction or insulation materials or the manufacture of asbestos-containing products and contains asbestos in more than a trivial amount or proportion. The section outlining the management of asbestos imposes special requirements for the packaging, transportation, and disposal of asbestos waste.

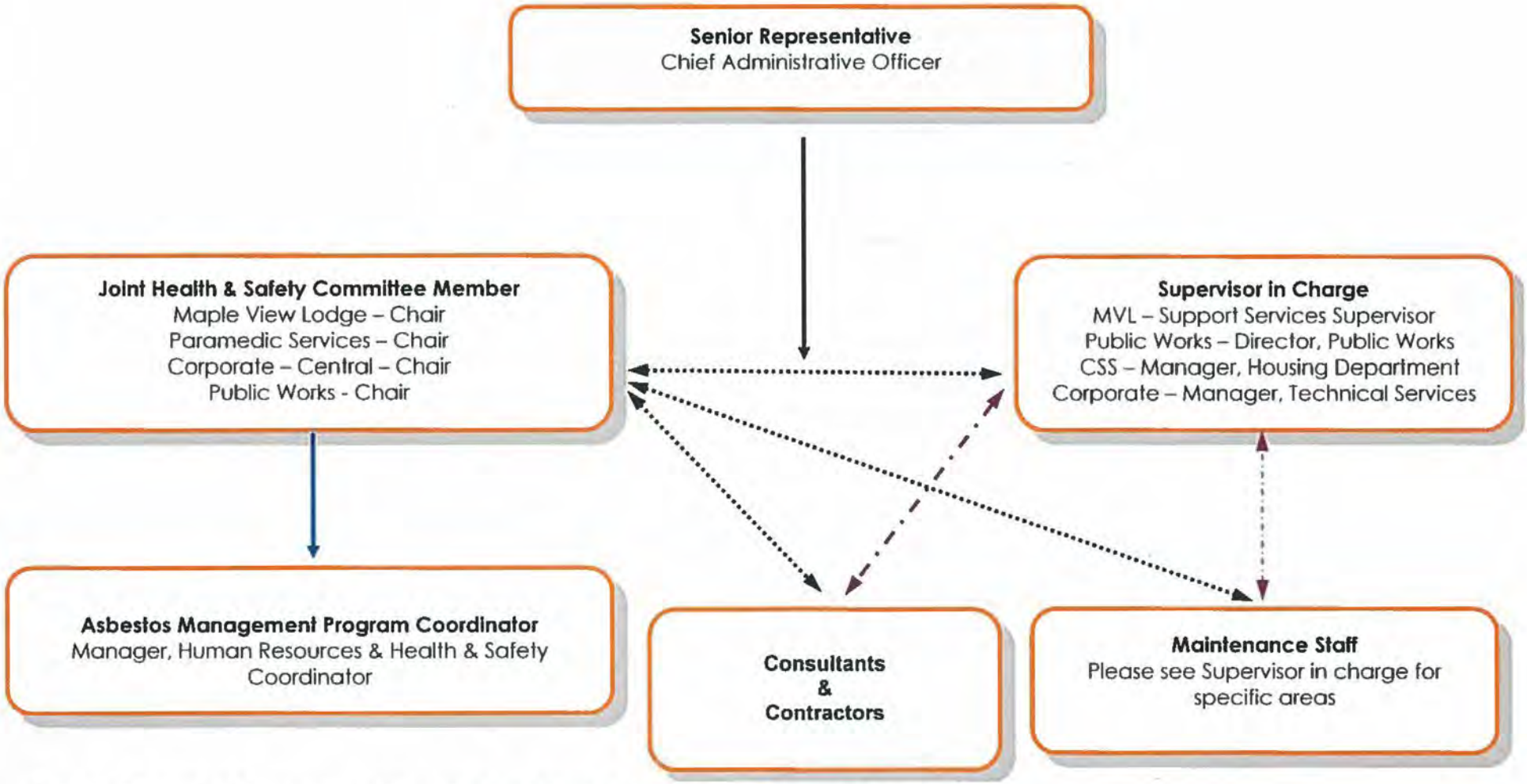
2.0 ROLES AND RESPONSIBILITIES

The success of the AMP is dependent on the implementation of roles and responsibilities by all workplace parties. Key workplace parties/roles include, but are not limited to:

- Senior Employer Representative;
- Asbestos Management Program Coordinator;
- Supervisor in Charg);
- Joint Health and Safety Committee;
- Maintenance Staff; and,
- Consultants and Contractors.

A flow chart identifying the key personnel involved in the AMP is provided on the following page, along with their respective roles and responsibilities. Refer to **Appendix C** for contact information for asbestos management program personnel.

Figure 1 Asbestos Management Program Personnel Flow Chart



Refer to **Appendix C** for contact information for Asbestos Management Program personnel.

2.1 SENIOR EMPLOYER REPRESENTATIVE

A Senior Employer Representative is responsible for:

- ensuring that workplaces, which are within their area of responsibility and authority, are meeting the minimum legislative requirements in the province of Ontario that are applicable to managing asbestos in the workplace;
- appointing a qualified site maintenance employee as the Asbestos Management Program Coordinator;
- ensuring that each building under their control has an AMP;
- monitoring that the Asbestos Management Program Coordinator is progressing with their asbestos-containing building material assessments and training, as well as overall management of asbestos identified at the building;
- ensuring that the AMP is being prepared and that the requirements are being implemented by the Asbestos Management Program Coordinator;
- approving money to be set aside in annual budgets for asbestos-containing building materials assessments, reassessment inspections, training, and contracting out certain types of large or complicated asbestos abatement project work; and,
- liaising, on behalf of Leeds Grenville, with regulatory bodies on matters related to asbestos management.

2.2 ASBESTOS MANAGEMENT PROGRAM COORDINATOR

The Asbestos Management Program Coordinator is responsible for:

- implementing the requirements of asbestos management within the buildings;
- arranging for initial asbestos buildings material assessment;
- creating and maintaining an asbestos inventory (if applicable);
- conducting or arranging reassessment inspections of the material recorded in the asbestos-containing building materials assessment;
- ensuring that the record of asbestos-containing building materials is updated at least once in a 12-month period or whenever the owner becomes aware of new information relating to the record (i.e., following the discovery of new ACMs or PACMs or following the repair/removal of ACMs);
- ensuring that the locations and approximate quantities of ACMs and PACMs in the buildings are recorded;
- ensuring that site maintenance workers are aware of the requirements of asbestos management and ensuring that they follow standard operating procedures related to asbestos work;
- coordinating training requirements for building maintenance employees;
- maintaining and updating the AMP manual as needed to maintain an up-to-date document; and,
- preparing and issuing notification letters, emails, postings, and signs regarding the existence of ACMs.

2.3 SUPERVISOR IN CHARGE

The Supervisor in charge of asbestos related work is responsible for:

- ensuring that workers have been provided with the required training to conduct the work safely and with tolerable health risk;
- ensuring that appropriate PPE, tools, and clothing required to complete work are provided;
- preparing and issuing notification letters, emails, postings, and signs regarding the existence of ACMs;
- ensuring that required equipment to conduct the work properly are on site before commencing work;
- reviewing maintenance work requirements against asbestos building material assessments and the asbestos inventory (if applicable) to determine the possibility of disturbing the ACM and PACMs, and classifying the work based on the approved criteria;
- ensuring that the appropriate procedures for the work are followed and implemented;
- ensuring that procedures for inspection and air monitoring are implemented based on the applicable classification of type of asbestos work indicated in this manual and the specific requirements of the legislation; and,
- immediately notify the Asbestos Management Program Coordinator of any hazardous occurrences involving asbestos-related work.

2.4 JOINT HEALTH AND SAFETY COMMITTEE

The Joint Health and Safety Committee is responsible for:

- participating in hazard investigations to ascertain the risk associated with asbestos-related work requirements;
- monitoring the workplace to ensure that the legislative and AMP requirements are being addressed;
- reviewing clearance air testing results provided;
- participate in training and undertake a review of training requirements for asbestos-related work on a frequency determined by the committee;
- evaluating equivalency measures or procedures presented to them to ensure that Leeds Grenville staff are afforded health and safety protection that is at least equal to the protection that would be provided by complying with the legislation; and,
- reporting immediately, specific workplace complaints related to asbestos management to the Asbestos Management Program Coordinator.

2.5 MAINTENANCE STAFF

The Maintenance Staff are responsible for:

- reviewing maintenance work requirements against asbestos building material assessments and the asbestos inventory (if applicable) to determine the possibility of disturbing the ACMs and PACMs, before engaging in maintenance work assignments and follow applicable procedures;
- attending and participating in instruction and training sessions; and,
- reporting immediately to their supervisor and the Asbestos Management Program Coordinator all hazards, as well as known or suspected conditions or activities that are in violation of approved practices are procedures and that may cause a hazardous occurrence.

2.6 CONSULTANT AND CONTRACTOR

Consultant and contractor responsibilities may include:

- assisting in the development of an AMP;
- selecting and evaluating safety equipment;
- conducting training;
- conducting annual asbestos building materials reassessments;
- updating the asbestos record in the ACM Database;
- development of specifications for the removal of asbestos-containing materials; and,
- conducting large or complicated asbestos abatement project work.

3.0 ASBESTOS BACKGROUND INFORMATION

Asbestos is a naturally occurring mineral fibre that has long been recognized as having inherent properties that make the mineral ideal for diverse applications. The name asbestos comes from a Greek term meaning "indestructible" and the mineral has been mined in many countries, including Canada. Asbestos has two main mineralogical classifications; the most common asbestos used in Canada is called chrysotile asbestos, which is a serpentine type asbestos. Amphibole asbestos is another common asbestos type that contains further subgroups called amosite, crocidolite, actinolite, anthophyllite, and tremolite asbestos.

Chrysotile asbestos is commonly referred to as "white" asbestos and has been widely used in Canada (and other countries) to provide thermal insulation and increase the durability of products containing the mineral. Chrysotile asbestos can be found in many products including: mechanical insulation, fireproofing, manufactured cement board or cement piping, floor tile, ceiling tiles, drywall joint compounds, sheet vinyl flooring paper backing, incandescent light fixture backing paper, gaskets, brake shoes, even wigs and children's clothing.

Amosite or "brown" asbestos has also been widely used across Canada. Amosite asbestos can be found in products including; mechanical insulation, fireproofing, and ceiling tiles. Crocidolite or "blue" asbestos can be found in Canada, but is less common than amosite and even less common than chrysotile asbestos. Crocidolite asbestos can be found (most commonly) in industrial uses such as sprayed on thermal, acoustic or chemical barriers. Additional special precautions with personal protective equipment (i.e., type of respirator) are required when working with types of asbestos other than chrysotile, such as amosite and crocidolite asbestos.

3.1 HEALTH EFFECTS OF ASBESTOS EXPOSURE

Most asbestos related diseases are caused by the inhalation of airborne asbestos fibres. However, asbestos has been linked to cancer of the colon, larynx, rectum, stomach, and trachea. Asbestosis is a terminal disease caused by excessive scarring of the lung tissue, as a result of inhalation of airborne asbestos fibres. Mesothelioma is a rare form of cancer that has been linked to asbestos and is also terminal. Lung cancer may also result from exposure to airborne asbestos fibres. Smokers have up to 70 times the relative risk of developing fatal lung cancer if they are (sufficiently) exposed to airborne asbestos fibres.

3.2 TERMS AND DEFINITIONS

Term	Definition
Asbestos	A generic term describing a number of naturally occurring fibrous hydrated mineral silicates that differ in chemical composition and are suitable for use as non-combustible, non-conducting and chemically resistant materials. Different types of asbestos that may be found in buildings are chrysotile, amosite, crocidolite, tremolite, actinolite, or anthrophylite.
Asbestos Containing Material (ACM)	In Ontario, asbestos containing material is defined as any material found to contain 0.5% or more asbestos fibres by dry weight, determined by the standard Polarized Light Microscopy method for analysis of bulk samples.
ACM Database	A 3rd party electronic database which houses the asbestos survey information
Asbestos Work Area	Area where work is being performed which could disturb ACM including overspray, fallen material or settled dust that may contain asbestos.
Building	Any structure, vault, chamber or tunnel including without limitation the electrical, plumbing, heating and air handling equipment (including rigid ductwork) of that Structure, vault, chamber or tunnel.
Bulk Sample	A representative sample taken of any material suspected of containing asbestos.
Competent Worker	Refers to a worker who is qualified because of knowledge, training and experience to do the work; is familiar with the Act, Ontario Regulation and the provisions, which apply to the work; and a worker who has knowledge of the potential or actual dangers to the health and safety of the work.
Demolition	Includes dismantling/break-up of any permanent or semi-permanent building or component to replace, repair or renovate the area. Demolition can also refer to targeted destruction of building components for a remediation project.
Electron Microscopy	Used in conjunction with selected area electron diffraction or energy dispersive X-ray analysis, the scanning electron microscope (SEM) or transmission electron microscope (TEM) provides specific fibre identification. TEM analysis can detect and conclusively analyze all fibres. It is commonly used for evaluating the ambient or environmental exposure levels or removing ambiguities where fibres other than asbestos may be counted by phase contrast method. This is an expensive method requiring a greater amount of time for completion than other technique.
Encapsulation	The application of a sealant to ACM. The sealant may penetrate and harden the material (penetrates) or cover the surface with protective coating (bridging sealants).
Enclosure	The construction of airtight walls and ceilings around ACM.
Fibrous Aerosol Monitor (FAM)	An instrument that uses lasers and electronics to make approximate measurements of air fibre levels; it cannot distinguish asbestos fibres from other fibrous material in air.
Friable Material	A material is considered friable if when dry, it can be easily crumbled, pulverized or powdered by hand pressure, or a material that is crumbled, pulverized or powdered. Friable materials commonly used in buildings include sprayed fibrous fireproofing, decorative or acoustical texture coating thermal pipe/mechanical insulation.
HEPA Filter	A high efficiency particulate aerosol filter that is at least 99.97 per cent efficient in collecting a 0.3-micrometer aerosol.
Non-Friable Material	A material that when dry cannot be easily crumbled, pulverized or powdered by hand pressure.

3.3 EXAMPLES OF ASBESTOS-CONTAINING BUILDING MATERIALS

Asbestos-containing materials are often described as being friable or non-friable. The term friable is applied to a material that **a)** when dry, can be crumbled, pulverized or powdered by hand pressure, or **b)** is crumbled, pulverized, or powdered.

Asbestos materials that are friable have a much greater potential to release airborne asbestos fibres when disturbed. Non-friable materials are less likely to result in airborne exposures, however if they are cut, machined, fabricated, ground, demolished, or are in poor condition the potential for fibre release increases. Ontario Regulation 278/05 addresses both friable and non-friable material, and draws distinctions between friable and non-friable materials when assigning appropriate work practices.

The following table below is a brief list of some examples of friable and non-friable ACMs that may be present. It is important to note that not all ACMs are listed here, as there are well over 3,000 products that may contain friable and non-friable asbestos. Since listing all of these products is impractical; any building material that is not obviously some other material such as steel or fibreglass, must be treated as asbestos-containing until proven otherwise.

Table 1 Friable and Non-friable ACMs

Friable ACMs	
Sprayed or Trowelled Fireproofing	Usually applied to a building's support structures and the underside (decking) of floors. Caution must be taken due to the fact that overspray fireproofing may be present on all building systems (i.e., ducts, pipes, and ceiling) in an area with sprayed fireproofing. Asbestos-containing fireproofing usually contains amosite or chrysotile asbestos.
Mechanical Insulation	This includes parging on ductwork, boilers, chillers, hot water tanks, and any insulated vessels; mud products applied to pipe elbows or any other mechanical fitting; as well as asbestos-containing straight run insulation found on straight runs of piping.
Paper Backing Associated with Vinyl Sheet Flooring and Linoleum Sheet Flooring	The backing paper may contain high percentage asbestos (usually chrysotile asbestos).
Potentially Friable ACMs	
Ceiling Tiles	Most sizes and shapes of ceiling tile may contain asbestos. Including 12 x 12 inch, and 2 x 4 foot. Some types of ceiling tiles may contain amosite asbestos. Ceiling tiles are often considered to be a non-friable material, however it should be noted that asbestos-containing ceiling tiles become friable when broken or damaged.
Drywall Joint Compound	Drywall joint compound can be found on any drywall or wall board surface. Asbestos-containing drywall joint compounds usually contain chrysotile asbestos. Drywall joint compound is typically considered to be a non-friable material in an undisturbed state, however it should be noted that asbestos-containing drywall may become friable when damaged.

Table 1 Friable and Non-friable ACMs

Plaster Walls and Ceilings	Plaster walls and ceilings may contain asbestos. These surfaces usually consist of two layers; the first material applied to the structure is the "scratch coat" or rough layer. The scratch coat layer is then covered with the "smooth coat" layer, which is then sanded and painted. Both layers may contain asbestos (usually chrysotile asbestos). Plaster surfaces are typically considered to be a non-friable material in an undisturbed state, however it should be noted that asbestos-containing plaster may become friable when damaged.
Non-Friable ACMs	
Floor Tiles	Floor tiles including 9 x 9 inch and 12 x 12 inch may contain asbestos. Asbestos-containing floor tiles usually contain chrysotile asbestos.
Floor levelling Compounds	Floor levelling compounds are often present over concrete floors; however, they may also be found covering other flooring surfaces. Asbestos-containing floor levelling compounds usually contain chrysotile asbestos.
Asbestos-Containing Cement Products	Asbestos-containing cement products include cement board, roofing tiles, and piping. Most asbestos-containing cement products contain chrysotile asbestos; however, cement piping may contain crocidolite asbestos and cement panels may contain amosite.
Gaskets	Asbestos-containing gaskets may be present in various mechanical systems. Asbestos-containing gaskets usually contain chrysotile asbestos.

Reference **Appendix A** for a list of occurrences or "record" of confirmed and presumed ACMs that have been identified to be present within the buildings.

4.0 ASBESTOS-CONTAINING MATERIALS AT THE BUILDINGS

Confirmed and presumed ACMs were identified to be present during the asbestos assessments undertaken at the buildings. A list of report titles and dates for the asbestos-containing material documentation including asbestos assessment, designated substances assessments and asbestos-abatement project documentation is provided in **Appendix B**.

The objective of the assessment was to:

- prepare reports that identify confirmed and presumed ACMs present, including location, quantity and condition within the buildings; and,
- provide recommendations for the management of these materials.

Asbestos-containing building materials assessments are essential to meet the intent under section 30 of the OHSA, as well as Section 8 of O. Reg. 278/05. Section 10 of O. Reg. 278/05 also provides a clear requirement for pre-construction Asbestos Building Material Assessments when requesting tender or arranging demolition, alteration or repair of machinery, equipment, and/or a building (unless the work is known to contain or is to be considered as ACMs). Also, in accordance with Part III of the OSHA and Regulations, the owner is required to prepare a list of designated substances at the site before beginning a project (Section 30.1).

Additional ACMs and/or PACMs may be located in areas not included during the assessments, areas not accessible during the assessment or because of limited sampling and analysis conducted as part of the screening. Therefore, it is important to note that additional assessments may be recommended for areas not assessed that may undergo renovation or demolition. Furthermore, initial or additional sampling may be necessary prior to disturbance of specific ACMs and PACMs.

Prior to conducting any maintenance work, the Asbestos Management Program Coordinator should determine whether any known ACMs or PACMs will be potentially disturbed (including, but not necessarily limited to those listed in the most current Asbestos-Containing Building Materials Assessment). Materials presumed to contain asbestos (i.e., materials listed as PACMs) must be treated as ACMs until further testing confirms otherwise.

The Asbestos Management Program Coordinator should review the AMP record to determine whether all materials that may be disturbed have been adequately sampled and analyzed for asbestos content. If suspected ACMs or PACMs will be potentially disturbed, the Asbestos Management Program Coordinator should arrange for sampling and laboratory analysis of the suspected ACMs to confirm the presence and type of asbestos prior to commencement of work. In lieu of sampling and laboratory analysis, suspect ACMs can be presumed to be and treated as asbestos-containing.

Determining whether any suspect ACMs will be disturbed by maintenance, renovation, or demolition work procedures may be accomplished through review of previous assessments and sampling records. However, if insufficient data is available, a visual observation and sampling should be conducted by a properly trained internal worker, or a trained asbestos consultant.

5.0 EVALUATION OF ASBESTOS-CONTAINING MATERIALS AND RECOMMENDATIONS FOR CONTROL

A description of the criteria used in evaluating the condition, accessibility, and exposure risk of ACMs is provided below. The criteria are generally based on the Public Works and Government Services Canada (PWGSC) document entitled *Deputy Ministers Directive 057 – Asbestos Management* (Last Revised 1999/07/16) and industry standards of practice.

5.1 ASSESSMENT OF CONDITION

5.1.1 Spray Applied Fireproofing, Insulation, and Textured Finishes (including overspray)

In evaluating the condition of asbestos-containing spray applied material such as fireproofing, thermal insulation, or texture, decorative or acoustic finishes, the following criteria apply:

Good

Surface of material shows no significant signs of damage, deterioration, or delamination. Up to one percent visible damage to surface is allowed within range of GOOD. Evaluation of sprayed fireproofing requires the assessor to be familiar with the irregular surface texture typical of sprayed asbestos products. GOOD condition includes unencapsulated or unpainted fireproofing or texture finishes, where no delamination or damage is observed, and encapsulated fireproofing or texture finishes where the encapsulation has been applied after the damage or fallout occurred.

Fair

FAIR condition is not utilized or considered as a valid criterion in the evaluation of sprayed fireproofing, sprayed insulation, or texture coat finishes.

Poor

Sprayed materials show signs of damage, delamination, or deterioration. More than one percent damage to surface of asbestos-containing spray.

In observation areas, where damage exists in isolated locations, both GOOD and POOR condition may be reported. The extent or percentage of each condition was recorded on the reassessment form.

The evaluation of asbestos-containing spray applied as fireproofing, non-mechanical thermal insulation, or texture, decorative or acoustic finishes that are present above ceilings, may be limited by the number of observations made, and by building components such as ducts or full

height walls that obstruct the above ceiling observations. As outlined in Ontario Regulation 278/05, Type 2 operations are required for the removal of all or part of a false ceiling to obtain access to these areas, if asbestos-containing material is likely to be lying on the surface of the false ceiling.

5.1.2 Other Asbestos-Containing Materials

In evaluating the condition of mechanical insulation (on boilers, breaching, ductwork, piping, tanks, equipment etc.) the following criteria are used:

Good

Insulation is completely covered in jacketing and exhibits no evidence of damage or deterioration. No insulation is exposed. Includes conditions where the jacketing has minor surface damage (i.e., scuffs or stains), but the jacketing is not penetrated.

Fair

Minor penetration damage to jacketed insulation (cuts, tears, nicks, deterioration or delamination) or undamaged insulation that has never been jacketed. Insulation is exposed but not showing surface disintegration. The extent of missing insulation ranges should be minor to none.

Poor

Original insulation jacket is missing, damaged, deteriorated or delaminated. Insulation is exposed and significant areas have been dislodged. Damage cannot be readily repaired.

The evaluation of mechanical insulation may be limited by the number of observations made and building components such as ducts or full height walls that obstruct observations. In these circumstances, it is not possible to observe each foot of mechanical insulation from all angles.

5.1.3 Non-Friable and Potentially Friable Materials

Non-friable materials generally have little potential to release airborne fibres, even when damaged by mechanical breakage. However, some non-friable materials, i.e., exterior asbestos cement products, may have deteriorated so that the binder no longer effectively contains the asbestos fibres. In such cases of significantly deteriorated non-friable material, the material will be treated as a friable product.

5.2 EVALUATION OF ACCESSIBILITY

The accessibility of building materials known or presumed of being asbestos-containing is rated according to the following criteria:

Access (A)

Areas of the building within reach of all building users. Includes areas such as gymnasiums, workshops, and storage areas where activities of the building users may result in disturbance of ACMs not normally within reach from floor level.

Access (B)

Frequently entered maintenance areas within reach of maintenance staff, without the need for a ladder. Includes; frequently entered pipe chases, tunnels and service areas or areas within reach from a fixed ladder or catwalk, i.e., tops of equipment, mezzanines.

Access (C) Exposed

Areas of the building above 8'0" where use of a ladder is required to reach the ACM. Only refers to ACM materials that are exposed to view, from the floor or ladder, without removing or opening other building components such as ceiling tiles, or service access doors or hatches. Does not include infrequently accessed service areas of the building.

Access (C) Concealed

Areas of the building which require the removal of a building component, including lay-in ceilings and access panels into solid ceiling systems. Includes rarely entered crawl spaces, attic spaces, etc. Observations are limited to the extent visible from the access points.

Access (D)

Areas of the building behind inaccessible solid ceiling systems, walls, or mechanical equipment, etc. where demolition of the ceiling, wall or equipment, etc., is required to reach the ACMs or PACMs. Evaluation of the condition and extent of is limited or impossible, depending on the assessor's ability to visually examine the materials in Access D.

5.3 ASBESTOS-CONTAINING MATERIAL DEBRIS

5.3.1 Debris from Friable ACMs

The presence of fallen ACM is noted separately from the presumed friable ACM source (sprayed fireproofing, thermal insulation, texture, decorative or acoustic finishes or mechanical insulation) and is referred to as debris.

5.3.2 Debris from Damaged Non-Friable ACMs

The presence of fallen ACM, from damaged non-friable ACM, is reported separately from the non-friable ACM source. Only fallen non-friable ACM, that has become friable, is reported as debris.

The identification of the exact location or presence of debris on the top of ceiling tiles is limited by the number of observations made and the presence of building components such as ducts or full height walls that obstruct observations. Workers are advised to be watchful for the presence of debris prior to accessing, or working in proximity to, mechanical insulation or above ceiling areas of buildings with ACM, regardless of the reported presence or absence of debris. Ontario Regulation 278/05 requires Type 2 operations for the removal of all or part of a false ceiling to obtain access to a work area if asbestos-containing material is likely to be lying on the surface of the false ceiling.

5.4 ACTION MATRIX AND ACTION DESCRIPTIONS

5.4.1 Action Matrix

AMP requires the following responses:

- immediate clean-up of debris that is likely to be disturbed; and,
- the removal, repair or enclosure of friable ACM in POOR or FAIR condition where continued deterioration will result in debris that is likely to be disturbed.

The following factors shall be considered in making site-specific recommendations for compliance with the regulation, and for the practical implementation of asbestos management:

1. ACMs in POOR condition is not routinely repairable.
   If an abatement action is necessary, removal is the recommended action (enclosure is a viable option in unusual circumstances).
2. Mechanical insulation in FAIR condition will be repaired or removed based on the following general recommendations, applied on a case by case basis:
   - Repair asbestos-containing mechanical insulation found in FAIR condition in ACCESS (B) or ACCESS (C) EXPOSED areas.
   - Remove asbestos-containing mechanical insulation found in FAIR condition in ACCESS (B) and ACCESS (C) EXPOSED areas, where future damage to the ACM is likely to occur.
   - Remove asbestos-containing mechanical insulation found in FAIR condition in ACCESS (A) to eliminate the potential for re-damaging the ACM by all building users.

3. ACMs in GOOD condition present in ACCESS (A) can be managed by surveillance, as long as it is not disturbed by future renovation, maintenance or demolition. Proactive removal of the ACM in ACCESS (A) will be considered where damage is possible by ongoing occupant activity (accidental or intentional).
4. Non-friable or manufactured products are considered in the action matrix as follows:

    - Non-friable and manufactured products reported in POOR condition, or friable debris resulting from the deterioration of non-friable ACMs, are treated as friable materials and the appropriate Action, depending on accessibility, is determined from the Action Matrix for friable ACMs.
    - For non-friable or manufactured products reported in GOOD condition, Action 7 (surveillance) is recommended regardless of accessibility.

5. Remove all ACM from a particular area where small quantities of asbestos are present and removal will negate the need for the use of the Asbestos Management Program in that area.

The Action Matrix provided below establishes the recommended asbestos control action. The ACTIONS are described in full following the matrix.

Table 2 Action Matrix

ACCESS	FRIABLE ACM CONDITION			DEBRIS
	GOOD	FAIR	POOR	
(A)	ACTION 5/7[1]	ACTION 5/6[2]	ACTION 3	ACTION 1
(B)	ACTION 7	ACTION 6/5[3]	ACTION 3	ACTION 1
(C) exposed	ACTION 7	ACTION 6	ACTION 4	ACTION 2
(C) concealed	ACTION 7	ACTION 7	ACTION 4	ACTION 2
(D)	ACTION 7	ACTION 7	ACTION 7	ACTION 7

Notes:
1 If material in ACCESS (A)/GOOD condition is not removed ACTION 7 is required.
2 If material in ACCESS (A)/FAIR condition is not removed ACTION 6 is required.
3 Remove ACM in ACCESS (B)/FAIR condition if ACM is likely to be disturbed.

5.4.2 Action Descriptions Including Emergency Procedures

ACTION 1 Immediate Clean-up of Debris that is Likely to be Disturbed

Restrict access that is likely to cause a disturbance of the asbestos-containing debris and have a contractor clean up asbestos-containing debris immediately. Utilize correct asbestos procedures. This action is required for compliance with regulatory requirements. Maintenance Staff should immediately notify the Asbestos Management Program Coordinator of this condition.

ACTION 2 Entry into Areas with Asbestos-containing Debris - Type 2 Precautions

At locations where asbestos-containing debris can be isolated in lieu of removal or cleaned up, use appropriate means to limit entry to the area. Restrict access to the area to persons utilizing Type 2 asbestos-work precautions. The precautions will be required until the asbestos-containing debris has been cleaned up by a contractor and the source of the debris has been stabilized or removed.

ACTION 3 ACM Removal Required for Compliance

Remove ACM for compliance with regulatory requirements. Contractors to utilize asbestos procedures appropriate to the scope of the removal work.

ACTION 4 Access into Areas Where ACM is Present and Likely to be Disturbed by Access - Type 2 Precautions

Contractors must use Type 2 asbestos precautions when entry or access into an area is likely to disturb the ACM. ACTION 4 must be used until the ACM is removed (Use ACTION 1 or 2 if debris is present).

ACTION 5 Proactive ACM Removal

Remove ACM in lieu of repair, or at locations where the presence of asbestos in GOOD condition is not desirable.

ACTION 6 ACM Repair

Repair ACM found in FAIR condition, and not likely to be damaged again or disturbed by normal use of the area or room. Upon completion of the repair work, treat ACM as material in GOOD condition and implement ACTION 7. If ACM is likely to be damaged or disturbed, during normal use of the area or room, implement ACTION 5.

ACTION 7 Routine Surveillance

Institute routine surveillance of the ACMs. Use appropriate asbestos precautions (Type 1, Type 2 or Type 3) during disturbance of the remaining ACM.

6.0 REASSESSMENT INSPECTIONS OF ASBESTOS-CONTAINING MATERIALS

Periodic reassessment inspections (often referred to as surveillance) of ACMs or PACMs are an essential part of the AMP. Ontario Regulation 278/05 requires that the record (e.g., Asbestos Building Materials Assessment) be updated at least once in each 12 month period or whenever the Building Owner and/or Leeds Grenville Staff become aware of new information relating to the ACMs or PACMs.

This reassessment inspection should be carried out by an outside consultant. The inspection activity, along with damage reports must include identifying and recording changes in the condition of the ACMs, including damage and deterioration, and changes in the use and activity of spaces containing presumed or confirmed ACMs.

Special attention must be paid to friable ACMs and ACMs located in high activity areas that are susceptible to damage and subsequent deterioration. If reassessment inspections are conducted by an outside consultant, the Asbestos Management Program Coordinator should accompany the consultant during the inspections, if feasible. Reassessment inspection documentation must be maintained on each site by the Asbestos Management Program Coordinator.

The following information, at a minimum, should be documented when performing the periodic reassessment inspections:

- location of the ACMs or PACMs, address, building room(s), or general description;
- type of material;
- present abatement status, if any (encapsulate, enclosed, or neither);
- evidence of physical damage;
- evidence of water damage;
- evidence of delamination or other deterioration;
- degree of accessibility of the material;
- level of work activity near the material; and,
- location of any nearby air plenums, air shafts or air streams.

Building personnel should be trained to recognize damage and changes in the condition of ACMs and PACMs on-site. Building personnel who notice any changes to the condition of the ACMs or PACMs on-site should notify the Asbestos Management Program Coordinator immediately for appropriate action to be taken.

7.0 NOTIFICATION

Providing information in a timely manner to Leeds Grenville occupants (including tenants), constructors, contractors, subcontractors, and maintenance staff is an important aspect of the Asbestos Management Program. The Asbestos Management Program Coordinator is responsible under the O. Reg. 278/05 to provide written notice to these workplace parties in defined circumstances. The Asbestos Management Program Coordinator will inform applicable workplace parties about the presence of ACMs and PACMs by:

- distributing written notices and / or reports (where applicable);
- posting signs or labels in a central location where affected workplace parties can see them; and,
- holding awareness or information sessions.

Before requesting tender or arranging a construction project, the Asbestos Management Program Coordinator shall determine if bulk asbestos sampling is required and notify workplace parties involved (e.g., constructor, contractors, and / or subcontractors) by way of a complete report. This report must include:

- a statement of whether the materials are asbestos-containing or not, or are to be treated as such;
- a description of the condition of the materials and whether they are friable or non-friable; and,
- drawings, plans, and specifications (as appropriate) to show the location of all materials identified.

The terms "construction" and "project" are defined within the *Ontario Occupational Health and Safety* Act, 1990 and must be understood to ensure that this requirement is applied in applicable circumstances.

If during the construction project a material is discovered that is not referred to in the report and is suspected to be an ACM, The Leeds Grenville or the constructor are obligated to immediately notify, orally and in writing:

- a Ministry of Labour (MOL) inspector at the nearest MOL office;
- the Senior Employer Representative;
- all contractors and subcontractors; and,
- the joint health and safety committee for the workplace.

The Asbestos Management Program Coordinator will carry out this reporting requirement on behalf of Leeds Grenville. In order for the Asbestos Management Program Coordinator to complete this responsibility in a timely manner they must be immediately notified of this occurrence.

The written notice to the above mentioned workplace parties must include:

- name and address of the person giving the notice;
- name and address of The Leeds Grenville head office;
- municipal addresses or other description of the buildings where the proposed work will be undertaken (provide with respect to nearest public highway);
- description of the proposed work;
- start date and expected duration of the work; and,
- name and addresses of the supervisors in charge of the work.

There are three (3) other defined circumstances that require notification. These include:

- notifying building occupants, including maintenance staff of the information in the Asbestos Building Materials Assessment;
- notifying employers with whom Leeds Grenville arranges and/or contracts for non-construction project type work (if it involves material in the asbestos building material assessment or may be carried out in close proximity to such material and may be disturbed); and,
- notifying workers that do work involving ACMs (or it is being treated as such) or to be carried out in close proximity to that material and may disturb it.

This last circumstance does not have to be in writing and also includes situations where workers discover material that may be ACMs and were not part of initial planning efforts.

The three (3) circumstances described above require that Leeds Grenville to advise of:

- location of all suspected or known ACMs; and,
- whether the material is friable or non-friable.

For spray-on friable material, if the material is known to be an ACM, then the type of asbestos must be indicated, however, if the material is not known to be an ACM then it may be necessary (when bulk sampling is not deemed necessary or applicable) to include a statement that the material will be treated as though it contains a type of asbestos other than chrysotile.

The Leeds Grenville maintenance staff should be informed of the presence of ACMs, but it may not be necessary to inform every occupant of all the ACM locations throughout the building. However, each occupant should be aware of the locations of presumed or confirmed ACMs that may be present within their work area.

Managing asbestos related project requirements involving contractors and/or constructors in the buildings can be achieved by completing the Asbestos Work Notice Form and having the contractor and or constructor complete and sign the Contractor Awareness Form located in **Appendix D**.

8.0 WORKER TRAINING AND INSTRUCTION

Under O. Reg. 278/05, an owner of a building is required to establish and maintain a training and instruction program for every worker in the building who is likely to work in close proximity to and may disturb presumed or confirmed ACMs.

Asbestos work involving Type 2 or Type 3 work procedures should only be conducted by a qualified asbestos abatement contractor. Under no circumstances should maintenance staff attempt to complete Type 2, glove bag, or Type 3 operations.

The following topics must be considered as a minimum for the training and instruction program:

- hazards of asbestos exposure;
- use, care and disposal of protective equipment and clothing to be used and worn when doing applicable work;
- personal hygiene to be observed when doing applicable work; and,
- measures and procedures prescribed by O. Reg. 278/05.

There is also a requirement in O. Reg. 278/05 that every employer ensure that specific instruction and training be provided by a competent person to every worker working in a Type 1, Type 2, or Type 3 operation.

The instruction and training should specifically address:

- hazards of asbestos exposure;
- personal hygiene and working practices; and,
- use, cleaning, and disposal of respirators, and protective clothing.

The Joint Health and Safety Committee must be informed of the time and place where these specific types of instruction and training are to be carried out. Furthermore, the instruction and training related to respirators should include information on the:

- limitations of the equipment;
- inspection and maintenance of the equipment;
- proper fitting of a respirator; and,
- respirator cleaning and disinfection.

Training of workplace parties of their roles and responsibilities is one of the most important aspects of a successful and effective AMP. Training should be provided to workplace parties based on their roles and responsibilities related to asbestos management. To avoid duplication, training session should be structured and delivered in modules in order to target specific requirements and duties.

8.1 ASBESTOS AWARENESS TRAINING

Asbestos Awareness Training is a course that staff in the building will be required to take if they are likely to work in close proximity to and may disturb presumed or confirmed ACMs. This session should also be provided to individuals that supervise staff or contractors who may work near or with asbestos materials.

This course should be general in nature and should address the hazards of exposure to asbestos and introduce the requirements of the O. Reg. 278/05. Asbestos reporting and emergency procedures should also be covered in the general asbestos awareness session. The training session should place emphasis on the awareness and identification of ACMs, and the person to notify should damage occur to presumed or confirmed ACMs.

8.2 ASBESTOS MANAGEMENT TRAINING

Asbestos Management Training should be provided to the supervisor to provide information relating to the:

- requirements of O. Reg. 278/05;
- results of the asbestos building materials assessment;
- classification of asbestos work;
- asbestos management program;
- asbestos project control; and,
- asbestos reporting and emergency procedures.

This session should be at a level so that the people in charge of this type of work understand their roles and responsibilities fully and know how to manage asbestos in their area.

Upon completion of the training sessions, participants should be provided with a certificate of training. For a list of employees that have completed one or more of the above mentioned training modules refer to **Appendix E**. The Asbestos Management Program Coordinator should ensure that this record is completed for the site. The Asbestos Management Program Coordinator should also be responsible for reviewing the site training requirements and informing the Senior Employer Representative of any changes or updates on an annual basis or whenever new information becomes available.

When work near or on presumed or confirmed ACMs could result in the material being significantly disturbed, qualified asbestos abatement contractors should be considered for the work. Asbestos abatement contractors should have completed advanced training involving Type 3 operations. It is necessary for workers and supervisors of asbestos abatement companies to complete an Asbestos Abatement Worker Training Program approved by the Ministry of Training, Colleges, and Universities (MTCU). Particular care should be taken before allowing outside contractors and/or constructors to work on or near ACMs and PACMs. Contractors

and/or constructors should be provided with a report detailing the location of ACMs and PACMs in the buildings.

The Asbestos Management Program Coordinator should require documentation confirming the contractor and/or constructor is familiar with the site specific AMP, has experience working with or around ACMs, and has adequately trained abatement contractors that have proper insurance. The Contractor Awareness Form located in **Appendix D** can be used to document this. A trained member of the Leeds Grenville staff and/or the Asbestos Management Program Coordinator should act as liaison and monitor maintenance and work performed on ACMs and PACMs by outside contractors.

Contractors involved in asbestos abatement work should provide copies of their insurance documentation to Leeds Grenville outlining their coverage specifically for the removal of asbestos.

8.3 ASBESTOS SAFE WORK PROCEDURES

Type 2 and Type 3 operations should not be done by Leeds Grenville maintenance staff and be contracted out to a qualified abatement contractor. Leeds Grenville must take steps to ensure that maintenance staff is aware of the health risks, methods of prevention, and proper work practices associated with asbestos work procedures that will be undertaken by qualified abatement contractors. This can be accomplished through the use of written, oral, visual and participation approaches.

9.0 CLASSIFICATION OF TYPES OF ASBESTOS WORK

As the risk of exposure to asbestos fibres increases, more stringent operations are required for the remediation of the ACMs. Procedures are categorized as Type 1, Type 2 or Type 3 in O. Reg. 278/05, and are governed by separate work procedures.

Descriptions of the types of asbestos operations are included to assist the Asbestos Management Program Coordinator and maintenance staff in classifying each type of asbestos work operation.

Asbestos work involving Type 2 or Type 3 work procedures should only be conducted by a qualified asbestos abatement contractor. Under no circumstances should Leeds Grenville maintenance staff attempt to complete Type 2, glove bag, or Type 3 operations.

9.1 TYPE 1 OPERATIONS

The following are Type 1 operations:

- installing or removing ceiling tiles that are asbestos-containing material, if the tiles cover an area less than 7.5 square metres and are installed or removed without being broken, cut, drilled, abraded, ground, sanded or vibrated;
- installing or removing non-friable asbestos-containing material, other than ceiling tiles, if the material is installed or removed without being broken, cut, drilled, abraded, ground, sanded or vibrated;
- breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material if,
  - Material is wetted to control the spread of dust or fibres,
  - Work is done only by means of non-powered hand-held tools; and,
- removing less than one (1) square metre of drywall in which joint-filling compounds that are asbestos-containing material have been used.

9.2 TYPE 2 OPERATIONS

The following are Type 2 operations:

- removing all or part of a false ceiling to obtain access to a work area, if asbestos-containing material is likely to be lying on the surface of the false ceiling;
- removal or disturbance of one square metre or less of friable asbestos-containing material during the repair, alteration, maintenance or demolition of all or part of machinery or equipment or a building, aircraft, locomotive, railway car, vehicle or ship;
- enclosing friable asbestos-containing material;
- applying tape or a sealant or other covering to pipe or boiler insulation that is asbestos-containing material;

- installing or removing ceiling tiles that are asbestos-containing material, if the tiles cover an area of 7.5 square metres or more and are installed or removed without being broken, cut, drilled, abraded, ground, sanded or vibrated;
- breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material if,
  - the material is not wetted to control the spread of dust or fibres; and
  - the work is done only by means of non-powered hand-held tools.
- removing one square metre or more of drywall in which joint filling compounds that are asbestos-containing material have been used;
- breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material if the work is done by means of power tools that are attached to dust-collecting devices equipped with high-efficiency particulate aerosol (HEPA) filters;
- removing insulation that is asbestos-containing material from a pipe, duct or similar structure using a glove bag;
- cleaning or removing filters used in air handling equipment in a building that has sprayed fireproofing that is asbestos-containing material; and,
- an operation that,
  - is not mentioned in any of paragraphs 1 to 10 of O. Reg. 278/05,
  - may expose a worker to asbestos, and,
  - is not classified as a Type 1 or Type 3 operation.

9.3 TYPE 3 OPERATIONS

The following are Type 3 operations:

- removal or disturbance of more than one square metre of friable asbestos-containing material during the repair, alteration, maintenance or demolition of all or part of a building, aircraft, ship, locomotive, railway car or vehicle or any machinery or equipment;
- spray application of a sealant to friable asbestos-containing material;
- cleaning or removing air handling equipment, including rigid ducting but not including filters, in a building that has sprayed fireproofing that is asbestos-containing material;
- repairing, altering or demolishing all or part of a kiln, metallurgical furnace or similar structure that is made in part of refractory materials that are asbestos-containing materials;
- breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material, if the work is done by means of power tools that are not attached to dust-collecting devices equipped with HEPA filters;
- repairing, altering or demolishing all or part of any building in which asbestos is or was used in the manufacture of products, unless the asbestos was cleaned up and removed before March 16, 1986; and,
- work on ceiling tiles, drywall or friable asbestos-containing material is classified according to the total area on which work is done consecutively in a room or enclosed area, even if the work is divided into smaller jobs.

A copy of O. Reg. 278/05 is provided in **Appendix F** and a copy of O. Reg. 490/09 is provided in **Appendix G** for reference to the specific regulatory requirements.

10.0 WORK PROCEDURES FOR WORKING WITH ASBESTOS

10.1 WORK PRACTICES

The work practices described in this section have been developed for outside contractors working at Leeds Grenville buildings. The work practices selected should be appropriate for the likelihood that ACMs and PACMs will be disturbed and that fibres will be released.

In general, there are four (4) broad categories of work practices which are recognized:

1. **Worker Protection Program** - to protect Leeds Grenville staff and outside contractors from asbestos exposure.
2. **Basic Procedures** - basic (Type 1) procedures used to perform routine and maintenance tasks involving ACMs.
3. **Special Cleaning Techniques** - special techniques (Type 1 and Type 2) used to clean up asbestos released during routine work.
4. **Procedures for Asbestos Fibre Release Episodes** - if moderate to large amounts of ACMs are disturbed specialized procedures should be followed in order to address the hazard in a regulatory compliant manner.

10.1.1 Worker Protection Program

There are two key aspects of worker protection in terms of PPE: respiratory protection/monitoring, and the use of protective clothing. According to Ontario regulations, a written respiratory program is necessary whenever workers wear respirators, or where employees are exposed, or likely to be exposed to asbestos fibres.

10.1.1.1 Respiratory Protection

Respiratory protection is an important part of activities involving potential exposure to asbestos. Ontario Regulation 278/05 specifies general types of respirators for protection against airborne asbestos during construction activities, which includes abatement, renovation, repair and remodeling.

When adequate care is taken to prevent or minimize and control fibre release, routine, small scale/short-duration tasks are not likely to generate high levels of airborne asbestos compared to large asbestos removal projects. Therefore, respirators which filter breathing air may be used under these circumstances.

Single use disposable paper dust masks do not adequately protect against airborne asbestos fibres and should not be used.

The options for respiratory protection that may be used by qualified abatement contractors include:

- half-face or full-face negative pressure, air-purifying respirator with replaceable HEPA filters; and/or,
- half-face or full-face powered air purifying respirator (PAPR) with replaceable HEPA filters. This type of respirator has a battery-powered pump, which assists breathing and provides positive pressure in the face piece.

10.1.1.2 Protective Clothing

In addition to respirators, AMP procedures require the qualified abatement contractor to wear protective clothing. In the event that a qualified abatement contractor must conduct asbestos operations or in the event of an unplanned release of fibres, disposable coveralls, head covers and foot covers made of synthetic fabrics, which do not allow asbestos fibres to pass through (e.g., Tyvek®), should be worn. This type of clothing prevents workers' regular clothing from becoming contaminated with asbestos fibres. The coveralls must be disposed of as asbestos waste.

Contractors should be properly trained in the use, removal and disposal of protective clothing. Not all asbestos-related activities require the use of protective clothing. The need for protective clothing should be assessed by the Asbestos Management Program Coordinator on a case-by-case basis. Contractors are required to wear protective clothing for Type 2 and Type 3 operations.

10.1.2 Basic Procedures

Basic procedures to minimize and/or contain asbestos fibres include:

- wetting methods;
- use of mini-enclosures;
- use of portable power tools equipped with special local ventilation attachments fitted with HEPA filters; and/or,
- avoidance of certain activities, such as sawing, sanding and drilling ACMs.

Special work practices such as wet wiping, area isolation, HEPA vacuuming and the use of personal protective equipment such as respirators and protective clothing may be required where disturbance of ACMs is likely. The need for these practices varies with each situation.

10.1.3 Special Cleaning Techniques

Only qualified asbestos abatement contractors properly trained and qualified to perform Type 2 operations may be responsible for cleaning up after asbestos work is completed.

A combination of wet mopping/wiping or HEPA vacuuming must be undertaken to clean all surfaces that may be contaminated with asbestos fibres. Unacceptable cleaning techniques include dry sweeping or dusting which can result in a spread of airborne asbestos fibres. Wet clothes, rags or mops used to pick up asbestos fibres must be disposed of as asbestos waste while still wet. These asbestos contaminated materials must not be allowed to dry out, which can result in the release of asbestos fibres. The use of HEPA Vacuums may be preferable to wet cleaning in some circumstances. These vacuums have very efficient filters that trap the microscopic asbestos fibres. Regular vacuum cleaners should not be used since the air is not filtered sufficiently, and asbestos fibres may pass through the filter into the air.

Wet mopping/wiping is to be performed by gently spraying surfaces with either water or "amended water" before cleaning. Amended water is a mixture of water and commercially available surfactants that allows water to penetrate more easily into ACMs. A dust suppressant could also be used on mops. The wetting of the surfaces reduces the formation of airborne dust and can prevent an unnecessary asbestos exposure.

Irregular surfaces (curtains, books, furniture and carpeting) should be cleaned using HEPA vacuums. Other surfaces, such as walls, non-carpeted floors, light fixtures, exterior of air handling ducts and filing cabinets should be cleaned using mops and/or dust cloths or rags that are wetted with amended water.

10.1.3.1 Prohibited Activities

Leeds Grenville staff and outside contractors must ensure that their activities do not damage or further disturb ACMs. Leeds Grenville staff and outside contractors should be directed to:

- not to drill holes into ACMs and PACMs;
- not to hang pictures, signs (except asbestos warning signs), clothing, plants, or other articles on walls or from ceilings ACMs and PACMs;
- not to sand, saw or grind asbestos-containing floor tiles, hard board panels or other non-friable ACMs and PACMs;
- not to damage ACMs and PACMs while moving furniture or other objects;
- not to install curtains, drapes, or dividers in such a way that they damage ACMs and PACMs; and,
- not to clean-up including; dust, dry sweep, wet mop, or vacuum floors, ceilings, moldings or other surfaces in a suspected, presumed or confirmed asbestos-containing environment with a dry brush or sweep with a broom.

10.1.4 Procedures for Asbestos Fibre Release Episodes

If ACMs are present in the buildings, an uncontrolled asbestos fibre release may potentially occur. Leeds Grenville staff should note any debris on floors, water or physical damage to the ACMs, or any other evidence of possible fibre release. Fibre releases can occur with normal degradation of ACMs or during maintenance or renovations activities. Where fibre release or damage has occurred, the damage must be repaired and the area decontaminated as quickly as possible by appropriately by qualified abatement contractors.

10.1.4.1 Minor Episodes

Examples of minor incidents include an accidental puncture of an insulated pipe, contact with an insulated structural beam, or breakage of a corner of a tile or wall panel, where a small amount of ACM is dislodged. These minor incidents can be treated with standard wet cleaning and HEPA vacuum techniques. In such cases procedures should consist of the following:

- immediate control of access to the affected area. Unauthorized persons should not be allowed into the area;
- contractors must wear an respirator appropriate to the hazard based on the potential asbestos fibre exposure or at a minimum a half-face, negative pressure, air-purifying respirator equipped with HEPA filters;
- contractors must thoroughly saturate the debris with amended water using a spray container with a very fine spray. The debris must then be carefully placed in two 6-mil plastic bags that are properly labelled as containing asbestos waste, for disposal. Alternatively, the debris can be collected with a HEPA equipped vacuum cleaner. The area where the debris is located must be thoroughly cleaned with a damp cloth/mop or vacuumed with a HEPA equipped vacuum;
- materials used in the clean-up must be double bagged, labelled and properly disposed of as asbestos waste; and,
- the damaged ACM must be repaired with asbestos-free spackling, plaster, cement, insulation or sealed with latex paint or an approved encapsulant.

10.1.4.2 Major Episodes

Major fibre release incidents are (potentially) very serious events. However, immediate action by the Asbestos Management Program Coordinator or by on-site staff can minimize or eliminate the health risk to building occupants.

Examples of a major incident include water or physical damage to pipe insulation resulting in missing sections or insulation falling from structural beams onto the back of ceiling tiles. In these cases, immediate and rigorous control and clean up procedures are required. Well-trained and properly equipped persons must address these situations. Only specialized asbestos abatement contractors properly trained and qualified to deal with asbestos decontamination should be considered. In major release incidents the following procedures must be followed:

- the area must be isolated as soon as possible after the ACM is discovered and access to the area restricted to persons wearing personal protective equipment;
- the air handling system must be shut off or temporarily modified to prevent the distribution of fibres from the affected area to other areas of the building;
- establish the extent of contamination through a thorough visual inspection and/or area asbestos air monitoring. All persons determining the extent of contamination should wear powered air-purifying respirators equipped with HEPA filters (at a minimum) or select an appropriate respirator based on the potential asbestos fibre exposure, protective clothing, boots and head covers;
- fallen debris must be sprayed with amended water, double bagged, labelled and properly disposed of as asbestos waste;
- horizontal and vertical surfaces must be thoroughly cleaned using wet mopping/wiping and vacuumed with a HEPA vacuum cleaner;
- walls, ceilings, pipes, boilers or other surfaces where ACM was damaged must be repaired temporarily. This may involve plastering with asbestos-free material, spraying with an encapsulant, taping with duct tape, or covering with canvas; and,
- all equipment and tools used in the cleanup operation must be washed or wiped with damp cloths. All HEPA vacuums must be immediately emptied and decontaminated. All disposable materials (e.g., cloths, mop heads, filters, and coveralls) must be discarded as asbestos waste.

If the release is significant and warrants a high risk clean up the following applies:

- a written Notice of Project must be filed with the Construction Health and Safety Branch of the Ontario Ministry of Labour (in many cases, emergency clean up does not require normal asbestos notification procedures, i.e., clean up may begin immediately after submittal of notification if value is <$50,000);
- the contractor must construct an enclosure system utilizing 6-mil polyethylene, spray glue adhesive, and duct tape. Construction of temporary walls to reinforce the polyethylene barriers may be required;
- once the containment has been properly constructed, the contractor must install a sufficient quantity of negative air units (equipped with HEPA filters) to create a pressure differential between the contaminated work area and the area outside the enclosure. The pressure differential must be a minimum 5 Pascal (0.02 inches of water as measured by a Magnehelic Pressure Differential gauge). The efficiency of HEPA equipment must be challenged on-site through HEPA integrity testing. Certification verifying that HEPA equipment has passed the integrity testing should be attached to each unit;

- a visual inspection of the enclosure system shall be conducted before the abatement is started and at the beginning and end of each shift and at least once on days when there are no shifts. Any defect found during inspection must be remedied immediately;
- air monitoring for airborne asbestos fibres should be completed in at least one location outside the work area;
- air monitoring should also be completed inside the removal area to verify the effectiveness of abatement techniques and to ensure that the appropriate respiratory protection is being utilized by abatement workers according to the requirements of O. Reg. 278/05;
- where a visual examination of the enclosure system reveals a problem, or air monitoring performed outside the enclosure is found to be in excess of the occupational exposure limit, abatement activities must be stopped at once until the defect in the enclosure has been remedied;
- air monitoring must be performed before the enclosure is removed and the area re-occupied. Final air clearance samples must not exceed 0.01 f/cc;
- worker decontamination procedures must be followed throughout the abatement process; and,
- procedures for asbestos abatement must be followed.

Each minor or major fibre release incident must be documented and added to the list of documentation in **Appendix B**. The report should include reference to the building address, room or description where the event occurred, a description of what caused or may have caused the incident, and a detailed account of what actions were taken and by whom. This report must be communicated to the members of the Joint Health and Safety Committee.

11.0 RECORD KEEPING

Documentation regarding related activities should be retained for each site by the Asbestos Management Program Coordinator. It is recommended that records of the Asbestos Building Materials Assessment, Asbestos Management Program, and associated documents be kept indefinitely and be made available for inspection upon request by authorized representatives of government. Documentation that must be maintained includes, but is not limited to, the following:

- Work records documenting asbestos-related activities, including, but not limited to, repair, enclosure and removal work done on-site must be retained indefinitely. Copies of work records should also be placed in the files of the workers who performed the work;
- Medical records of employees must be retained for at least 30 years following the termination of employment. If the employer goes out of business without a successor, the Provincial Physician must be notified at least 90 days prior to termination of business and the employer must provide for the transfer of records to the Provincial Physician, if requested. Copies of medical surveillance records should be placed in the record worker files;
- Respiratory Fit Test records shall be maintained for the duration of employment plus 30 years. Copies should be placed in the worker files;
- Training records shall be maintained for the duration of employment plus one (1) year. Copies shall be replaced in the worker files;
- Notification of ACMs and other asbestos-related documents and correspondences with tenants, building personnel, contractors and consultants shall be maintained indefinitely;
- Asbestos survey reports, updates and addendum that reflect the changing condition and amount of ACMs on-site should be maintained indefinitely;
- A completed original asbestos waste manifest for any disposed ACMs must be maintained for at least two (2) years;
- Any personal air sampling results for building personnel performing asbestos related work should be maintained for at least 30 years; and,
- This written program shall be retained indefinitely, and updated when appropriate.

12.0 CLOSURE

This Asbestos Management Program has been prepared for the sole benefit of United Counties of Leeds & Grenville. The AMP may not be relied upon by any other person or entity without the express written consent of Stantec Consulting Ltd., and United Counties of Leeds & Grenville.

Any uses that a third party makes of this program, or any reliance on decisions made based on it, are the responsibility of such third party. Stantec Consulting Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this program. Stantec Consulting Ltd. cannot assume any responsibility for the interpretation and implementation of the AMP.

The responsibility for implementation and maintaining all aspects of the asbestos management program lies with building management for each property to which this AMP is applied.

In expressing the opinions stated in this program, the preparer has exercised the degree of skill and care ordinarily exercised by a reasonable prudent environmental health and safety professional in the same community and in the same time frame given the same or similar facts and circumstances. Documentation and data provided by Leeds Grenville, designated representatives of Leeds Grenville or other interested third parties, or from the public domain, and referred to in the preparation of this document, have been used and referenced with the understanding that the preparer assumes no responsibility or liability for their accuracy.

The independent conclusions represent our professional judgment based on information and data available to use during the course of this assignment. Factual information regarding operations, conditions, and test data provided by Leeds Grenville or their representative has been assumed to be correct and complete. The conclusions presented are based on the data provided.

Closure
September 22, 2017

We trust that the information presented herein meets your present requirements. Should you have any questions or require additional information, please do not hesitate to contact the undersigned.

Regards,

STANTEC CONSULTING LTD.

2017.09.22 12:27:12 -04'00'

Digitally signed by Rob Robinson
Date: 2017.09.22 13:34:55 -04'00'

Linda Fleet
Project Manager
Phone: (905) 415 -6368
Fax: (905) 474-9889
linda.fleet@stantec.com

Rob Robinson, P. Eng.
Senior Reviewer
Phone: (905) 817-2070
Fax: (905) 858-4426
rob.robinson@stantec.com

CB/LF/RR/nh

\\Cd1215-f01\work_group\01221\active\122150275\Reports\AMP\FINAL\122150275_rpt_lf_2017Sept_AMP_Leeds Grenville_Final.docx