



December 7, 2017

## CITY OF SASKATOON

# Asbestos-Containing Building Materials Assessment Report - Water Meter Shop



**Submitted to:**

The City of Saskatoon  
1101 Avenue P North  
Saskatoon, SK S7L 7K6

**Report Number: 1667963**

**Distribution:**

One Copy: City of Saskatoon  
One Copy: Golder Associates Ltd.

REPORT





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## 1.0 INTRODUCTION

Golder Associates Ltd. (Golder) was retained by the City of Saskatoon (the Client) to conduct an asbestos-containing building materials assessment of the Water Meter Shop (the Site) located at 1101 Spadina Crescent West in Saskatoon, Saskatchewan. This assessment report details our findings, conclusions and recommendations for the Site. A walkthrough of the Site was conducted on September 12, 2017, by Kody Henderson, OHS Project Manager, and the assessment was conducted on October 18, 2017 by Scott Bishop, Junior Occupational Hygienist. Asbestos-containing building materials were identified within the Water Meter Shop during the assessment. Further information is provided in Section 3.0.

## 2.0 SCOPE OF WORK

In accordance with Tender 16-0844, Golder's scope of work included conducting an asbestos-containing building materials assessment of the Site to evaluate the quantities, locations, and conditions of asbestos-containing building materials.

Following the field work, Golder prepared this assessment report that includes laboratory analysis results, findings of the assessment, conclusions, and recommendations.

### 2.1 Asbestos-Containing Materials

The assessment involved a non-destructive inspection of the Site to assess the type and extent of suspect ACMs in the facility. The systems that were reviewed as part of the inspections included, but were not limited to:

- *Structural* - systems including: insulation between solid webbed joists, fireproofing, building envelope, and interior/exterior caulking around windows and doors;
- *Mechanical* - systems insulation including: hot water and steam system, condensate system, chilled water system, glycol system, domestic hot and cold water, emergency generator exhaust, boiler units, heat exchangers, and asbestos cement piping; and
- *Architectural* - systems including: texture coats, sheet flooring, vinyl floor tile, acoustical spray-applied materials, condensation control applications, ceiling tile, wall board, drywall joint compound, and asbestos sheet products.

Systematic sampling of suspect ACMs was conducted as part of the assessment. Samples were submitted under chain of custody to International Asbestos Testing Laboratory Inc. (IATL) and analyzed for asbestos type and percentage content using Polarized Light Microscopy (PLM) in accordance with EPA methodologies (EPA 600/R-93/116).

Further information related to the assessment and sample collection methods can be found in the Golder document *Golder Asbestos Assessment General Survey Plan and Protocol* provided to the Client.



### **3.0 RESULTS AND DISCUSSION**

The Water Meter Shop consists of a maintenance shop, offices, a mechanical room, equipment rooms, washroom, a lunch room and various other storage/miscellaneous rooms. The Water Meter Shop was constructed in 1974 with a 2006 addition. During the assessment, the building was treated as two functional spaces: the original construction and the 2006 addition.

- The Laboratory Certificate of Analysis report for the bulk asbestos samples is included in Appendix A.
- Photographs collected during the assessment are provided in Appendix B.
- A room by room spreadsheet outlining the locations, quantities, friability, and condition of identified asbestos-containing materials as well as additional information is provided in Appendix C.
- Floor plans outlining the sample locations and locations of identified asbestos-containing materials are provided in Appendix D.
- Please refer to Sections 4.0 and 6.0 of this report for a summary of the limitations encountered.

#### **3.1 Asbestos-Containing Materials**

A total of forty-eight (48) samples of building materials were collected and tested for asbestos content during the assessment of the Water Meter Shop. One (1) of the samples was found to contain asbestos.

Potential asbestos-containing materials and components may be located within the electrical panels on Site.

##### **3.1.1 List of Identified Asbestos-Containing Materials**

A list of the identified asbestos-containing materials is provided below:

- Loose-fill vermiculite insulation within cinderblock wall cavities.

Further information on the identified asbestos-containing materials listed is provided below.

##### ***Loose-Fill Vermiculite Insulation***

One (1) sample of loose-fill vermiculite insulation was collected during the assessment. The sample collected was found to contain trace amount of Actinolite asbestos. Asbestos-containing loose-fill vermiculite insulation (see Photograph 1 in Appendix B) was observed to have leaked from the wall cavity in Room 131. The loose vermiculite was subsequently cleaned by the Client following its identification.

There is the potential for the material to be present within other cinderblock walls throughout the building.

##### **3.1.2 Non Asbestos-Containing Materials**

The following materials were sampled during this assessment and were found to not contain asbestos or were observed to be non-suspect materials:

- Black caulking;
- White window caulking;
- Grey building caulking;
- 12" x 12" vinyl floor tiles, beige with tan smears and mastic below;



- Grey duct mastic;
- Vinyl sheet flooring, grey with brown smears and mastic below;
- White sink undercoating;
- Drywall joint compound;
- Vinyl sheet flooring, grey with pink and black;
- Dark grey duct mastic;
- Pipe-fitting insulation;
- Exterior black caulking;
- Exterior grey firestop putty;
- Exterior grey expansion joint caulking;
- Exterior stucco board on foundation;
- Exterior grey window caulking;
- Exterior cement board on foundation; and
- Exterior brick mortar.

Where applicable, materials were sampled to delineate between each functional space.

### 4.0 EXCLUDED AREAS AND MATERIALS

The following is a list of the areas and/or materials excluded during the assessment.

- Building materials accessible by a ten-foot ladder were assessed by Golder during the assessment. Materials located at heights that were inaccessible from a ten-foot ladder were not assessed. If materials at heights are to be removed or impacted by future renovation or demolition activities, additional investigation and sampling of suspect materials may be required.
- The roof and associated components were not assessed by Golder during the assessment as per Tender 16-0844. If the roof and associated components are to be removed or impacted by future renovation or demolition activities, additional investigation and sampling of suspect materials may be required.
- The electrical panels and associated components were not inspected by Golder during the assessment. If the panels are to be removed or impacted by future renovation or demolition activities, additional investigation and sampling of suspect materials may be required.
- Golder was unable to access Rooms 106 and 121 during the assessment. If the rooms are scheduled for future renovation or demolition activities, additional investigation and sampling of suspect materials may be required.



## **5.0 CONCLUSIONS AND RECOMMENDATIONS**

Based on the visual assessment and the laboratory analytical results, the following project specific conclusions and recommendations are provided.

### **5.1 Asbestos-Containing Materials**

Asbestos was positively identified within loose-fill vermiculite insulation on Site. Asbestos was not identified in the remaining samples collected and analyzed.

If the building is scheduled for renovations that will impact the identified asbestos-containing materials, it must be removed. If additional suspect asbestos-containing building materials are encountered during renovation activities, additional sampling should be undertaken to evaluate asbestos content.

Removal work should be completed by workers that are adequately trained in the hazards and proper methods of working with asbestos. Throughout the abatement activities, appropriate air monitoring and inspections should be conducted by a competent person to document that contamination is contained and that ACM are disposed of appropriately. Ensure asbestos waste is disposed of in accordance with the requirements of the Government of Saskatchewan.

All quantities listed in the report are approximate and are based on the conditions at the time of the assessment. Prior to abatement work it is recommended that a competent person conduct a review of the site to quantify and obtain all measurements of all building materials detailed in this report for cost estimating purposes.

In anticipation of potential abatement, Golder's recommendations for the asbestos-containing materials identified during the assessment are outlined below.

#### ***Loose-Fill Vermiculite Insulation***

If scheduled for impact, asbestos-containing loose-fill vermiculite insulation should be abated following high-risk abatement work procedures as outlined in the *Saskatchewan Asbestos Abatement Manual (2017)*. Alternatively, as the loose-fill vermiculite insulation is located within the cinderblock wall cavities, and with a priority rating of 5 (please see the room by room spreadsheet provided in Appendix C for a description of the priority ratings), the vermiculite can be managed in place if not scheduled for impact. If vermiculite is observed to have leaked from openings within the cinderblock walls, the material should be cleaned up following low-risk abatement work procedures as outlined in the *Saskatchewan Asbestos Abatement Manual (2017)*.

## **6.0 SURVEY LIMITATIONS**

This report is based on data and information collected by Golder during the assessment conducted on October 18, 2017 and is based solely on site conditions encountered at the time of the assessment. Any use of this document or the findings, conclusions or recommendations provided in this report by any person other than the City of Saskatoon is at the sole risk of such user.

The conclusions and recommendations contained in this survey report are based upon professional opinions with regard to the subject matter. These opinions are in accordance with currently accepted environmental assessment standards and practices applicable to these locations and are subject to the following inherent limitations:



The data and findings presented in this report are valid as of the dates of the investigations. The passage of time, manifestation of latent conditions or occurrence of future events may warrant further exploration at the properties, analysis of the data, and re-evaluation of the findings, observations, and conclusions expressed in this report. No assurance is made regarding changes in conditions or practices subsequent to the time of the investigation. It was beyond the scope of this assessment to conduct a risk assessment and the potential health risks that may be associated with asbestos exposure for building occupants.

The data reported and the findings, observations and conclusions expressed in this report are limited by the Scope of Work. The Scope of Work was defined by Tender 16-0844 and the initial site walkthrough with the Client, the time and budgetary constraints imposed by the Client, and availability of access to the property.

Because of the limitations stated above, the findings, observations and conclusions expressed by Golder in this report are not, and must not be, considered an opinion concerning compliance of any past or present owner or operator of the site with any federal, provincial or local laws or regulations.

No warranty or guarantee, whether expressed or implied, is made with respect to the data or the reported findings, observations, and conclusions, which are based solely upon site conditions in existence at the time of investigation.

Golder's assessment reports present professional opinions and findings of a scientific and technical nature. While attempts were made to relate the data and findings to applicable environmental laws and regulations, the report shall not be construed to offer legal opinion or representations as to the requirements of, nor compliance with, environmental laws, rules, regulations or policies of federal, provincial, or local governmental agencies. Any use of the survey report constitutes acceptance of the limits of Golder's liability.

Golder's liability extends only to its client and not to other parties who may obtain this survey report. Issues raised by the report must be reviewed by appropriate legal counsel.

## 7.0 CLOSURE

We trust the information presented in this report meets your requirements. If you have any questions, please contact Kody Henderson at (780) 483-3499 or email at [kody\\_henderson@golder.com](mailto:kody_henderson@golder.com). Thank you for the opportunity to be of service. We look forward to working with you again in the future.



## Report Signature Page

### GOLDER ASSOCIATES LTD.

Prepared by:

Scott Bishop, B.A.  
Junior Occupational Hygienist

Reviewed by:

Kody Henderson, Dipl. Env. Sci., CRSP  
OHS Project Manager

Andrew Grant, B.Sc., P.Eng., EP, CRSP  
Associate, OHS Project Director

SWB/KH/AG/ba

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# **APPENDIX A**

## **Laboratory Certificate of Analysis Report**

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd  
16820 107 Ave  
Edmonton AB T5P 4C3

Report Date: 10/30/2017  
Report No.: 550358 - PLM  
Project: Water Meter Shop  
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

**Lab No.:** 6371046      **Analyst Observation:** Black Caulk      **Location:** Rm 131  
**Client No.:** 001      **Client Description:** Black Door Glazing      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

**Lab No.:** 6371047      **Analyst Observation:** White Caulk      **Location:** Rm 131  
**Client No.:** 002      **Client Description:** White Window Caulking      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

**Lab No.:** 6371048      **Analyst Observation:** Brown Vermiculite      **Location:** Rm 131  
**Client No.:** 003      **Client Description:** Loose-Fill Vermiculite Insulation      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*PC Trace Tremolite*      None Detected      100


This sample contains vermiculite mineral and may be a candidate for additional analytical procedures. Please see the sections following your report titled Recommendations for Vermiculite Analysis. (EPA 600/R-04/004)

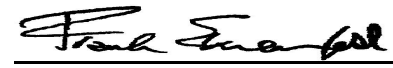
**Lab No.:** 6371049      **Analyst Observation:** White Caulk      **Location:** Rm 131  
**Client No.:** 004      **Client Description:** Grey Bldg Caulking      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

**Lab No.:** 6371050      **Analyst Observation:** Off-White Floor Tile      **Location:** Rm 129  
**Client No.:** 005      **Client Description:** 12x12 Vinyl Floor Tile, Beige With Tan      **Facility:**  
Smears      Percent Non-Fibrous Material:  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      100  
*None Detected*      None Detected

**Lab No.:** 6371050(L2)      **Analyst Observation:** Black Mastic      **Location:** Rm 129  
**Client No.:** 005      **Client Description:** 12x12 Vinyl Floor Tile, Beige With Tan      **Facility:**  
Smears      Percent Non-Fibrous Material:  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      100  
*None Detected*      None Detected

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/23/2017  
Date Analyzed: 10/30/2017  
Signature:   
Analyst: Tom Barkley

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd  
16820 107 Ave  
Edmonton AB T5P 4C3

Report Date: 10/30/2017  
Report No.: 550358 - PLM  
Project: Water Meter Shop  
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

**Lab No.:** 6371051      **Analyst Observation:** Grey Mastic      **Location:** Rm 129  
**Client No.:** 006      **Client Description:** Grey Duct Mastic      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

**Lab No.:** 6371052      **Analyst Observation:** Grey Vinyl Sheet Flooring      **Location:** Rm 134  
**Client No.:** 007      **Client Description:** Vinyl Sheet Flooring-Grey With Brown      **Facility:**  
Smears      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
Percent Asbestos:      20 Cellulose      80  
*None Detected*


**Lab No.:** 6371052(L2)      **Analyst Observation:** Yellow Mastic      **Location:** Rm 134  
**Client No.:** 007      **Client Description:** Vinyl Sheet Flooring-Grey With Brown      **Facility:**  
Smears      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
Percent Asbestos:      None Detected      100  
*None Detected*

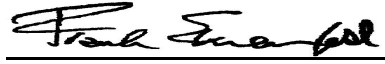
**Lab No.:** 6371053      **Analyst Observation:** White Sink Undercoating      **Location:** Rm 134  
**Client No.:** 008      **Client Description:** White Sink Undercoating      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      5 Cellulose      95

**Lab No.:** 6371054      **Analyst Observation:** White Joint Compound      **Location:** Rm 135B  
**Client No.:** 009      **Client Description:** Drywall Joint Compound      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

**Lab No.:** 6371055      **Analyst Observation:** White Joint Compound      **Location:** Rm 135A  
**Client No.:** 010      **Client Description:** Drywall Joint Compound      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/23/2017  
Date Analyzed: 10/30/2017  
Signature:   
Analyst: Tom Barkley

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd  
16820 107 Ave  
Edmonton AB T5P 4C3

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Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

**Lab No.:** 6371056      **Analyst Observation:** White Joint Compound      **Location:** Rm 134  
**Client No.:** 011      **Client Description:** Drywall Joint Compound      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

**Lab No.:** 6371057      **Analyst Observation:** White Joint Compound      **Location:** Rm 136  
**Client No.:** 012      **Client Description:** Drywall Joint Compound      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100


**Lab No.:** 6371058      **Analyst Observation:** Tan Vinyl Sheet Flooring      **Location:** Rm 136  
**Client No.:** 013      **Client Description:** Vinyl Sheet Flooring-Grey With Pink And Black Specks      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

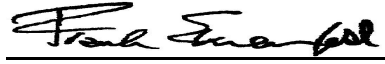
**Lab No.:** 6371058(L2)      **Analyst Observation:** Tan Mastic      **Location:** Rm 136  
**Client No.:** 013      **Client Description:** Vinyl Sheet Flooring-Grey With Pink And Black Specks      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

**Lab No.:** 6371059      **Analyst Observation:** White Joint Compound      **Location:** Rm 136  
**Client No.:** 014      **Client Description:** Drywall Joint Compound      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

**Lab No.:** 6371060      **Analyst Observation:** Grey Mastic      **Location:** Rm 105  
**Client No.:** 015      **Client Description:** Grey Duct Mastic      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/23/2017  
Date Analyzed: 10/30/2017  
Signature:   
Analyst: Tom Barkley

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

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16820 107 Ave  
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Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

**Lab No.:** 6371061      **Analyst Observation:** White Sink Undercoating      **Location:** Rm 104  
**Client No.:** 016      **Client Description:** White Sink Undercoating      **Facility:**  
**Percent Asbestos:**      **Percent Non-Asbestos Fibrous Material:**      **Percent Non-Fibrous Material:**  
*None Detected*      10 Cellulose      90

**Lab No.:** 6371062      **Analyst Observation:** White Joint Compound      **Location:** Rm 102  
**Client No.:** 017      **Client Description:** Drywall Joint Compound      **Facility:**  
**Percent Asbestos:**      **Percent Non-Asbestos Fibrous Material:**      **Percent Non-Fibrous Material:**  
*None Detected*      None Detected      100


**Lab No.:** 6371063      **Analyst Observation:** White Joint Compound      **Location:** Rm 101  
**Client No.:** 018      **Client Description:** Drywall Joint Compound      **Facility:**  
**Percent Asbestos:**      **Percent Non-Asbestos Fibrous Material:**      **Percent Non-Fibrous Material:**  
*None Detected*      None Detected      100

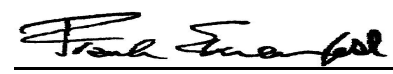
**Lab No.:** 6371064      **Analyst Observation:** Tan Vinyl Sheet Flooring      **Location:** Rm 100  
**Client No.:** 019      **Client Description:** Vinyl Sheet Flooring-Grey With Pink And Black Specks      **Facility:**  
**Percent Asbestos:**      **Percent Non-Asbestos Fibrous Material:**      **Percent Non-Fibrous Material:**  
*None Detected*      2 Cellulose      98

**Lab No.:** 6371064(L2)      **Analyst Observation:** Tan Mastic      **Location:** Rm 100  
**Client No.:** 019      **Client Description:** Vinyl Sheet Flooring-Grey With Pink And Black Specks      **Facility:**  
**Percent Asbestos:**      **Percent Non-Asbestos Fibrous Material:**      **Percent Non-Fibrous Material:**  
*None Detected*      None Detected      100

**Lab No.:** 6371065      **Analyst Observation:** Black Caulk      **Location:** Rm 100  
**Client No.:** 020      **Client Description:** Black Door Glazing      **Facility:**  
**Percent Asbestos:**      **Percent Non-Asbestos Fibrous Material:**      **Percent Non-Fibrous Material:**  
*None Detected*      None Detected      100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/23/2017  
Date Analyzed: 10/30/2017  
Signature:   
Analyst: Tom Barkley

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

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Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

**Lab No.:** 6371066  
**Client No.:** 021  
**Analyst Observation:** White Joint Compound  
**Client Description:** Drywall Joint Compound  
**Location:** Rm 103  
**Facility:**  
Percent Asbestos: *None Detected*  
Percent Non-Asbestos Fibrous Material: None Detected  
Percent Non-Fibrous Material: 100

**Lab No.:** 6371067  
**Client No.:** 022  
**Analyst Observation:** Grey Mastic  
**Client Description:** Dk Grey Duct Mastic  
**Location:** Rm 127B  
**Facility:**  
Percent Asbestos: *None Detected*  
Percent Non-Asbestos Fibrous Material: None Detected  
Percent Non-Fibrous Material: 100


**Lab No.:** 6371068  
**Client No.:** 023  
**Analyst Observation:** Tan Vinyl Sheet Flooring  
**Client Description:** Vinyl Sheet Flooring-Grey With Brown Smears  
**Location:** Rm 127B  
**Facility:**  
Percent Asbestos: *None Detected*  
Percent Non-Asbestos Fibrous Material: 15 Cellulose  
Percent Non-Fibrous Material: 85

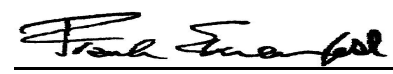
**Lab No.:** 6371068(L2)  
**Client No.:** 023  
**Analyst Observation:** Yellow Mastic  
**Client Description:** Vinyl Sheet Flooring-Grey With Brown Smears  
**Location:** Rm 127B  
**Facility:**  
Percent Asbestos: *None Detected*  
Percent Non-Asbestos Fibrous Material: None Detected  
Percent Non-Fibrous Material: 100

**Lab No.:** 6371069  
**Client No.:** 024  
**Analyst Observation:** White Joint Compound  
**Client Description:** Drywall Joint Compound  
**Location:** Rm 127B  
**Facility:**  
Percent Asbestos: *None Detected*  
Percent Non-Asbestos Fibrous Material: None Detected  
Percent Non-Fibrous Material: 100

**Lab No.:** 6371070  
**Client No.:** 025  
**Analyst Observation:** Grey Caulk  
**Client Description:** White Window Caulking  
**Location:** Rm 107  
**Facility:**  
Percent Asbestos: *None Detected*  
Percent Non-Asbestos Fibrous Material: None Detected  
Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/23/2017  
Date Analyzed: 10/30/2017  
Signature:   
Analyst: Tom Barkley

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

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16820 107 Ave  
Edmonton AB T5P 4C3

Report Date: 10/30/2017  
Report No.: 550358 - PLM  
Project: Water Meter Shop  
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b> 6371071 <b>Client No.:</b> 026	<b>Analyst Observation:</b> White Joint Compound <b>Client Description:</b> Drywall Joint Compound	<b>Location:</b> Rm M02 <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100
<b>Lab No.:</b> 6371072 <b>Client No.:</b> 027	<b>Analyst Observation:</b> White Joint Compound <b>Client Description:</b> Drywall Joint Compound	<b>Location:</b> Rm 119 <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100
<b>Lab No.:</b> 6371073 <b>Client No.:</b> 028	<b>Analyst Observation:</b> Grey Mastic <b>Client Description:</b> Grey Duct Mastic	<b>Location:</b> Rm 111 <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100
<b>Lab No.:</b> 6371074 <b>Client No.:</b> 029	<b>Analyst Observation:</b> White Joint Compound <b>Client Description:</b> Drywall Joint Compound	<b>Location:</b> Rm 108 <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100
<b>Lab No.:</b> 6371075 <b>Client No.:</b> 030	<b>Analyst Observation:</b> White Joint Compound <b>Client Description:</b> Drywall Joint Compound	<b>Location:</b> Rm 107 <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100
<b>Lab No.:</b> 6371076 <b>Client No.:</b> 031	<b>Analyst Observation:</b> Grey Insulation <b>Client Description:</b> Pipe Fitting Insulation	<b>Location:</b> Rm 130 <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose 20 Fibrous Glass	<u>Percent Non-Fibrous Material:</u> 70

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/23/2017  
Date Analyzed: 10/30/2017  
Signature:   
Analyst: Tom Barkley

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd  
16820 107 Ave  
Edmonton AB T5P 4C3

Report Date: 10/30/2017  
Report No.: 550358 - PLM  
Project: Water Meter Shop  
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

**Lab No.:** 6371077      **Analyst Observation:** Black Caulk      **Location:** Exterior  
**Client No.:** 032      **Client Description:** Black Door Glazing (Original)      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

**Lab No.:** 6371078      **Analyst Observation:** Grey Putty      **Location:** Exterior  
**Client No.:** 033      **Client Description:** Grey Firestop Putty (Original)      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      5 Cellulose      95

**Lab No.:** 6371079      **Analyst Observation:** Grey Caulk      **Location:** Exterior  
**Client No.:** 034      **Client Description:** Grey Caulking (Original)      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

**Lab No.:** 6371080      **Analyst Observation:** Black Tar      **Location:** Exterior  
**Client No.:** 035      **Client Description:** Black Tar On Foundation (Original)      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

**Lab No.:** 6371081      **Analyst Observation:** Grey Stucco      **Location:** Exterior  
**Client No.:** 036      **Client Description:** Stucco Board On Foundation (Original)      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

**Lab No.:** 6371082      **Analyst Observation:** Grey Caulk      **Location:** Exterior  
**Client No.:** 037      **Client Description:** Grey Window Caulking (2006 Addition)      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/23/2017  
Date Analyzed: 10/30/2017  
Signature:   
Analyst: Tom Barkley

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director



CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd  
16820 107 Ave  
Edmonton AB T5P 4C3

Report Date: 10/30/2017  
Report No.: 550358 - PLM  
Project: Water Meter Shop  
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

**Lab No.:** 6371083      **Analyst Observation:** Black Caulk      **Location:** Exterior  
**Client No.:** 038      **Client Description:** Black Window Glazing (2006 Addition)      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

**Lab No.:** 6371084      **Analyst Observation:** Grey Cementitious      **Location:** Exterior  
**Client No.:** 039      **Client Description:** Cement Board On Foundation (2006 Addition)      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100


**Lab No.:** 6371085      **Analyst Observation:** Grey Putty      **Location:** Exterior  
**Client No.:** 040      **Client Description:** Grey Firestop Putty (2006 Addition)      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      10 Cellulose      90

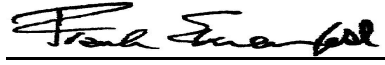
**Lab No.:** 6371086      **Analyst Observation:** Grey Caulk      **Location:** Exterior  
**Client No.:** 041      **Client Description:** Grey Caulking (2006 Addition)      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

**Lab No.:** 6371087      **Analyst Observation:** Grey Mortar      **Location:** Exterior  
**Client No.:** 042      **Client Description:** Brick Mortar (At Original And 2006 Addition Joint)      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

**Lab No.:** 6371088      **Analyst Observation:** Grey Mortar      **Location:** Exterior  
**Client No.:** 043      **Client Description:** Brick Mortar (2006 Addition)      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/23/2017  
Date Analyzed: 10/30/2017  
Signature:   
Analyst: Tom Barkley

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Golder Associates Ltd  
16820 107 Ave  
Edmonton AB T5P 4C3

Report Date: 10/30/2017  
Report No.: 550358 - PLM  
Project: Water Meter Shop  
Project No.: 1667963

Client: GOL572

PLM BULK SAMPLE ANALYSIS SUMMARY

**Lab No.:** 6371089      **Analyst Observation:** Grey Mortar      **Location:** Exterior  
**Client No.:** 044      **Client Description:** Brick Mortar (2006 Addition)      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100


**Lab No.:** 6371090      **Analyst Observation:** Grey Mortar      **Location:** Exterior  
**Client No.:** 045      **Client Description:** Brick Mortar (2006 Addition)      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

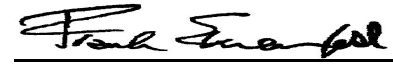
**Lab No.:** 6371091      **Analyst Observation:** Grey Mortar      **Location:** Exterior  
**Client No.:** 046      **Client Description:** Brick Mortar (Original)      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

**Lab No.:** 6371092      **Analyst Observation:** Grey Mortar      **Location:** Exterior  
**Client No.:** 047      **Client Description:** Brick Mortar (Original)      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

**Lab No.:** 6371093      **Analyst Observation:** Grey Mortar      **Location:** Exterior  
**Client No.:** 048      **Client Description:** Brick Mortar (Original)      **Facility:**  
Percent Asbestos:      Percent Non-Asbestos Fibrous Material:      Percent Non-Fibrous Material:  
*None Detected*      None Detected      100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/23/2017  
Date Analyzed: 10/30/2017  
Signature:   
Analyst: Tom Barkley

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

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CERTIFICATE OF ANALYSIS

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Client: Golder Associates Ltd  
16820 107 Ave  
Edmonton AB T5P 4C3

Report Date: 10/30/2017  
Report No.: 550358 - PLM  
Project: Water Meter Shop  
Project No.: 1667963

Client: GOL572

## Appendix to Analytical Report

**Customer Contact:**

**Analysis:** US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

**iATL Customer Service:** customerservice@iatl.com

**iATL Office Manager:** cdavis@iatl.com

**iATL Account Representative:** Pete Lesniak

**Sample Login Notes:** See Batch Sheet Attached

**Sample Matrix:** Bulk Building Materials

**Exceptions Noted:** See Following Pages

### General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at [www.iATL.com](http://www.iATL.com) and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

### Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

### Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)  
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

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CERTIFICATE OF ANALYSIS

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Client: Golder Associates Ltd  
16820 107 Ave  
Edmonton AB T5P 4C3

Report Date: 10/30/2017  
Report No.: 550358 - PLM  
Project: Water Meter Shop  
Project No.: 1667963

Client: GOL572

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

### Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at [customerservice@iatl.com](mailto:customerservice@iatl.com).

- 1) Note: No mastic provided for analysis.
- 2) Note: Insufficient mastic provided for analysis.
- 3) Note: Insufficient material provided for analysis.
- 4) Note: Insufficient sample provided for QC reanalysis.
- 5) Note: Different material than indicated on Sample Log / Description.
- 6) Note: Sample not submitted.
- 7) Note: Attached to asbestos containing material.
- 8) Note: Received wet.
- 9) Note: Possible surface contamination.
- 10) Note: Not building material. 1% threshold may not apply.
- 11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
- 12) Note: Asbestos detected but not quantifiable.
- 13) Note: Multiple identical samples submitted, only one analyzed.
- 14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
- 15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

### Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites). Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) [www.atsdr.cdc.gov](http://www.atsdr.cdc.gov), United States Geological Survey (USGS) [www.minerals.usgs.gov/minerals/](http://www.minerals.usgs.gov/minerals/), US EPA [www.epa.gov/asbestos](http://www.epa.gov/asbestos). The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

- 1) **Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116  
**Requirements/Comments:** Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.
- 2) **Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004  
**Requirements/Comments:** Minimum 50g\*\* of dry sample. Analysis of "Sinks" only.
- 3) **Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004  
**Requirements/Comments:** Minimum 50g\*\* of dry sample. Analysis of "Floats" only.
- 4) **Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004  
**Requirements/Comments:** Minimum 50g\*\* of dry sample. Analysis of "Sinks" only.
- 5) **Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004

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CERTIFICATE OF ANALYSIS

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Client: Golder Associates Ltd  
16820 107 Ave  
Edmonton AB T5P 4C3

Client: GOL572

Report Date: 10/30/2017  
Report No.: 550358 - PLM  
Project: Water Meter Shop  
Project No.: 1667963

**Requirements/Comments:** Minimum 50g\*\* of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.

\*With advance notice and confirmation by the laboratory.

\*\*Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).



# **APPENDIX B**

## **Site Photographs**



**APPENDIX B**  
**Site Photographs**



**Photograph 1: Block Wall with Potential Asbestos-Containing Loose-Fill Vermiculite Insulation.**

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# **APPENDIX C**

## **Water Meter Shop Room by Room Spreadsheet**



Appendix C  
Water Meter Shop  
ACM Inventory

Included/Excluded	Floor	Room #	Area Description	Elements	Subelements	Material Description	Accessibility	Suspect?	Sampled?	Asbestos Containing Material?	Condition	Field Notes	Sample Type	Sample ID	Sample Date	Asbestos Type	ACM Product	% of asbestos	Friable	Sprayed-on	Maintenance	Inspection	Priority	Potential for Disturbance	Recommended Action	Quantity	Photograph ID	Labelling Type	
Included	M	100	Main Entrance	Walls	Walls	Cinderblock	High	No	No	No	Good																		
Included	M	100	Main Entrance	Walls	Walls	Drywall	High	No	Yes	No	Good		Bulk	V.S. A-017, A-018, A-021, A-029, A-030	18-Oct-17														
Included	M	100	Main Entrance	Floor	Floor	Vinyl Sheet Flooring	High	No	Yes	No	Good	Grey with pink and black spots. Date coded to a time period where asbestos use was not widespread.	Bulk	A-019	18-Oct-17														
Included	M	100	Main Entrance	Ceiling	Ceiling	2' x 4' Ceiling Tiles	High	No	No	No	Good																		
Included	M	100	Main Entrance	Ceiling	Ceiling Space	Metal Q-Deck	High	No	No	No	Good	No spray-applied insulation.																	
Included	M	100	Main Entrance	Miscellaneous	Caulking	Black Caulking	High	No	Yes	No	Good	On door windows.	Bulk	A-020	18-Oct-17														
Included	M	101	Corridor	Walls	Walls	Drywall	High	No	Yes	No	Good		Bulk	A-018	18-Oct-17														
Included	M	101	Corridor	Floor	Floor	Vinyl Sheet Flooring	High	No	Yes	No	Good	Grey with brown.	Bulk	V.S. A-019	18-Oct-17														
Included	M	101	Corridor	Ceiling	Ceiling	2' x 4' Ceiling Tiles	High	No	No	No	Good	Date coded to a time period where asbestos use was not widespread.																	
Included	M	101	Corridor	Ceiling	Ceiling Space	Metal Q-Deck	High	No	No	No	Good	No spray-applied insulation.																	
Included	M	101	Corridor	Mechanical	Piping	Metal Pipes	High	No	No	No	Good	Bare or insulated with fiberglass and PVC fittings.																	
Included	M	101	Corridor	Mechanical	Duct Work	Fibreglass Wrap	High	No	No	No	Good	Duct mastic not visible.																	
Included	M	101	Corridor	Miscellaneous	Caulking	Black Caulking	High	No	Yes	No	Good	On door windows.	Bulk	V.S. A-020	18-Oct-17														
Included	M	102/102.1	Food Prep/Lunch Room	Walls	Walls	Cinderblock	High	No	No	No	Good																		
Included	M	102/102.1	Food Prep/Lunch Room	Walls	Walls	Drywall	High	No	Yes	No	Good		Bulk	A-017	18-Oct-17														
Included	M	102/102.1	Food Prep/Lunch Room	Floor	Floor	Vinyl Sheet Flooring	High	No	Yes	No	Good	Grey with brown.	Bulk	V.S. A-019	18-Oct-17														
Included	M	102/102.1	Food Prep/Lunch Room	Ceiling	Ceiling	2' x 4' Ceiling Tiles	High	No	No	No	Good	Date coded to a time period where asbestos use was not widespread.																	
Included	M	102/102.1	Food Prep/Lunch Room	Ceiling	Ceiling Space	Metal Q-Deck	High	No	No	No	Good	No spray-applied insulation.																	
Included	M	102/102.1	Food Prep/Lunch Room	Mechanical	Duct Work	Fibreglass Wrap	High	No	No	No	Good	Duct mastic not visible.																	
Included	M	102/102.1	Food Prep/Lunch Room	Miscellaneous	Sink	White Undercoat	High	No	Yes	No	Good		Bulk	V.S. A-016	18-Oct-17														
Included	M	103/103.1	Male Change Room	Walls	Walls	Cinderblock	High	No	No	No	Good																		
Included	M	103/103.1	Male Change Room	Walls	Walls	Ceramic Tile	High	No	No	No	Good																		
Included	M	103/103.1	Male Change Room	Floor	Floor	Ceramic Tile	High	No	No	No	Good																		
Included	M	103/103.1	Male Change Room	Ceiling	Ceiling	Drywall	High	No	Yes	No	Good		Bulk	A-021	18-Oct-17														
Included	M	103/103.1	Male Change Room	Ceiling	Ceiling Space	Metal Q-Deck	High	No	No	No	Good	No spray-applied insulation.																	
Included	M	103/103.1	Male Change Room	Mechanical	Piping	Metal Pipes	High	No	No	No	Good	Bare or insulated with fiberglass and PVC fittings.																	
Included	M	103/103.1	Male Change Room	Mechanical	Duct Work	Fibreglass Wrap	High	No	No	No	Good	Duct mastic not visible.																	
Included	M	103/103.1	Male Change Room	Mechanical	Duct Work	Grey Duct Mastic	High	No	Yes	No	Good	Uninsulated duct.	Bulk	V.S. A-015	18-Oct-17														
Included	M	103/103.1	Male Change Room	Miscellaneous	Sink	White Undercoat	High	No	Yes	No	Good		Bulk	V.S. A-016	18-Oct-17														
Included	M	104/104.1	Female Change Room	Walls	Walls	Cinderblock	High	No	No	No	Good																		
Included	M	104/104.1	Female Change Room	Walls	Walls	Ceramic Tile	High	No	No	No	Good																		
Included	M	104/104.1	Female Change Room	Floor	Floor	Ceramic Tile	High	No	No	No	Good																		
Included	M	104/104.1	Female Change Room	Ceiling	Ceiling	Drywall	High	No	Yes	No	Good		Bulk	V.S. A-017, A-018, A-021, A-029, A-030	18-Oct-17														
Included	M	104/104.1	Female Change Room	Miscellaneous	Sink	White Undercoat	High	No	Yes	No	Good		Bulk	A-016	18-Oct-17														
Included	M	105	Corridor	Walls	Walls	Cinderblock	High	No	No	No	Good																		
Included	M	105	Corridor	Floor	Floor	Vinyl Sheet Flooring	High	No	Yes	No	Good	Grey with brown.	Bulk	V.S. A-019	18-Oct-17														
Included	M	105	Corridor	Ceiling	Ceiling	2' x 4' Ceiling Tiles	High	No	No	No	Good	Date coded to a time period where asbestos use was not widespread.																	
Included	M	105	Corridor	Ceiling	Ceiling Space	Metal Q-Deck	High	No	No	No	Good	No spray-applied insulation.																	
Included	M	105	Corridor	Mechanical	Duct Work	Fibreglass Wrap	High	No	Yes	No	Good	Grey mastic visible.	Bulk	V.S. A-015	18-Oct-17														
Included	M	105	Corridor	Mechanical	Duct Work	Grey Duct Mastic	High	No	Yes	No	Good	Uninsulated duct.	Bulk	A-015	18-Oct-17														
Included	M	105	Corridor	Miscellaneous	Caulking	Black Caulking	High	No	Yes	No	Good	On door windows.	Bulk	V.S. A-020	18-Oct-17														
Included	M	107	Equipment Repair	Walls	Walls	Cinderblock	High	No	No	No	Good																		
Included	M	107	Equipment Repair	Walls	Walls	Drywall	High	No	Yes	No	Good		Bulk	A-030	18-Oct-17														
Included	M	107	Equipment Repair	Floor	Floor	Vinyl Sheet Flooring	High	No	Yes	No	Good	Grey with brown.	Bulk	V.S. A-019	18-Oct-17														
Included	M	107	Equipment Repair	Ceiling	Ceiling	2' x 4' Ceiling Tiles	High	No	No	No	Good	Date coded to a time period where asbestos use was not widespread.																	
Included	M	107	Equipment Repair	Ceiling	Ceiling Space	Metal Q-Deck	High	No	No	No	Good	No spray-applied insulation.																	
Included	M	107	Equipment Repair	Mechanical	Duct Work	Fibreglass Wrap	High	No	Yes	No	Good	Grey mastic visible.	Bulk	V.S. A-015	18-Oct-17														
Included	M	107	Equipment Repair	Miscellaneous	Sink	White Undercoat	High	No	Yes	No	Good		Bulk	V.S. A-016	18-Oct-17														
Included	M	107	Equipment Repair	Miscellaneous	Caulking	Grey Caulking	High	No	Yes	No	Good	On window frames.	Bulk	A-025	18-Oct-17														
Included	M	108	Electrical Room	Walls	Walls	Cinderblock	High	No	No	No	Good																		
Included	M	108	Electrical Room	Walls	Walls	Drywall	High	No	Yes	No	Good		Bulk	A-029	18-Oct-17														
Included	M	108	Electrical Room	Floor	Floor	Vinyl Sheet Flooring	High	No	Yes	No	Good	Grey with white.	Bulk	V.S. A-019	18-Oct-17														
Included	M	108	Electrical Room	Ceiling	Ceiling	2' x 4' Ceiling Tiles	High	No	No	No	Good	Date coded to a time period where asbestos use was not widespread.																	
Included	M	108	Electrical Room	Ceiling	Ceiling Space	Metal Q-Deck	High	No	No	No	Good	No spray-applied insulation.																	
Included	M	108	Electrical Room	Mechanical	Duct Work	Fibreglass Wrap	High	No	Yes	No	Good	Grey mastic visible.	Bulk	V.S. A-015	18-Oct-17														
Included	M	108	Electrical Room	Miscellaneous	Caulking	Grey Caulking	High	No	Yes	No	Good	On window frames.	Bulk	V.S. A-025	18-Oct-17														
Included	M	109	Mechanics	Walls	Walls	Cinderblock	High	No	No	No	Good																		
Included	M	109	Mechanics	Walls	Walls	Drywall	High	No	Yes	No	Good		Bulk	V.S. A-017, A-018, A-021, A-029, A-030	18-Oct-17														
Included	M	109	Mechanics	Floor	Floor	Vinyl Sheet Flooring	High	No	Yes	No	Good	Grey with brown.	Bulk	V.S. A-019	18-Oct-17														
Included	M	109	Mechanics	Ceiling	Ceiling	2' x 4' Ceiling Tiles	High	No	No	No	Good	Date coded to a time period where asbestos use was not widespread.																	
Included	M	109	Mechanics	Ceiling	Ceiling Space	Metal Q-Deck	High	No	No	No	Good	No spray-applied insulation.																	
Included	M	109	Mechanics	Mechanical	Duct Work	Fibreglass Wrap	High	No	Yes	No	Good	Grey mastic visible.	Bulk	V.S. A-015	18-Oct-1														



Appendix C  
Water Meter Shop  
ACM Inventory

Included/Excluded	Floor	Room #	Area Description	Elements	Subelements	Material Description	Accessibility	Suspect?	Sampled?	Asbestos Containing Material?	Condition	Field Notes	Sample Type	Sample ID	Sample Date	Asbestos Type	ACM Product	% of asbestos	Friable	Sprayed-on	Maintenance	Inspection	Priority	Potential for Disturbance	Recommended Action	Quantity	Photograph ID	Labelling Type	
Included	M	128	Parts and Loading Dock	Mechanical	Piping	Metal Pipes	High	No	No	No	Good	Bare or insulated with fiberglass and PVC fittings.																	
Included	M	128	Parts and Loading Dock	Mechanical	Duct Work	Dark Grey Duct Mastic	High	No	Yes	No	Good	Uninsulated duct.	Bulk	V.S. A-022	18-Oct-17														
Included	M	128	Parts and Loading Dock	Miscellaneous	Caulking	Grey Caulking	High	No	Yes	No	Good	Building caulking.	Bulk	V.S. A-004	18-Oct-17														
Included	M	128	Parts and Loading Dock	Walls	Walls	Cinderblock	High	No	No	No	Good																		
Included	M	128	Parts and Loading Dock	Floor	Floor	12" x 12" Vinyl Floor Tiles	High	No	Yes	No	Good	Beige with tan smears.	Bulk	A-005	18-Oct-17														
Included	M	128	Parts and Loading Dock	Ceiling	Ceiling	Metal Q-Deck	High	No	No	No	Good																		
Included	M	128	Parts and Loading Dock	Mechanical	Duct Work	Grey Duct Mastic	High	No	Yes	No	Good	Uninsulated duct.	Bulk	A-006	18-Oct-17														
Included	M	130	Large Meter Test Room	Walls	Walls	Cinderblock	High	No	No	No	Good																		
Included	M	130	Large Meter Test Room	Floor	Floor	Concrete	High	No	No	No	Good																		
Included	M	130	Large Meter Test Room	Ceiling	Ceiling	Metal Q-Deck	High	No	No	No	Good																		
Included	M	130	Large Meter Test Room	Windows	Caulking	Black Caulking	High	No	Yes	No	Good	On window panes.	Bulk	V.S.A-001	18-Oct-17														
Included	M	130	Large Meter Test Room	Mechanical	Piping	Insulation	High	No	Yes	No	Good	On pipe fittings.	Bulk	A-031	18-Oct-17														
Included	M	130	Large Meter Test Room	Miscellaneous	Caulking	Grey Caulking	High	No	Yes	No	Good	Building caulking.	Bulk	V.S. A-004	18-Oct-17														
Included	M	131	Parking Garage	Walls	Walls	Cinderblock	High	No	Yes	Yes	Good	Vermiculite was observed to have leaked from the wall cavity on to the floor. The loose vermiculite was subsequently cleaned by the Client following its identification.	Bulk	A-003	18-Oct-17	Actinolite	Loose-Fill Vermiculite Insulation	Trace	Yes	No	N/A	Annually	5	Low	Manage in place. Clean up if leaks observed.	Suspected throughout exterior walls of original building.	Photograph 1		
Included	M	131	Parking Garage	Floor	Floor	Concrete	High	No	No	No	Good																		
Included	M	131	Parking Garage	Ceiling	Ceiling	Metal Q-Deck	High	No	No	No	Good																		
Included	M	131	Parking Garage	Mechanical	Piping	Metal Pipes	High	No	No	No	Good	Bare or insulated with fiberglass and PVC fittings.																	
Included	M	131	Parking Garage	Mechanical	Duct Work	Dark Grey Duct Mastic	High	No	Yes	No	Good	Uninsulated duct.	Bulk	V.S. A-022	18-Oct-17														
Included	M	131	Parking Garage	Windows	Caulking	White Caulking	High	No	Yes	No	Good	On window frames.	Bulk	A-002	18-Oct-17														
Included	M	131	Parking Garage	Windows	Caulking	Black Caulking	High	No	Yes	No	Good	On window panes.	Bulk	A-001	18-Oct-17														
Included	M	131	Parking Garage	Miscellaneous	Caulking	Grey Caulking	High	No	Yes	No	Good	Building caulking.	Bulk	A-004	18-Oct-17														
Included	M	132	Office	Walls	Walls	Cinderblock	High	No	No	No	Good																		
Included	M	132	Office	Floor	Floor	Vinyl Sheet Flooring	High	No	Yes	No	Good	Grey with brown.	Bulk	V.S. A-007	18-Oct-17														
Included	M	132	Office	Ceiling	Ceiling	2' x 4' Ceiling Tiles	High	No	No	No	Good	Fibreglass.																	
Included	M	132	Office	Ceiling	Ceiling Space	Metal Q-Deck	High	No	No	No	Good																		
Included	M	132	Office	Windows	Caulking	White Caulking	High	No	Yes	No	Good	On window frames.	Bulk	V.S. A-002	18-Oct-17														
Included	M	133	Corridor	Walls	Walls	Cinderblock	High	No	No	No	Good																		
Included	M	133	Corridor	Floor	Floor	Concrete	High	No	No	No	Good																		
Included	M	133	Corridor	Ceiling	Ceiling	Metal Q-Deck	High	No	No	No	Good																		
Included	M	133	Corridor	Miscellaneous	Caulking	Grey Caulking	High	No	Yes	No	Good	Building caulking.	Bulk	V.S. A-004	18-Oct-17														
Included	M	134	Staff Room	Walls	Walls	Cinderblock	High	No	No	No	Good																		
Included	M	134	Staff Room	Walls	Walls	Drywall	High	No	Yes	No	Good		Bulk	A-011	18-Oct-17														
Included	M	134	Staff Room	Floor	Floor	Vinyl Sheet Flooring	High	No	Yes	No	Good	Grey with brown.	Bulk	A-007	18-Oct-17														
Included	M	134	Staff Room	Ceiling	Ceiling	2' x 4' Ceiling Tiles	High	No	No	No	Good	Date coded to a time period where asbestos use was not widespread.																	
Included	M	134	Staff Room	Ceiling	Ceiling	Metal Q-Deck	High	No	No	No	Good																		
Included	M	134	Staff Room	Windows	Caulking	White Caulking	High	No	Yes	No	Good	On window frames.	Bulk	V.S. A-002	18-Oct-17														
Included	M	134	Staff Room	Mechanical	Piping	Metal Pipes	High	No	No	No	Good	Bare or insulated with fiberglass and PVC fittings.																	
Included	M	134	Staff Room	Mechanical	Duct Work	Fibreglass Wrap	High	No	No	No	Good	Duct mastic not visible.																	
Included	M	134	Staff Room	Mechanical	Duct Work	Grey Duct Mastic	High	No	Yes	No	Good	Uninsulated duct.	Bulk	V.S. A-006	18-Oct-17														
Included	M	134	Staff Room	Miscellaneous	Sink	White Undercoat	High	No	Yes	No	Good		Bulk	A-008	18-Oct-17														
Included	M	135A	Fitting and Test Area	Walls	Walls	Cinderblock	High	No	No	No	Good																		
Included	M	135A	Fitting and Test Area	Walls	Walls	Drywall	High	No	Yes	No	Good		Bulk	A-010	18-Oct-17														
Included	M	135A	Fitting and Test Area	Floor	Floor	Concrete	High	No	No	No	Good																		
Included	M	135A	Fitting and Test Area	Ceiling	Ceiling	Metal Q-Deck	High	No	No	No	Good																		
Included	M	135A	Fitting and Test Area	Mechanical	Piping	Metal Pipes	High	No	No	No	Good	Bare or insulated with fiberglass and PVC fittings.																	
Included	M	135A	Fitting and Test Area	Mechanical	Duct Work	Fibreglass Wrap	High	No	No	No	Good	No mastic on fibreglass.																	
Included	M	135A	Fitting and Test Area	Mechanical	Duct Work	Dark Grey Duct Mastic	High	No	Yes	No	Good	Uninsulated duct.	Bulk	V.S. A-022	18-Oct-17														
Included	M	135A	Fitting and Test Area	Windows	Caulking	Black Caulking	High	No	Yes	No	Good	On window panes.	Bulk	V.S.A-001	18-Oct-17														
Included	M	135B	Office	Walls	Walls	Drywall	High	No	Yes	No	Good		Bulk	A-009	18-Oct-17														
Included	M	135B	Office	Floor	Floor	Vinyl Sheet Flooring	High	No	Yes	No	Good	Grey with brown.	Bulk	V.S. A-007	18-Oct-17														
Included	M	135B	Office	Ceiling	Ceiling	2' x 4' Ceiling Tiles	High	No	No	No	Good	Date coded to a time period where asbestos use was not widespread.																	
Included	M	135B	Office	Ceiling	Ceiling Space	Metal Q-Deck	High	No	No	No	Good																		
Included	M	135B	Office	Windows	Caulking	White Caulking	High	No	Yes	No	Good	On window frames.	Bulk	V.S. A-002	18-Oct-17														
Included	M	135B	Office	Windows	Caulking	Black Caulking	High	No	Yes	No	Good	On window panes.	Bulk	V.S.A-001	18-Oct-17														
Included	M	135B	Office	Mechanical	Piping	Metal Pipes	High	No	No	No	Good	Bare or insulated with fiberglass and PVC fittings.																	
Included	M	135B	Office	Mechanical	Duct Work	Fibreglass Wrap	High	No	No	No	Good	No mastic on fibreglass.																	
Included	M	135B	Office	Mechanical	Duct Work	Grey Duct Mastic	High	No	Yes	No	Good	Uninsulated duct.	Bulk	V.S. A-006	18-Oct-17														
Included	M	135C	Office	Walls	Walls	Drywall	High	No	Yes	No	Good		Bulk	V.S. A-009, A-010, A-011	18-Oct-17														
Included	M	135C	Office	Floor	Floor	Vinyl Sheet Flooring	High	No	Yes	No	Good	Grey with brown.	Bulk	V.S. A-007	18-Oct-17														
Included	M	135C	Office	Ceiling	Ceiling	2' x 4' Ceiling Tiles	High	No	No	No	Good	Date coded to a time period where asbestos use was not widespread.																	
Included	M	135C	Office	Ceiling	Ceiling Space	Metal Q-Deck	High	No	No	No	Good																		
Included	M	135C	Office																										

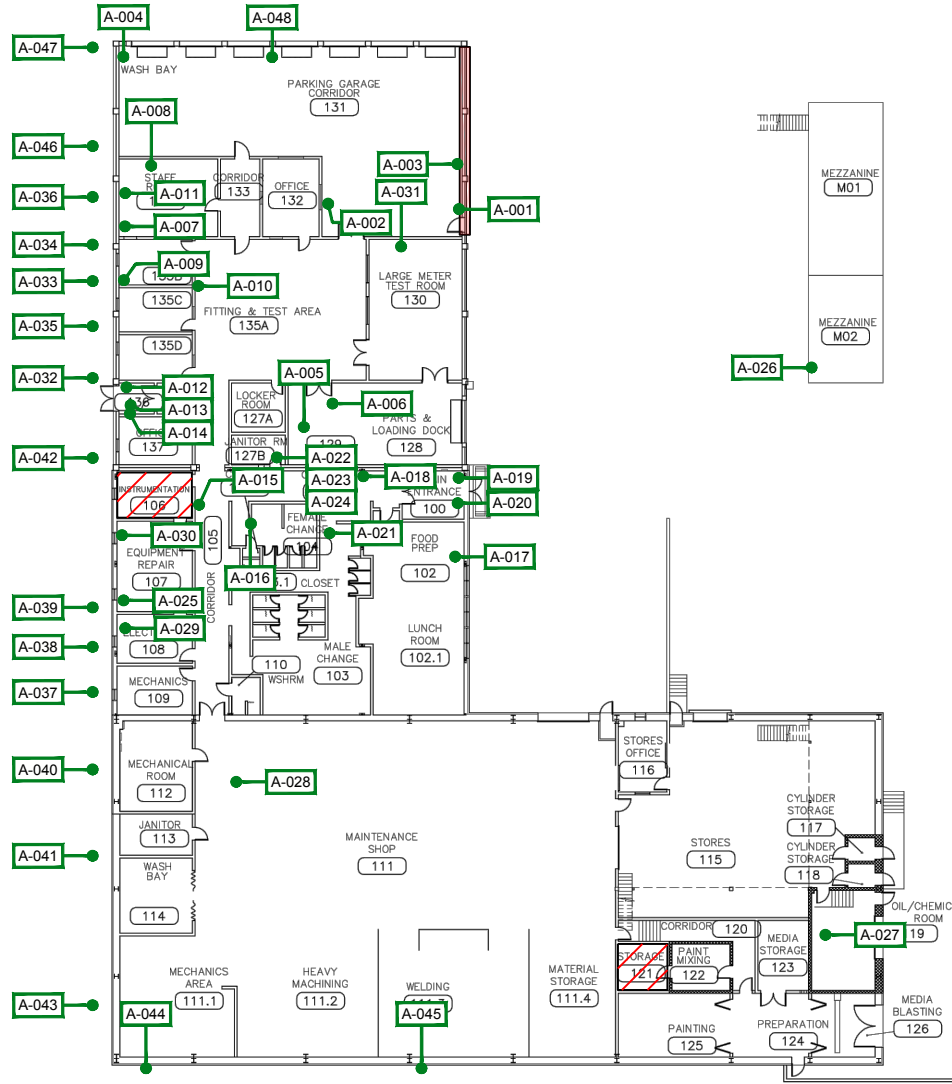
Appendix C  
Water Meter Shop  
ACM Inventory

Included/Excluded	Floor	Room #	Area Description	Elements	Subelements	Material Description	Accessibility	Suspect?	Sampled?	Asbestos Containing Material?	Condition	Field Notes	Sample Type	Sample ID	Sample Date	Asbestos Type	ACM Product	% of asbestos	Friable	Sprayed-on	Maintenance	Inspection	Priority	Potential for Disturbance	Recommended Action	Quantity	Photograph ID	Labelling Type	
Included	M	137	Office	Walls	Walls	Drywall	High	No	Yes	No	Good		Bulk	V.S. A-009, A-010, A-011	18-Oct-17														
Included	M	137	Office	Floor	Floor	Vinyl Sheet Flooring	High	No	Yes	No	Good	Grey with brown.	Bulk	V.S. A-007	18-Oct-17														
Included	M	137	Office	Ceiling	Ceiling	2' x 4' Ceiling Tiles	High	No	No	No	Good	Date coded to a time period where asbestos use was not widespread.																	
Included	M	137	Office	Ceiling	Ceiling Space	Metal Q-Deck	High	No	No	No	Good																		
Included	M	137	Office	Windows	Caulking	White Caulking	High	No	Yes	No	Good	On window frames.	Bulk	V.S. A-002	18-Oct-17														
Included	M	137	Office	Mechanical	Piping	Metal Pipes	High	No	No	No	Good	Bare or insulated with fibreglass and PVC fittings.																	
Included	M	137	Office	Mechanical	Duct Work	Grey Duct Mastic	High	No	Yes	No	Good	Uninsulated duct.	Bulk	V.S. A-006	18-Oct-17														
Included	S	M01/M02	Mezzanine	Walls	Walls	Drywall	High	No	Yes	No	Good		Bulk	A-026	18-Oct-17														
Included	S	M01/M02	Mezzanine	Walls	Walls	Metal	High	No	No	No	Good																		
Included	S	M01/M02	Mezzanine	Floor	Floor	Concrete	High	No	No	No	Good																		
Included	S	M01/M02	Mezzanine	Ceiling	Ceiling	Metal Q-Deck	High	No	No	No	Good																		
Included	S	M01/M02	Mezzanine	Mechanical	Duct Work	Dark Grey Duct Mastic	High	No	Yes	No	Good	Uninsulated duct.	Bulk	V.S. A-022	18-Oct-17														
Included	E	Exterior	Exterior	Walls	Walls	Brick (Original)	High	No	Yes	No	Good	Brick mortar sampled.	Bulk	A-046, A-047, A-048	18-Oct-17														
Included	E	Exterior	Exterior	Walls	Walls	Brick (2006 Addition)	High	No	Yes	No	Good	Brick mortar sampled.	Bulk	A-042, A-043, A-044, A-045	18-Oct-17														
Included	E	Exterior	Exterior	Walls	Walls	Stucco Board	High	No	Yes	No	Good	On foundation.	Bulk	A-036	18-Oct-17														
Included	E	Exterior	Exterior	Walls	Walls	Cement Board	High	No	Yes	No	Good	On foundation.	Bulk	A-039	18-Oct-17														
Included	E	Exterior	Exterior	Windows	Caulking	Black Caulking (Original)	High	No	Yes	No	Good	On door windows.	Bulk	A-032	18-Oct-17														
Included	E	Exterior	Exterior	Windows	Caulking	Black Caulking (2006 Addition)	High	No	Yes	No	Good	On window panes.	Bulk	A-038	18-Oct-17														
Included	E	Exterior	Exterior	Windows	Caulking	Grey Caulking (2006 Addition)	High	No	Yes	No	Good	On window frames.	Bulk	A-037	18-Oct-17														
Included	E	Exterior	Exterior	Miscellaneous	Firestop	Grey Firestop Putty (Original)	High	No	Yes	No	Good		Bulk	A-033	18-Oct-17														
Included	E	Exterior	Exterior	Miscellaneous	Firestop	Grey Firestop Putty (2006 Addition)	High	No	Yes	No	Good		Bulk	A-040	18-Oct-17														
Included	E	Exterior	Exterior	Miscellaneous	Caulking	Grey Caulking (Original)	High	No	Yes	No	Good	On expansion joint.	Bulk	A-034	18-Oct-17														
Included	E	Exterior	Exterior	Miscellaneous	Caulking	Grey Caulking (2006 Addition)	High	No	Yes	No	Good	On expansion joint.	Bulk	A-041	18-Oct-17														
Included	E	Exterior	Exterior	Miscellaneous	Tar	Black Tar (Original)	High	No	Yes	No	Good	On foundation.	Bulk	A-035	18-Oct-17														
Excluded	E	Exterior	Roof	Exterior Roof	Exterior Roof							Not assessed due to scope of work.																	
Excluded	M	106	Instrumentation	Entire Room	Entire Room	N/A	N/A	N/A	N/A	N/A	N/A	Access to area was not provided.																	
Excluded	M	121	Storage	Entire Room	Entire Room	N/A	N/A	N/A	N/A	N/A	N/A	Access to area was not provided.																	



# **APPENDIX D**

## **Floor Plan**



- LEGEND**
- # ASBESTOS SAMPLE LOCATION
  - ASBESTOS - CONTAINING LOOSE FILL VERMICULITE INSULATION OBSERVED
  - NO ACCESS

- NOTE(S)**
1. ASBESTOS IS A CARCINOGEN. DO NOT BREATHE ASBESTOS DUST.
  2. ADDITIONAL ASBESTOS-CONTAINING VERMICULITE INSULATION MAY BE LOCATED IN OTHER CINDERBLOCK WALLS THROUGHOUT THE SITE.

**REFERENCE(S)**  
 PLAN OBTAINED FROM INFRASTRUCTURE SERVICES DEPARTMENT CITY OF SASKATOON. DATED: 09/28/2017



CLIENT  
 CITY OF SASKATOON

CONSULTANT	YYYY-MM-DD	2017-12-05
DESIGNED		KH
PREPARED		VI
REVIEWED		KH
APPROVED		AG

PROJECT  
 ASBESTOS ASSESSMENT  
 WATER METER SHOP  
 1101 SPADINA CRESCENT WEST

TITLE  
**MAIN FLOOR**

PROJECT NO.	CONTROL	REV.	FIGURE
1667963	1000-HM-0001	0	1

**SCHEMATIC ONLY, NOT TO SCALE**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

26 mm

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Africa	+ 27 11 254 4800
Asia	+ 86 21 6258 5522
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 56 2 2616 2000

[solutions@golder.com](mailto:solutions@golder.com)  
[www.golder.com](http://www.golder.com)

**Golder Associates Ltd.**  
**16820 107 Avenue**  
**Edmonton, Alberta, T5P 4C3**  
**Canada**  
**T: +1 (780) 483 3499**

