# Project Specific Designated Substances and Hazardous Materials Survey

Elevator Replacement and Barrier Free Upgrades Project

R13 Massey Hall Library Offices, 7 Prom Valour Drive, Kingston, Ontario

**Prepared for:**
**Defence Construction Canada**

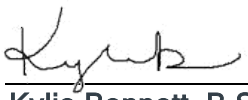
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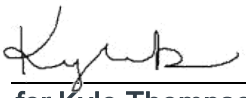
# Prepared for Defence Construction Canada

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# 1.0 Introduction

Englobe Corporation (Englobe) was retained by Defence Construction Canada (DCC) to conduct a project-specific Designated Substances and Hazardous Materials Survey (DSHMS) in support of the Elevator Replacement and Barrier Free Upgrades Project taking place at the R13 Massey Hall Library Offices located at 7 Prom Valour Drive in Kingston, Ontario.

The Designated Substances Survey (DSS) is required under the *Ontario Occupational Health and Safety Act* in order to identify designated substances that may be present within the project areas. The *Canada Labour Code* also stipulates under Part II, Section 124 that every employer shall ensure that the health and safety at work of every person employed by the employer is protected. By having a DSS conducted, the Project Manager will be able to inform his or her employees, contractors, and tenants of any designated substances that may be present and possibly disturbed throughout the project area.

Englobe completed a visual evaluation of building materials for the presence of suspected designated substances and hazardous materials on August 8th, 2024. As part of the survey, select materials were sampled and submitted for laboratory analysis to confirm asbestos, arsenic, chromium, lead, and mercury content.

# 2.0 Scope of Work

The survey implemented by Englobe was completed in accordance with Section 30 of the *Occupational Health and Safety Act, R.S.O. 1990, Chapter 0.1*. Designated Substances, as identified under the *Ontario Occupational Health and Safety Act*, are as follows:

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

Other Hazardous Materials which are not classified as designated substances, but were included as part of the survey and considered pertinent due to applicable regulations, best practice guidelines, and/or potential risks to human health and/or the environment, are:

- Chromium
- Ozone Depleting Substances (ODSs)
- Polychlorinated Biphenyls (PCBs)
- Urea Formaldehyde Foam Insulation (UFFI)
- Mould
- Other Hazardous Materials (where deemed pertinent)

# 3.0 Background Document Review

Prior to the commencement of fieldwork, Englobe personnel reviewed the following documentation provided by DCC:

- Comprehensive Designated Substances and Hazardous Materials Assessment, R13 Massey Hall Library Offices, Royal Military College, Kingston. Prepared by BluMetric Environmental. Dated July 14, 2015. BluMetric File No.: K-B13279-00-00.
- Limited Designated Substance and Hazardous Material Surveys – Phase II, Massey Hall Library Offices. Prepared by Ontario Environmental & Safety Network Ltd. Dated January 17, 2013. OESN Project No.: 00013.002.

# 4.0 Methodology

The purpose of the survey program was to identify designated substances and hazardous materials that may be disturbed during future work operations associated with the project. The project areas were defined by the following drawings:

- Kingston Massey Building Elevator Upgrades, Kingston, Ontario. Dated March 8, 2024.

The scope of work for this project was limited to the elevator, elevator lobbies, select areas of the ground, first, second, and third floors. A DCC representative was on-site to confirm the project scope of work. Neither an elevator nor roof assessment were completed as part of this survey. No other areas or materials were included as part of the survey

The survey was non-destructive in nature. Englobe did not complete intrusive openings into the building envelope or building slabs.

Materials suspected of containing designated substances were visually identified, based on the surveyor's knowledge of the historic composition of building products. Visual identification of materials suspected to contain asbestos was supported by the collection and analysis of a limited number of representative samples, where applicable. Materials suspected of containing designated substances or hazardous materials other than asbestos, arsenic, chromium, lead, mercury, or PCBs were identified by appearance, age, and knowledge of historic applications.

Results tables are included in Appendix A. Select photographs are included in Appendix B. Laboratory certificates of analysis are included in Appendix C. A drawing with sample locations is included in Appendix D. A Statement of Limitations is included in Appendix E.

## 4.1. Asbestos-Containing Material Methodology

The methodology employed for Asbestos-Containing Materials (ACMs) included identifying the presence of ACMs via the collection and analysis of suspect bulk material samples. The collection of bulk material samples was performed in accordance with the sampling procedures outlined in Ontario Regulation (O.Reg.) 278/05, as amended. O.Reg. 278/05, as amended, Table 1, stipulates the minimum number of bulk asbestos samples that must be collected and analyzed based on the quantity, application, and friability of each material.

ACMs can be divided into two categories: friable and non-friable material. A friable ACM is a material that can be crumbled, powdered, or pulverized by hand pressure and can readily release fibres when disturbed. Common applications of friable ACMs are sprayed or trowelled surfacing materials such as sprayed fireproofing and textured coatings. Non-friable materials are materials that will generally release fibres only when cut or shaped. Common non-friable ACMs include vinyl floor products, drywall joint compound, and mortars. Some of these products may become friable with time or when disturbed.

In Ontario, a material is defined as an Asbestos-Containing Material (ACM) if the material has a minimum asbestos content of 0.5 per cent (%) by dry weight, as per O. Reg. 278/05 *Asbestos on Construction Projects and in Buildings and Repair Operations* enabled under the *Occupational Health and Safety Act (R.S.O. 1990, Chapter 0.1),* as amended. The *Canada Labour Code, Occupational Health, and Safety Regulations (COHSR)* defines a material 1% or more asbestos by dry weight to be asbestos containing. For the purposes of this report, and as per CFB Kingston requirements, Englobe has considered an asbestos-containing material to be 0.5% or more by dry weight asbestos.

As part of this survey, asbestos has been assessed to protect federal workers and contractors, and to ensure compliance with federal requirements. This survey also considers the DND Asbestos Management Directive, including assigning action levels to identify asbestos-containing materials.

Representative bulk samples of suspected ACMs were collected by Englobe during the site investigation. Samples were collected to meet the bulk sampling requirements stipulated in O.Reg. 278/05, as amended. Bulk samples were analyzed by Paracel Laboratories Ltd. (Paracel).

Paracel is an accredited laboratory through the Canadian Association for Laboratory Accreditation Inc. (CALA). The bulk samples were analyzed using polarised light microscopy (PLM). All bulk asbestos samples collected by Englobe were analyzed using the regulated Ontario detection limit of 0.5%. Samples followed a stop-positive methodology, where the remaining samples in a series would not be analyzed if any one sample in the series had a concentration of asbestos greater than or equal to 0.5%.

## 4.2. Paint Chip Sampling – Arsenic, Chromium, Lead, Mercury, and PCBs

Paint chip samples were collected for metals analysis (arsenic, chromium, lead, and mercury) and PCBs (as required, at the discretion of Englobe). Paracel is certified under the CALA to perform analysis for the parameters listed above. Samples were analysed for metals using Inductively Coupled Plasma - Mass Spectrometry (ICP-MS) in accordance with U.S. EPA 6020 and Cold-Vapour Atomic Absorption (CVAA) in accordance with U.S. EPA Method 7471B.

Paint samples were collected of all paint colours throughout the project area based on site observations.

Arsenic in Paint

The Federal Canada Consumer Product Safety Act's *Surface Coating Materials Regulations SOR/2016-193* does not set limits specifically for arsenic in paint. For the purposes of this survey, paints having concentrations of arsenic above the Method Detection Limit of 50-ppm are considered arsenic containing.

Chromium in Paint

The Federal Canada Consumer Product Safety Act does not set limits specifically for chromium in paint. For the purposes of this survey, paints having concentrations of chromium above the Method Detection Limit are considered chromium containing.

Lead in Paint

In Canada, the Federal Canada Consumer Product Safety Act has lowered the allowable concentration of lead in paints for new consumer products to 0.009% lead content by weight (90 ppm), with some material and specific use exceptions. For the purposes of this survey, paints having concentrations of lead above the 90-ppm limit are considered lead-based.

Mercury in Paint

For mercury in paint, the Federal Canada Consumer Product Safety Act has set the maximum allowable concentration of mercury in paint at 10-ppm.

PCBs in Paint

In Canada, the Federal *PCB Regulations SOR/2008-273*, as amended, has set the allowable release of solid PCBs into the environment at 50-ppm.

Leachable Arsenic, Chromium, Lead, Mercury, and PCBs

Englobe also collected bulk samples of materials coated with paint to determine if these materials should be considered hazardous for disposal, based on leachate analysis. Only paint samples exceeding either the regulated limit (for lead, mercury, and PCBs) or Method Detection Limit (for arsenic and chromium) were submitted for leachate analysis. Bulk paint samples were analyzed for chromium, lead, and/or mercury leachate using Toxicity Characteristic Leaching Procedure (TCLP) EPA 6020 - Digestion - ICP-MS and TCLP EPA 7470A, CVAA by Paracel. Leachate results were compared to the 5 mg/L limit for chromium leachate toxicity, the 5 mg/L limit for lead leachate toxicity, and the 0.1 mg/L limit for mercury leachate toxicity, as applicable, as per O. Reg. 347/90 *Waste Management*, as amended, and enabled under the *Environmental Protection Act (R.S.O. 1990, Chapter E.19).*

## 4.3. PCB-Containing Equipment Methodology

Equipment that may contain PCBs (e.g., electrical transformers and fluorescent light ballasts) can often be identified by examining manufacturer's labels. For safety reasons, Englobe personnel do not remove the ballast shields from fluorescent light fixtures to examine the ballast codes unless the electrical circuit for the lighting had been tagged and locked out by a qualified electrician. When possible, the manufacture name and catalogue number is recorded. Where not clearly labelled as "Non-PCB", the information presented on the ballast labels can be compared with the Environment Canada document entitled "Identification of Lamp Ballasts Containing PCBs (Revised August 1991)" to confirm PCB content, or assumed to contain PCBs, as applicable.

## 4.4. Urea Formaldehyde Foam Insulation Methodology

Urea formaldehyde foam insulation ("UFFI") is a type of thermal insulation material applied to walls and ceilings of buildings to form a solid layer of insulation. The sale and installation of UFFI was banned in Canada in 1980, for health-related reasons due to the occurrence of formaldehyde gas, which is produced during natural degeneration of the UFFI.

## 4.5. Ozone Depleting Substances (ODS) Methodology

Ozone depleting substances ("ODSs") include chemicals containing chlorofluorocarbon ("CFC"), hydrochlorofluorocarbon ("HCFC"), halon or any other material capable of destroying ozone in the atmosphere. Ozone Depleting Substances are controlled by O.Reg. 463/10 and the Federal Halocarbons Regulation.

Equipment that may contain halocarbons (e.g., air conditioning and refrigeration equipment) can often be identified by examining manufacturer's labels. The investigation of halocarbons was performed through the identification of equipment requiring refrigerants as part of the survey process followed by an evaluation for labels on the equipment (indicating the type of refrigerant present), as applicable.

### 4.6. Other Designated Substances and Hazardous Materials Methodology

The methodology for the identification of other designated substances and hazardous materials followed the same visual evaluation methodology as the investigation for asbestos and lead in surface coatings. During the survey, other identified designated substances were visually identified based on the surveyor's historical knowledge of these substances. These substances/materials were identified, and locations noted, as deemed applicable.

# 5.0 Findings

The following sections outline the findings of accessible designated substances and hazardous building materials that were assessed as part of the project-specific DSHMS.

## 5.1. Acrylonitrile

Acrylonitrile was neither observed in the building, nor suspected of being present, in forms or quantities that would either impact future work or pose risks to human health or the environment.

## 5.2. Arsenic

### 5.2.1. Arsenic in Paint

Four (4) samples of paint were collected by Englobe and submitted for arsenic content analysis. Three (3) samples of paint collected by OESN and identified within the project area were submitted for arsenic content analysis in January 2013. A summary table of current and historical bulk material samples is included in Appendix A, Table 2.

All paints sampled within the project areas contain concentrations of arsenic less than the Method Detection Limit of 50-ppm:

- White paint sampled from the drywall ceiling in vestibule 005 on the ground floor and observed throughout the project area contains <50 ppm arsenic (Englobe Sample ID 02406622-P01).

- Dark grey paint sampled from the door in elevator vestibule 003 on the ground floor and observed throughout the project area contains <50 ppm arsenic (Englobe Sample ID 02406622-P02).
- Grey paint sampled from the concrete floor in elevator mechanical room 001 on the ground floor and observed throughout the project area contains <50 ppm arsenic (Englobe Sample ID 02406622-P03).
- Grey paint sampled from the wall in stairwell 1 contains <50 ppm arsenic (Englobe Sample ID 02406622-P06).
- Butter yellow paint in elevator mechanical room 001 on the ground floor contains <50 ppm arsenic (Historical OESN 2013 Sample ID 00013.002-PB02).
- Royal blue paint in the first-floor delivery hall contains <50 ppm arsenic (Historical OESN 2013 Sample ID 00013.002-PB08).
- Cream paint in the elevator cab contains <50 ppm arsenic (Historical OESN 2013 Sample ID 00013.002-PB13).

### 5.2.2. Arsenic Leachate

Only paint samples exceeding the Method Detection Limit for arsenic were submitted for leachate analysis. As such, no paint samples were submitted for arsenic leachate analysis.

## 5.3. Asbestos

The following subsections outline the consolidated asbestos findings from the DSHMS completed by Englobe. A summary table of bulk material samples collected by Englobe is included as Appendix A, Table 1. Action(s) provided for ACMs are based upon the Department of National Defence *Asbestos Condition Assessment and Response Chart.*

### 5.3.1. Asbestos-Containing Materials

Based on bulk sampling and subsequent laboratory analysis, the following materials observed within the project areas contain regulated amounts of asbestos:

- Non-friable beige sealant applied around the vestibule 005 frame on the ground floor contains 1% Chrysotile asbestos (Englobe Sample ID 02406622-04A). Approximately six (6) linear metres of this material was observed in good-condition. This material is classified as DND Management Action Level 6.

### 5.3.2. Assumed Asbestos-Containing Materials

The following materials within the project areas are assumed to contain regulated amounts of asbestos, until bulk sampling confirms otherwise. These materials could not be sampled due to accessibility constraints (inaccessible):

- Materials associated with the elevator shaft, including:
    - Although not visually identified as the elevator shaft was inaccessible to Englobe and outside the current scope of work, non-friable Transite wall panels have been historically identified in the elevator shaft (Historical BluMetric 2015 report). Approximately twelve (12) square metres of this material is assumed present throughout the shaft from the basement to the third floor, unless proven otherwise.

### 5.3.3. Non-Asbestos Containing Materials

Based on bulk sampling and subsequent laboratory analysis, the following materials observed within the project areas do not contain regulated amounts of asbestos:

- Ceramic block grout (Englobe Sample ID 02406622-01A-C).
- Large block mortar (Englobe Sample ID 02406622-02A-C).
- Grey sealant around doors in vestibule 005 on the ground floor (Englobe Sample ID 02406622-03A-C).
- Drywall joint compound (Englobe Sample ID 02406622-05A-C, Historical OESN 2013 Sample ID 00013.002-C09-11, HW 02 00013.002-W08-12).
- Textured wall plaster in elevator mechanical room 001 on the ground floor (Englobe Sample ID 02406622-06A-C).
- Concrete block mortar (Englobe Sample ID 02406622-07A-C).
- Black window glaze on interior door windows (Englobe Sample ID 02406622-08A-C).
- White sealant around interior doors (Englobe Sample ID 02406622-09A-C).
- 12” x 12” (30 cm x 30 cm) grey vinyl floor tile with black flecks (Englobe Sample ID 02406622-10A-C) and mastic (Historical OESN 2013 Sample ID A-01a-c, A-03a-c, A-04a-c, A-06a-c, A-07a-c).
- Wall and ceiling plaster (white and grey layers) (Englobe Sample ID 02406622-11A-C, 13A-C, Historical OESN 2013 Sample ID 00013.002-C01-05, 00013.002-W01-07).
- Granite mortar (Englobe Sample ID 02406622-12A-C).
- Vinyl baseboard mastic (Englobe Sample ID 02406622-14A-C).
- Terracotta mortar (Englobe Sample ID 02406622-15A-C).
- 18” x 18” (45 cm x 45 cm) off-white vinyl floor tile with black and white flecks (Englobe Sample ID 02406622-16A-C) and mastic (Historical OESN 2013 Sample ID A-01a-c, A-03a-c, A-04a-c, A-06a-c, A-07a-c).
- 12” x 12” (30 cm x 30 cm) white vinyl floor tile with grey flecks (Englobe Sample ID 02406622-17A-C) and mastic (Historical OESN 2013 Sample ID A-01a-c, A-03a-c, A-04a-c, A-06a-c, A-07a-c).

- 2’ x 4’ (60 cm x 120 cm) ceiling tile, pinhole and fissure pattern (Historical OESN 2013 Sample ID 00013.002-C12-14).

Englobe could not sample the 2’ x 2’ (60 cm x 60 cm) beveled ceiling tiles in the first-floor delivery hall due to accessibility constraints (height), however, DCC personnel communicated to Englobe that the ceiling tiles were newly installed. As such, these ceiling tiles are not expected to contain regulated amounts of asbestos.

A roofing assessment was not performed by Englobe for this phase of the project. It was communicated to Englobe by DCC that the roof was recently replaced and, as such, is not suspected to contain regulated amounts of asbestos.

## 5.4. Benzene

Benzene is a natural constituent of petroleum-based mixtures and is assumed present in select materials such as roofing materials, tars, paints, and adhesives.

## 5.5. Coke Oven Emissions

Coke oven emissions were neither observed in the building, nor suspected of being present, in forms or quantities that would either impact future work or pose risks to human health or the environment.

## 5.6. Ethylene Oxide

Ethylene oxide was neither observed in the building, nor suspected of being present, in forms or quantities that would either impact future work or pose risks to human health or the environment.

## 5.7. Isocyanates

Isocyanates were neither observed in the building, nor suspected of being present, in forms or quantities that would either impact future work or pose risks to human health or the environment.

## 5.8. Lead

### 5.8.1. Lead in Paint

Four (4) samples of paint were collected by Englobe and submitted for lead content analysis. Two (2) samples of paint collected by OESN and identified within the project area were submitted for lead content analysis in January 2013. A summary table of current and historical bulk material samples is included in Appendix A, Table 2.

The following paints sampled within the project areas contain concentrations of lead greater than the Federal Canada Consumer Product Safety Act's limit of 90-ppm:

- Grey paint sampled from the concrete floor in elevator mechanical room 001 on the ground floor and observed throughout the project area contains 766 ppm lead (Englobe Sample ID 02406622-P03).
- Grey paint sampled from the wall in stairwell 1 contains 1,660 ppm lead (Englobe Sample ID 02406622-P06).
- Cream paint in the elevator cab contains 1,630 ppm lead (Historical OESN 2013 Sample ID 00013.002-PB13).
- Butter yellow paint in elevator mechanical room 001 on the ground floor contains 2,220 ppm lead (Historical OESN 2013 Sample ID 00013.002-PB02).

The following paints and mortars sampled within the project areas contain concentrations of lead less than the Federal Canada Consumer Product Safety Act's limit of 90-ppm:

- White paint sampled from the drywall ceiling in vestibule 005 on the ground floor and observed throughout the project area contains <5 ppm lead (Englobe Sample ID 02406622-P01).
- Dark grey paint sampled from the door in elevator vestibule 003 on the ground floor and observed throughout the project area contains 6 ppm lead (Englobe Sample ID 02406622-P02).
- Royal blue paint in the first-floor delivery hall contains <90 ppm lead (Historical OESN 2013 Sample ID 00013.002-PB08).

No other lead samples were collected by Englobe for lead content analysis, as other paints and surface coatings encountered in the project areas were in good condition and sampling without matrix interference (i.e., removing the paint without the substrate material) would have proved difficult. All other paints and surface coatings in the project areas shall be assumed to contain detectable concentrations of lead, unless specific bulk sampling and laboratory analysis confirms otherwise.

### 5.8.2. Lead Leachate

Only paint samples exceeding the Federal Canada Consumer Product Safety Act's maximum allowable concentration for lead were submitted for leachate analysis. As such, the above four (4) paint samples exceeding 90-ppm were submitted for lead leachate analysis. A summary table of bulk material samples collected by Englobe is included in Appendix A, Table 3. The analytical laboratory results were compared to the 5 mg/L limit for lead leachate toxicity, as per O. Reg. 347/90 *Waste Management*, as amended.

The following sampled paints did not exceed the 5mg/L limit for lead leachate toxicity and as such are not considered hazardous for disposal with respect to lead:

- Grey paint sampled from the concrete floor in elevator mechanical room 001 on the ground floor and observed throughout the project area contains <0.05 mg/L lead leachate (Englobe Sample ID 02406622-P03).
- Grey paint sampled from the wall in stairwell 1 contains 1.81 mg/L lead leachate (Englobe Sample ID 02406622-P06).

- Cream paint in the elevator cab contains <0.10 mg/L lead leachate (Englobe Sample ID 02406622-P05).
- Butter yellow paint in elevator mechanical room 001 on the ground floor contains 0.42 mg/L lead leachate (Englobe Sample ID 02406622-P04).

### 5.8.3. Lead-Containing Materials

Lead is also assumed to be present in the following materials:

- Solder associated with the joints of copper piping
- Ceramic tile glazing
- Terrazzo flooring joints
- Mortars

## 5.9. Mercury

### 5.9.1. Mercury in Paint

Four (5) samples of paint were collected by Englobe and submitted for mercury content analysis. Three (3) samples of paint collected by OESN and identified within the project area were submitted for mercury content analysis in January 2013. A summary table of current and historical bulk material samples is included in Appendix A, Table 2.

The following paints sampled within the project areas contain concentrations of mercury greater than the Federal Canada Consumer Product Safety Act's limit of 10ppm:

- Butter yellow paint in elevator mechanical room 001 on the ground floor contains 13 ppm mercury (Historical OESN 2013 Sample ID 00013.002-PB02).

The following paints sampled within the project areas contain concentrations of mercury less than the Federal Canada Consumer Product Safety Act's limit of 10 ppm:

- White paint sampled from the drywall ceiling in vestibule 005 on the ground floor and observed throughout the project area contains <2 ppm mercury (Englobe Sample ID 02406622-P01).
- Dark grey paint sampled from the door in elevator vestibule 003 on the ground floor and observed throughout the project area contains <2 ppm mercury (Englobe Sample ID 02406622-P02).
- Grey paint sampled from the concrete floor in elevator mechanical room 001 on the ground floor and observed throughout the project area contains <2 ppm mercury (Englobe Sample ID 02406622-P03).
- Grey paint sampled from the wall in stairwell 1 contains <2 ppm mercury (Englobe Sample ID 02406622-P06).
- Cream paint in the elevator cab contains <2 ppm mercury (Historical OESN 2013 Sample ID 00013.002-PB13).
- Royal blue paint in the first-floor delivery hall contains <10 ppm mercury (Historical OESN 2013 Sample ID 00013.002-PB08).

### 5.9.2. Mercury Leachate

Only paint samples exceeding the Federal Canada Consumer Product Safety Act's maximum allowable concentration for mercury were submitted for leachate analysis. As such, the above one (1) paint sample exceeding 10 ppm was submitted for mercury leachate analysis. A summary table of bulk material samples collected by Englobe is included in Appendix A, Table 3. The analytical laboratory results were compared to the 0.1 mg/L limit for mercury leachate toxicity, as per O. Reg. 347/90 *Waste Management*, as amended.

The following sampled paints did not exceed the 0.1 mg/L limit for mercury leachate toxicity and as such are not considered hazardous for disposal with respect to mercury:

- Butter yellow paint in elevator mechanical room 001 on the ground floor contains <0.005 mg/L mercury (Englobe Sample ID 02406622-P04).

## 5.10. Silica

Based on the historical composition of building materials, silica is assumed to be present in the following materials:

- Concrete and cement building elements
- Interior and exterior masonry and mortar
- Drywall building elements
- Plaster building elements
- Vinyl flooring products
- Terrazzo flooring
- Texture coatings
- Roofing layers
- Ceramic tiles
- Ceiling tiles

## 5.11. Vinyl Chloride

Vinyl chloride was neither observed in the building, nor suspected of being present, in forms or quantities that would either impact future work or pose risks to human health or the environment.

## 5.12. Chromium

### 5.12.1. Chromium in Paint

Four (4) samples of paint were collected by Englobe and submitted for chromium content analysis. Three (3) samples of paint collected by OESN and identified within the project area were submitted for chromium content analysis in January 2013. A summary table of current and historical bulk material samples is included in Appendix A, Table 2.

The following paints sampled within the project areas contain concentrations of chromium greater than the Method Detection Limit:

- Grey paint sampled from the concrete floor in elevator mechanical room 001 on the ground floor and observed throughout the project area contains 70 ppm chromium (Englobe Sample ID 02406622-P03).
- Grey paint sampled from the wall in stairwell 1 contains 225 ppm chromium (Englobe Sample ID 02406622-P06).
- Butter yellow paint in elevator mechanical room 001 on the ground floor contains 549 ppm chromium (Historical OESN 2013 Sample ID 00013.002-PB02).

The following paints sampled within the project areas contain concentrations of chromium less than the Method Detection Limit:

- White paint sampled from the drywall ceiling in vestibule 005 on the ground floor and observed throughout the project area contains <50 ppm chromium (Englobe Sample ID 02406622-P01).
- Dark grey paint sampled from the door in elevator vestibule 003 on the ground floor and observed throughout the project area contains <50 ppm chromium (Englobe Sample ID 02406622-P02).
- Cream paint in the elevator cab contains <500 ppm chromium (Historical OESN 2013 Sample ID 00013.002-PB13).
- Royal blue paint in the first-floor delivery hall contains <500 ppm chromium (Historical OESN 2013 Sample ID 00013.002-PB08).

### 5.12.2. Chromium Leachate

Only paint samples exceeding the Method Detection Limit for chromium were submitted for leachate analysis. As such, the above three (3) paint samples exceeding the Method Detection Limit were submitted for chromium leachate analysis. A summary table of bulk material samples collected by Englobe is included in Appendix A, Table 3. The analytical laboratory results were compared to the 5 mg/L limit for chromium leachate toxicity, as per O. Reg. 347/90 *Waste Management*, as amended.

The following sampled paints did not exceed the 5 mg/L limit for chromium leachate toxicity and as such are not considered hazardous for disposal with respect to chromium:

- Grey paint sampled from the concrete floor in elevator mechanical room 001 on the ground floor and observed throughout the project area contains <0.05 mg/L chromium (Englobe Sample ID 02406622-P03).
- Grey paint sampled from the wall in stairwell 1 contains 0.05 mg/L chromium (Englobe Sample ID 02406622-P06).
- Butter yellow paint in elevator mechanical room 001 on the ground floor contains <0.10 mg/L chromium (Englobe Sample ID 02406622-P04).

## 5.13. Halocarbons

Halocarbons were neither observed in the building, nor suspected of being present, in forms or quantities that would either impact future work or pose risks to human health or the environment.

## 5.14. Polychlorinated Biphenyls (PCBs)

### 5.14.1. PCBs in Paint

Four (4) samples of paint were collected by Englobe and submitted for PCB content analysis. Three (1) sample of paint collected by OESN and identified within the project area were submitted for PCB content analysis in January 2013. A summary table of bulk material samples is included in Appendix A, Table 2.

All paints sampled within the project areas contain concentrations of PCBs less than the Federal PCB Regulations limit of 50-ppm:

- White paint sampled from the drywall ceiling in vestibule 005 on the ground floor and observed throughout the project area contains <50 ppm PCBs (Englobe Sample ID 02406622-P01).
- Dark grey paint sampled from the door in elevator vestibule 003 on the ground floor and observed throughout the project area contains 7 ppm PCBs (Englobe Sample ID 02406622-P02).
- Grey paint sampled from the concrete floor in elevator mechanical room 001 on the ground floor and observed throughout the project area contains 5 ppm PCBs (Englobe Sample ID 02406622-P03).
- Grey paint sampled from the wall in stairwell 1 contains 13 ppm PCBs (Englobe Sample ID 02406622-P06).
- Butter yellow paint in elevator mechanical room 001 on the ground floor contains <50 ppm PCBs (Historical OESN 2013 Sample ID 00013.002-PB02).
- Cream paint in the elevator cab contains <50 ppm PCBs (Historical OESN 2013 Sample ID 00013.002-PB13).
- Royal blue paint in the first-floor delivery hall contains <50 ppm PCBs (Historical OESN 2013 Sample ID 00013.002-PB08).

### 5.14.2. PCB Leachate

Only paint samples exceeding the Federal PCB Regulations limit for PCBs were submitted for leachate analysis. As such, no paint samples were submitted for PCB leachate analysis.

### 5.14.3. PCB-Containing Materials

Light fixtures within the building are not expected to be disturbed as part of the project. Should this change, all fluorescent light tube ballasts shall be assumed to contain PCBs, until confirmed otherwise.

## 5.15. Urea Formaldehyde Foam Insulation (UFFI)

UFFI was neither observed in the building, nor suspected of being present, in forms or quantities that would either impact future work or pose risks to human health or the environment.

## 5.16. Mould

Mould was neither observed in the building, nor suspected of being present, in forms or quantities that would either impact future work or pose risks to human health or the environment.

# 6.0 Conclusions & Recommendations

The DSHMS scope of work included an assessment for the presence of the eleven (11) Designated Substances, as identified in the *Occupational Health and Safety Act*, as well as PCBs, ODSs, UFFI, mould, and other miscellaneous hazardous materials or chemicals.

Based on the site investigation, sampling, and analysis, the following designated substances and hazardous materials are present in forms and quantities in the project area:

- Asbestos
- Lead
- Mercury
- Silica
- Chromium

Englobe's recommendations for each material, which are based upon both regulatory compliance and best practice guidelines, are included in the following sections below.

## 6.1. Asbestos

The disturbance of ACMs on construction and demolition projects is governed by the *Canada Occupational Health and Safety Regulations,* the *DND Asbestos Management Directive*, and in the province of Ontario is governed by O.Reg. 278/05, as amended. These regulations classify all asbestos disturbances as Low Risk (Type 1), Moderate Risk (Type 2), or High Risk (Type 3), each of which has defined precautionary measures. All asbestos materials are subject to specific handling and disposal precautions and must be removed prior to demolition. In the event of conflict between regulations, the more stringent procedures apply.

The removal of non-friable materials can be completed using Low-Risk procedures, provided only non-powered hand tools are used and the material is wetted during removal. If these conditions cannot be met, then more stringent (Moderate-Risk or High-Risk) procedures are required.

The breaking, cutting, drilling, abrading, grinding, sanding, or vibrating of non-friable asbestos-containing materials if the work is done by means of a power tool that is attached to a dust-collecting device equipped with HEPA filters, can be performed using Moderate-Risk asbestos work procedures. The breaking, cutting, drilling, abrading, grinding, sanding, or vibrating of non-friable asbestos-containing materials, if the work is done by means of a power tool that is not attached to a dust-collecting device equipped with HEPA filters, requires High-Risk asbestos work procedures.

The transport and disposal of asbestos waste is governed by O. Reg. 347/90 – *General – Waste Management*, as amended. This regulation requires that asbestos waste be sealed in appropriately labelled, double containers resistant to puncture and tears. The waste must be disposed at a licensed waste disposal site.

The time weight average exposure limit (TWAEL) for airborne asbestos is prescribed by O.Reg. 490/09 *Designated Substances*, as amended, and the *Canada Labour Code, Occupational Health, and Safety Regulations*. Work procedures and personal protective equipment must be used to ensure that workers are not exposed to airborne asbestos levels that exceed this TWAEL.

The following recommendations apply to ACMs and suspected ACMs:

- Appropriate work procedures and precautionary measures must be used, as outlined in O.Reg. 278/05, as amended, the *DND Asbestos Management Directive*, and the *Canada Occupational Health and Safety Regulations*, as amended, when performing work that may disturb ACMs or suspected ACMs, including prior to building demolition.
- Disturbance and/or removal of ACMs must be appropriately recorded as part of the building's Asbestos Management Plan.
- Before undertaking any work activity that involves asbestos-containing materials, an Asbestos Exposure Control Plan shall be developed, in accordance with the requirements of the *Canada Occupational Health and Safety Regulations*, which includes classification of asbestos specific work activities, onsite labelling of ACMs, and education/training of applicable federal employees specific to ACMs.
- Disposal of asbestos waste is controlled by the *Ontario Environmental Protection Act*, O.Reg. 347/90, *General – Waste Management*, as amended. This regulation requires that asbestos waste be sealed in double containers resistant to puncture and tears, and appropriately labelled. The waste must be disposed at a licensed waste disposal site. Proper notification must be issued to the site representative prior to transportation of waste. The transport of the waste to the disposal site is controlled by the federal *Transportation of Dangerous Goods Act, 1992* (TDGA) and *Ontario Dangerous Goods Transportation Act.*
- If ACMs or suspected ACMs become damaged and worker exposure to the material is likely to occur, the damaged material must be repaired or removed following work

procedures outlined in O. Reg. 278/05, as amended, the *DND Asbestos Management Directive*, and *Canada Labour Code, Occupational Health, and Safety Regulations,* as amended.

Englobe made the attempt to evaluate the project areas to identify hazardous materials present. In spite of these efforts, some ACMs may be concealed and not observed at the time of the survey. As such, should any previously unidentified suspect ACMs be encountered as part of future work, these materials are to be treated as ACMs and handled accordingly, unless sampling proves otherwise. Materials that have not been analyzed but are visibly similar to other materials identified as asbestos-containing, must be considered asbestos-containing unless proven otherwise by laboratory analysis.

## 6.2. Lead

The Occupational Health and Safety Branch (OHS) of the Ontario Ministry of Labour, Immigration, Training and Skills Development (MLITSD) have published *Guideline: Lead on Construction Projects*. This document classifies all lead disturbances as Type 1, Type 2a, Type 2b, Type 3a or Type 3b work, and assigns different levels of respiratory protection and work procedures for each classification. Disturbance of lead-containing coatings shall follow the procedures of this guideline document.

Paints and other surface coatings containing elevated concentrations of lead can pose a health risk to humans if ingested or inhaled. Such lead-containing surface coatings are also a risk to the environment with the potential to contaminate soil and groundwater. Surface coatings with elevated lead content can also pose a health risk to workers while completing renovations within the building.

Although the Canada Consumer Product Safety Act's *Surface Coating Materials Regulations SOR/2016-193*, as amended, has set a limit of 90 parts per million (ppm) for surface coating materials, there may be a potential for exposure to high levels of airborne lead depending on the work activities performed that disturb the lead-containing materials, even at low lead content concentrations. Conducting a risk assessment to assess the potential for exposure to lead should be performed to determine the need to follow work procedures such as those in the MLITSD guideline referenced above.

In the event of conflict between lead precautionary measures and other precautionary measures (e.g., asbestos, silica), the more stringent procedures shall apply.

The time weighted average exposure limit (TWAEL) for airborne lead is prescribed by O.Reg. 490/09 *Designated Substances*, as amended. Work procedures and personal protective equipment must be used to ensure that workers are not exposed to airborne lead levels that exceed this TWAEL.

The disposal of construction waste containing lead is governed by O. Reg. 347/90 - *General – Waste Management*, as amended. The transport of the waste to the disposal site is controlled by the federal TDGA and the *Ontario Dangerous Goods Transportation Act*.

Prior to or during renovation work, the following procedures should be performed for lead-containing materials that are anticipated to be disturbed:

- Assumed lead joints associated with copper piping and terrazzo flooring can be cut a small distance (e.g., 50 mm) from the soldered joints to avoid direct disturbance of the lead material.
- Ceramic tiles can be removed used Type 1 work procedures and respiratory protection provided that only non-powered hand tools are used.

## 6.3. Mercury

If paint containing elevated levels of mercury is to be disturbed, precautions should be taken by the contractor to protect workers against exposure to mercury. The risk of exposure can be mitigated through the application of proper worker health and safety precautions (i.e., work and dust control procedures that reduce dust generation, utilization of PPE and implement a worker hygiene program).

Disturbance of surface coatings with elevated mercury concentrations should follow similar procedures to those of lead surface coatings, as outlined within Ontario MLITSD *Guideline: Lead on Construction Projects.*

The TWAEL for mercury is prescribed by O. Reg. 490/09 *Designated Substances*, as amended. Work procedures and personal protective equipment must be used to ensure that workers are not exposed to mercury levels that exceed this TWAEL.

## 6.4. Silica

The Occupational Health and Safety Branch of the Ontario MLITSD has published *Guideline: Silica on Construction Projects*. This document classifies all silica disturbances as Type 1, Type 2, or Type 3 work, and assigns different levels of respiratory protection and work procedures for each classification. This guideline should be followed during disturbance of silica-containing materials. It is preferable to use more stringent dust suppression techniques and engineering controls as opposed to relying on respiratory protection to control worker exposure. Respiratory protection should only be relied on as a last resort when dust suppression techniques and engineering controls fail to control worker exposure.

The TWAEL for airborne silica is prescribed by O.Reg. 490/09 *Designated Substances*, as amended. Work procedures and personal protective equipment must be used to ensure that workers are not exposed to airborne silica levels that exceed this exposure limit.

## 6.5. Chromium

If paint containing elevated levels of chromium is to be disturbed, precautions should be taken by the contractor to protect workers against exposure to chromium. The risk of exposure can be mitigated through the application of proper worker health and safety precautions (i.e., work and dust control procedures that reduce dust generation, utilization of PPE and implement a worker hygiene program).

There are no regulations that specifically govern the disturbance of chromium on construction projects. In the absence of specific regulations, the Ontario MLITSD *Guideline: Lead on Construction Projects* shall be followed when removing or disturbing paints containing detectable concentrations of chromium.

# 7.0 Closure

A Statement of Limitations, which forms an integral part of this report, is included in Appendix E.

We trust that the information contained herein meets your needs. Should you have any questions or comments, please do not hesitate to contact us.

# Appendix A
# Results Tables



ENGLOBE

Table 1: Summary of Bulk Samples Analyzed for Asbestos Content by PLM

| Sample I.D. | Sample Location | Material Description | Asbestos Content (%) | Condition | Accessibility | Friability | DND Action Level | Potential to Release Fibres |
|---|---|---|---|---|---|---|---|---|
| Englobe 2024 | | | | | | | | |
| 02406622-01A | Ground Floor, Vestibule 005, Wall | Ceramic Block Grout | None Detected | N/A | N/A | N/A | N/A | N/A |
| 02406622-01B | | | None Detected | | | | | |
| 02406622-01C | | | None Detected | | | | | |
| 02406622-02A | Ground Floor, Vestibule 005, Wall | Large Block Mortar | None Detected | N/A | N/A | N/A | N/A | N/A |
| 02406622-02B | | | None Detected | | | | | |
| 02406622-02C | | | None Detected | | | | | |
| 02406622-03A | Ground Floor, Vestibule 005, Around Door | Grey Sealant | None Detected | N/A | N/A | N/A | N/A | N/A |
| 02406622-03B | | | None Detected | | | | | |
| 02406622-03C | | | None Detected | | | | | |
| **02406622-04A** | **Ground Floor, Vestibule 005, Wall** | **Beige Sealant** | **1% Chrysotile** | Good | A | Non-Friable | 6 | Low |
| 02406622-04B | | | Positive Stop, Not Analyzed | | | | | |
| 02406622-04C | | | Positive Stop, Not Analyzed | | | | | |
| 02406622-05A | First Floor, Entrance Hall 102, Ceiling | Drywall Joint Compound | None Detected | N/A | N/A | N/A | N/A | N/A |
| 02406622-05B | | | None Detected | | | | | |
| 02406622-05C | | | None Detected | | | | | |
| 02406622-06A | Ground Floor, Elevator Mechanical Room 001 | Textured Wall Plaster | None Detected | N/A | N/A | N/A | N/A | N/A |
| 02406622-06B | | | None Detected | | | | | |
| 02406622-06C | | | None Detected | | | | | |
| 02406622-07A | Third Floor, Stairwell Across from 314 | Concrete Block Mortar | None Detected | N/A | N/A | N/A | N/A | N/A |
| 02406622-07B | | | None Detected | | | | | |
| 02406622-07C | | | None Detected | | | | | |

| Sample I.D. | Sample Location | Material Description | Asbestos Content (%) | Condition | Accessibility | Friability | DND Action Level | Potential to Release Fibres |
|---|---|---|---|---|---|---|---|---|
| 02406622-08A | Ground Floor, Elevator Vestibule 003, Door | Black Window Glaze | None Detected | N/A | N/A | N/A | N/A | N/A |
| 02406622-08B | | | None Detected | | | | | |
| 02406622-08C | | | None Detected | | | | | |
| 02406622-09A | Ground Floor, Elevator Vestibule 003, Door | White Sealant | None Detected | N/A | N/A | N/A | N/A | N/A |
| 02406622-09B | | | None Detected | | | | | |
| 02406622-09C | | | None Detected | | | | | |
| 02406622-10A | Elevator Cab, Floor | 12” x 12” (30 cm x 30 cm) Grey Vinyl Floor Tile | None Detected | N/A | N/A | N/A | N/A | N/A |
| 02406622-10B | | | None Detected | | | | | |
| 02406622-10C | | | None Detected | | | | | |
| 02406622-11A | Ground Floor, Elevator Vestibule 003, Wall | Plaster (White Layer) | None Detected | N/A | N/A | N/A | N/A | N/A |
| 02406622-11B | | | None Detected | | | | | |
| 02406622-11C | | | None Detected | | | | | |
| 02406622-12A | First Floor, Entrance Hall 102, Wall | Granite Mortar | None Detected | N/A | N/A | N/A | N/A | N/A |
| 02406622-12B | | | None Detected | | | | | |
| 02406622-12C | | | None Detected | | | | | |
| 02406622-13A | First Floor, Entrance Hall 102, Wall | Plaster (White Layer) | None Detected | N/A | N/A | N/A | N/A | N/A |
| 02406622-13B | | | None Detected | | | | | |
| 02406622-13C | | | None Detected | | | | | |
| 02406622-14A | Second Floor, Elevator Vestibule 201, Wall | Vinyl Baseboard Mastic | None Detected | N/A | N/A | N/A | N/A | N/A |
| 02406622-14B | | | None Detected | | | | | |
| 02406622-14C | | | None Detected | | | | | |
| 02406622-15A | Second Floor, Elevator Vestibule 201, Wall | Terracotta Mortar | None Detected | N/A | N/A | N/A | N/A | N/A |
| 02406622-15B | | | None Detected | | | | | |
| 02406622-15C | | | None Detected | | | | | |

| Sample I.D. | Sample Location | Material Description | Asbestos Content (%) | Condition | Accessibility | Friability | DND Action Level | Potential to Release Fibres |
|---|---|---|---|---|---|---|---|---|
| 02406622-16A | Third Floor, Elevator Vestibule 301, Floor | 18” x 18” (45 cm x 45 cm) Off-White Vinyl Floor Tile | None Detected | N/A | N/A | N/A | N/A | N/A |
| 02406622-16B | | | None Detected | | | | | |
| 02406622-16C | | | None Detected | | | | | |
| 02406622-17A | First Floor, Delivery Hall, Floor | 12” x 12” (30 cm x 30 cm) White Vinyl Floor Tile with Black and White Flecks | None Detected | N/A | N/A | N/A | N/A | N/A |
| 02406622-17B | | | None Detected | | | | | |
| 02406622-17C | | | None Detected | | | | | |
| OESN 2013 | | | | | | | | |
| 00013.002-C09 | Ground Floor, Room 13A | Drywall Joint Compound on Ceiling | None Detected | N/A | N/A | N/A | N/A | N/A |
| 00013.002-C10 | Ground Floor, Washroom 14 | | None Detected | | | | | |
| 00013.002-C11 | | | None Detected | | | | | |
| 00013.002-W08 | Ground Floor, Classroom 19 | Drywall Joint Compound on Wall | None Detected | N/A | N/A | N/A | N/A | N/A |
| 00013.002-W09 | Ground Floor, Office 26 | | None Detected | | | | | |
| 00013.002-W10 | Ground Floor, Room 14 | | None Detected | | | | | |
| 00013.002-W11 | Ground Floor, Washroom 13A | | None Detected | | | | | |
| 00013.002-W12 | Ground Floor, Room 14 | | None Detected | | | | | |
| A-01a-c | Unknown | Floor Tile Mastics | None Detected | N/A | N/A | N/A | N/A | N/A |
| A-03a-c | Unknown | | None Detected | | | | | |
| A-04a-c | Unknown | | None Detected | | | | | |
| A-06a-c | Unknown | | None Detected | | | | | |
| A-07a-c | Unknown | | None Detected | | | | | |

| Sample I.D. | Sample Location | Material Description | Asbestos Content (%) | Condition | Accessibility | Friability | DND Action Level | Potential to Release Fibres |
|---|---|---|---|---|---|---|---|---|
| 00013.002-C12 | Ground Floor, Room 13A | 2' x 4' (60 cm x 120 cm) Ceiling Tile, Pinhole and Fissure Pattern | None Detected | N/A | N/A | N/A | N/A | N/A |
| 00013.002-C13 | | | None Detected | | | | | |
| 00013.002-C14 | | | None Detected | | | | | |
| 00013.002-W01 | Third Floor, Office 301 | Wall Plaster (White and Grey Layers) | None Detected | N/A | N/A | N/A | N/A | N/A |
| 00013.002-W02 | Second Floor, Corridor 215 | | None Detected | | | | | |
| 00013.002-W03 | Second Floor, Bookshelf 212 | | None Detected | | | | | |
| 00013.002-W04 | | | None Detected | | | | | |
| 00013.002-W05 | First Floor, Bookshelf 117 | | None Detected | | | | | |
| 00013.002-W06 | First Floor, Storage 103 | | None Detected | | | | | |
| 00013.002-W07 | Second Floor, Office 204 | | None Detected | | | | | |
| 00013.002-C01 | Ground Floor, Classroom 7 | Ceiling Plaster (White and Grey Layers) | None Detected | N/A | N/A | N/A | N/A | N/A |
| 00013.002-C02 | Ground Floor, Bookshelf 30 | | None Detected | | | | | |
| 00013.002-C03 | Second Floor, Closet 214A | | None Detected | | | | | |
| 00013.002-C04 | Second Floor, Bookshelf 212 | | None Detected | | | | | |
| 00013.002-C05 | Ground Floor, Classroom 7a | | None Detected | | | | | |

Note: **Bold** items contain regulated amounts of asbestos (≥0.5%), as per O.Reg. 278/05, as amended.

N/A = Not Applicable

Accessibility
A - Areas of the building within reach (from floor level) of all building users.
B - Frequently entered maintenance areas with reach of maintenance staff, without the need for a ladder.
C - Areas of the building above 3 metres where use of a ladder is required to reach the ACM.
D - Areas of the building which require the removal of a building component, incl. lay-in ceilings, and access panels into solid ceilings.
E - Areas of the building behind inaccessible solid ceiling systems, walls, or mechanical equipment, etc., where demolition of ceiling, wall, or equipment, etc. is required to access the ACM.

**Table 2: Summary of Bulk Samples Analyzed for Arsenic/Chromium/Lead/Mercury/PCBs by ICP-MS, CVAA and GC-ECD Analysis**

| Sample I.D. | Sample Location & Description | Colour | Arsenic Content (ppm)* | Chromium Content (ppm)* | Lead Content (ppm)^ | Mercury Content (ppm)^ | PCB Content (ppm)" |
|---|---|---|---|---|---|---|---|
| 02406622-P01 | Ground Floor, Vestibule 005, Ceiling | White | <50 | <50 | <5 | <2 | <5 |
| 02406622-P02 | Ground Floor, Elevator Vestibule 003, Door | Dark Grey | <50 | <50 | 6 | <2 | 7 |
| 02406622-P03 | Ground Floor, Elevator Mechanical Room 001, Floor | Grey | <50 | **70** | **766** | <2 | 5 |
| 02406622-P06 | Stairwell 1, Wall | Grey | <50 | **225** | **1,660** | <2 | 13 |
| 00013.002-PB13 | Elevator Cab, Wall | Cream | <50 | <500 | **1,630** | <2 | <50 |
| 00013.002-PB02 | Ground Floor, Elevator Mechanical Room 001, Wall | Butter Yellow | <50 | **549** | **2,220** | **13** | <50 |
| 00013.002-PB08 | First Floor, Delivery Hall, Wall | Royal Blue | <50 | <500 | <90 | <10 | <50 |

Note: **Bold** items show concentrations that exceed (or are assumed to exceed) the regulated limit.
N/A = Not Applicable
* No current regulated amount. Detectable concentrations are outlined in **bold**
^ SOR/2016-193 Surface Coating Materials Regulations. Any concentration above regulated limit is in **bold**
" SOR/2008-273 PCB Regulations. Any concentration above the regulated limit is in **bold**.

**Table 3: Summary of Bulk Samples Analyzed for Chromium/Lead/Mercury Leachate by TCLP**

| Sample I.D. | Sample Location & Description | Colour | Leachable Chromium (mg/L) | Leachable Lead (mg/L) | Leachable Mercury (mg/L) |
|---|---|---|---|---|---|
| 02406622-P03 | Ground Floor, Elevator Mechanical Room 001, Floor | Grey | <0.05 | <0.05 | - |
| 02406622-P04 | Ground Floor, Elevator Mechanical Room 001, Wall | Butter Yellow | <0.10 | 0.42 | <0.005 |
| 02406622-P05 | Elevator Cab, Wall | Cream | - | <0.10 | - |
| 02406622-P06 | Stairwell 1, Wall | Grey | 0.05 | 1.81 | - |

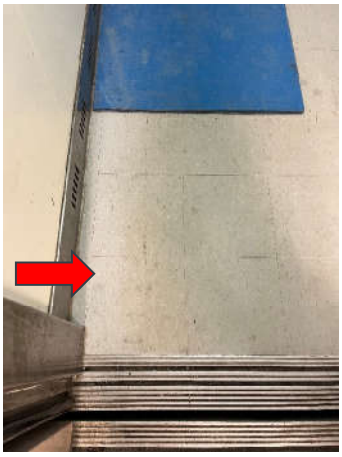
Note: Analytical results are compared to O.Reg. 347/90 *Waste Management*, as amended.

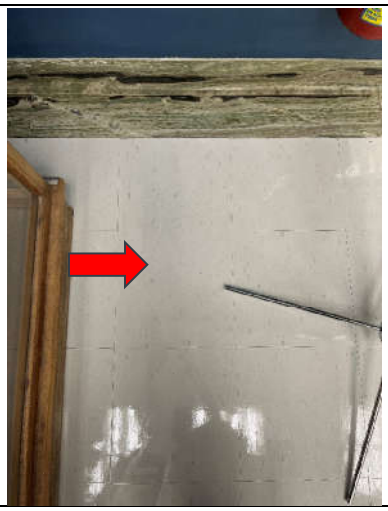
# Appendix B
# Select Photographs



ENGLOBE

| | | |
|---|---|---|
| **Photo** | 1 | 2 |
| |  |  |
| **Sample ID** | 02406622-01A-C | 02406622-02A-C |
| **Material Description** | Non-asbestos ceramic block grout | Non-asbestos large block mortar |
| **Photo** | 3 | 4 |
| |  |  |
| **Sample ID** | 02406622-04A | 02406622-05A-C, 00013.002-C09-11, 00013.002-W08-12 |
| **Material Description** | Beige sealant contains 1% Chrysotile asbestos | Non-asbestos drywall joint compound |

| | | |
|---|---|---|
| **Photo** | 5 | 6 |
| |  |  |
| **Sample ID** | 02406622-06A-C | 02406622-08A-C |
| **Material Description** | Non-asbestos textured wall plaster | Non-asbestos black window glaze |
| **Photo** | 7 | 8 |
| |  |  |
| **Sample ID** | 02406622-09A-C | 02406622-10A-C, A-01-07 |
| **Material Description** | Non-asbestos white sealant | Non-asbestos grey vinyl floor tile and associated mastic |

| | | |
|---|---|---|
| **Photo** | 9 | 10 |
| |  |  |
| **Sample ID** | 02406622-11A-C, 13A-C, 00013.002-W01-07, 00013.002-C01-5 | 02406622-16A-C, A-01-07 |
| **Material Description** | Non-asbestos plaster (white and grey layers) | Non-asbestos off-white vinyl floor tile and mastic |
| **Photo** | 11 | 12 |
| |  |   |
| **Sample ID** | 02406622-17A-C, A-01-07 | 00013.002-PB08 |
| **Material Description** | Non-asbestos white vinyl floor tile and mastic | Royal blue wall paint |

| | | |
|---|---|---|
| **Photo** | 13 | 14 |
| |  |  |
| **Sample ID** | 02406622-P01 | 02406622-P02 |
| **Material Description** | White ceiling paint | Dark grey door paint |
| **Photo** | 15 | 16 |
| |  |  |
| **Sample ID** | 02406622-P03 | 02406622-P04, 00013.002-PB13 |
| **Material Description** | Grey floor paint | Cream wall paint |

| | |
|---|---|
| Photo | 21<br> |
| Sample ID | 02406622-P05, 00013.002-PB02 |
| Material Description | Butter yellow wall paint |

# Appendix C
# Laboratory Certificates of Analysis



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# Certificate of Analysis

**Englobe Corp. (Ottawa)**

2713 Lancaster Road, Unit 101
Ottawa, ON K1B 5R6
Attn: Kylie Bennett

Client PO: DCC Elevator CSR
Project: 02406622.000
Custody: 76469, 76470

Report Date: 28-Aug-2024
Order Date: 8-Aug-2024

Revised Report

**Order #: 2432371**

This Certificate of Analysis contains analytical data applicable to the following samples as submitted :

| Paracel ID | Client ID |
|---|---|
| 2432371-01 | 02406622- 01 A |
| 2432371-02 | 02406622- 01 B |
| 2432371-03 | 02406622-01 C |
| 2432371-04 | 02406622- 02 A |
| 2432371-05 | 02406622- 02 B |
| 2432371-06 | 02406622- 02 C |
| 2432371-07 | 02406622- 03 A |
| 2432371-08 | 02406622- 03 B |
| 2432371-09 | 02406622- 03 C |
| 2432371-10 | 02406622- 04 A |
| 2432371-11 | 02406622- 04 B |
| 2432371-12 | 02406622-04 C |
| 2432371-13 | 02406622-05 A |
| 2432371-14 | 02406622- 05 B |
| 2432371-15 | 02406622- 05 C |
| 2432371-16 | 02406622- 06 A |
| 2432371-17 | 02406622- 06 B |
| 2432371-18 | 02406622- 06 C |
| 2432371-19 | 02406622- 07 A |
| 2432371-20 | 02406622- 07 B |
| 2432371-21 | 02406622- 07 C |
| 2432371-22 | 02406622- 08 A |
| 2432371-23 | 02406622- 08 B |
| 2432371-24 | 02406622- 08 C |
| 2432371-25 | 02406622- 09 A |
| 2432371-26 | 02406622- 09 B |

Approved By:



Emma Diaz

Senior Analyst

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

| | |
|---|---|
| 2432371-27 | 02406622- 09 C |
| 2432371-28 | 02406622- 10 A |
| 2432371-29 | 02406622- 10 B |
| 2432371-30 | 02406622- 10 C |
| 2432371-31 | 02406622- 11 A |
| 2432371-32 | 02406622- 11 B |
| 2432371-33 | 02406622- 11 C |
| 2432371-34 | 02406622- 12 A |
| 2432371-35 | 02406622- 12 B |
| 2432371-36 | 02406622- 12 C |
| 2432371-37 | 02406622- 13 A |
| 2432371-38 | 02406622- 13 B |
| 2432371-39 | 02406622- 13 C |
| 2432371-40 | 02406622- 14 A |
| 2432371-41 | 02406622- 14 B |
| 2432371-42 | 02406622- 14 C |
| 2432371-43 | 02406622- 15 A |
| 2432371-44 | 02406622- 15 B |
| 2432371-45 | 02406622- 15 C |
| 2432371-46 | 02406622- 16 A |
| 2432371-47 | 02406622- 16 B |
| 2432371-48 | 02406622- 16 C |
| 2432371-49 | 02406622- 17 A |
| 2432371-50 | 02406622- 17 B |
| 2432371-51 | 02406622- 17 C |

Certificate of Analysis

**Client: Englobe Corp. (Ottawa)**

**Client PO: DCC Elevator CSR**

Report Date: 28-Aug-2024

Order Date: 8-Aug-2024

**Project Description: 02406622.000**

## Asbestos, PLM Visual Estimation **MDL - 0.5%**

| Paracel ID | Sample Date | Colour | Description | Asbestos Detected | Material Identification | % Content |
|---|---|---|---|---|---|---|
| 2432371-01 | 08-Aug-24 | White | Mortar | No | **Client ID: 02406622- 01 A** | |
| | | | | | Non-Fibers | 100 |
| 2432371-02 | 08-Aug-24 | White | Mortar | No | **Client ID: 02406622- 01 B** | |
| | | | | | Non-Fibers | 100 |
| 2432371-03 | 08-Aug-24 | White | Mortar | No | **Client ID: 02406622-01 C** | |
| | | | | | Non-Fibers | 100 |
| 2432371-04 | 08-Aug-24 | Grey | Mortar | No | **Client ID: 02406622- 02 A** | |
| | | | | | Non-Fibers | 100 |
| 2432371-05 | 08-Aug-24 | Grey | Mortar | No | **Client ID: 02406622- 02 B** | |
| | | | | | Non-Fibers | 100 |
| 2432371-06 | 08-Aug-24 | Grey | Mortar | No | **Client ID: 02406622- 02 C** | |
| | | | | | Non-Fibers | 100 |
| 2432371-07 | 08-Aug-24 | Grey | Sealant | No | **Client ID: 02406622- 03 A** | |
| | | | | | Non-Fibers | 100 |
| 2432371-08 | 08-Aug-24 | Grey | Sealant | No | **Client ID: 02406622- 03 B** | |
| | | | | | Non-Fibers | 100 |
| 2432371-09 | 08-Aug-24 | Grey | Sealant | No | **Client ID: 02406622- 03 C** | |
| | | | | | Non-Fibers | 100 |
| 2432371-10 | 08-Aug-24 | Beige | Sealant | **Yes** | **Client ID: 02406622- 04 A** | |
| | | | | | **Chrysotile** | 1 |
| | | | | | Non-Fibers | 99 |
| 2432371-11 | 08-Aug-24 | Beige | Sealant | | **Client ID: 02406622- 04 B** | |
| | | | | | not analyzed, positive stop | |
| 2432371-12 | 08-Aug-24 | Beige | Sealant | | **Client ID: 02406622-04 C** | |
| | | | | | not analyzed, positive stop | |

Certificate of Analysis

**Client: Englobe Corp. (Ottawa)**

**Client PO: DCC Elevator CSR**

Report Date: 28-Aug-2024

Order Date: 8-Aug-2024

**Project Description: 02406622.000**

## Asbestos, PLM Visual Estimation **MDL - 0.5%**

| Paracel ID | Sample Date | Colour | Description | Asbestos Detected | Material Identification | % Content |
|---|---|---|---|---|---|---|
| 2432371-13 | 08-Aug-24 | Grey | Drywall Joint Compound | No | **Client ID: 02406622-05 A** | |
| | | | | | Non-Fibers | 100 |
| 2432371-14 | 08-Aug-24 | Grey | Drywall Joint Compound | No | **Client ID: 02406622- 05 B** | |
| | | | | | Non-Fibers | 100 |
| 2432371-15 | 08-Aug-24 | Grey | Drywall Joint Compound | No | **Client ID: 02406622- 05 C** | |
| | | | | | Non-Fibers | 100 |
| 2432371-16 | 08-Aug-24 | Grey | Plaster | No | **Client ID: 02406622- 06 A** | |
| | | | | | Non-Fibers | 100 |
| 2432371-17 | 08-Aug-24 | Grey | Plaster | No | **Client ID: 02406622- 06 B** | |
| | | | | | Non-Fibers | 100 |
| 2432371-18 | 08-Aug-24 | Grey | Plaster | No | **Client ID: 02406622- 06 C** | |
| | | | | | Non-Fibers | 100 |
| 2432371-19 | 08-Aug-24 | Grey | Mortar | No | **Client ID: 02406622- 07 A** | |
| | | | | | Non-Fibers | 100 |
| 2432371-20 | 08-Aug-24 | Grety | Mortar | No | **Client ID: 02406622- 07 B** | |
| | | | | | Non-Fibers | 100 |
| 2432371-21 | 08-Aug-24 | Grey | Mortar | No | **Client ID: 02406622- 07 C** | |
| | | | | | Non-Fibers | 100 |
| 2432371-22 | 08-Aug-24 | Black | Glaze | No | **Client ID: 02406622- 08 A** [AS-PRE] | |
| | | | | | Non-Fibers | 100 |
| 2432371-23 | 08-Aug-24 | Black | Glaze | No | **Client ID: 02406622- 08 B** [AS-PRE] | |
| | | | | | Non-Fibers | 100 |
| 2432371-24 | 08-Aug-24 | Black | Glaze | No | **Client ID: 02406622- 08 C** [AS-PRE] | |
| | | | | | Non-Fibers | 100 |
| 2432371-25 | 08-Aug-24 | White | Sealant | No | **Client ID: 02406622- 09 A** | |
| | | | | | Non-Fibers | 100 |

## Asbestos, PLM Visual Estimation **MDL - 0.5%**

| Paracel ID | Sample Date | Colour | Description | Asbestos Detected | Material Identification | % Content |
|---|---|---|---|---|---|---|
| 2432371-26 | 08-Aug-24 | White | Sealant | No | **Client ID: 02406622- 09 B** | |
| | | | | | Non-Fibers | 100 |
| 2432371-27 | 08-Aug-24 | White | Sealant | No | **Client ID: 02406622- 09 C** | |
| | | | | | Non-Fibers | 100 |
| 2432371-28 | 08-Aug-24 | Grey | Vinyl Floor Tile | No | **Client ID: 02406622- 10 A** | |
| | | | | | Non-Fibers | 100 |
| 2432371-29 | 08-Aug-24 | Grey | Vinyl Floor Tile | No | **Client ID: 02406622- 10 B** | |
| | | | | | Non-Fibers | 100 |
| 2432371-30 | 08-Aug-24 | Grey | Vinyl Floor Tile | No | **Client ID: 02406622- 10 C** | |
| | | | | | Non-Fibers | 100 |
| 2432371-31 | 08-Aug-24 | Grey | Plaster | No | **Client ID: 02406622- 11 A** | |
| | | | | | Non-Fibers | 100 |
| 2432371-32 | 08-Aug-24 | Grey | Plaster | No | **Client ID: 02406622- 11 B** | |
| | | | | | Non-Fibers | 100 |
| 2432371-33 | 08-Aug-24 | Grey | Plaster | No | **Client ID: 02406622- 11 C** | |
| | | | | | Non-Fibers | 100 |
| 2432371-34 | 08-Aug-24 | White | Mortar | No | **Client ID: 02406622- 12 A** | |
| | | | | | Non-Fibers | 100 |
| 2432371-35 | 08-Aug-24 | White | Mortar | No | **Client ID: 02406622- 12 B** | |
| | | | | | Non-Fibers | 100 |
| 2432371-36 | 08-Aug-24 | White | Mortar | No | **Client ID: 02406622- 12 C** | |
| | | | | | Non-Fibers | 100 |
| 2432371-37 | 08-Aug-24 | White | Plaster | No | **Client ID: 02406622- 13 A** | |
| | | | | | Non-Fibers | 100 |
| 2432371-38 | 08-Aug-24 | White | Plaster | No | **Client ID: 02406622- 13 B** | |
| | | | | | Non-Fibers | 100 |

Certificate of Analysis

**Client: Englobe Corp. (Ottawa)**

**Client PO: DCC Elevator CSR**

Report Date: 28-Aug-2024

Order Date: 8-Aug-2024

**Project Description: 02406622.000**

## Asbestos, PLM Visual Estimation **MDL - 0.5%**

| Paracel ID | Sample Date | Colour | Description | Asbestos Detected | Material Identification | % Content |
|---|---|---|---|---|---|---|
| 2432371-39 | 08-Aug-24 | White | Plaster | No | **Client ID: 02406622- 13 C** | |
| | | | | | Non-Fibers | 100 |
| 2432371-40 | 08-Aug-24 | Grey | Vinyl Baseboard | No | **Client ID: 02406622- 14 A** | |
| | | | | | Non-Fibers | 100 |
| 2432371-41 | 08-Aug-24 | Grey | Vinyl Baseboard | No | **Client ID: 02406622- 14 B** | |
| | | | | | Non-Fibers | 100 |
| 2432371-42 | 08-Aug-24 | Grey | Vinyl Baseboard | No | **Client ID: 02406622- 14 C** | |
| | | | | | Non-Fibers | 100 |
| 2432371-43 | 08-Aug-24 | Grey | Mortar | No | **Client ID: 02406622- 15 A** | |
| | | | | | Non-Fibers | 100 |
| 2432371-44 | 08-Aug-24 | Grey | Mortar | No | **Client ID: 02406622- 15 B** | |
| | | | | | Non-Fibers | 100 |
| 2432371-45 | 08-Aug-24 | Grey | Mortar | No | **Client ID: 02406622- 15 C** | |
| | | | | | Non-Fibers | 100 |
| 2432371-46 | 08-Aug-24 | Off-white | Vinyl Floor Tile | No | **Client ID: 02406622- 16 A** | |
| | | | | | Non-Fibers | 100 |
| 2432371-47 | 08-Aug-24 | Off-white | Vinyl Floor Tile | No | **Client ID: 02406622- 16 B** | |
| | | | | | Non-Fibers | 100 |
| 2432371-48 | 08-Aug-24 | Off-white | Vinyl Floor Tile | No | **Client ID: 02406622- 16 C** | |
| | | | | | Non-Fibers | 100 |
| 2432371-49 | 08-Aug-24 | White | Vinyl Floor Tile | No | **Client ID: 02406622- 17 A** | |
| | | | | | Non-Fibers | 100 |
| 2432371-50 | 08-Aug-24 | White | Vinyl Floor Tile | No | **Client ID: 02406622- 17 B** | |
| | | | | | Non-Fibers | 100 |
| 2432371-51 | 08-Aug-24 | White | Vinyl Floor Tile | No | **Client ID: 02406622- 17 C** | |
| | | | | | Non-Fibers | 100 |

Certificate of Analysis

**Client: Englobe Corp. (Ottawa)**

**Client PO: DCC Elevator CSR**

Report Date: 28-Aug-2024

Order Date: 8-Aug-2024

**Project Description: 02406622.000**

**** Analytes in bold indicate asbestos mineral content.**

## Analysis Summary Table

| Analysis | Method Reference/Description | Lab Location | Lab Accreditation | Analysis Date |
|---|---|---|---|---|
| Asbestos, PLM Visual Estimation | AppE to SubE of 40CFR Part763 and EPA/600/R-93/116 | 2 - Ottawa West | CALA 1262 | 13-Aug-24 |

Ottawa West Lab: 25 Northside Rd, Unit C Nepean, Ontario K2H 8S1

## Qualifier Notes

Sample Qualifiers :

AS-PRE: Due to the difficult nature of the bulk sample (interfering fibers/binders), additional NOB preparation was required prior to analysis

## Work Order Revisions | Comments

Revision 1 - Revised report includes updated sample ID's per client request

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# Certificate of Analysis

**Englobe Corp. (Ottawa)**
2713 Lancaster Road, Unit 101
Ottawa, ON K1B 5R6
Attn: Kylie Bennett

Client PO: DCC Elevator CSR
Project: 02406622.000
Custody: 75295

Report Date: 3-Sep-2024
Order Date: 8-Aug-2024

Revised Report

**Order #: 2432375**

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

| Paracel ID | Client ID |
|---|---|
| 2432375-01 | 02406622- P01 |
| 2432375-02 | 02406622- P02 |
| 2432375-03 | 02406622- P03 |
| 2432375-04 | 02406622- P04 |
| 2432375-05 | 02406622-P05 |
| 2432375-06 | 02406622- P06 |

Approved By:



Mark Foto, M.Sc.

Lab Supervisor

## Analysis Summary Table

| Analysis | Method Reference/Description | Extraction Date | Analysis Date |
|---|---|---|---|
| Mercury by CVAA | EPA 7471B - CVAA, digestion | 12-Aug-24 | 12-Aug-24 |
| Metals, ICP-MS | EPA 6020 - Digestion - ICP-MS | 12-Aug-24 | 12-Aug-24 |
| Metals, ICP-MS | TCLP EPA 6020 - Digestion - ICP-MS | 12-Aug-24 | 12-Aug-24 |
| PCBs, total | SW846 8082A - GC-ECD | 30-Aug-24 | 30-Aug-24 |
| REG 558 - Mercury by CVAA | TCLP EPA 7470A, CVAA | 12-Aug-24 | 12-Aug-24 |
| Solids, % | CWS Tier 1 - Gravimetric | 13-Aug-24 | 14-Aug-24 |

Certificate of Analysis

Report Date: 03-Sep-2024

**Client:** **Englobe Corp. (Ottawa)**

Order Date: 8-Aug-2024

**Client PO:** **DCC Elevator CSR**

**Project Description: 02406622.000**

| | Client ID: | 02406622- P01 | 02406622- P02 | 02406622- P03 | 02406622- P04 | - | - |
|---|---|---|---|---|---|---|---|
| | Sample Date: | 08-Aug-24 09:00 | 08-Aug-24 09:00 | 08-Aug-24 09:00 | 08-Aug-24 09:00 | | |
| | Sample ID: | 2432375-01 | 2432375-02 | 2432375-03 | 2432375-04 | | |
| | Matrix: | Paint | Paint | Paint | Paint | | |
| | MDL/Units | | | | | | |
| **Physical Characteristics** | | | | | | | |
| % Solids | 0.1 % by Wt. | - | - | - | 100 | - | - |
| **EPA 1311 - TCLP Leachate Metals** | | | | | | | |
| Chromium | 0.05 mg/L | - | - | - | <0.10 [1] | - | - |
| Lead | 0.05 mg/L | - | - | - | 0.42 | - | - |
| Mercury | 0.005 mg/L | - | - | - | <0.005 | - | - |
| **Metals** | | | | | | | |
| Arsenic | 50 ug/g | <50 | <50 | <50 | - | - | - |
| Chromium | 50 ug/g | <50 | <50 | 70 | - | - | - |
| Lead | 5 ug/g | <5 | 6 | 766 | - | - | - |
| Mercury | 2 ug/g | <2 | <2 | <2 | - | - | - |
| **PCBs** | | | | | | | |
| PCBs, total | 5 ug/g | <5 | 7 | 5 | - | - | - |
| Decachlorobiphenyl | Surrogate | 107% | 136% | 113% | - | - | - |

Certificate of Analysis

Report Date: 03-Sep-2024

**Client:** **Englobe Corp. (Ottawa)**

Order Date: 8-Aug-2024

**Client PO:** **DCC Elevator CSR**

**Project Description: 02406622.000**

| | Client ID: | 02406622-P05 | 02406622- P06 | | | - | - |
|---|---|---|---|---|---|---|---|
| | Sample Date: | 08-Aug-24 09:00 | 08-Aug-24 09:00 | | | | |
| | Sample ID: | 2432375-05 | 2432375-06 | | | | |
| | Matrix: | Paint | Paint | | | | |
| | MDL/Units | | | | | | |
| **Physical Characteristics** | | | | | | | |
| % Solids | 0.1 % by Wt. | 100 | - | - | - | - | - |
| **EPA 1311 - TCLP Leachate Metals** | | | | | | | |
| Lead | 0.05 mg/L | <0.10 [1] | - | - | - | - | - |
| **Metals** | | | | | | | |
| Arsenic | 50 ug/g | - | <50 | - | - | - | - |
| Chromium | 50 ug/g | - | 225 | - | - | - | - |
| Lead | 5 ug/g | - | 1660 | - | - | - | - |
| Mercury | 2 ug/g | - | <2 | - | - | - | - |
| **PCBs** | | | | | | | |
| PCBs, total | 5 ug/g | - | 13 | - | - | - | - |
| Decachlorobiphenyl | Surrogate | - | 136% | - | - | - | - |

Certificate of Analysis

Report Date: 03-Sep-2024

**Client:** **Englobe Corp. (Ottawa)**

Order Date: 8-Aug-2024

**Client PO:** **DCC Elevator CSR**

**Project Description: 02406622.000**

## Method Quality Control: Blank

| Analyte | Result | Reporting Limit | Units | %REC | %REC Limit | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|
| **EPA 1311 - TCLP Leachate Metals** | | | | | | | | |
| Chromium | ND | 0.05 | mg/L | | | | | |
| Lead | ND | 0.05 | mg/L | | | | | |
| Mercury | ND | 0.005 | mg/L | | | | | |
| **Metals** | | | | | | | | |
| Arsenic | ND | 50 | ug/g | | | | | |
| Chromium | ND | 50 | ug/g | | | | | |
| Lead | ND | 5 | ug/g | | | | | |
| Mercury | ND | 2 | ug/g | | | | | |
| **PCBs** | | | | | | | | |
| PCBs, total | ND | 5 | ug/g | | | | | |
| *Surrogate: Decachlorobiphenyl* | *5.98* | | *%* | *120* | *60-140* | | | |

## Method Quality Control: Duplicate

| Analyte | Result | Reporting Limit | Units | Source Result | %REC | %REC Limit | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **EPA 1311 - TCLP Leachate Metals** | | | | | | | | | |
| Chromium | ND | 0.05 | mg/L | ND | | | NC | 32 | |
| Lead | 0.312 | 0.05 | mg/L | 0.304 | | | 2.7 | 32 | |
| Mercury | ND | 0.005 | mg/L | ND | | | NC | 30 | |
| **Metals** | | | | | | | | | |
| Arsenic | ND | 50 | ug/g | ND | | | NC | 50 | |
| Chromium | ND | 50 | ug/g | ND | | | NC | 50 | |
| Lead | 6.6 | 5 | ug/g | 6.5 | | | 1.4 | 50 | |
| Mercury | ND | 2 | ug/g | ND | | | NC | 30 | |
| **PCBs** | | | | | | | | | |
| PCBs, total | ND | 5 | ug/g | ND | | | NC | 40 | |
| *Surrogate: Decachlorobiphenyl* | *5.40* | | *%* | | *108* | *60-140* | | | |
| **Physical Characteristics** | | | | | | | | | |
| % Solids | 92.6 | 0.1 | % by Wt. | 92.2 | | | 0.5 | 25 | |

## Method Quality Control: Spike

| Analyte | Result | Reporting Limit | Units | Source Result | %REC | %REC Limit | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **EPA 1311 - TCLP Leachate Metals** | | | | | | | | | |
| Chromium | 57.3 | 0.05 | mg/L | 0.117 | 114 | 80-124 | | | |
| Lead | 75.7 | 0.05 | mg/L | 30.4 | 90.6 | 77-126 | | | |
| Mercury | 0.0304 | 0.005 | mg/L | ND | 101 | 70-130 | | | |
| **Metals** | | | | | | | | | |
| Arsenic | 46.9 | 50 | ug/g | ND | 93.7 | 70-130 | | | |
| Chromium | 50.8 | 50 | ug/g | ND | 101 | 70-130 | | | |
| Lead | 45.6 | 5 | ug/g | ND | 90.7 | 70-130 | | | |
| Mercury | 14 | 2 | ug/g | ND | 96.4 | 70-130 | | | |
| **PCBs** | | | | | | | | | |
| PCBs, total | 23 | 5 | ug/g | ND | 115 | 60-140 | | | |
| *Surrogate: Decachlorobiphenyl* | *5.32* | | *%* | | *106* | *60-140* | | | |

**Qualifier Notes:**

**Login Qualifiers :**

TCLP/mSPLP extraction method deviated as 100g sample solids was not available for leaching. A lower mass was used, but the 20:1 liquid to solid ratio was maintained for the extraction.
Applies to Samples: 02406622- P04, 02406622-P05

**Sample Qualifiers :**

1: Elevated Reporting Limits due to limited sample volume.
Applies to Samples: 02406622- P04, 02406622-P05

**Sample Data Revisions:**

None

**Work Order Revisions / Comments:**

Revision 1 - Revised report includes updated sample ID's per client request

Revision 2 - Revised report includes additional PCB analysis per client request.

**Other Report Notes:**

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

Soil results are reported on a dry weight basis unlesss otherwise noted.

Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

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www.paracellabs.com

# Certificate of Analysis

**Englobe Corp. (Ottawa)**

2713 Lancaster Road, Unit 101
Ottawa, ON K1B 5R6
Attn: Kylie Bennett

Client PO:
Project: 02406622.000
Custody:

Report Date: 28-Aug-2024
Order Date: 21-Aug-2024

Revised Report

**Order #: 2434231**

This Certificate of Analysis contains analytical data applicable to the following samples as submitted :

| Paracel ID | Client ID |
|---|---|
| 2434231-01 | 02406622- P03 |
| 2434231-02 | 02406622- P06 |

Approved By:

Dale Robertson, BSc
Laboratory Director

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Certificate of Analysis

**Client: Englobe Corp. (Ottawa)**

**Client PO:**

Report Date: 28-Aug-2024

Order Date: 21-Aug-2024

**Project Description: 02406622.000**

## Analysis Summary Table

| Analysis | Method Reference/Description | Extraction Date | Analysis Date |
|---|---|---|---|
| Metals, ICP-MS | TCLP EPA 6020 - Digestion - ICP-MS | 22-Aug-24 | 22-Aug-24 |
| Solids, % | CWS Tier 1 - Gravimetric | 23-Aug-24 | 26-Aug-24 |

Certificate of Analysis

Report Date: 28-Aug-2024

**Client:** **Englobe Corp. (Ottawa)**

Order Date: 21-Aug-2024

**Client PO:**

**Project Description: 02406622.000**

| | | | | | |
|---|---|---|---|---|---|
| | **Client ID:** | 02406622- P03 | 02406622- P06 | - | - |
| | **Sample Date:** | 08-Aug-24 09:00 | 08-Aug-24 09:00 | - | - |
| | **Sample ID:** | 2434231-01 | 2434231-02 | - | - |
| | **MDL/Units** | Paint | Paint | - | - |
| **Physical Characteristics** | | | | | |
| % Solids | 0.1 % by Wt. | 100 | 100 | - | - |
| **EPA 1311 - TCLP Leachate Metals** | | | | | |
| Chromium | 0.05 mg/L | <0.05 | 0.05 | - | - |
| Lead | 0.05 mg/L | <0.05 | 1.81 | - | - |

Certificate of Analysis

**Client: Englobe Corp. (Ottawa)**

**Client PO:**

Report Date: 28-Aug-2024

Order Date: 21-Aug-2024

**Project Description: 02406622.000**

## Method Quality Control: Blank

| Analyte | Result | Reporting Limit | Units | Source Result | %REC | %REC Limit | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **EPA 1311 - TCLP Leachate Metals** | | | | | | | | | |
| Chromium | ND | 0.05 | mg/L | | | | | | |
| Lead | ND | 0.05 | mg/L | | | | | | |

Certificate of Analysis

**Client: Englobe Corp. (Ottawa)**

**Client PO:**

Report Date: 28-Aug-2024

Order Date: 21-Aug-2024

**Project Description: 02406622.000**

## Method Quality Control: Duplicate

| Analyte | Result | Reporting Limit | Units | Source Result | %REC | %REC Limit | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **EPA 1311 - TCLP Leachate Metals** | | | | | | | | | |
| Chromium | ND | 0.05 | mg/L | ND | | | NC | 32 | |
| Lead | ND | 0.05 | mg/L | ND | | | NC | 32 | |
| **Physical Characteristics** | | | | | | | | | |
| % Solids | 95.1 | 0.1 | % by Wt. | 94.8 | | | 0.3 | 25 | |

Certificate of Analysis

**Client: Englobe Corp. (Ottawa)**

**Client PO:**

Report Date: 28-Aug-2024

Order Date: 21-Aug-2024

**Project Description: 02406622.000**

## Method Quality Control: Spike

| Analyte | Result | Reporting Limit | Units | Source Result | %REC | %REC Limit | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **EPA 1311 - TCLP Leachate Metals** | | | | | | | | | |
| Chromium | 50.7 | 0.05 | mg/L | ND | 101 | 80-124 | | | |
| Lead | 44.5 | 0.05 | mg/L | ND | 88.9 | 77-126 | | | |

**Qualifier Notes:**

***Login Qualifiers :***

TCLP/mSPLP extraction method deviated as 100g sample solids was not available for leaching. A lower mass was used, but the 20:1 liquid to solid ratio was maintained for the extraction.

*Applies to samples: 02406622- P03, 02406622- P06*

**Sample Data Revisions**

None

**Work Order Revisions / Comments:**

Revision 1 - Revised report includes updated sample ID's per client request

**Other Report Notes:**

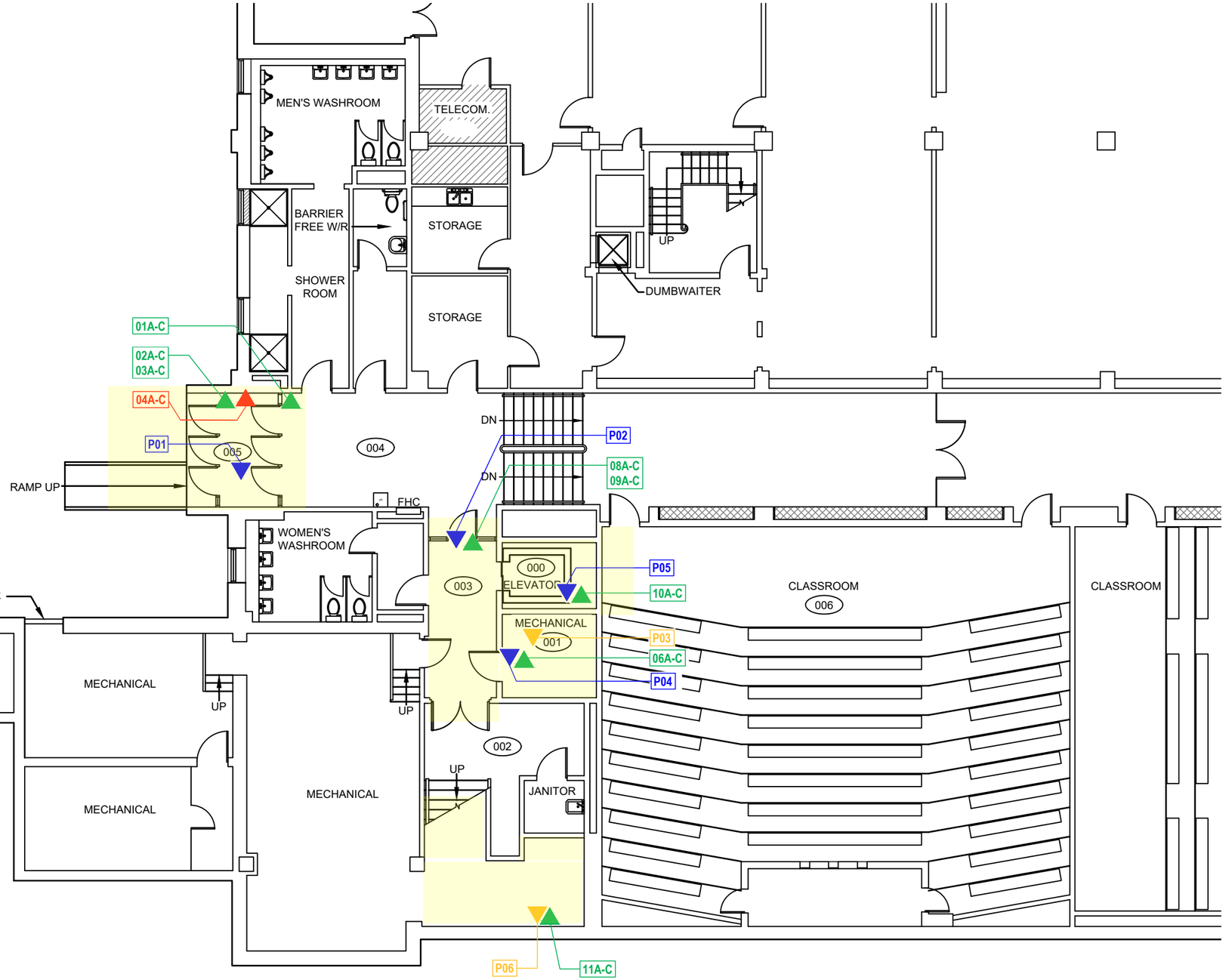
n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
NC: Not Calculated

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

# Appendix D
# Drawing with Sample Locations



ENGLOBE




## Note

1. This drawing shall be read in conjunction with the associated technical report.
2. Do not scale drawing.
3. Base plan provided by client.
4. Historical sample data not included on drawing.

## Legend

- Approximate non-asbestos containing sample location
- Approximate asbestos-containing sample location
- Approximate paint sample location (no exceedances)
- Approximate paint sample location (lead and chromium exceedance)
- Extent of project scope

| Revision | Date | Issue | Approval |
|---|---|---|---|
| 0 | 2024/08/28 | Final | K.B. |

**Client**
Defence Construction Canada

**Site**
7 Prom Valour Drive, Ontario

**Report Title**
Project-Specific Designated Substances and Hazardous Materials Survey, R13 Elevator Replacement and Barrier Free Upgrades Project

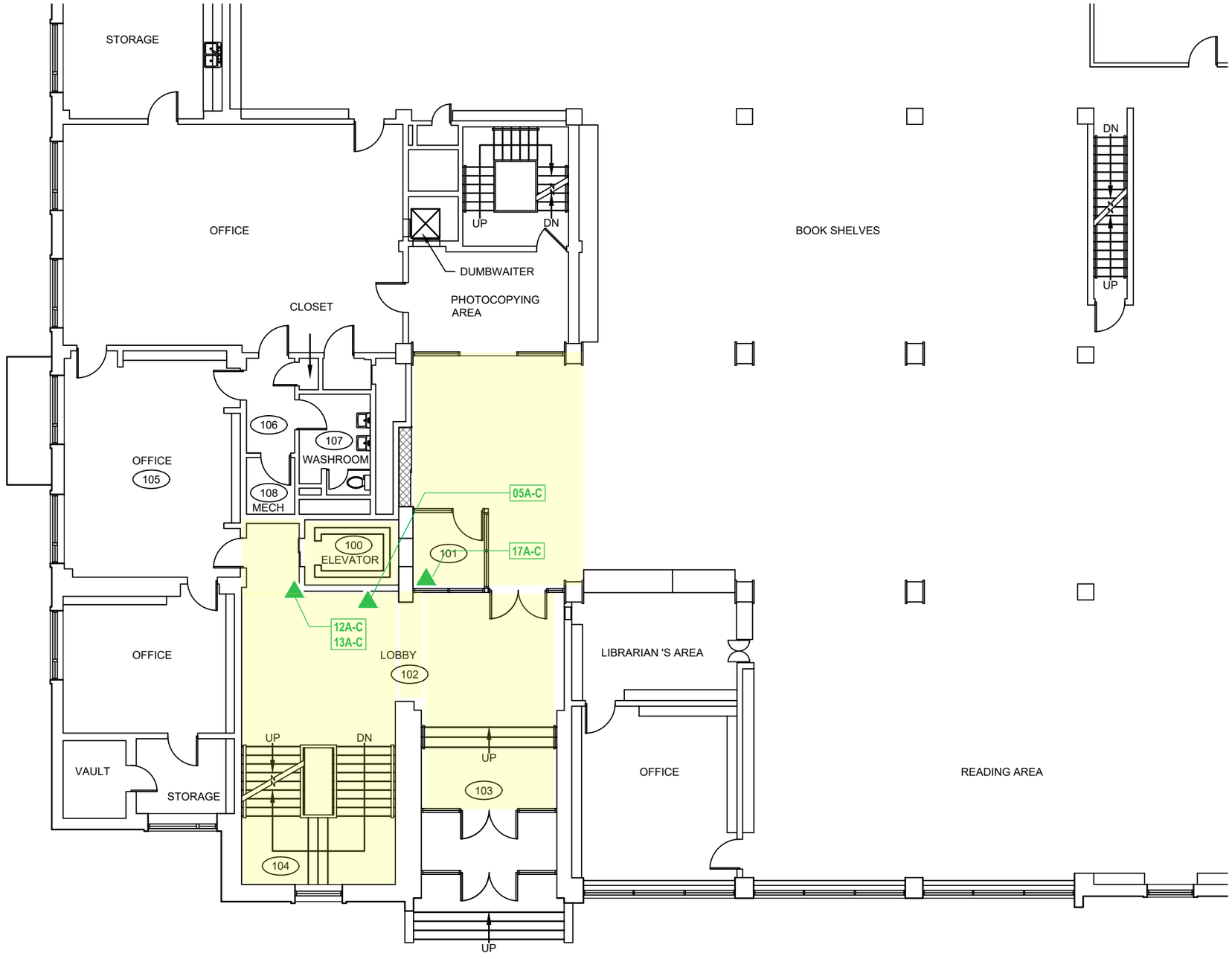
**Drawing Title**
Sample Location Plan
Ground Floor/ Basement Partial Plan

| | |
|---|---|
| Designed By: K.B. | Scale: Not To Scale |
| Drawn By: M.M. | Date: August 2024 |
| Approved By: K.B. | Project No.: 02406622.000 |
| Figure No.: 1 | |

2713 Lancaster Road, Unit 101, Ottawa, Ontario K1B 5R6 Tel: +1 877-300-4800 Website: www.englobecorp.com/ca

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Drawing: 02406622.000 7 Prom Valour Dr.dwg Folder: Y:\Shared\CA\Ottawa\department\TS\CAD\Projects\vantage point\02406622.000 7 prom valour dr\DWGs Wednesday, August 28, 2024 @ 15:02 by Marp Monreal




## Note

1. This drawing shall be read in conjunction with the associated technical report.
2. Do not scale drawing.
3. Base plan provided by client.
4. Historical sample data not included on drawing.

## Legend

- Approximate asbestos sample location
- Extent of project scope

| Revision | Date | Issue | Approval |
|---|---|---|---|
| 0 | 2024/08/28 | Final | K.B. |

Client: **Defence Construction Canada**

Site: **7 Prom Valour Drive, Ontario**

Report Title: **Project-Specific Designated Substances and Hazardous Materials Survey, R13 Elevator Replacement and Barrier Free Upgrades Project**

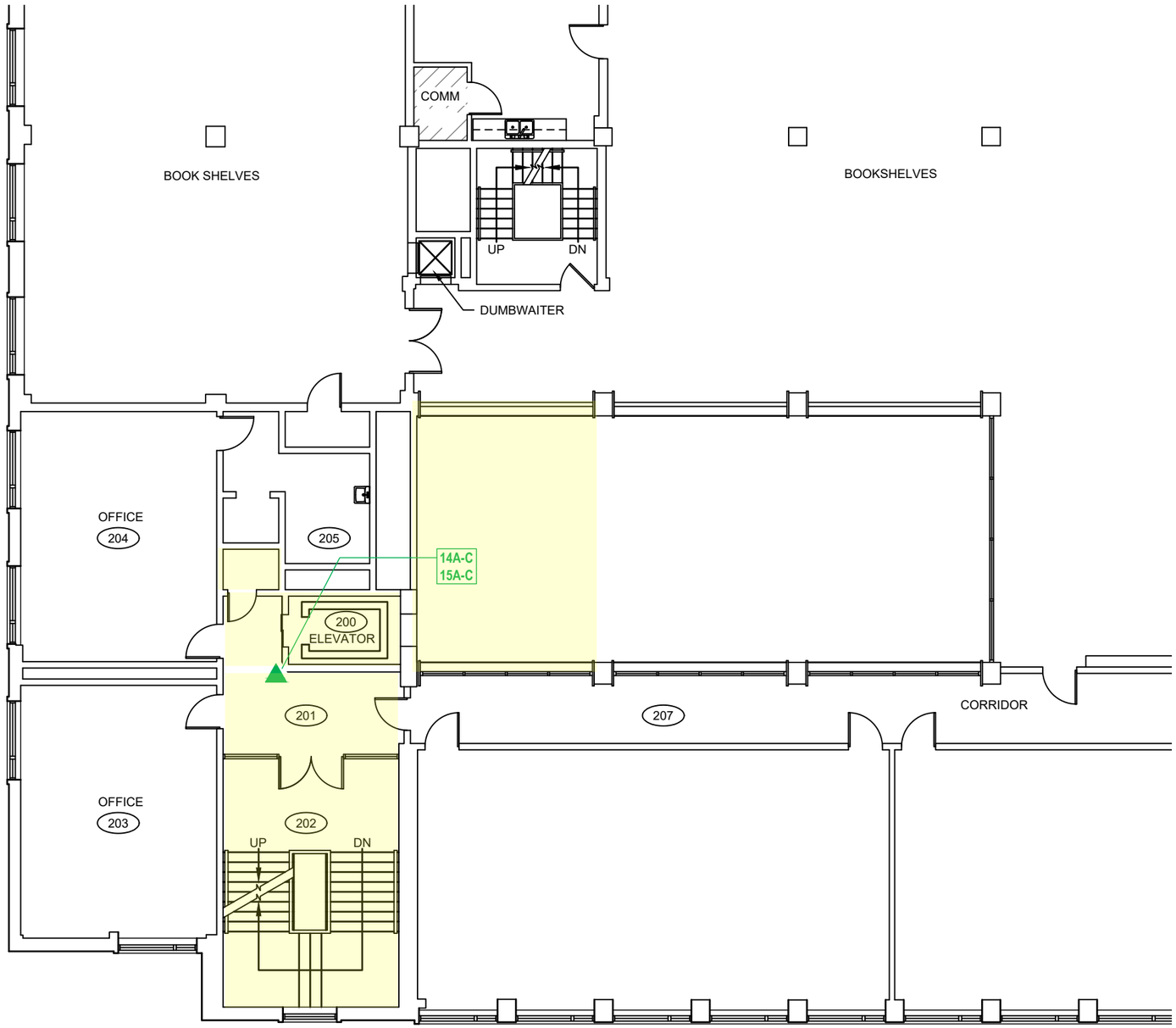
Drawing Title: **Sample Location Plan**
**First Floor Partial Plan**

| | |
|---|---|
| Designed By: K.B. | Scale: Not To Scale |
| Drawn By: M.M. | Date: August 2024 |
| Approved By: K.B. | Project No.: 02406622.000 |
| Figure No.: **2** | |

Drawing 02406622.000 7 Prom Valour Dr.dwg Folder: Y:\Shared\CA\Ottawa\department\TS\CAD\Projects\vantage point\02406622.000 7 prom valour dr\DWGs Wednesday, August 28, 2024 @ 15:02 by Marp Monreal

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## Note

1. This drawing shall be read in conjunction with the associated technical report.
2. Do not scale drawing.
3. Base plan provided by client.
4. Historical sample data not included on drawing.

## Legend

- Approximate asbestos sample location
- Extent of project scope

| Revision | Date | Issue | Approval |
|---|---|---|---|
| 0 | 2024/08/28 | Final | K.B. |

**Client**
Defence Construction Canada

**Site**
7 Prom Valour Drive, Ontario

**Report Title**
Project-Specific Designated Substances and Hazardous Materials Survey, R13 Elevator Replacement and Barrier Free Upgrades Project

**Drawing Title**
Sample Location Plan
Second Floor Partial Plan

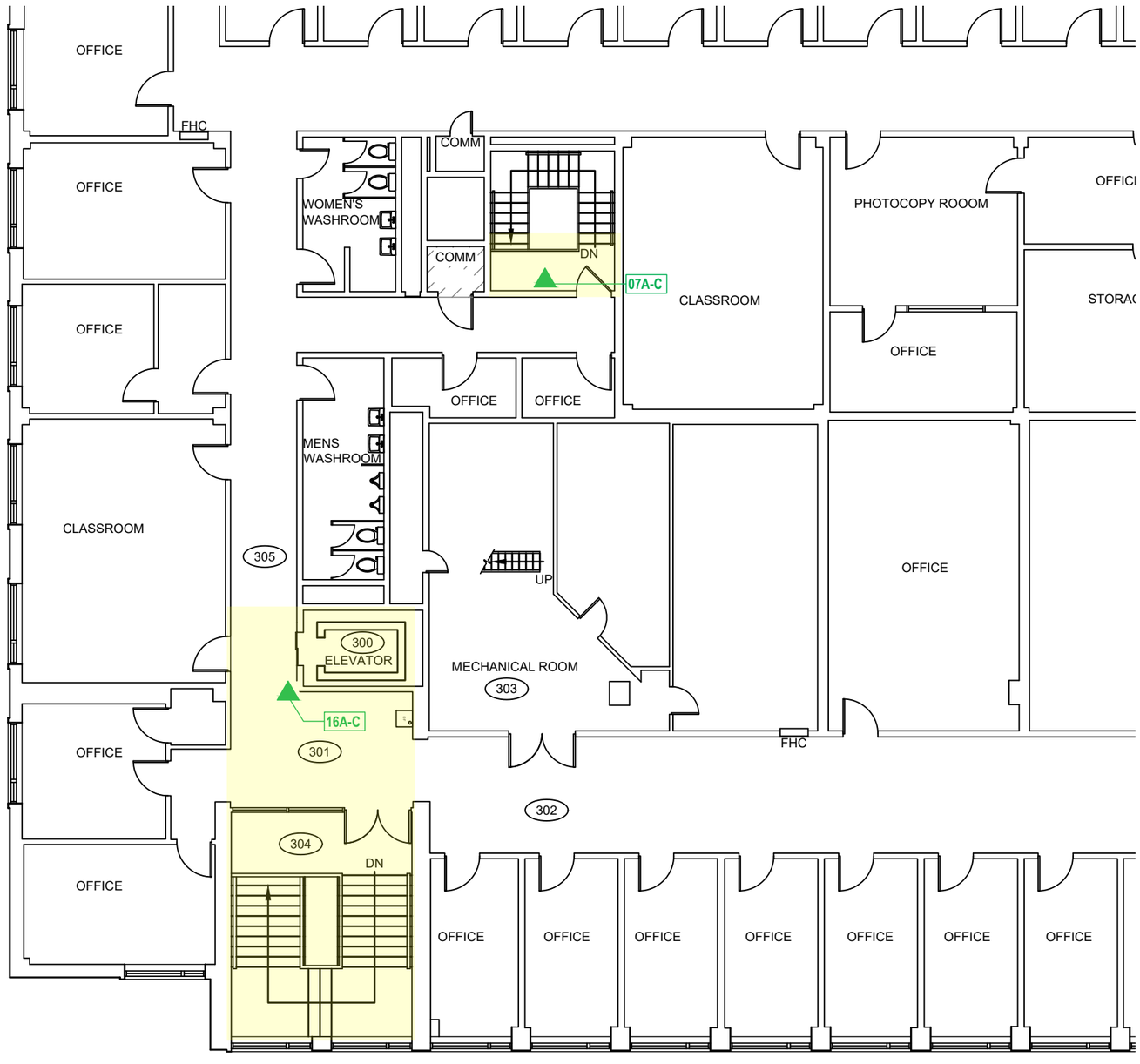
| Designed By | Scale |
|---|---|
| K.B. | Not To Scale |
| **Drawn By** | **Date** |
| M.M. | August 2024 |
| **Approved By** | **Project No.** |
| K.B. | 02406622.000 |

**Figure No.** 3

Drawing: 02406622.000 7 Prom Valour Dr.dwg Folder: Y:\Shared\CA\Ottawa\department\TS\CAD\Projects\vantage point\02406622.000 7 prom valour dr\DWGs Wednesday, August 28, 2024 @ 15:02 by Marp Monreal

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## Note

1. This drawing shall be read in conjunction with the associated technical report.
2. Do not scale drawing.
3. Base plan provided by client.
4. Historical sample data not included on drawing.

## Legend

- Approximate asbestos sample location
- Extent of project scope

| 0 | 2024/08/28 | Final | K.B. |
|---|---|---|---|
| Revision | Date | Issue | Approval |

Client
**Defence Construction Canada**

Site
**7 Prom Valour Drive, Ontario**

Report Title
**Project-Specific Designated Substances and Hazardous Materials Survey, R13 Elevator Replacement and Barrier Free Upgrades Project**

Drawing Title
**Sample Location Plan**
**Third Floor Partial Plan**

| Designed By | Scale |
|---|---|
| K.B. | Not To Scale |
| **Drawn By** | **Date** |
| M.M. | August 2024 |
| **Approved By** | **Project No.** |
| K.B. | 02406622.000 |

Figure No.
**4**

Drawing: 02406622.000 7 Prom Valour Dr.dwg Folder: Y:\Shared\CA\Ottawa\department\TS\CAD\Projects\vantage point\02406622.000 7 prom valour dr\DWGs Wednesday, August 28, 2024 @ 15:02 by Marip Monreal



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# Appendix E
# Statement of Limitations



ENGLOBE

# Statement of Limitations

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The findings, recommendations, suggestions, or opinions expressed in this Report reflect the Company’s best professional judgment based on observations and/or information reasonably available at the time the work was performed, as appropriate for the scope, work schedule and budgetary constraints established by the Client. No other warranty or representation, expressed or implied, is included in this Report including, but not limited to, that the Report deals with all issues potentially applicable to the site and/or that the Report deals with any and all of the important features of the site, except as expressly provided in the scope of work.

This Report has been prepared for the specific site, development, building, design or building assessment objectives and/or purposes that were described to the Company by the Client. The applicability and reliability of the content of this Report, subject to the limitations provided herein, are only valid to the extent that there has been no material alteration or variation thereto, and the Company expressly disclaims any obligation to update the Report. However, the Company reserves the right to amend or supplement this Report based on additional information, documentation or evidence made available to it.

The Company makes no representation concerning the legal significance of its findings, nor as to the present or future value of the property, or its fitness for a particular purpose and hereby

disclaims any responsibility or liability for consequential financial effects on transactions or property values, or requirements for follow-up actions and costs.

Since the passage of time, natural occurrences, and direct or indirect human intervention may affect the views, conclusions, and recommendations (if any) provided in this Report, it is intended for immediate use.

This Statement of Limitations forms an integral part of the Report.

In preparing this Report, the Company has relied in good faith on information provided by others and has assumed that such information is factual, accurate and complete. The Company accepts no responsibility or liability for any deficiency, misstatement or inaccuracy in this Report resulting from the information provided, concealed, or not fully disclosed by those individuals.

The assessment should not be considered a comprehensive audit that covers and eliminates all present, past, and future risks. The information presented in this Report is based on data collected during the completion of the site assessment conducted. The overall site/building conditions were extrapolated based on information collected at specific sampling locations. Professional judgement was exercised in gathering and analyzing data; however, no sampling methodology can completely eliminate the possibility of obtaining partially imprecise or incomplete information; it can only reduce the possibility to an acceptable level. Consequently, the actual site/building conditions between the sampling points may vary. In addition, analysis has been carried out only for the parameters identified, and it should not be inferred that other hazardous materials are not present.

It is recommended practice that the Company be retained during subsequent phases of the project, to confirm that the conditions throughout the site do not deviate materially from those encountered throughout the sampling program.

Any results from a third-party laboratory or other subcontractors reported herein have been carried out by others, and the Company cannot warrant their accuracy.

This Report is based on the assumption that the design features relevant to our work will be in accordance with applicable codes, standards, and guidelines of practice and constructed substantially in accordance with the Report. If there are any changes to the site development or building construction features, or there is any additional information that was not otherwise available at the time the work was performed, the Company should be retained to review the implications thereof to the contents of this Report. The design recommendations expressed in this Report are applicable only to the project described therein.

No attempt was made to dismantle, inspect, or test existing equipment other than that which is specifically noted in the report.