August 31, 2018

INVITATION TO TENDER NO. PS20180920
PROVISION OF CONTRACTOR SERVICES FOR WASHROOM UPGRADES AT 3214 W 10 AVE

ADDENDUM NO. 1

RE: APPENDIX 6 – HAZMAT REPORTS

PLEASE ADD:

- Scope of Work - Hazardous Materials Abatement: St. James Community Square Level 1 & 2 Washroom Upgrades Project, prepared by RJ & Associates, dated August 29, 2018 (7 pages);

- Hazmat Investigation Report for St. James Community Square, prepared by RJ & Associates, dated August 29, 2018 (63 pages)

This addendum must be completed, and attached to your Proposal form.

If you have already submitted your Tender, this addendum shall be submitted to the Purchasing Services Office, City of Vancouver, 453 West 12th Avenue, Vancouver, British Columbia, Canada, V5Y 1V4. Envelopes submitted by courier or otherwise in-person should be delivered to: Supply Chain Management, 453 West 12th Avenue, 4th Floor (Bid Submission Box) Vancouver City Hall, Vancouver, British Columbia, in an envelope clearly marked "Addendum No. 1 to Invitation to Tender No. PS20180920: Provision of Contractor Services for Washroom Upgrades at 3214 W 10 Ave. before the closing time of **3:00:00 pm, Thursday, September 27, 2018.**

_____
NAME OF VENDOR

_____
Signature of Authorized Signatory

_____
Date

Philip Lai
Buyer II

RJ & ASSOCIATES
ENVIRONMENTAL CONSULTING

Suite 407, 604 Columbia Street, New Westminster, BC, V3M 1A5

August 29, 2018

Scope of Work

City of Vancouver
Hazardous Materials Abatement
St. James Community Square
Level 1 & 2 Washroom Upgrades Project
Vancouver, BC

1 Background Information

R.J. & Associates Environmental Consulting Inc. ([R.J. & A.]) has been engaged by City of Vancouver to (COV) to provide a Scope of Work for the hazardous materials abatement work required for the upcoming Washroom Upgrades Project for the St. James Community Square located at 3214 W. 10th Ave., Vancouver, BC.

2 Documents

i. "RJFinalHazmatReport180829 St. James Community Square – Hazardous Materials Survey" prepared by [R.J. & A.], dated August 29, 2018.

3 Description of Work

Work under this contract covers the abatement of hazardous materials within St. James Community Square, Vancouver, BC. This work generally includes, but is not limited to, the following:

a) Remove and dispose of asbestos-containing and lead painted mudded drywall walls and ceilings, following modified moderate risk work procedures.
b) Remove and dispose of asbestos-containing and lead paint plaster walls and ceilings, following high risk work procedures.
c) Remove and dispose of all mechanical insulation (straight run and mudded elbows), as observed in the Boiler Room and within wall and ceiling cavities, following moderate risk glove-bag and wrap and cut procedures.
d) Remove and dispose of asbestos-containing vinyl floor tiles and mastic, following moderate risk work procedures.
e) Remove and dispose of lead-containing ceramic tiles, following moderate risk work procedures.

4 Responsibilities

The contractor is required to coordinate the following with [R.J. & A.] prior to project commencement:

- Submittal of a NOP-A/L, Exposure Control Plan, and Safe Work Procedures;
- Site access restrictions;
- Access to power and water;
- Supply of required equipment and materials;

- Lockout procedures of existing utilities (if required);
- Work shift schedules[o];
- Pre-Contamination Inspections of constructed enclosures[†];
- Storage and final disposal of waste materials; and
- Final Visual Inspection(s) [†].

[o] *RJ & Associates require a minimum of 48 hours' notice from the applicable contractor as to any changes to work shift schedules throughout the length of the project. Failure to comply with this condition will result in project delay.*

[†] *RJ & Associates require a minimum of 24 hours' notice from the applicable contractor for all scheduled inspections. Failure to comply with this condition will result in rejection of the required inspection and project delay.*

R.J. & Associates Environmental Consulting Inc. will be onsite throughout the abatement project to provide the following consulting services:

- Review submitted NOP and Exposure Control Plan with Safe Work Procedures;
- On-site monitoring of abatement to ensure WorkSafeBC regulatory guidelines are enforced;
- Collection of required air samples during and upon completion of abatement activities;
- Scope of work communication with HazMat Contractor;
- Provide pre-contamination, final visual, and tear-out inspections of abatement areas;
- Provide final sign-off report upon confirmed completion of the project scope of work.

5 Respiratory Protection

Respiratory protection shall be provided to workers in accordance with their submitted written respiratory protection program. R.J. & Associates recommends Powered Assist Purifying Respiratory (P.A.P.R.) with SP3 filters to be utilized for the high-risk and modified-moderate risk abatement of ACMs.

Half-mask respirators with P100 filters are to be used for the moderate-risk work procedures.

6 Air Monitoring

On this project, the following table provides the numerical standards and action levels that are to be complied with by the Hazmat Contractor throughout the duration of the abatement scope of work.

Air Sample Type	Numerical Standard	Action Level
Asbestos		
Clean Room	0.1 fibers/mL	0.050 fibers/mL
Ambient	0.1 fibers/mL	0.050 fibers/mL
Occupational-HR/MMR	10.0 fibers/mL	5.0 fibers/mL
Occupational-MR	1.0 fibers/mL	0.5 fibers/mL
Air Clearance	0.020 fibers/mL	n/a

Air Sample Type	Numerical Standard	Action Level
Lead		
Occupational	0.5 mg/m^3	0.025 mg/m^3

- [R.J. & A.] will interpret all air sampling results based on the above table and WorkSafeBC recognized ALARA (as low as reasonable achievable) principle.
- Air sampling results determined to exceed the Action Levels will require revision to safe work procedures and/or increase to engineering controls by the Abatement Contractor.
- Air sampling results determined to exceed the Numerical Standards will require an incident report produced by the Abatement Contractor, and possible work stoppage.

6.1 Air Clearance

To determine whether the work area is suitable for re-occupancy, an approved environmental consultant shall conduct air clearance sampling prior to authorizing tear down of the containment area.

1. Air Samples will be collected from inside the work area, transfer areas, clean rooms, and common areas.
2. The number of samples collected will be a function of the size of the containment area. Air clearance shall not be granted if fibre counts exceed 0.020 f/mL.
3. Should the air sampling confirm fibre counts above this level; the environmental consultant shall issue instructions to the Hazmat Contractor for any remedial action(s) necessary to reduce fibre counts below 0.020 f/mL.
4. It is the responsibility of the abatement contractor to ensure that containment areas are sufficiently cleaned and prepared for Air Clearance.
5. All costs associated with remedial actions and subsequent air samples are to the account of the Hazmat Contractor.
6. Once the approved environmental consultant has confirmed that air samples are equal to or less than 0.020 f/mL, a Final Clearance shall be issued to the Hazmat Contractor confirming that it is safe to proceed with final tear down of the containment area.

7 Final Inspections

Prior to requesting Final Inspection, the Hazmat Contractor shall be responsible to ensure the following work has been completed.

7. All bulk asbestos & lead-containing materials have been removed from their original locations. As directed by the environmental consultant all horizontal and vertical surfaces have been wire brushed, scraped, HEPA vacuumed or wet wiped.
8. All crevices, nooks, openings, penetrations, piping or other building systems within the abatement area have been cleaned of any residual asbestos debris.
9. All temporary enclosure surfaces have been properly cleaned of residual asbestos debris.

10. All Hazmat Contractor equipment and tools within the containment area have been properly cleaned of residual asbestos debris.
11. The negative air system has substantially removed any airborne fibres created during the final cleaning.

8 Tools & Equipment

1. HEPA vacuums equipped with High Efficiency Particulate Aerosol Air Filters.
2. Negative pressure ventilation units equipped with HEPA filters and operated in accordance with ANSI 29.2-79 (local exhaust ventilation requirements). Incorporating EPA guidance document EPA 560/5-83-002 Guidance for Controlling Friable Asbestos-Containing Materials in Buildings Appendix F - Recommended Specifications and Operating Procedures for the Use of Negative Pressure Systems for Asbestos Abatement shall be utilized to provide one work place air change every 15 minutes. All units are to be DOP tested prior to the start of the high-risk abatement.
3. Negative Air Exhaust Ducting (flexible): Air tight tubing with metal reinforcement or approval equal. Mechanically affix each exhaust duct to the unit's exhaust with metal hose clamp. Diameter of duct to equal negative air discharge.
4. Whenever possible, the units will be located at the furthest point from the decontamination facility. To calculate total airflow requirement:
    - Total cubic foot/min = volume of work area (in cubic foot) divided by 15 min.
    - To calculate the number of units needed for the abatement:
    - Number of units needed = total cubic foot/min divided by capacity of unit in cubic foot/min.
5. The Hazmat Contractor is responsible to provide sufficient supply of hand tools (e.g. flashlights, mops, rags, sponges, scrapers, brushes, wire brushes, utility knives); suitable spray equipment; sealer; and HEPA filtered vacuum systems which are to be available during all stages of the project.
6. Additional safety equipment (e.g. hard hats meeting the requirements of ANSI Standard Z89.1-1981, eye protection meeting the requirements ANSI Standard Z87.1-1979, safety shoes meeting the requirements of ANSI Standard Z41.1-1967) shall be provided to all workers and authorized visitors if required.
7. The Hazmat Contractor shall use a Grayco Hydra spray airless spray equipment or equivalent for the application of amended water or slow drying sealer. Sprayers with pumps capable of providing no more than 500 pounds per square inch (psi) at the nozzle tip at a flow rate of 2 gallons per minute for spraying amended water are acceptable. Nozzle pressure should be adjustable within 400 to 1500 psi range depending on the encapsulates viscosity and solid content.
8. Rubber dustpans and rubber squeegees shall be provided for clean-up.

9. Warning labels and signs delineating entry and protective equipment requirements and providing warning of the potential health effects of exposure to airborne contaminated materials.
10. Ground Fault electrical panel: An electrical panel equipped exclusively with ground-fault interrupter circuit breakers of sufficient capacity to provide electrical power for lighting, air movement units and all equipment used for the duration of the project.
11. Hazmat Contractor shall sufficiently seal the panel to allow no moisture or dust to enter the panel.
12. The portable Shower Facility shall be fitted with double entrance doors, sufficient wastewater catchment and discharge abilities to prevent overflow, enclose walls and ceiling, stable flooring, tempered water, sufficient soap, and shampoo.

9 Construction Sequence of Events

Any changes to the sequence of events depicted under the scope of work requirements are to be approved by (COV). All work detailed below is to be completed by the Hazmat contractor unless otherwise indicated.

9.1 Asbestos High-Risk Abatement –Upper Floor

1. Remove mounted fixtures in direct contact with asbestos-containing mudded drywall/plaster following moderate-risk procedures. Removed items are to be decontaminated of asbestos debris prior to disposal as general demolition waste.
2. Construct an air-tight sealed negative pressure enclosure to satisfy high-risk work procedures in accordance with WorkSafeBC asbestos protocols. A minimum of one viewing window must be installed to allow for unrestricted sight into the active abatement work area from outside of the enclosure.
3. Constructed enclosures must satisfy the complete scope of work requirements as per the mechanical project demolition drawings.
4. Establish a three-stage worker decontamination facility to consist of a clean room, shower and personnel transfer room. Air is to flow into the work area through the clean room. Shower facility to provide tempered water, with shower water HEPA-filtered prior to discharge.
5. Establish a two-stage waste transfer room sealed to the high-risk enclosure in accordance with WorkSafeBC asbestos protocols.
6. All air ventilation grills, windows, doors, and other openings are to be sealed using orange poly sheeting and duct tape.
7. Establish power-supply panels. Contractor may utilize portable power generator if necessary. Portable power generator must meet all WorkSafeBC regulations and applicable standards.
8. Unless otherwise specified electrical systems are live within the building. Live electrical inside of the enclosure space must be identified and tagged by the

Contractor. Mechanical systems are to be locked out and isolated within the active abatement area.

9. Ensure all personnel are equipped with the appropriate personal protective equipment (Tyvek coveralls) and respiratory protection (full-face PAPR respirator with SP3 HEPA filters).
10. Upon successful completion of a Pre-Contamination inspection by [R.J. & A.], the contractor may proceed with abatement work activities.
11. Abate and dispose of all plaster wall and ceiling layers from the Level 2 Washroom, Kitchen, Hallway, Janitor Closet and Office space as required to complete the project demolition scope.
12. Upon completion of a successful final visual inspection by [R.J. & A.], the contractor will be granted approval to begin application of the slow-drying lock-down encapsulant on all surfaces inside the enclosure.
13. After an approved settling time of at least 8 hours, [R.J. & A.] will perform air clearance sampling inside the enclosure area in accordance with WorkSafeBC regulatory requirements.
14. The poly enclosure materials will be removed following moderate risk procedures. Poly enclosure waste materials are to be bagged and disposed of as asbestos waste.
15. Clean-up the work area in accordance with WorkSafeBC protocols for Asbestos Abatement, under moderate risk conditions.
16. Following the completion of a successful tear-out inspection by [R.J. & A.], the contractor will be granted approval to remove asbestos banner tape. **Note: the enclosure may be retained for moderate risk work as well if requested by the abatement contractor.**
17. Disposal off site must be at a registered landfill and must comply with all applicable regulations and codes. Provide copies of Asbestos waste manifests to [R.J. & A.] within forty-eight hours.

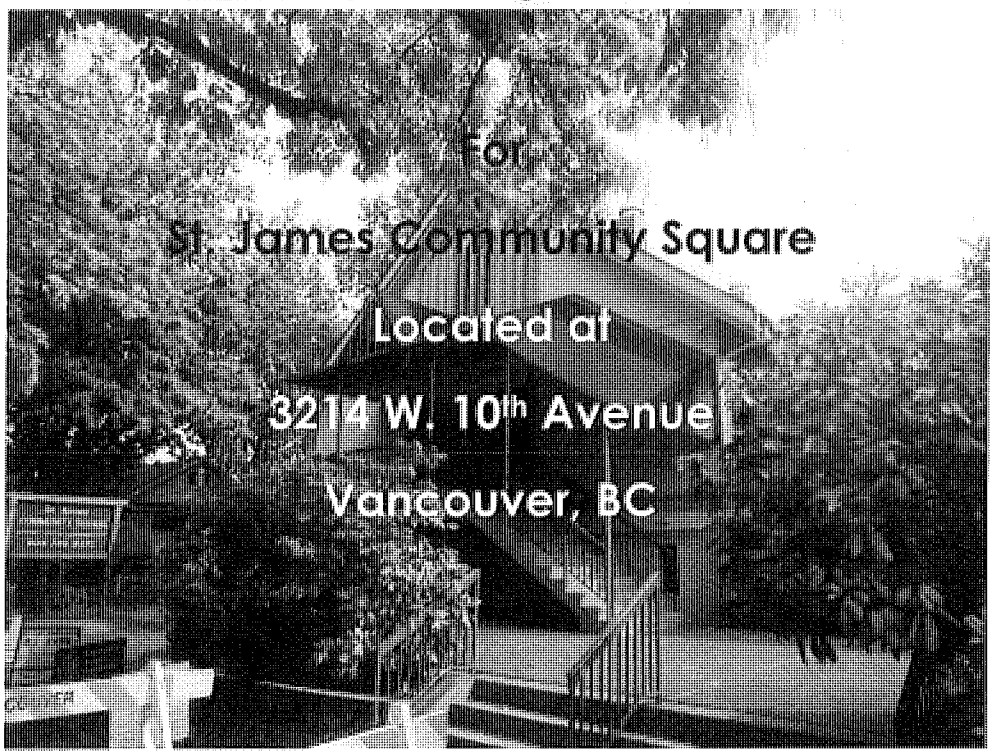
9.2 Moderate-Risk Abatement – Upper and Lower Floors

1. Construct containments and/or barriers to satisfy the moderate-risk abatement area in accordance with WorkSafeBC asbestos protocols.
2. All air ventilation grills and other openings are to be sealed using 6-mil poly sheeting and duct tape.
3. Establish a single-stage decontamination facility to consist of a pail of clean water for worker wash-out. No more than 2 workers for every wash-out pail.
4. Ensure all personnel are equipped with the appropriate personal protective equipment (Tyvek coveralls) and respiratory protection (half-face APR respirator with P-100 filters).
5. Abate and dispose of asbestos-containing vinyl floor tiles and underlying mastic from the stairwell landing outside the Level 1 Service Room.

6. Abate and dispose of asbestos-containing vinyl floor tiles and underlying mastic from the Level 2 Washroom, hallway, and office spaces as necessary to complete demolition and new construction requirements. Overlying ceramic tiles, vinyl sheet flooring and subfloor material may be disposed of as non-asbestos waste upon site review by R.J. & A.
7. Abate and dispose of asbestos-containing mechanical insulation on straight runs and elbows from piping inside the Level 1 Service Room and Level 2 work areas as required to allow demolition of the Domestic Water pipe lines, following glove-bag and wrap and cut procedures.
8. Abate and dispose of lead-containing ceramic tiles within the Level 1 Men's and Women's Washrooms to allow for removal and demolition of washroom fixtures.
9. Abate and dispose of asbestos-containing drywall joint compound within the Level 1 Daycare area to allow for demolition and installation of the Domestic Water pipelines. Amount of asbestos removal work required to complete the mechanical work scope will determine final risk level for abatement.
10. Abate and dispose of lead-containing doors and frames as necessary from the Level 1 and 2 demolition work areas.
11. Abate and dispose of lead-containing surface paints from plaster and/or cinderblock walls as necessary from the Level 1 and 2 to complete new pipeline installation.
12. Clean-up the work area in accordance to WorkSafeBC protocols for Abatement, under moderate risk conditions.
13. Disposal off site must be at a registered landfill and must comply with all applicable regulations and codes. Provide copies of all waste manifests to [R.J. & A.] within forty-eight hours. Lead waste materials are to be treated as leachable lead waste until proven otherwise by [R.J. & A.] through laboratory analysis.

RJ & ASSOCIATES
ENVIRONMENTAL CONSULTING

"Hazmat Investigation Report"



Submitted to:
Ms. Rebecca Yanciw
City of Vancouver
Real Estate and Facilities Management
507 West Broadway Suite 340
Vancouver, BC, V5Z 0B4

Prepared by:
R.J. & Associates Environmental Consulting
Suite #407 - 604 Columbia Street
New Westminster, BC
August 29, 2018

Table of Contents

1 Executive Summary

R.J. & Associates Environmental Consulting Inc. (hereinafter referred to as [R.J.& A.]) was engaged by the City of Vancouver (hereinafter referred to as "(COV)") Hazardous Materials Project Manager, Ms. Rebecca Yanciw, to conduct a pre-renovation hazardous building materials investigation of the select locations of the St. James Community Square located at 3214 W. 10th, Vancouver, BC, slated to be impacted by the Washroom Upgrades Project.

The scope of work included an initial historic review of the site to establish the presence of any known hazardous materials specific to St. James Community Square. This would include accessing original and updated drawings, previous building occupants and building uses, and review of previous hazard survey reports and analytical data. Additionally, mechanical drawings designed for the Washroom Upgrades Project were also reviewed to identify the project scope of work areas inside the building.

The subject building was entered by our AHERA certified Building Inspector to identify the presence of hazardous materials. These including the following, asbestos-containing materials, lead-based paint and other lead products, mercury materials; mould contaminated materials, ozone depleting substances (ODS), polychlorinated biphenyls (PCB) containing fluorescent light ballasts, radioactive isotopes that may pose an exposure threat to workers or tenants during any scheduled upcoming renovations or may incur environmental liabilities to the owner. Regulations concerning workplace safety, transportation of dangerous goods and waste disposal are applicable to the investigation.

This report provides detailed findings from the building investigation and recommends either abatement or encapsulation and then the management of these hazardous materials in the proposed areas of renovations and demolition.

Based on the investigation findings, the following has been concluded:

Asbestos:

Twenty-one (21) bulk samples were analyzed for the presence of asbestos during this investigation. Four (4) bulk samples were determined to be **asbestos containing** and two (2) samples determined to have **asbestos** present. These results in addition to previous investigation results have determined the follow materials to be asbestos-containing: vinyl floor tiles, flooring mastic, plaster, drywall joint compound, mechanical and pipe insulation.

In addition, the following materials were presumed to be asbestos containing:

Fire doors and electrical panel boards.

Lead:

Five (5) bulks samples of paint coat materials and other lead products were submitted for analysis of lead (Pb) content, with all samples determined to be **lead containing**.

New paint materials were observed to be applied overtop older paint coatings.

Mould:

Suspected black mould growth was observed behind baseboards within the Level 2 Washroom.

Other Hazardous Materials:

Crystalline Silica: The concrete, plaster, cinderblock, and drywall materials within the subject building are sources of silica-containing materials identified during the building inspection.

Heavy Metals, Toxic, Flammable, Explosive or Controlled Products: Miscellaneous maintenance chemicals, oils, lubricants and paints were observed to be stored on shelves and floors within janitor closets and mechanical rooms.

Mercury: Wall-mounted thermostats were identified within the investigation area. Fluorescent light tubes are also known to contain mercury in varying quantities. Appropriate precautions should be taken when removing these thermostats and switches. Additionally, switches, relays and gauges may also contain mercury.

Ozone Depleting Substances: Chlorofluorocarbons (CFCs) and ozone depleting substances (ODS) in the form of refrigerants were not identified inside the project scope of work areas of the building.

Polychlorinated Biphenyls: Select fluorescent light fixtures within the building were assessed for the presence of PCB-containing ballasts, with those inspected determined to have no PCBs. However, due to the fact that all light fixture ballasts were not investigated within the building, PCB-containing light ballasts are considered to be present.

Radioactive Materials: Smoke detectors were observed present within the building, these units may contain radioactive isotopes, and hence appropriate precautions should be taken during their removal.

2 Introduction

The purpose of this investigation is to provide (COV) with a detailed report of the pre-renovation hazardous materials survey/assessment to facilitate the Washroom Upgrades Project within St. James Community Square located at 3214 West 10th Avenue, Vancouver, BC. The assessment scope of work area was limited to the areas as identified on the mechanical drawing set provided by COV.

From this investigation report, [R.J. & A.] have intended to identify asbestos-containing materials, lead-based paint and other lead products, mercury materials; mould contaminated materials, ozone depleting substances (ODS), polychlorinated biphenyls (PCB)-containing fluorescent light ballasts, and radioactive isotopes that may pose an exposure threat to workers or occupants or may incur environmental liabilities to the owner.

This report outlines the scope of the inspection, methodologies, and techniques employed in conducting the onsite investigation and environmental sampling as required. Recommendations provided in this report are based on the observations documented during the onsite investigation and the environmental sampling which were employed during the environmental inspection.

Provincial and Federal Regulations concerning workplace safety, transportation of dangerous goods and waste disposal are applicable to this investigation.

2.1 Scope of Work

The scope of work included an initial historic review of the site to establish the presence of any known hazardous materials specific to the defined area as well as a general inspection of functional and non-functional spaces of the second floor units and common spaces to identify hazardous materials including: animal droppings and carcasses; asbestos-containing materials, heavy metals, toxic, flammable or explosive materials; lead-based paint and other lead products, mercury materials; mould contaminated materials, needles and sharps; ozone depleting substances (ODS), polychlorinated biphenyls (PCB) containing fluorescent light ballasts, radioactive isotopes, silica containing materials, and stored chemicals.

Building materials potentially containing hazardous materials were in various mechanical systems and piping insulation, joint/mud compounds and stipple texture coats, flooring materials, caulking and mastics, electrical transite arc pads, putty and sealants, paint finishes, fluorescent lighting fixtures, and transformer units associated with the subject building.

[R.J. & A.] initially completed a review of previous sampling report to determine the requirement of additional sampling to ensure compliance with current regulations and further clarity on the presence of hazardous materials. From there, review of the project specific mechanical drawings was completed to formulate the onsite sampling plan.

The objective of the survey was to identify specified hazardous building materials in preparation for upcoming washroom upgrades work.

2.2 Site Description

The building is located at the southwest corner of West 10th and Trutch Street in Vancouver. The building is a two storey community square with various uses and tenants. The upper and lower levels of the building were observed to consist of concrete and cinderblock construction, within interior finishes completed with plaster and gypsum board over wood lathe and mudded drywall.

2.3 Applicable Standards and Guidelines

All work under this project was completed in strict adherence with applicable federal, provincial and local legislation, regulations, codes and standards governing hazardous materials investigation, including all associated work done in conjunction with the investigation or included within the scope of the work.

In British Columbia, the management of asbestos containing materials in the work place is regulated by WorkSafeBC under the Workers' Compensation Act (effective April 15, 1998), as regulated under Part 6 (sections 6.1 to 6.32) of British Columbia Occupational Health and Safety Regulation (BC Reg.) 296/97, as amended by BC Reg. 9/2017. The "British Columbia Occupational Health and Safety Regulations, Section 20.112" issued by WorkSafeBC which delineates that all Hazardous Materials must be removed within a building prior to demolition.

In British Columbia, the management of lead-based paints (L.B.P.) should be controlled through use of safe work procedures. Safe work procedures must be developed in accordance with the requirements of WorkSafeBC, specifically but not limited to include those requirements prescribed through Parts 5.48-5.59 – Controlling Exposure, and Parts 6.59-6.69 – Lead and the new publication "Safe Work Practices for Handling Lead", Workers' Compensation Board of British Columbia, 2017 edition.

[R.J. & A.] followed all guidelines and regulations implemented by WorkSafeBC and the Environment Management Act.

See Appendix A for a table outlining applicable sections of relevant guidelines and regulations.

2.4 Previous Experience in Workplace

[R.J. & A.] conducted an initial historic review of the site to establish the presence of any known asbestos materials specific to the defined area. This would include accessing original and updated drawings, review of previous building occupants and building uses, and review of previous hazard survey reports and analytical data. Drawings relating to the project scope of work areas were provided.

[R.J. & A.] was provided with an Asbestos Identification and Management Program for the building (dated January 2007) as well as standalone lab reports to review prior to beginning the survey. Previous sampling has been completed within the building and is referenced throughout the report.

2.5 Limitations and Exclusions Regarding Scope

This report details the regulated substances – asbestos-containing materials (ACM), lead-based paint and other lead products (Pb), mercury materials (Hg), mould contaminated materials, ozone depleting substances (ODS), polychlorinated biphenyls (PCB) containing fluorescent light ballasts, and radioactive isotopes - that may be found within or forming part of the building envelope.

The investigation only considered issues of the structure and finishes, including mechanical equipment. Semi-destructive sampling was performed inside the building.

Every effort was made to discover all regulated substances, however further suspect material may possibly be concealed and yet undetermined. Sampling and identification of these materials would

occur as a result of their discovery during the removal of the larger portion of the overlying material in the area.

The investigation did not consider current or past owner or occupant articles within the building and does not address possible soil and ground water contaminants or vessels, drums, underground storage tanks or other potential leak sites; *therefore, this investigation does not satisfy Stage 1 Preliminary Site Investigation report requirements.* This investigation report relates only to the items tested and any extrapolation by the client of the results would be the responsibility of the client.

No air sampling for dusts or mists was conducted as part of this investigation.

2.6 Methodology

Andrew Marshall (AHERA Cert#: CABIR-18-029) of [R.J. &A.] conducted the fieldwork. The survey was conducted in a phased approach, based on the occupancy of the building. The surveyors entered all areas identified by our Scope of Work and collected bulk samples from all accessible areas, while wearing a half-mask respirator equipped with HEPA P-100 filters for personal protection. A HEPA-filtered vacuum was utilized during sampling to clean any fallen debris materials. The bulk sampling was conducted during day shift hours. Photographs were taken to document existing interior conditions and selected sample locations.

2.6.1 Survey and Assessment Criteria

The inspector(s) followed a systematic approach to navigate throughout the building by starting on the lowest floor level/basement area, focusing on mechanical rooms or service areas, and working upward through each floor level. Within each room, the inspector(s) assessed all accessible ceiling materials, wall materials, flooring materials, mechanical components, and then materials within suspended ceiling space. To ensure oversight of suspect building materials is minimized during the inspection, the "*Left Hand Rule*" was implemented on each floor level and within each room.

In all cases, the inspector used existing room numbers either provided on building drawings or from actual building labels assigned to each room. If any areas of the building did not have assigned room numbers, [R.J. & A.] assigned room numbers using the following formats:

	Regular Rooms	Sub Rooms	Staircases	Hallways
Formula	Bldg. Level+ Increasing room number	Root room number + Increasing alphabet letter beginning with A	ST+ compass direction + building level	HL+ compass direction+ building level
Examples	Basement Level = 001, 002, 003, etc. Level 1 = 101, 102, 103, etc.	Closet within Room 101= 101A Bathroom within Room 203= 203A	Third Floor landing of southwest staircase= ST-SW-03	Second Floor east wing hallway= HL-E-02

- *Gridlines were also used, when applicable, to further identify locations.*

Representative samples were collected and/or visual observation of the hazardous materials was conducted.

All materials were assessed to determine the current condition and any associated hazards that may occur in relation to occupational experiences in the workplace.

2.6.2 Asbestos Containing Materials

The methodology for completing the asbestos investigation consisted of identifying suspect asbestos-containing materials (ACM) within homogeneous sampling areas (HSAs) and then collecting samples of these suspect materials in airtight sample bags. At least three samples of each suspect material were collected from each (HSAs) within the building and analyzed until the first positive asbestos sample was confirmed. Conversely, if a material is presumed to contain asbestos, only one sample was required.

Bulk Sampling was performed according to AHERA procedures found in the United States Code of Federal Regulations (CFR) Part 40 Section 763.86 and British Columbia Occupational Health and Safety Regulations, Section 20.112".

2.6.3 Lead Containing Materials

The methodology for completing the lead investigation consisted of identifying suspect lead containing paint finishes or bulk solids within homogenous sampling areas (HSAs) and then collecting samples of these suspect materials in airtight sample bags i.e.: sealed Whirl Pack sample bags. The surveyor collected the paint chips and coatings or bulk solids right down to the original surface.

The lead investigation was performed according to British Columbia Occupational Health and Safety Regulations, Section 20.112".

2.6.4 Mould Affected Materials

The methodology for completing the limited mould investigation was conducted following Health Canada, and the American Conference of Government Industrial Hygienists (ACGIH) protocols for microbiological investigations and controls. The inspector conducted visual inspections to detect water-stained, water-damaged and fungal-contaminated building materials. Bulk samples were not collected of any suspect mould-containing materials.

2.6.5 Animal Droppings and Carcasses

The methodology for completing the (A.D. & C.) investigation will be visual in nature and consist of investigating potential sources of contamination (including attic and crawlspaces). Photographs will be taken of each observed instance. Due to health risks, bulk sampling of animal waste was not collected.

2.6.6 Crystalline Silicate

The methodology for completing the Silica investigation consisted of a visual inspection of the subject building for the presence of potential sources of crystalline silicate. Bulk samples were not collected of any suspect Silica-containing materials.

2.6.7 Fiberglass Products

The methodology for completing the fiberglass products investigation consisted of a visual inspection of the subject building for the presence of potential sources of fiberglass products. Bulk samples were not collected of any fiberglass products.

2.6.8 Heavy Metals, Toxic, Flammable, Explosive or Controlled Products-

The methodology for completing the (HM, T., F., E.), and Controlled Products investigation consisted of visually inspecting rooms for the presence of heavy metals, toxic, flammable, explosive materials or other controlled products. Bulk samples were not collected of any suspect (HM, T., F., E.), and Controlled Products

2.6.9 Mercury Containing Materials

The materials inventoried for possible mercury content were temperature control thermostats generally wall-mounted. Other materials were not assessed for mercury content; however, mercury-containing materials may be present in other building finishes or items such as fluorescent tubes, mercury vapour bulbs, gauges, switches and relays. Bulk samples were not collected of any suspect mercury-containing materials.

2.6.10 Needles & Sharps

The methodology for completing the needles and sharps investigation consisted of a visual inspection of the subject building for the presence of needles and/or sharp objects. Bulk samples were not collected of any needles or sharps.

2.6.11 Ozone Depleting Substances (ODS)

The surveyor inspected for (ODS) containing systems in chillers, air conditioning systems, portable fire extinguishers and fixed fire suppression systems. The determination of ODS was made by recording manufactures labels and maintenance records. Bulk samples were not collected of any suspect (ODS) s.

2.6.12 Polychlorinated Biphenyls (PCB)

Representative light ballasts and transformer units were inspected by the surveyor and manufacturer information, model numbers and date codes were recorded. This information was compared to Environment Canada information to determine if the ballast contains PCBs. Fluorescent light fixtures and transformer units were items inventoried for PCB's in this investigation. Bulk sampling were not collected of any suspect PCB-suspect materials.

2.6.13 Radioactive Materials

The methodology for completing the radioactive investigation is based on B.C.'s Occupational Health & Safety Regulations under Part 7-Ionizing Radiation (Section 7.32 to 7.45).

The surveyor only visually inspects suspect items such as smoke detectors.

2.7 Quantities

The inspector(s) obtained measurements of each room entered as part of the investigation, and all suspect building materials observed within. Measurements provided in this report are to be considered as estimates, as materials were not accessible on a foot by foot basis.

Units of measurement used to report quantities of suspect building materials are: linear foot, square foot, and cubic foot and each.

2.8 Sample Analysis

2.8.1 Asbestos Analysis

Bulk samples collected for asbestos analysis were labelled and submitted to Asbestos Analytical Services Ltd. for bulk asbestos analysis in accordance with NIOSH PLM Method 9002. The methodology for the analysis of asbestos in building materials is by using polarized light microscopy and dispersion staining techniques.

The detection limit of these methods is listed as 1%. However, our contracted laboratories' estimated LOD is <0.5%, such that it meets the requirements of laboratories doing analysis under WorkSafeBC regulations who are required to detect (not necessarily quantify) to 0.5%, not the former 1% limit.

Multiple phases within samples are analyzed separately and then combined to provide a total asbestos content for each sample. The method determines the content of asbestos-containing materials by type and percent volume using a combination of polarized light microscopy, morphology, refractive index, extinction, signs of elongation, and dispersion staining colors.

2.8.2 Lead Analysis

Surface lead based paints (L.B.P.) or bulk solids collected for lead analysis were labelled and submitted to Maxxam Analytics Inc. for analysis. Representative lead bulk samples collected were digested with acids and analyzed by Inductively Coupled Plasma Spectroscopy (ICP) to confirm the presence of lead within the solid mass.

The U.S. National Institute of Occupational Safety and Health (NIOSH) have developed a number of methods for analyzing lead in paint, including Methods 7082, 7105, and 7300. The results are usually reported by the laboratory in micrograms per gram (µg/g) or milligrams per kilogram (mg/kg). If the area sampled is included, the lab may also report results in milligrams per square centimeter (mg/cm2).

R.J. & Associates Environmental Consulting Inc. will store the samples for 30 days after analysis. After this time, the samples will be disposed of unless the client has requested that the samples be returned.

Refer to Appendix B for bulk sample results.

3 Regulated Materials within the Facility

This section summarizes the asbestos-containing materials, lead-based paint and other lead products, mercury materials, mould contaminated materials, ozone depleting substances (ODS), polychlorinated biphenyls (PCB) containing fluorescent light ballasts, and radioactive isotopes determined to be present in the area outlined in the scope of work. The quantities of identified materials are estimates.

Furthermore, all reported quantities are approximate and should not be interpreted as absolute values for abatement contractor's tendering bids. Additional quantities of hazardous building materials may exist or not be identified due to inherent survey or structural limitations.

All units and numbers in the supporting tables are estimates of visible suspected or confirmed hazardous building materials and relates only to the items tested and any extrapolation by the client or others of the results is the responsibility of the client.

Risk assessment information provided for determined ACMs is for general purposes only, thus prior to actual abatement activities, *a formal risk assessment should be conducted by a qualified person* as outlined in 6.6 of WorkSafeBC Occupational Health & Safety Regulations (OHSR), by the contractor.

3.1 Asbestos

Asbestos-containing material is a manufactured article or other material, other than vermiculite insulation, that would be determined to contain at least 0.5% asbestos if tested in accordance with one of WorkSafeBC approved laboratory methods. Asbestos is identified by its fibrous morphology and optical properties and is classified as being: 1) chrysotile; 2) amosite; 3) crocidolilte; or 4) other amphibole asbestos. The asbestos-containing material is classified as either friable or non-friable.

Friable asbestos means asbestos-containing material that is crumbled or powdered or can be crumbled or powdered by hand pressure, as defined under WorkSafeBC, "O.H. & Safety Regulations Section 6.1".

Twenty-one (21) bulk samples were submitted for laboratory analysis, with four (4) samples determined to be asbestos-containing and two (2) samples determined to have asbestos present.

Table 1 outlines a summary of *building materials bulk samples* analyzed for the presence of asbestos within St. James Community Square.

Sample #	Sample Location	Sample Type	Asbestos Present:
4581-AM	**Level 2, Entry Hallway**	**Black and white 12" x 12" vinyl floor tiles**	**1-5% Chrysotile Asbestos**
4582-AM	***Level 2, Washroom***	***Beige painted plaster over gypsum board***	***<0.5% Actinolite Asbestos***
4584-AM	**Level 2, Washroom**	**Off-white joint compound**	**1-5% Chrysotile Asbestos**
4583-AM	***Level 2, Washroom***	***Thick white compound over sparkle plaster coat***	***<0.5% Actinolite Asbestos***
4590-AM	Level 2, Janitor Closet	Plaster on gypsum board	Non-asbestos

Sample #	Sample Location	Sample Type	Asbestos Present:
4588-AM	Level 2, Kitchen	Beige vinyl sheet flooring	Non-asbestos
4589-AM	Level 2, Kitchen	Black felt paper with red backing	Non-asbestos
4592-AM	Level 1, Men's Washroom	Beige painted plaster over gypsum	Non-asbestos
4591-AM	Level 1, Men's Washroom	Joint compound on wood panels	Non-asbestos
4594-AM	Level 1, Hallway	Drywall joint compound	Non-asbestos
4595-AM	Level 1, Women's Washroom	Beige painted plaster over gypsum	Non-asbestos
4597-AM	Level 1, Assembly Area Hallway	12" x 12" white rough texture ceiling tile	Non-asbestos
4598-AM	Level 1, Assembly Area Hallway	White painted plaster over gypsum	Non-asbestos
4599-AM	Level 1, Assembly Area Hallway	Drywall joint compound	Non-asbestos
4600-AM	Level 1, Washroom (Assembly Area)	Grey paint plaster over gypsum	Non-asbestos
4601-AM	Level 1, Washroom (Assembly Area)	White residual levelling compound	Non-asbestos
4602-AM	Level 1, Assembly Hall	Yellow adhesive pucks	Non-asbestos
4605-AM	Level 1, Daycare Area	12" x 12" pinhole ceiling tiles with dark brown adhesive pucks	Non-asbestos
4604-AM	**Level 1, Daycare Area**	**Drywall joint compound**	**1-5% Chrysotile Asbestos**
4606-AM	Level 1, Daycare Area	Drywall joint compound	Non-asbestos
4607-AM	**Level 1, Service Room**	**Residual mud insulation on exposed copper pipes**	**40-60% Chrysotile Asbestos**

3.1.1 Boiler Vessel and/or Tank Insulation

A John Wood domestic hot water tank was observed within the Service Room. Based on the age of the tank (2006), any insulating materials are considered non-asbestos.

3.1.2 Spray Applied Insulation

These materials were not observed within the scope of work area

3.1.3 Mechanical Pipe & System Insulation

Preformed compressed paper pipe insulation and mudded pipe elbow insulation was observed within the Service Room. Previous bulk sampling confirmed the compressed paper insulation to contain **70-90% Chrysotile Asbestos** and the mudded insulation to contain **60-80% Chrysotile Asbestos.**

Residual mud insulation was observed on previously abated pipe elbows. Bulk sample (4607-AM) of the residual mud was collected and submitted for laboratory analysis. The mud was determined to contain **40-60% Chrysotile Asbestos.**

Risk Assessment:

The above noted asbestos containing material (ACM) is friable and currently in fair-poor condition. Given the nature and condition of (ACM), the potential for risk to human health does exist.

3.1.4 Plaster and Skim Coat Wall and Ceiling Finishes

Plaster walls were observed throughout the scope of work area. All previous bulk sampling has determined to material to be non-asbestos. Additional bulk samples (4582-AM, 4583-AM, 4590-AM, 4592-AM, 4595-AM, 4598-AM, and 4600-AM) were collected within the scope of work area. Bulk samples collected from Level 2 (4582-AM and 4583-AM) were determined to contain ***<0.5% Actinolite Asbestos***. All other samples were determined to be non-asbestos.

Based on the ALARA principle, the Level 2 plaster materials are considered **asbestos-containing**.

Risk Assessment:

The above noted asbestos containing material (ACM) is friable and currently in good condition. Given the nature and condition of (ACM), the potential for risk to human health does not exist.

3.1.5 Stipple Texture Coat

These materials were not observed within the scope of work area

3.1.6 Drywall Wall and Ceiling Finishes

Mudded drywall walls and ceilings were observed sporadically throughout the building. Previous bulk sampling had determined the drywall mud within the Level 1 Storage Room and the ceiling of the Level 1 Daycare to contain **1-10% Chrysotile Asbestos.** Additional bulk samples (4584-AM, 4591-AM, 4594-AM, 4599-AM, 4604-AM, and 4606-AM) were collected within the scope of work area. Bulk sample (4584-AM) of the joint compound collected from the Level 2 Washroom, and sample (4604-AM) of the joint compound collected from the Level 1 Daycare ceiling were both determined to contain **1-5% Chrysotile Asbestos.** All other samples were determined to be non-asbestos.

These results indicate the presence of asbestos drywall inside of the project scope of work areas.

Risk Assessment:

The above noted asbestos containing material (ACM) is non-friable and currently in good condition. Given the nature and condition of (ACM), the potential for risk to human health does not exist.

3.1.7 Acoustic Ceiling Tiles

Two styles of 12" x 12" ceiling tiles were observed within the scope of work area. Bulk samples (4597-AM and 4605-AM) were collected and submitted for laboratory analysis. Both samples were determined to be non-asbestos.

3.1.8 Flooring Materials and Mastics

Vinyl floor tiles were observed throughout the building. Vinyl floor tiles were also observed to be concealed under newer flooring materials (linoleum, carpet, and other tiles).

Previous bulk sampling has determined the following vinyl floor tiles to be asbestos-containing:

- 9" x 9" beige (underlying black mastic also **asbestos-containing**)
- 9" x 9" tan
- 9" x 9" black
- 9" x 9" brown

Additional samples were collected throughout the scope of work area. Bulk sample (4581-AM) of 12" x 12" black and white vinyl floor tiles with black mastic was collected and submitted for laboratory analysis. The floor tile was determined to contain **1-5% Chrysotile Asbestos.** The mastic was determined to be non-asbestos.

Bulk sample (4588-AM) of the beige vinyl sheet flooring was collected from the Level 2 Kitchen and submitted for laboratory analysis. The material was determined to be non-asbestos.

Bulk sample (4589-AM) of a black felt paper layer under the beige vinyl sheet flooring was collected from the Level 2 Kitchen and submitted for laboratory analysis. The material was determined to be non-asbestos.

Risk Assessment:

The above noted asbestos containing materials (ACM) are non-friable and currently in fair-good condition. Given the nature and condition of (ACM) s, the potential for risk to human health does not exist.

3.1.9 HVAC System Mastics and Sealants

These materials were not observed within the scope of work area.

3.1.10 Fire Doors

Any door which is not a solid core wood door may be an asbestos-containing fire door, and as doors were not dismantled during this investigation, there may be additional doors which contain asbestos. Fire doors cannot be sampled while they are in use, as it requires the removal of required door hardware.

Risk Assessment:

The above noted asbestos containing materials (ACM) are friable and currently in good condition. Given the nature and condition of (ACM) s, the potential for risk to human health does not exist.

3.1.11 Bell & Spigot Pipe Housings & Packing Materials

This material was not observed within the scope of work area; however, they may be concealed behind wall and ceiling spaces. If bell and spigots are uncovered during renovation work, they are not to be disturbed until further investigation is completed to determine the presence of asbestos.

3.1.12 Miscellaneous Mastic, Caulk, and Sealant

Yellow adhesive pucks were observed behind 12" x 12" ceiling tiles. Bulk sample (4602-AM) of the adhesive was collected from the Level 1 Assembly Hall and submitted for laboratory analysis. The material was determined to be non-asbestos.

3.1.13 Miscellaneous Materials

Electrical panels and switches were observed in mechanical rooms and each unit. These electrical panels/boxes were observed to consist of arc-insulation pads, which were presumed to be **asbestos-containing.**

Risk Assessment:

The above noted asbestos containing materials (ACM) are non-friable and currently in good-fair condition. Given the nature and condition of (ACM) s, the potential for risk to human health does not exist.

3.1.14 Exterior Wall Materials

Exterior building components were not assessed during this investigation.

3.1.15 Vermiculite Fill Insulation

Cinderblock walls were observed within throughout the building. These walls were investigated and were confirmed to have no vermiculite fill insulation material present.

3.1.16 Roofing Materials

The roofing materials were not assessed during this investigation.

3.1.17 Contaminated Spaces

Contaminated Spaces are not considered present in the surveyed areas.

3.1.18 Other Asbestos Materials

Other asbestos-containing materials may be present that were not identified in this survey due to the limitations as specified in our proposal. These may include, but are not limited to: gaskets in mechanical systems (including HVAC and plumbing), electrical system wiring and equipment, or any other possible concealed materials.

Refer to Appendix B for laboratory results of suspect materials.

3.2 Lead

WorkSafeBC has designated lead as an ALARA substance. This means that exposures to this material must be kept "as low as reasonably achievable". Lead coatings and materials should always be managed at the lowest levels possible regardless of the lead concentration in the surface paint or coating.

A total of five (5) bulk samples were submitted for laboratory analysis, with five (5) samples determined to be lead-containing paints/coatings.

Table 2 outlines a summary of bulk samples collected and analyzed for the presence of Lead (Pb) concentration

Sample #	Sample Location	Sample Type	Concentration (mg/kg)
4585-AM	Level 2, Janitor Closet	Green paint on plaster	**217**
4586-AM	Level 2, Washroom	Beige paint on gypsum board	**2210**
4587-AM	Level 2, Dumb Waiter Shaft	Yellow paint on metal door frame	**2360**
4593-AM	Level 1, Men's Washroom	Green ceramic tile	**2560**
4596-AM	Level 1, Women's Washroom	Peach ceramic tile	**141**

New paint material was observed to be applied overtop older/original paint coats at various locations on the interior and exterior of the building.

3.2.1 Floors, Walls, and Ceilings

Drywall and plaster walls throughout the building were observed to have various layers of paint coatings.

Bulk sample (4586-AM) of beige paint on gypsum board was collected from the Level 2 Washroom and submitted for laboratory analysis.

The beige paint was determined to contain **2210 mg/kg of Lead**.

Bulk sample (4585-AM) of green paint on plaster was collected from the Level 2 Janitor's Closet and submitted for laboratory analysis.

The green paint was determined to contain **217 mg/kg of Lead.**

3.2.2 Miscellaneous

Yellow paint was observed on the metal door frame of the Dumb Waiter Shaft. Bulk sample (4587-AM) of the paint was collected and submitted for laboratory analysis.

The yellow paint was determined to contain **2360 mg/kg of Lead.**

Green ceramic tiles were observed within the Level 1 Men's Washroom. Bulk sample (4593-AM) was collected and submitted for laboratory analysis.

The green ceramic tile was determined to contain **2560 mg/kg of Lead.**

Peach ceramic tiles were observed within the Level 1 Women's Washroom. Bulk sample (4596-AM) was collected and submitted for laboratory analysis.

The peach ceramic tile was determined to contain **141 mg/kg of Lead.**

3.2.3 Miscellaneous Lead Products

Lead is assumed (unless otherwise sample) present in the cast iron rain water and sanitary lines housings; rooftop pipe jackets, wiring connectors, fibre optic cable sheathing, grounding conductors, solder; and glazing on ceramic tiles.

3.3 Mould

Localized mould growth was observed at the base of the Level 2 Washroom drywall wall beneath the baseboard. This may have been caused from a water pipe leak or toilet overflow.

Furthermore, mould may be present within wall and ceiling cavities that were not visually accessible.

3.4 Other Hazardous Substances

3.4.1 Animal Droppings and Carcasses

Various diseases (e.g. Hantavirus, histoplasmosis) and fungi are associated with different types of animal waste, especially avian and rodent waste.

Minor rodent dropping contamination was observed above drywall and T-bar ceilings and throughout vacated units.

3.4.2 Crystalline Silica

The concrete, plaster, cinderblock, and drywall surfaces within the subject building are sources of silica-containing materials identified during the building inspection.

3.4.3 Fiberglass Products

This material was observed throughout the subject survey area.

3.4.4 Heavy Metals, Toxic, Flammable, Explosive, or Controlled Products

Miscellaneous maintenance chemicals, oils, lubricants and paints were observed to be stored on shelves and flooring within janitor closets and mechanical room.

3.4.5 Mercury Containing Materials

Mercury is considered a hazardous substance, and any maintenance or abatement must be in compliance with the Canada Labour Code – Part TI. Under the Canada Labour Code, the Canadian Occupational Safety and Health Regulations Part X – Hazardous Substances would be applicable to mercury.

Wall-mounted thermostats were identified within many units. Fluorescent light tubes are also known to contain mercury in varying quantities. Appropriate precautions should be taken when removing these thermostats and switches. Additionally, switches, relays and gauges may also contain mercury.

3.4.6 Needles and Sharps

These materials were not observed within the subject survey area.

3.4.7 Ozone Depleting Substances (ODS)

Chlorofluorocarbons (CFCs) are ozone depleting substances (ODS) and a type of halocarbon. ODS are regulated by the Canadian Environmental Protection Act under the Ozone-Depleting Substances Regulations 1998 SOR/99-7 and the Federal Halocarbon Regulations (FHR) SOR/99-225. Compounds that contain only chlorine, fluorine and carbon are called CFCs. The other main refrigerants are hydrochloroflucorocarbons (HCFCs), hydrofluorocarbons (HFCs) and the blends of fluorocarbons (designated by 'R').

Chlorofluorocarbons (CFCs) and ozone depleting substances (ODS) in the form of refrigerants were not observed within the scope of work area.

3.4.8 Polychlorinated Biphenyls (PCBs)

Materials containing PCBs in concentrations exceeding 50 mg/kg (parts per million-p.p.m) are regulated under federal (Canadian Environmental Protection Act) and provincial regulations and should be treated as PCB waste and must be stored and disposed of accordingly. Select fluorescent light fixtures within the building were assessed for the presence of PCB-containing ballasts. Due to the fact that not all light fixture ballasts were investigated within the building, PCB-containing light ballasts are considered to be present.

Transformer units were not observed within the scope of work areas.

3.4.9 Radioactive Materials

Americium is a silver-white, crystalline metal that is solid under normal conditions. All isotopes of americium are radioactive. The largest and most widespread use of Americium is as a component in household and industrial smoke detectors, where a small amount is used in an ionization chamber inside the detector.

Smoke detectors were observed present in various locations within the project scope of work area. These units may contain radioactive isotopes, and hence appropriate precautions should be taken during their removal.

3.4.10 Additional Substances

Other additional substances were not assessed as per the scope of work. Examples of such materials include, but are not limited to formaldehyde, acrylonitrile, arsenic, benzene, ethylene oxide, isocyanides, and vinyl chloride. However, compounds such as acrylonitrile and isocyanates are constituents of products, which have an accepted use in current building practices.

Refer to Appendix C for photo confirmation of the hazardous containing materials.

Refer to Appendix D for sample location drawings of all sampled materials.

4 Survey Limitations

4.1 Live Systems

Although limited destructive sampling was performed within the building, to a degree bulk sampling was restricted by factors such as budget and time constraints, and health and safety concerns. Mechanical systems including boilers and breaching, heat exchangers, and pipe may have concealed gaskets or mud/refractory insulation material, which were not sampled as part of this survey.

Additionally, all electrical systems were live at the time of the survey, and concealed gaskets, wiring, and or insulating arc pads may contain asbestos.

4.2 Inaccessible Spaces

All areas as identified by the scope of work drawings were accessed. The remaining areas of the building are not included within this report.

4.3 Occupied Areas

All areas were occupied at the time of sampling.

Only non-destructive/semi-destructive sampling techniques were employed within the areas to avoid potential contamination.

5 Recommendations for Management

Where a visual assessment or bulk sampling and subsequent laboratory analysis has determined that hazardous building materials may be present, no work that may disturb the material should proceed until a qualified Hazmat contractor has abated the material.

Any confirmed hazardous building materials should be labeled with appropriate hazard labels to prevent unauthorized disturbance of the materials. Site-specific hazardous building material awareness training should also be provided to any individuals involved in the demolition and site upgrade. The training should make the individuals aware of the hazards at the site and any responsive action which may be required if any of the materials are disturbed.

The hazardous materials identified by this report should be considered when developing a specification for the demolition and subsequent redevelopment of the site.

This hazard materials survey report does not constitute as being an acceptable scope of work suitable for a hazardous materials contractor bid. Prior to proceeding with any type of hazardous materials abatement work, a comprehensive specification package, designed by R.J. & Associates outlining the potential quantities and types of hazardous materials, along with the risk classification associated with the abatement of those materials, should be supplied to the bidding Contractors, when the project is issued for Tender.

Onsite monitoring should also be provided to ensure that the HazMat contractor follows acceptable environmental practices as set out in the applicable regulations, codes of practice, and procedures.

5.1 Asbestos

In order to alleviate the likelihood of possible exposure, all asbestos containing materials should be removed or incorporated into an Asbestos Management Program (AMP) until such time that all asbestos materials have been removed from the facility.

If a worker is or may be exposed to potentially harmful levels of asbestos, the employer must develop and implement an exposure control plan meeting the requirements of section 5.54 of the Regulation. The employer must also ensure that surveys and risk assessments on asbestos-containing materials are conducted by a qualified person. Specific procedures must be based upon the risk assessments.

A risk assessment must be conducted prior to the disturbance, repair, or removal of asbestos-containing materials. For each asbestos-containing material identified within the St. Augustine School building, a risk assessment was performed. Remedial action was then determined from the risk assessment and considering the following:

- Type and percentage of asbestos present, friability of the material,
- Condition of the material (good, poor, debris present, etc.),
- Accessibility (can workers reach or make contact with the material?),
- Presence in an air plenum, potential for worker exposure,
- Potential for occupant exposure, other potential hazards present,
- Risk rating or classification (e.g., low, moderate, or high risk) and rationale.

All units and numbers in the table below are estimates of visible suspected or confirmed asbestos containing materials at the time of inspection only.

Table 3 – Risk Assessment of confirmed ACMs present within the subject building.

ACM	Room # or Level	Friability	Accessibility	Condition of ACM	Percent (%) Concentration of ACM	Approx. Quantity	Overall Risk Rating
Drywall joint compound	Level 2 Washroom and Level 1 Daycare	No	Moderate-High	Good	1-5% Chrysotile		3
Plaster	Level 2	Yes	High	Good	<0.5% Actinolite		3
Vinyl Floor Tiles and mastic	Level 1 and 2 areas of the building	No	Moderate	Fair-Poor	1-5% Chrysotile		2
Hard mudded elbows and residual insulation	Level 1, Service Room	Yes	Low	Poor-Fair	40-60% Chrysotile		4
Compressed paper insulation	Level 1, Service Room	Yes	Low	Fair	70-90% Chrysotile	TBD	1
Fire Doors	Stairwells/ Mechanical Room	Yes	Low	Good	*Assumed Asbestos*	4	2
Electrical Arc Pads & Wiring	*Assumed within Electrical Room*	No	Low	Good	*Assumed Asbestos*	TBD	1

Any items in the above table highlighted in red are considered to pose the most risk of asbestos exposure towards occupants within the subject building. Abatement response action is recommended to resolve and eliminate these sources of asbestos exposure.

The condition of the asbestos containing materials are recorded at the time of inspection. Thus, the condition of all asbestos containing materials may have changed since the time of inspection.

Overall Risk Rating:

- ✓ *Level 1 – ACM is located within a low to moderate accessible space, in fair to good condition, non-friable; therefore, the risk posed towards human health does not exist.*
- ✓ *Level 2 – ACM is located within a moderate to high accessible space, in fair to poor condition and non-friable, or in good condition and friable, therefore the risk posed towards human health is considered to be low.*
- ✓ *Level 3 – ACM is located within a high accessible space, in good condition, friable; therefore, the risk posed towards human health is considered to be moderate.*
- ✓ *Level 4 – ACM is located within a low to moderate accessible space, in poor to fair condition, friable; therefore, the risk posed towards human health is considered to be moderate to high.*

Accessibility Classification:

- ✓ *Low – Service workers work in the vicinity of the ACM less than once per month. The ACM may be visible, but not within reach of building occupants.*

- ✓ *Moderate – Service workers work in the vicinity of the ACM once per month to once per week. The ACM is in a room or office accessible to the occupants.*
- ✓ *High –Service workers work in the vicinity of the ACM more than once per week. The ACM is in a public area (i.e., hallway, corridor, and auditorium) and is accessible to building occupants.*

Condition Classification:

- ✓ *Poor – ACM visibly disturbed and/or damaged with evidence of gross contamination surrounding the general area.*
- ✓ *Fair – ACM displaying slight disturbance and/or damage. No evidence of gross contamination.*
- ✓ *Good – ACM displaying no disturbance and/or damage. No evidence of gross contamination.*

Friable asbestos *means asbestos-containing material that is crumbled or powdered or can be crumbled or powdered by hand pressure, as defined under WorkSafeBC, "O.H. & Safety Regulations Section 6.1".*

In addition, any decisions regarding abatement of the materials must be forwarded in the form of N.O.P.A. (with site-specific work procedures-a proper exposure plan must be developed by a qualified person) to WorkSafeBC.

5.2 Lead

The disturbance of lead-based paints and other products should be controlled through use of safe work procedures. Work procedures must be developed in accordance with the requirements of WorkSafeBC, specifically but not limited to include those requirements prescribed through Parts 5.48-5.59 – Controlling Exposure, and Parts 6.59-6.69 – Lead and the new publication "Safe Work Practices for Handling Lead", Workers' Compensation Board of British Columbia, 2017 edition.

To determine remedial action (if any), a risk assessment was conducted that considered; the condition (such as peeling paint, deterioration or debris), friction impact (opening-closing doors and windows), building and occupant use and the proximity to any unprotected workers or occupants.

Table 4 - Risk Assessment of confirmed (L.B.P.) s present within the scope of work.

Lead Based Paints (L.B.P.s)				
Material Description / Location	Concentration (mg/kg)	Condition	Risk Level	Approx. Quantity
Beige paint on gypsum, Walls and ceilings throughout scope	**2210**	Fair	Moderate	TBD
Green paint on plaster, Walls and ceilings throughout scope	**217**	Fair	Moderate	TBD
Yellow paint on door frame, Dumb waiter shaft	**2360**	Good	Moderate	Two frames
4" x 4" green ceramic tiles, Level 1 Men's Washroom	**2560**	Good	Moderate	200 sqft
4" x 4" peach ceramic tiles, Level 1 Women's Washroom	**141**	Good	Moderate	200 sqft

Note: all above samples are considered to be lead-containing based on the WorkSafeBC established ALARA substance principle for lead paints and/or coatings.

Condition Classification:

- ✓ *Poor – Pb-containing material visibly disturbed and/or damaged with evidence of gross contamination (flaking paint) surrounding the general area.*
- ✓ *Fair – Pb-containing material displaying slight disturbance and/or damage. Cracks in paint, water damaged. No evidence of gross contamination.*
- ✓ *Good – Pb-containing material displaying no disturbance and/or damage. No evidence of gross contamination.*

The conditions of lead based paints (L.B.P.) are recorded at the time of inspection. Thus, the condition of the lead based paints may have changed since the time of inspection.

If removal is necessary, any decisions regarding abatement of the materials must be forwarded in the form of N.O.P.L., (a proper exposure plan must be developed by a qualified person with site-specific work procedures) to WorkSafeBC.

Under the Hazardous Products Act, identified Lead Based Paint (L.B.P.) must undergo Toxicity Characteristic Leachate Properties (T.C.L.P.) to determine disposal procedures. The acceptable (T.C.L.P.) limit for disposal of (L.B.P.) is less than 5 mg/L (5 p.p.m). If an identified (L.B.P.) exhibits a (T.C.L.P.) result of less than 5 p.p.m, the paint is not considered a hazardous material and may be disposed of as construction waste.

To protect any personnel conducting activities in the described area from exposure to Lead Based Paints (L.B.P.), [R.J. & A.] recommends;

- ✓ Should the materials be left in the building, they should be labeled appropriately in order to prevent accidental disturbance, and routinely inspected as part of a functioning Hazardous Materials Management Plan.
- ✓ Flaking and peeling paints in particular represent a potential exposure source to lead containing dusts and should be decontaminated and clean-up appropriately.

5.3 Mould

Mould growth and water staining was observed on drywall walls, behind baseboards. Furthermore, mould may be present within wall and ceiling cavities that were not visually accessible.

To protect any personnel conducting activities in the described area from exposure to microbiological growth (Mould), [R.J. & A.] recommends;

- ✓ Based on our visual assessment during this investigation, the likelihood of large scale mould remediation is considered "low".

There are no specific standards in Canada regulating exposure to mould; however, according to Health Canada (refer to Appendix A) building material supporting microbiological growth must be remediated as rapidly as possible in order to ensure a healthy environment. It is general practice, based on current evidence, to remediate indoor sources conducive to mould and fungi growth before any renovation occurs.

5.4 Other Hazardous Substances

5.4.1 Crystalline Silica (Silica-Containing Materials)

The concrete, plaster, cinderblock, and drywall surfaces within the subject building are sources of silica-containing materials identified during the building inspection. [R.J. & A.] recommends;

- ✓ In the event of disturbance or demolition of the identified silica-containing materials, a silica exposure control plan is required by WorkSafeBC Occupational Health & Safety Regulations.

5.4.2 Fiberglass Insulation Products

Fiberglass insulation was observed on mechanical systems within surveyed area. Refer to WorkSafeBC Occupational Health and Safety Regulation, Part 5: Table 5-4. The materials should be in a well-ventilated area.

To protect any personnel conducting activities in the described area from exposure to Fiberglass Insulation Products, [R.J. & A.] recommends;

- ✓ Materials should be kept dry and should be protected from physical damage to avoid the spread of fibrous glass particles.

5.4.3 Heavy Metals, Toxic, Flammable, Explosive, or Controlled Products

Miscellaneous maintenance chemicals, oils, lubricants and paints were observed to be stored on shelves and floor within Janitor Closets and Mechanical Room. Items stored on the floor should be placed inside preventative spill containers or totes. Rooms used for control products storage are to be well ventilated in order to prevent gas or vapour build-up inside the storage space.

5.4.4 Mercury Containing Materials

Wall-mounted thermostats were observed throughout the building and confirmed to have **mercury-containing** vial(s) in their control mechanisms. Fluorescent light tubes are also known to contain mercury in varying quantities. To protect any personnel conducting activities in the described area from exposure to mercury containing items, [R.J. & A.] recommends;

- ✓ If renovation or demolition exposes workers to mercury, proper handling procedures should be developed that includes, appropriate personal protective equipment, storage and handling requirements, identification and personnel training.
- ✓ If the mercury containing items are to remain in the building, maintenance staff should be made aware of the locations in the building, and instructed not to disturb them. If disturbance is necessary, proper exposure plan must be developed by a qualified person.
- ✓ When disposing of liquid mercury, it is classified as a Special Waste under the Waste Management Act. Hence should be disposed of in accordance with local regulations.

5.4.5 Polychlorinated Biphenyls (PCBs)

Due to the fact that all light fixture ballasts were not investigated within the building, PCB-containing light ballasts are considered to be present. Transformer units were not sampled as part of this investigation and are considered to have PCB-containing oils. To protect any personnel conducting activities in the described area from exposure to Polychlorinated Biphenyls (PCBs), [R.J. & A.] recommends;

- ✓ Once light fixtures and/or transformer units have been de-energize, a hazardous materials abatement contractor following procedures outlined in the project specifications can dismantle these items. A determination can be made once the ballasts are exposed, whether or not they contain PCB's. Oils within transformer units should be sampled by the abatement consultant to determined PCB concentrations prior to offsite disposal.

- ✓ PCB-containing ballasts must be disposed of following procedures outlined in the project specifications.

5.4.6 Radioactive Materials

Smoke detectors were observed present inside units and common areas of the building, these units may contain radioactive isotopes. To protect any personnel conducting activities in the described area from exposure to radioactive materials, [R.J. & A.] recommends;

- ✓ Equipment identified to contain radioactive materials should be stored, transported and disposed of in accordance with the requirements of WorkSafeBC and the Atomic Energy Control Act, as outlined in the Atomic Energy Control Regulations.

5.4.7 Additional Substances

Other additional substances were not assessed as per the scope of work.

5.5 Regulatory Requirements for Abatement of Hazardous Materials

Notification in the form of a Notice of Project for Asbestos (NOPA) and/or Lead (NOPL) must be submitted to WorkSafeBC a minimum of 48 hours prior to commencement of abatement work. In conjunction with the NOPA/NOPL the contractor must submit a hazardous materials assessment report, site-specific risk assessment and exposure control plan with safe work procedures.

In the event that the demolition or further renovation outside of the area described in the scope of work is proposed, additional sampling will be required to comply with WorkSafeBC OH&S Regulation Part 20: "Construction, Excavation and Demolition" specifically Section 20.112 subsections (a), (b), (c) and (d).

To comply with Part 6 of the WorkSafeBC OH&S Regulation, specifically Section 6.32 pertaining to documentation, the City of Vancouver should acquire copies of the abatement contractor's NOPA/NOPL, abatement procedures, any air monitoring results and all documentation submitted to WorkSafeBC. These documents are required to be maintained for a period of 10 years.

Note that if an abatement contractor is hired to conduct work, they must not list *R.J. & Associates* as the consultant on their NOP-A/NOP-L and abatement procedures unless *R.J. & Associates* is actually engaged as the consultant during the abatement phase. If *R.J. & Associates* is engaged solely as the air monitoring agency, then this distinction must be clearly indicated.

6 Closure

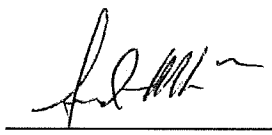
Subject to the following conditions and limitations, the investigation described in this report has been conducted in a manner consistent with adequate levels of care and skill normally exercised by members of the Health, Safety, and Environmental consulting profession currently practicing under similar conditions in the area. The investigation described in this report has been limited to the scope of work described in our contract. The scope of the investigation has been reasonable having regard for the budget constraint. The taking of samples at the site was consistent with the scope of work described in our contract; the budget for the investigation, and the information obtained concerning prior site use. Since the conditions between samples may vary, the potential remains for the presence of unknown additional contaminants.

The testing for, and analysis of compounds and materials at the site has been limited to those compounds and materials set out in our contract. Other compounds or materials not tested could be present at the site. The investigation described in this report has been made in the context of existing government regulations generally promulgated at the date of this report. The investigations did not take account of any government regulations not in effect or not generally promulgated at the date of this project. The investigation described in this report has relied upon information provided by third parties concerning the history of the site and on test results and analyses provided by independent laboratories and testing services. Except as stated in this report, we have not made an independent verification of such historical information or test results and analyses.

Where indicated, or implied in this report, or where mandated by the condition of the site and its attendant structures, the conclusions of this report are based on visual observation of the site. The conclusions of this report do not apply to any areas of the site not available for inspections. If new information is developed in future work (which may include additional sampling, testing or other investigations), [R.J. & A] should be requested to reevaluate the findings in this report, and to provide amendments as required.

This report is intended for the exclusive use of the City of Vancouver. It may not be used or relied upon in any manner whatsoever, or for any purpose whatsoever, by any other party. [R.J. & A.] makes no representation of fact or opinion of any nature whatsoever to any person or entity other than the City of Vancouver to whom this report is addressed. Any use which a third party makes of this report, or any reliance on or decisions to be made or actions based on it, are the responsibility of such third parties.

[R.J. & A.] accepts no responsibility for damages, if any suffered by a third party as a result of decisions made or actions based on this report. This report is intended solely as a reference document and cannot be used as part of a specification or tender package.



Andrew Marshall
Project Manager

R.J. & Associates Environmental Consulting

Appendix A – References

Occupational Health & Safety Regulation – BC Regulation 296/97, as amended by BC regulation 185/99, 253/2001 and 9/2017. Safe Work Practices for Handling Asbestos [1996], WorkSafeBC, 2017 Edition.

Safe Work Practices for Handling Lead, Workers' Compensation Board of British Columbia, 2017 edition & Hazardous Products Act, Surface Coating Materials Regulations, Government of Canada, April 19, 2005.

"Fungal Contamination in Public Buildings: Heath Effects and Investigation Methods", Federal-Provincial Committee on Environmental and Occupational Health, 2004;

"Bioaerosols: Assessment and Control", American Conference of Governmental Industrial Hygienists (ACGIH), 1999 (referred to as the ACGIH Report);

"Indoor Air Quality – A Guide for Building Owners, Operators, and Managers", WorkSafeBC, 2005 edition;

"ASHRAE Standard 62-2001, Ventilation for Acceptable Air Quality", 2001.

Canada Labour Code – Part II, July 2000. Transportation of Dangerous Goods Regulations, Transport Canada, 1985, amended September 1, 1998.

Special Waste Legislation Guide, BC Environment, May 1992. Environment Canada reference guide entitled "Identification of Lamp Ballasts Containing PCBs, Report EPS 2/CC/2, August 1991".

The Environment Management Act (EMA) applies to the disposal of all wastes within provincial jurisdiction and is enforced by the BC Ministry of Environment (MoE).

AHERA Procedures—United States Code of Federal Regulations (CFR) Part 40 Section 786.86

Regulations Specific to Asbestos & Lead Exposure, Management, and Abatement

Applicable to:	Regulation or Document	Applicable Sections	Regulation or Document Author
Building Occupant/ Owner	Occupational Health & Safety Regulation	Part 6, Sections 6.1-6.32-Table 5-4, Section 20.112	WorkSafeBC
Building Occupant (Federal)	Canada Labour Code Part II, Canada Occupational Health and Safety Regulations	Section 10	Human Resources Development Canada
Asbestos & Lead Abatement Worker	Occupational Health & Safety Regulation	Part 6, Sections 6.1-6.32-Table 5-4	WorkSafeBC
Asbestos Abatement Worker	Safe Work Practices for Handling Asbestos	All	WorkSafeBC
Lead Abatement Worker	Safe Work Practices for Handling Lead	All	WorkSafeBC

Appendix B – Bulk Sample Laboratory Results

Asbestos Analytical Services Ltd.
7 - 2883 East Kent Avenue N., Vancouver, BC, V5S 3T9

ASBESTOS ANALYSIS REPORT

Project Location: Saint James Community Square, 3214 West 10th Avenue, Vancouver, BC
Reference #s: RH180815-01AM, RCC180816-01AM
Number of Samples: 21

AASL Report #: **B02291**
Analyst: Gabrielle Sutton
Report Date: 21AUG2018
Method: NIOSH Method 9002

# B02291	Sample	Sub-Sample	Sample Description / Location	Results	ASB
1. 1 **	**4581-AM**	Layer 1 - light grey tile	Black and White 12"x12" Vinyl Tiles with Black Mastic on Plywood, Floor, Entry Hallway, Level 2	1 - 5 % Chrysotile Asbestos > 95 % Non-Fibrous	T
1. 2	4581-AM	Layer 2 - black mastic	Black and White 12"x12" Vinyl Tiles with Black Mastic on Plywood, Floor, Entry Hallway, Level 2	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
2. 1	**4582-AM**	Layer 1 - thin yellow-beige / pale blue (paint)	Beige Painted Plaster over Gypsum Board, South Wall, Washroom, Level 2	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
2. 2 *	4582-AM	Layer 2 - white, hard	Beige Painted Plaster over Gypsum Board, South Wall, Washroom, Level 2	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
2. 3 * §	4582-AM	Layer 3 - grey-beige cementitious	Beige Painted Plaster over Gypsum Board, South Wall, Washroom, Level 2	< 0.5 % Actinolite Asbestos 0.5 - 1 % Cellulose Fibres > 99 % Non-Fibrous	T
3. 1	**4584-AM**	Layer 1 - thin beige (paint)	Beige Painted Off-White Compound on White Hard Gypsum Board, North Wall, Washroom, Level 2	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
3. 2	4584-AM	Layer 2 - off-white	Beige Painted Off-White Compound on White Hard Gypsum Board, North Wall, Washroom, Level 2	1 - 5 % Chrysotile Asbestos > 95 % Non-Fibrous	T
3. 3	4584-AM	Layer 3 - beige fibrous	Beige Painted Off-White Compound on White Hard Gypsum Board, North Wall, Washroom, Level 2	Asbestos Fibres Not Detected 90 - 100 % Cellulose Fibres > 1 % Non-Fibrous	---
4. 1	**4583-AM**	Layer 1 - thin light grey (paint)	Thick White Compound over Sparkle Plaster Coat, West and East Walls, Washroom, Level 2	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
4. 2 *	4583-AM	Layer 2 - white, hard	Thick White Compound over Sparkle Plaster Coat, West and East Walls, Washroom, Level 2	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
4. 3 * §	4583-AM	Layer 3 - grey-beige cementitious	Thick White Compound over Sparkle Plaster Coat, West and East Walls, Washroom, Level 2	< 0.5 % Actinolite Asbestos 0.5 - 1 % Cellulose Fibres > 99 % Non-Fibrous	T
5. 1	**4590-AM**	Layer 1 - thin light olive (paint)	Green Painted Plaster on Gypsum Board, Wall, Janitor Closet, Level 2	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
5. 2 *	4590-AM	Layer 2 - white, hard	Green Painted Plaster on Gypsum Board, Wall, Janitor Closet, Level 2	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
5. 3 * §§	4590-AM	Layer 3 - grey-beige cementitious	Green Painted Plaster on Gypsum Board, Wall, Janitor Closet, Level 2	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
6 **	**4588-AM**	Single Phase - beige tile, pliable	Beige Vinyl Sheet Flooring, Floor, Kitchen, Level 2	Asbestos Fibres Not Detected 30 - 50 % Cellulose Fibres > 50 % Non-Fibrous	---
7 **	**4589-AM**	Single Phase - black-brown fibrous	Black Felt Paper with Red Backing, Floor, Kitchen, Level 2	Asbestos Fibres Not Detected 40 - 60 % Cellulose Fibres 1 - 10 % Synthetic Fibres 1 - 10 % Animal Hair 1 - 5 % Fibrous Glass > 25 % Non-Fibrous	---

# B02291	Sample	Sub-Sample	Sample Description / Location	Results	ASB
8. 1	**4592-AM**	Layer 1 - thin light beige / beige / yellow / light green (paint)	Beige Painted Plaster over Gypsum Board, Wall, Men's Washroom, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
8. 2 *	4592-AM	Layer 2 - white, hard	Beige Painted Plaster over Gypsum Board, Wall, Men's Washroom, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
8. 3 *	4592-AM	Layer 3 - light grey cementitious	Beige Painted Plaster over Gypsum Board, Wall, Men's Washroom, Level 1	Asbestos Fibres Not Detected 1 - 5 % Cellulose Fibres > 95 % Non-Fibrous	---
9. 1	**4591-AM**	Layer 1 - thin light beige / white (paint)	Wall Panel on Bottom of Drywall Wall with Mudded Joint Compound, East Wall, Men's Washroom, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
9. 2	4591-AM	Layer 2 - white	Wall Panel on Bottom of Drywall Wall with Mudded Joint Compound, East Wall, Men's Washroom, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
9. 3	4591-AM	Layer 3 - weave strands	Wall Panel on Bottom of Drywall Wall with Mudded Joint Compound, East Wall, Men's Washroom, Level 1	Asbestos Fibres Not Detected 70 - 90 % Fibrous Glass > 15 % Non-Fibrous	---
9. 4	4591-AM	Layer 4 - beige fibrous	Wall Panel on Bottom of Drywall Wall with Mudded Joint Compound, East Wall, Men's Washroom, Level 1	Asbestos Fibres Not Detected 90 - 100 % Cellulose Fibres > 1 % Non-Fibrous	---
10. 1	**4594-AM**	Layer 1 - thin white (paint)	White Painted Mudded Drywall at Double Door Opening, Wall, Hallway, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
10. 2	4594-AM	Layer 2 - white	White Painted Mudded Drywall at Double Door Opening, Wall, Hallway, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
10. 3	4594-AM	Layer 3 - beige fibrous	White Painted Mudded Drywall at Double Door Opening, Wall, Hallway, Level 1	Asbestos Fibres Not Detected 90 - 100 % Cellulose Fibres > 1 % Non-Fibrous	---
11. 1	**4595-AM**	Layer 1 - thin light beige / white / dark peach / light peach / yellow (paint)	Beige Painted Plaster over Gypsum Board, Wall, Women's Washroom, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
11. 2 *	4595-AM	Layer 2 - white, hard	Beige Painted Plaster over Gypsum Board, Wall, Women's Washroom, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
11. 3 *	4595-AM	Layer 3 - light grey cementitious	Beige Painted Plaster over Gypsum Board, Wall, Women's Washroom, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
12	**4597-AM**	Single Phase - off-white fibrous	12"x12" White Rough Texture Ceiling Tile, Ceiling, Assembly Area Hallway, Level 1	Asbestos Fibres Not Detected 60 - 80 % Fibrous Glass > 25 % Non-Fibrous	---
13. 1	**4598-AM**	Layer 1 - thin pale grey / yellow / green (paint)	White Painted Plaster over Gypsum Board, West and North Walls, Assembly Area Hallway, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
13. 2 *	4598-AM	Layer 2 - white, hard	White Painted Plaster over Gypsum Board, West and North Walls, Assembly Area Hallway, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
13. 3 *	4598-AM	Layer 3 - grey cementitious	White Painted Plaster over Gypsum Board, West and North Walls, Assembly Area Hallway, Level 1	Asbestos Fibres Not Detected 1 - 5 % Cellulose Fibres > 95 % Non-Fibrous	---

# B02291	Sample	Sub-Sample	Sample Description / Location	Results	ASB
14. 1	**4599-AM**	Layer 1 - thin off-white (paint)	White Painted Mudded Drywall, Drop-Ceiling Area, Ceiling, Assembly Area Hallway, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
14. 2	4599-AM	Layer 2 - white	White Painted Mudded Drywall, Drop-Ceiling Area, Ceiling, Assembly Area Hallway, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
14. 3	4599-AM	Layer 3 - cream fibrous	White Painted Mudded Drywall, Drop-Ceiling Area, Ceiling, Assembly Area Hallway, Level 1	Asbestos Fibres Not Detected 90 - 100 % Cellulose Fibres > 1 % Non-Fibrous	---
15. 1	**4600-AM**	Layer 1 - thin light grey / yellow / light blue (paint)	Grey Painted Plaster over Gypsum Board, Wall, Washroom in Assembly Area, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
15. 2 *	4600-AM	Layer 2 - white, hard	Grey Painted Plaster over Gypsum Board, Wall, Washroom in Assembly Area, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
15. 3 *	4600-AM	Layer 3 - grey cementitious	Grey Painted Plaster over Gypsum Board, Wall, Washroom in Assembly Area, Level 1	Asbestos Fibres Not Detected 1 - 5 % Cellulose Fibres > 95 % Non-Fibrous	---
16. 1 **	**4601-AM**	Layer 1 - beige glue	White Residual Leveling Compound, Floor, Washroom in Assembly Area, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
16. 2 **	4601-AM	Layer 2 - off-white, hard	White Residual Leveling Compound, Floor, Washroom in Assembly Area, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
17 **	**4602-AM**	Single Phase - yellow mastic	Yellow Adhesive Pucks, Ceiling, Assembly Hall, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
18. 1 **	**4605-AM**	Layer 1 - orange-beige fibrous	12"x12" Pinhole Ceiling Tile with Dark Brown Adhesive Pucks, Ceiling, Daycare Area, Level 1	Asbestos Fibres Not Detected 60 - 80 % Cellulose Fibres 10 - 20 % Fibrous Glass > 5 % Non-Fibrous	---
18. 2 **	4605-AM	Layer 2 - dark brown mastic	12"x12" Pinhole Ceiling Tile with Dark Brown Adhesive Pucks, Ceiling, Daycare Area, Level 1	Asbestos Fibres Not Detected 1 - 5 % Talc Fibres > 95 % Non-Fibrous	---
19. 1	**4604-AM**	Layer 1 - thin beige / white / pink / white / yellow / pink (paint)	Yellow Painted Mudded Drywall, Ceiling, Daycare Area, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
19. 2	4604-AM	Layer 2 - off-white	Yellow Painted Mudded Drywall, Ceiling, Daycare Area, Level 1	1 - 5 % Chrysotile Asbestos > 95 % Non-Fibrous	T
19. 3	4604-AM	Layer 3 - pale beige, hard	Yellow Painted Mudded Drywall, Ceiling, Daycare Area, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
19. 4	4604-AM	Layer 4 - beige fibrous	Yellow Painted Mudded Drywall, Ceiling, Daycare Area, Level 1	Asbestos Fibres Not Detected 90 - 100 % Cellulose Fibres > 1 % Non-Fibrous	---
20. 1	**4606-AM**	Layer 1 - thin light beige / teal / white / cream / dark orange / light pink / pale blue (paint)	Beige Painted Mudded Drywall, Wall, Daycare Area, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---
20. 2	4606-AM	Layer 2 - pale beige, hard	Beige Painted Mudded Drywall, Wall, Daycare Area, Level 1	Asbestos Fibres Not Detected 90 - 100 % Non-Fibrous	---

# B02291	Sample	Sub-Sample	Sample Description / Location	Results	ASB
21	**4607-AM**	Single Phase - grey fibrous	Residual Mud Insulation on Exposed Copper Pipes from DHWT, Ceiling, Service Room, Level 1	40 - 60 % Chrysotile Asbestos 1 - 5 % Fibrous Glass > 40 % Non-Fibrous	T

Comments

Samples analyzed in accordance with NIOSH Laboratory Method 9002
American Industrial Hygiene Association (AIHA) BAPAT Program Laboratory Number 204301
Estimated Limit of Detection is <0.5 %
ASB = Asbestos present/absent in material
T = Asbestos Present
AASL Asbestos Analytical Services Ltd. will not accept any responsibility as to the manner of interpretation or application of these results.

* Sample preparation included grinding process.
** Sample preparation included ashing process.

§ Samples B02291-2, and -4 (# 4582-AM, 4583-AM) contain trace (<0.5%) amounts of fibrous material determined to be actinolite asbestos. The actinolite asbestos is associated with the vermiculite component present in this material. Vermiculite comprises approximately 30% of the sample material.

§§ Sample B02291-5 (# 4590-AM) contains a vermiculite component, which comprises approximately 30% of the sample material. This material is consistent with that present in other similar plaster samples (see samples B02291-2 and -4). However, the amount of this material present in this sample is small and may not be representative. Vermiculite commonly has variable trace amounts of actinolite asbestos present as an associated trace mineral, however this sample was thoroughly examined for the presence of asbestos, and no asbestos was detected.

Analyst: *Original Signed By*
Gabrielle Sutton, B.A.
Date: August 21, 2018

Original Signed By
Reviewed By: Gabrielle Sutton, B.A.

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: 180724-01HY ST. JAMES
Site Location: 3214 W. 10TH AVENUE, VANCOUVER
Your C.O.C. #: 08456300

Attention: REPORT DISTRIBUTION LIST

R.J. & Associates Environmental
407-604 Columbia St.
New Westminster, BC
Canada V3M 1A5

Report Date: 2018/08/21
Report #: R2607004
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B869487
Received: 2018/08/16, 15:30

Sample Matrix: Paint
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Elements by ICP-AES (acid extr. solid)	3	2018/08/20	2018/08/20	BBY7SOP-00018	EPA 6010c R3 m

Sample Matrix: Solid
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Elements by ICP-AES (acid extr. solid)	1	2018/08/20	2018/08/20	BBY7SOP-00018	EPA 6010c R3 m
Elements by ICP-AES (acid extr. solid)	1	2018/08/20	2018/08/21	BBY7SOP-00018	EPA 6010c R3 m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. Maxxam is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Your Project #: 180724-01HY ST. JAMES
Site Location: 3214 W. 10TH AVENUE, VANCOUVER
Your C.O.C. #: 08456300

Attention: REPORT DISTRIBUTION LIST

R.J. & Associates Environmental
407-604 Columbia St.
New Westminster, BC
Canada V3M 1A5

Report Date: 2018/08/21
Report #: R2607004
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B869487
Received: 2018/08/16, 15:30

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Tanya Eugine, M.Sc., Project Manager
Email: TEugine@maxxam.ca
Phone# (604)639-2609

==========

This report has been generated and distributed using a secure automated process.
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B869487
Report Date: 2018/08/21

R.J. & Associates Environmental
Client Project #: 180724-01HY ST. JAMES
Site Location: 3214 W. 10TH AVENUE, VANCOUVER
Sampler Initials: AM

ELEMENTS BY ATOMIC SPECTROSCOPY (SOLID)

Maxxam ID		UC2823	UC2824		
Sampling Date		2018/08/15	2018/08/15		
COC Number		08456300	08456300		
	UNITS	4593-AM GREEN CERAMINC TILE	4596-AM PEACH CERAMIC TILE	RDL	QC Batch
Total Metals by ICP					
Total Lead (Pb)	mg/kg	2560 (1)	141	2.0	9109581

RDL = Reportable Detection Limit
(1) Duplicate RPD above control limit - Non-homogenous sample - Increased variability of results.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B869487
Report Date: 2018/08/21

R.J. & Associates Environmental
Client Project #: 180724-01HY ST. JAMES
Site Location: 3214 W. 10TH AVENUE, VANCOUVER
Sampler Initials: AM

LEAD IN PAINT CHIPS (PAINT)

Maxxam ID		UC2820	UC2821	UC2822		
Sampling Date		2018/08/15	2018/08/15	2018/08/15		
COC Number		08456300	08456300	08456300		
	UNITS	4585-AM GREEN PAINT ON PLASTER	4586-AM BEIGE PAINT ON DRYWALL	4587-AM YELLOW PAINT ON METAL	RDL	QC Batch
Total Metals by ICP						
Total Lead (Pb)	mg/kg	217	2210	2360	2.0	9109581
RDL = Reportable Detection Limit						

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B869487
Report Date: 2018/08/21

R.J. & Associates Environmental
Client Project #: 180724-01HY ST. JAMES
Site Location: 3214 W. 10TH AVENUE, VANCOUVER
Sampler Initials: AM

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B869487
Report Date: 2018/08/21

QUALITY ASSURANCE REPORT

R.J. & Associates Environmental
Client Project #: 180724-01HY ST. JAMES
Site Location: 3214 W. 10TH AVENUE, VANCOUVER
Sampler Initials: AM

			Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9109581	Total Lead (Pb)	2018/08/21	ND, RDL=2.0	mg/kg	56 (1)	40	106	85 - 115

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

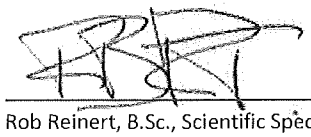
Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B869487
Report Date: 2018/08/21

R.J. & Associates Environmental
Client Project #: 180724-01HY ST. JAMES
Site Location: 3214 W. 10TH AVENUE, VANCOUVER
Sampler Initials: AM

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Rob Reinert, B.Sc., Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Analytics Inc

Burnaby: 4606 Canada W... 731-2386. Toll Free: (800) 665-8566

CHAIN OF CUSTODY RECORD

Max B869487_COC

Click here to get the COC number

COC #: 08456300

Page: ___ of ___

Invoice To: Require Report? Yes ☐ No ☐

Company Name:	RJ & Associates	Company Name:	SAME
Contact Name:	Andrew Marshall	Contact Name:	SAME
Address:	#407 604 Columbia	Address:	SAME
	New Westminster, BC PC:		SAME PC:
Phone / Fax#:	Ph: 604-629-5984 Fax: 604-821-0455	Phone / Fax#:	Ph: SAME Fax:
E-mail	amarshall@rjenvironmental.ca	E-mail	

PO #:
Quotation #:
Project #: 180724-01HY
Proj. Name: St. James Community Square
Location: 3214 W.10th Avenue, Vancouver
Sampled by: AM

REGULATORY REQUIREMENTS:

- ☐ CSR
- ☐ CCME
- ☐ BC Water Quality
- ☐ Other ______
- ☐ DRINKING WATER

SERVICE REQUESTED:

- ☑ Regular Turn Around Time (TAT) (5 days for most tests)
- ☐ RUSH (Please contact the lab) ☐ 1 Day ☐ 2 Day ☐ 3 Day
- Date Required: August 24

SPECIAL INSTRUCTIONS:

Return Cooler ☐ Ship Sample Bottles (please specify) ☐

please report in mg/kg

ANALYSIS REQUESTED

#	Sample Identification	Lab Identification (Lab Use Only)	Sample Type	Date/Time(24hr) Sampled	BTEX/VPH ☐ MTBE ☐	VOC/VPH ☐	EPH ☐ TEH ☐	PAH ☐ LEPH/HEPH ☐	CCME-PHC (Fractions 1-4 Plus BTEX) ☐	CCME-PHC (Fractions 2-4) ☐	CCME-PHC (Fraction 1 Plus BTEX) ☐	PCB ☐	Phenols by 4AAP ☐ Phenols by GCMS ☐	TOG ☐ MOG ☐ SMOG ☐	Dissolved Metals (DM) Field Filtered? Y☐ N☐	Field Acidified? Y☐ N☐	Total Metals Field Acidified? Y☐ N☐	Nitrate ☐ Nitrite ☐ Ammonia ☐	Chloride ☐ Fluoride ☐ Sulphate ☐	Total Suspended Solids (TSS) ☐ TDS ☐	pH ☐ Conductivity ☐ Alkalinity ☐	BOD ☐ COD ☐	Coliform: Total & E.coli ☐ Fecal ☐	Asbestos ☐	Pb in paint by ICP	Lead in bulk solid by ICP				HOLD ☐	Number of Containers	Samples are from a Drinking Water Source? YES ☐ NO ☐	Does source supply multiple households? YES ☐ NO ☐
1	4585-AM green paint on plaster		Paint Chips	15/8/18																					X								
2	4586-AM beige paint on drywall		Paint Chips	15/8/18																					X								
3	4587-AM yellow paint on metal		Paint Chips	15/8/18																					X								
4	4593-AM green ceraminc tile		Solid	15/8/18																						x							
5	4596-AM peach ceramic tile		Solid	15/8/18																						x							
6																																	
7																																	
8																																	
9																																	
10																																	
11																																	
12																																	

Print name and sign / Print name and sign / Laboratory Use Only

*Relinquished By:	Date (yy/mm/dd):	Time (24 hr):	Received by:	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive	Temperature on Receipt (°C)	Custody Seal	Yes	No
[signature]	18/8/16	09:45	[signature] NIDA [illegible]	18/08/16	15:30	☐	A) ___ B) N/A C) ___	Present?	☐	☒
							Just sampled & rec'd on ice: ☐	Intact?	☐	☒

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

BBY FCD-00077R2_8 1460

Maxxam Analytics Success Through Science ®

Appendix C – Photographs

RJ & ASSOCIATES
ENVIRONMENTAL CONSULTING

PHOTO REPORT

PRE-RENOVATION HAZARDOUS BUILDING MATERIALS SURVEY

ST. JAMES COMMUNITY SQUARE

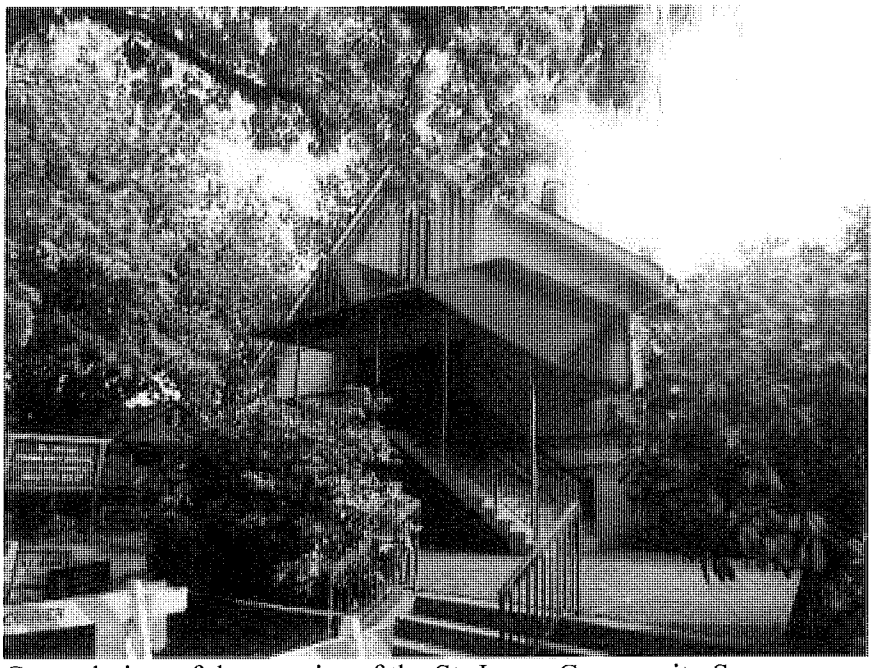
LOCATED AT

3214 WEST 10TH AVENUE

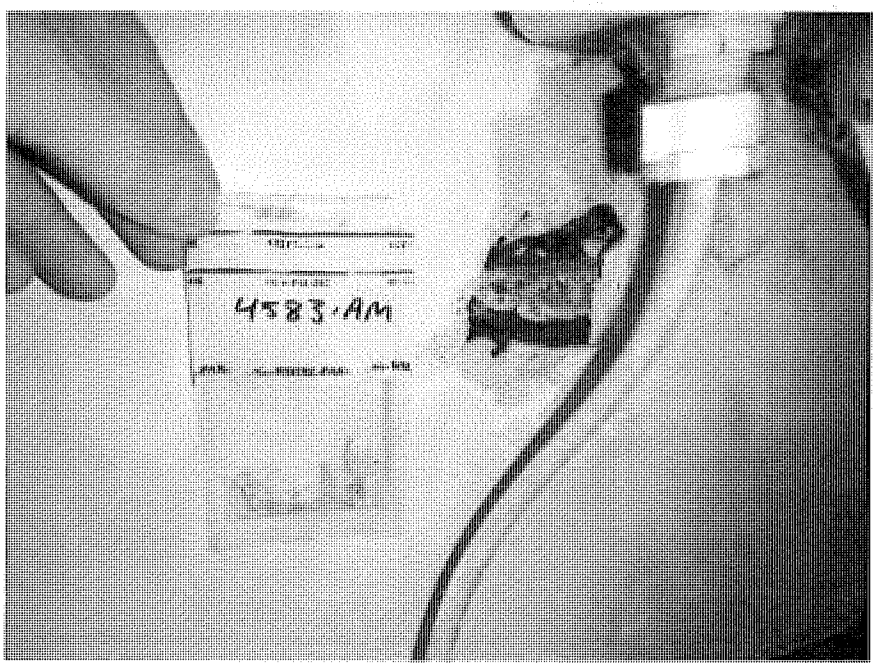
VANCOUVER, BC

AUGUST 29, 2018

RJ & ASSOCIATES
ENVIRONMENTAL CONSULTING

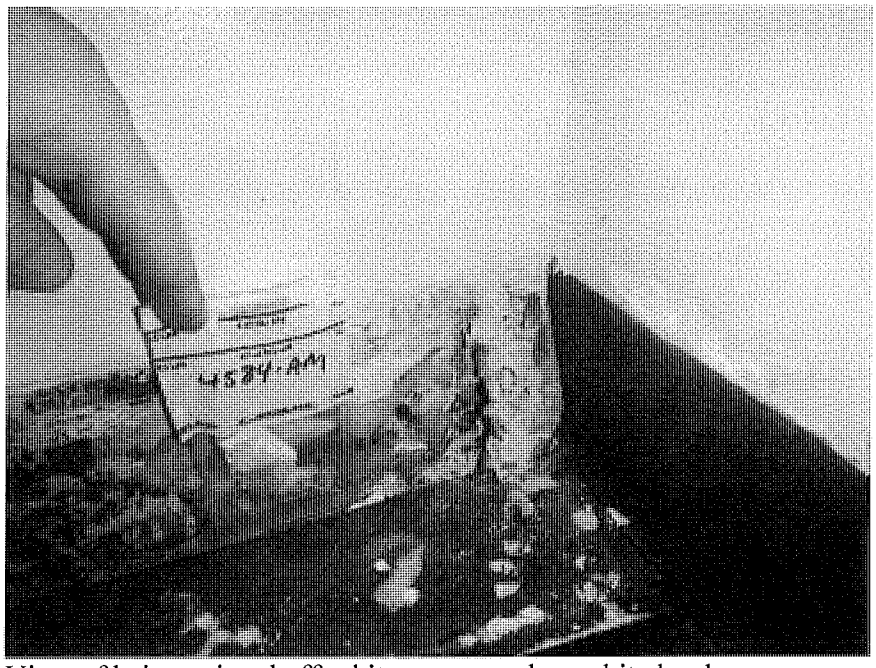
Photographs – St James Community Square, 3214 W 10th Ave, Vancouver, BC.	
Description	**Photo**
Suspect Asbestos-Containing Materials	
Location St James Community Square, 3214 West 10th Avenue, Vancouver, BC.	 General view of the exterior of the St. James Community Square.
Results N/A	
Location Entry Hallway, Level 2	 View of black and white 12" x 12" vinyl floor tiles with underlying black mastic (4581-AM) laid on plywood.
Results **Floor Tiles: 1-5% Chrysotile Asbestos;** Mastic: non-asbestos	

RJ & ASSOCIATES
ENVIRONMENTAL CONSULTING

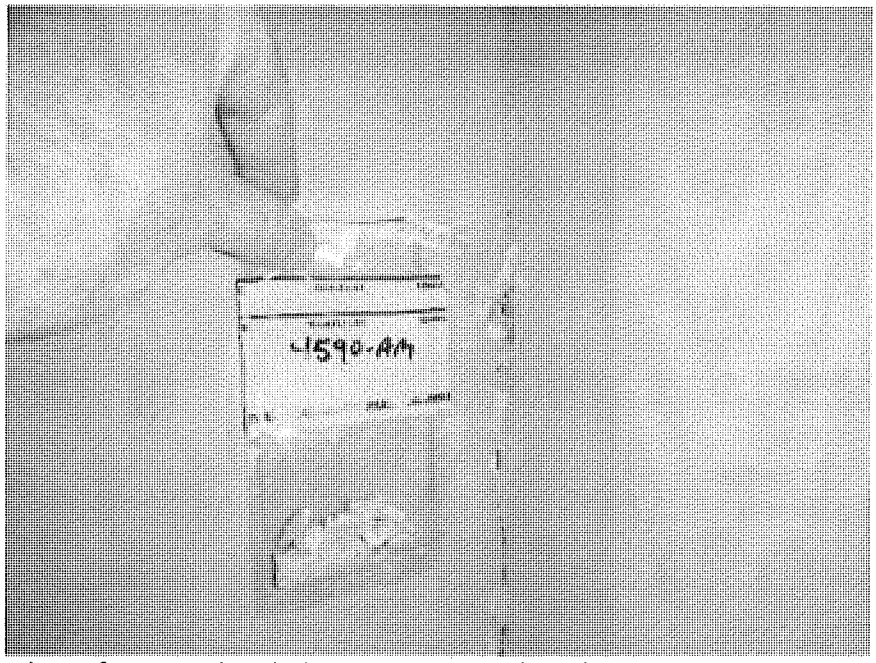
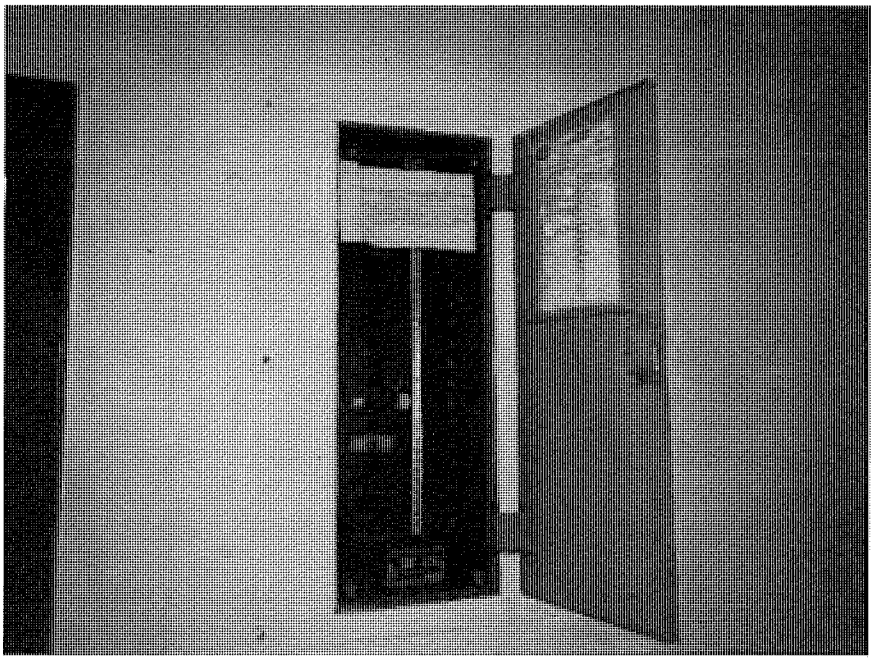
Photographs – St James Community Square, 3214 W 10th Ave, Vancouver, BC.	
Description	**Photo**
Suspect Asbestos-Containing Materials	
Location Washroom, Level 2 **Results** **<0.5% Actinolite Asbestos**	 View of beige painted plaster material (4582-AM) over gypsum board wall.
Location Washroom, Level 2 **Results** **<0.5% Actinolite Asbestos**	 View of thick white compound over sparkle plaster coat (4583-AM) on wall.

RJ & ASSOCIATES
ENVIRONMENTAL CONSULTING

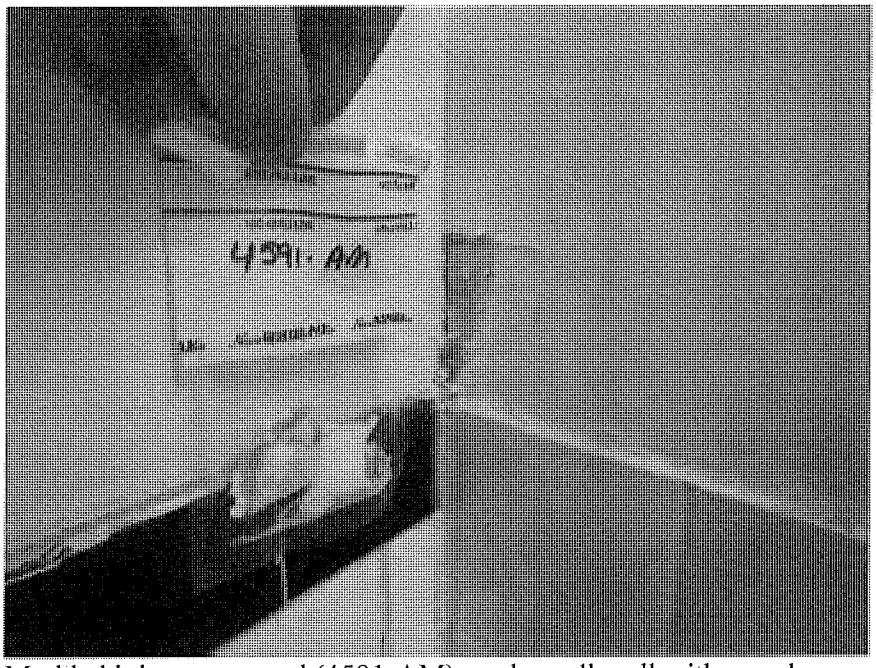
Photographs – St James Community Square, 3214 W 10th Ave, Vancouver, BC.

Description	Photo
Suspect Asbestos-Containing Materials	
Location Washroom, Level 2	 View of beige painted off-white compound on white hard gypsum wall board (4584-AM).
Results **1-5% Chrysotile Asbestos**	
Location Kitchen, Level 2	 View of beige vinyl sheet flooring (4588-AM) overtop black felt paper (4589-AM) concealed under new flooring.
Results Vinyl Sheet Flooring: Non-asbestos; Black felt paper: Non-asbestos	

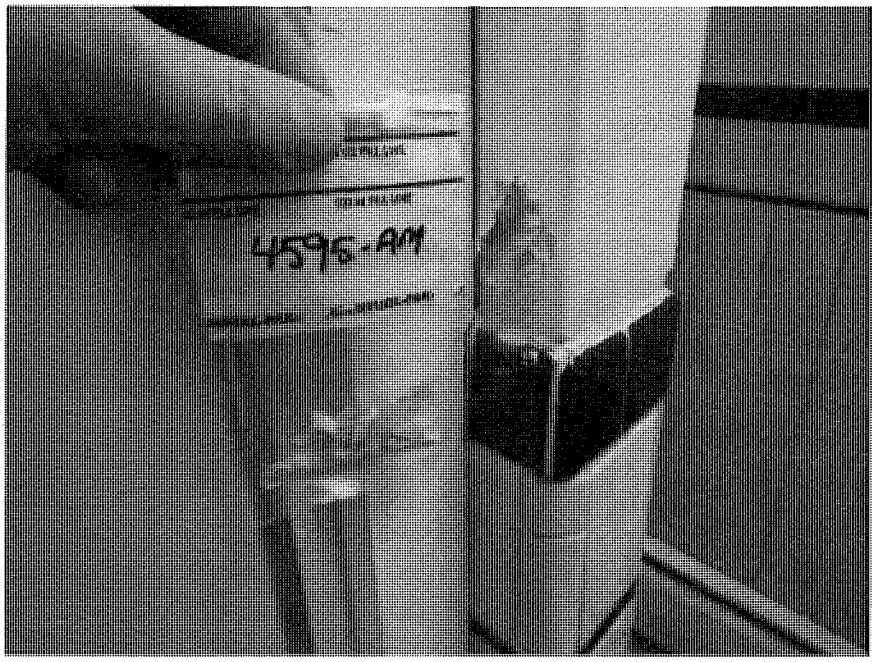
RJ & ASSOCIATES
ENVIRONMENTAL CONSULTING

Photographs – St James Community Square, 3214 W 10th Ave, Vancouver, BC.	
Description	**Photo**
Suspect Asbestos-Containing Materials	
Location Janitor Closet, Level 2 **Results** Non-asbestos	 View of green painted plaster on gypsum board (4590-AM).
Location Hallway, Level 2 **Results** **Presumed Chrysotile Asbestos**	 View of electrical panel presumed to contain arc-insulation pads.

RJ & ASSOCIATES
ENVIRONMENTAL CONSULTING

Photographs – St James Community Square, 3214 W 10th Ave, Vancouver, BC.	
Description	**Photo**
Suspect Asbestos-Containing Materials	
Location Men's Washroom, Level 1	 Mudded joint compound (4591-AM) on drywall wall with wood panel on bottom.
Results Non-asbestos	
Location Men's Washroom, Level 1	 View of beige painted plaster material (4592-AM) over gypsum wall board.
Results Non-asbestos	

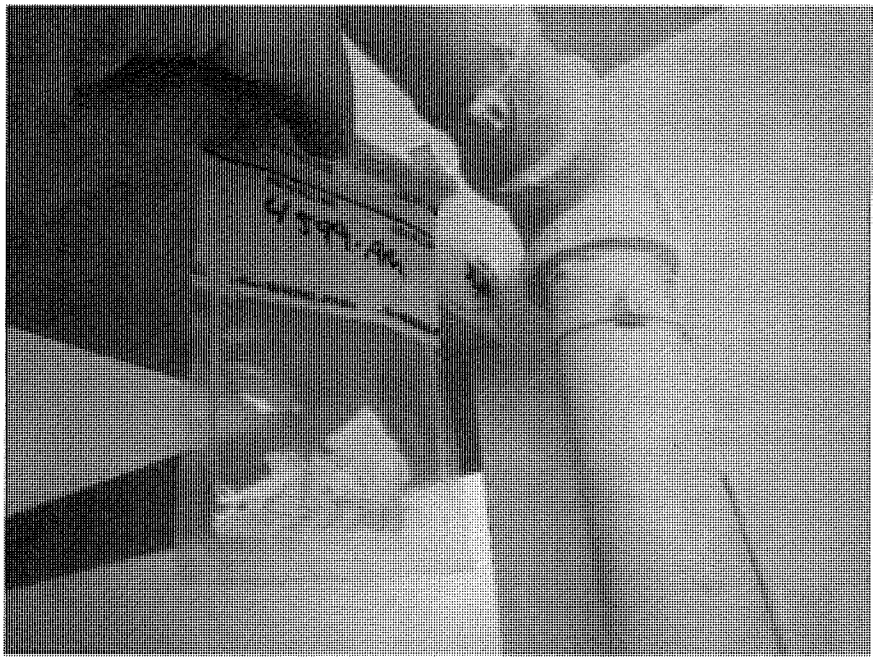
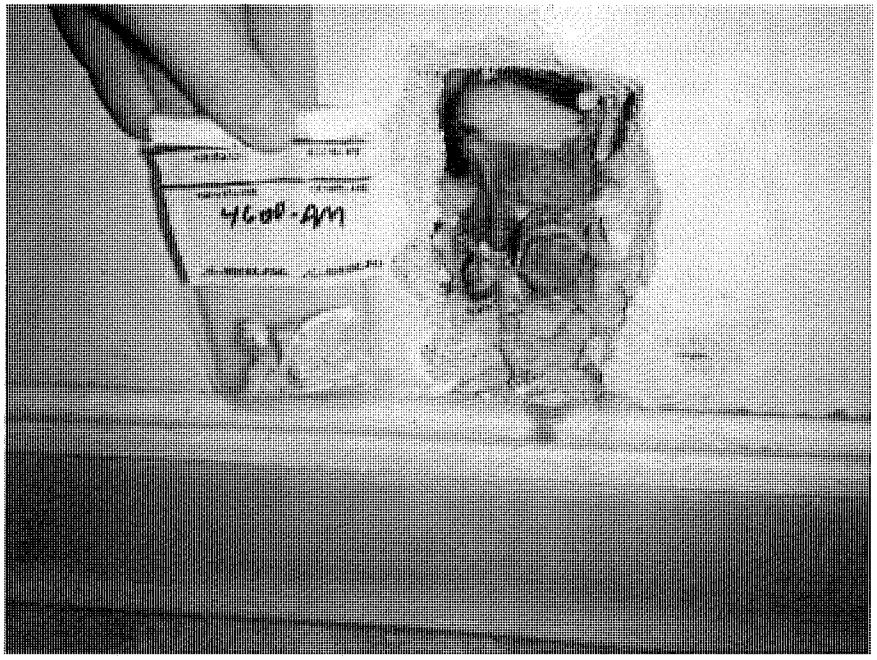
Photographs – St James Community Square, 3214 W 10th Ave, Vancouver, BC.

Description	Photo
Suspect Asbestos-Containing Materials	
Location Hallway, Level 1 **Results** Non-asbestos	 View of white painted mudded drywall joint compound (4594-AM) at double door openings.
Location Women's Washroom, Level 1 **Results** Non-asbestos	 View of beige painted plaster materials (4595-AM) over gypsum wall board.

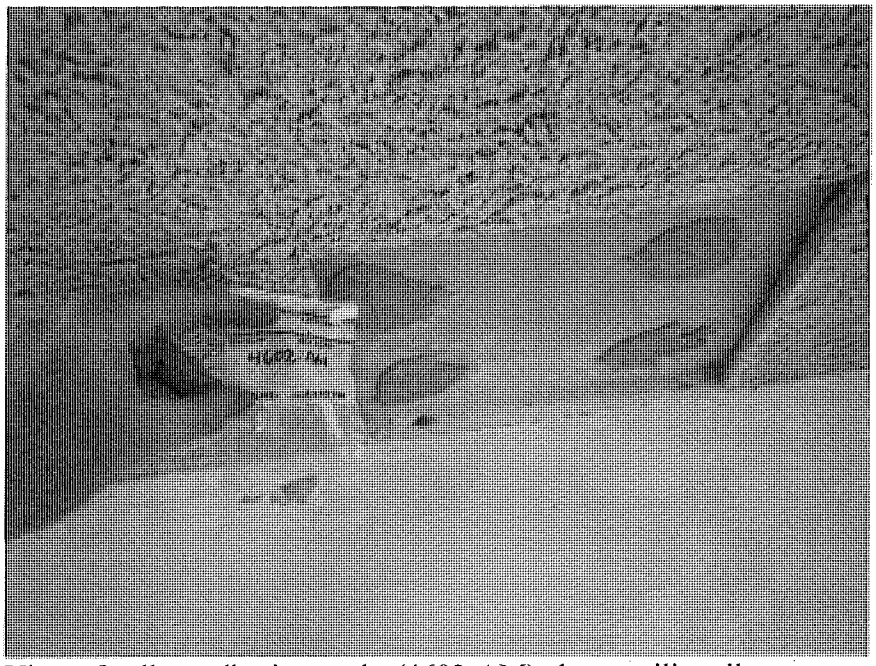
RJ & ASSOCIATES
ENVIRONMENTAL CONSULTING

Photographs – St James Community Square, 3214 W 10th Ave, Vancouver, BC.	
Description	**Photo**
Suspect Asbestos-Containing Materials	
Location Assembly Area Hallway, Level 1	 View of 12" x 12" white rough texture ceiling tiles (4597-AM) on plaster.
Results Non-asbestos	
Location Assembly Area Hallway, Level 1	 View of white painted plaster materials (4598-AM) over gypsum wall board.
Results Non-asbestos	

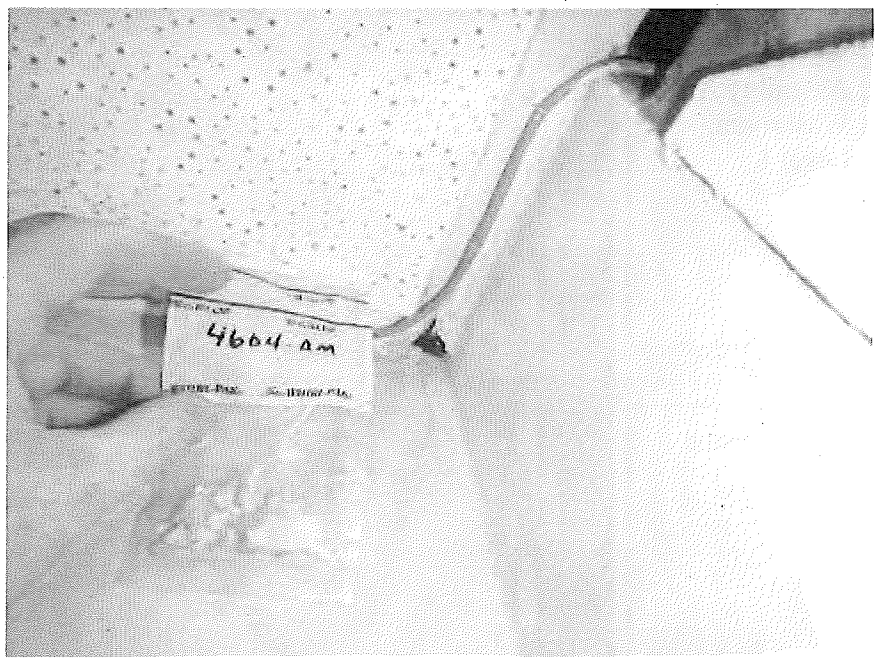
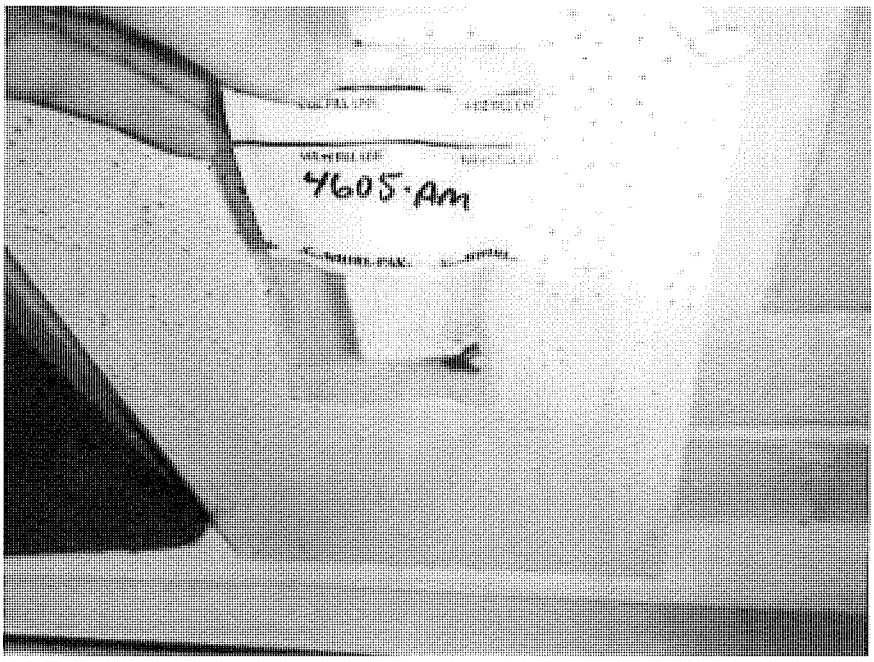
RJ & ASSOCIATES
ENVIRONMENTAL CONSULTING

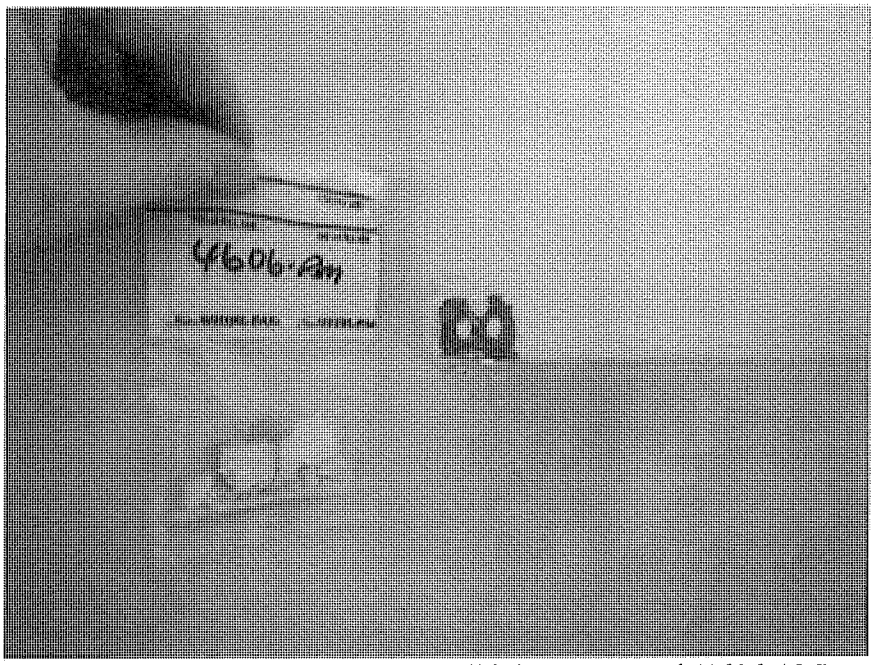
Photographs – St James Community Square, 3214 W 10th Ave, Vancouver, BC.	
Description	**Photo**
Suspect Asbestos-Containing Materials	
Location Assembly Area Hallway, Level 1	 View of white painted mudded joint compound (4599-AM) on drywall drop ceiling bulkhead.
Results Non-asbestos	
Location Assembly Area Washroom, Level 1	 View of grey painted plaster materials (4600-AM) over gypsum wall board.
Results Non-asbestos	

RJ & ASSOCIATES
ENVIRONMENTAL CONSULTING

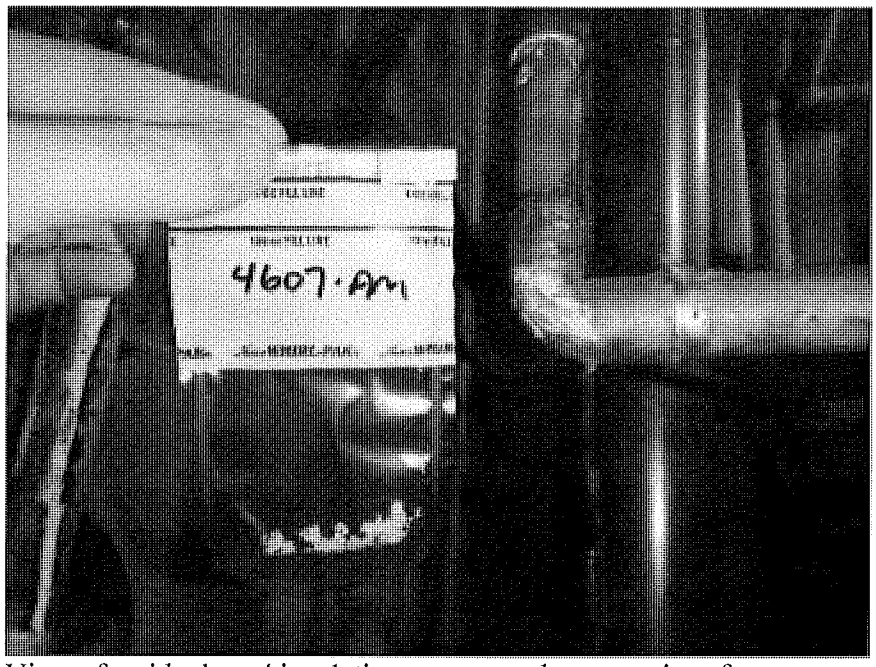
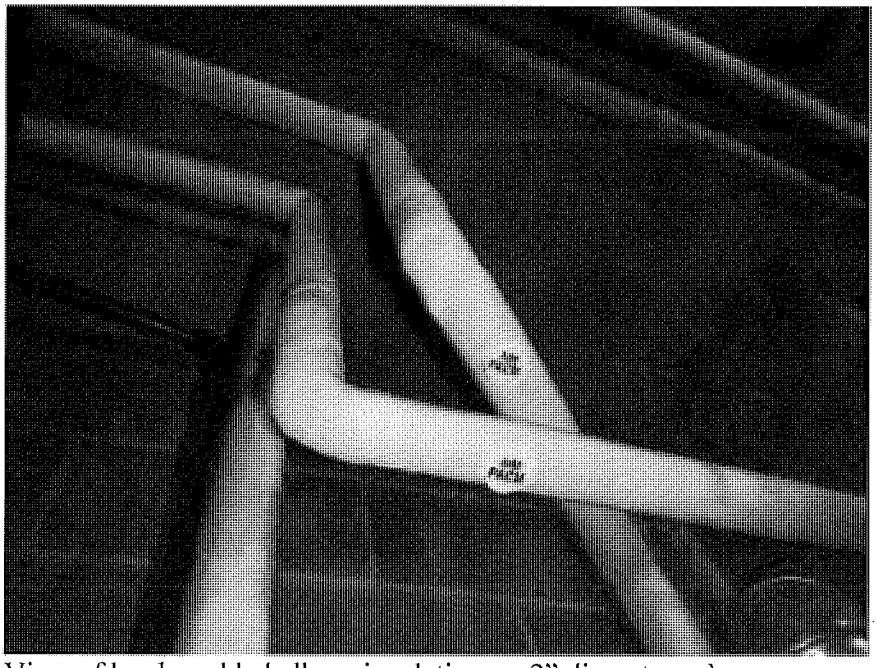
Photographs – St James Community Square, 3214 W 10th Ave, Vancouver, BC.	
Description	**Photo**
Suspect Asbestos-Containing Materials	
Location Assembly Area Washroom, Level 1	 View of white residual level compound (4601-AM) under vinyl sheet flooring.
Results Non-asbestos	
Location Assembly Hall, Level 1	 View of yellow adhesive pucks (4602-AM) above ceiling tiles.
Results Non-asbestos	

Photographs – St James Community Square, 3214 W 10th Ave, Vancouver, BC.

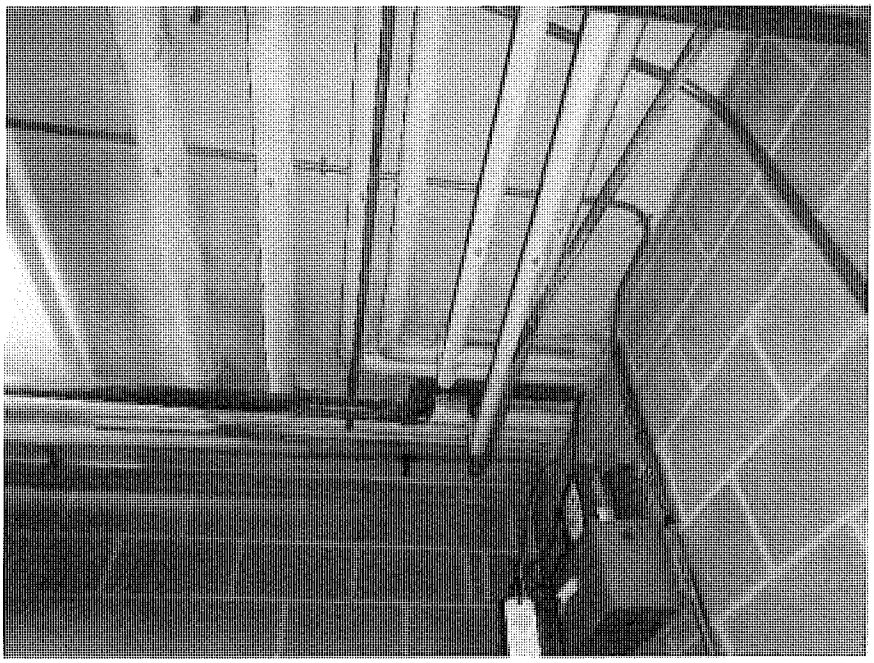
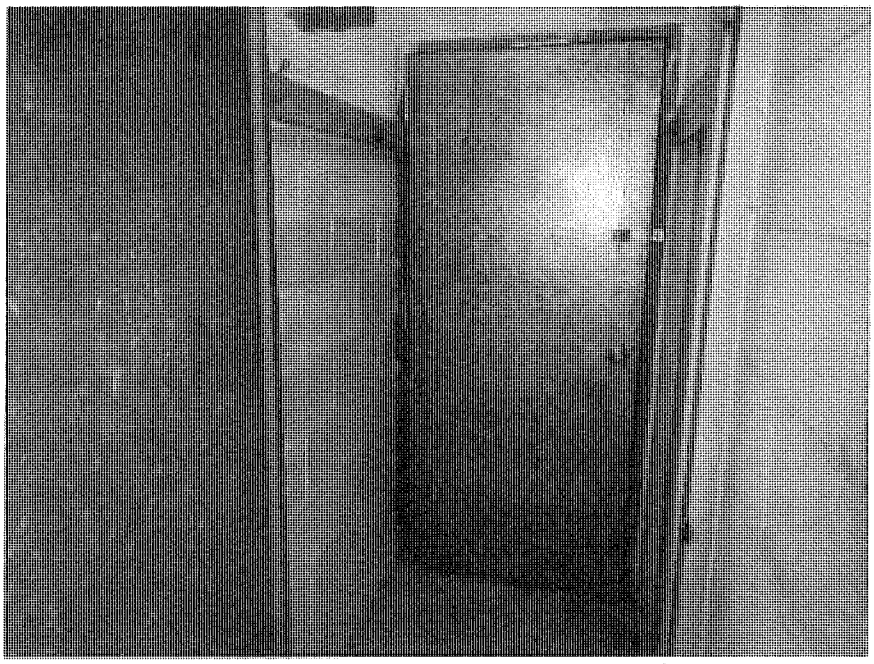
Description	Photo
Suspect Asbestos-Containing Materials	
Location Daycare Area, Level 1	
Results **1-5% Chrysotile Asbestos**	View of yellow painted mudded drywall joint compound (4604-AM) above ceiling tiles.
Location Daycare Area, Level 1	
Results Non-asbestos.	View of 12" x 12" pin-hole ceiling tiles with dark brown adhesive pucks (4605-AM).

Photographs – St James Community Square, 3214 W 10th Ave, Vancouver, BC.	
Description	**Photo**
Suspect Asbestos-Containing Materials	
Location Daycare Area, Level 1 **Results** Non-asbestos	 View of beige painted mudded drywall joint compound (4606-AM) on bulkhead.
Location Service Room Stair Landing, Level 1 **Results** **Floor Tiles: 1-10% Chrysotile;** **Mastic 10-30% Chrysotile** **(Based on previous sample report)**	 View of 9" x 9" brown & red vinyl floor tiles with underlying black mastic in poor condition.

Photographs – St James Community Square, 3214 W 10th Ave, Vancouver, BC.

Description	Photo
Suspect Asbestos-Containing Materials	
Location Service Room, Level 1	 View of residual mud insulation on exposed copper pipes from Domestic Hot Water Tank.
Results **40-60% Chrysotile Asbestos**	
Location Service Room, Level 1	 View of hard mudded elbow insulation on 2" diameter crème canvas wrapped mechanical pipes.
Results **60-80% Chrysotile Asbestos** **(Based on previous sample report)**	

Photographs – St James Community Square, 3214 W 10th Ave, Vancouver, BC.

Description	Photo
Suspect Asbestos-Containing Materials	
Location Service Room, Level 1	 View of compressed paper pipe insulation on 2" diameter mechanical pipes.
Results **70-90% Chrysotile Asbestos** **(Based on previous sample report)**	
Location Service Room, Level 1	 View of fire door of the Service room.
Results **Presumed Chrysotile Asbestos**	

Photographs – St James Community Square, 3214 W 10th Ave, Vancouver, BC.

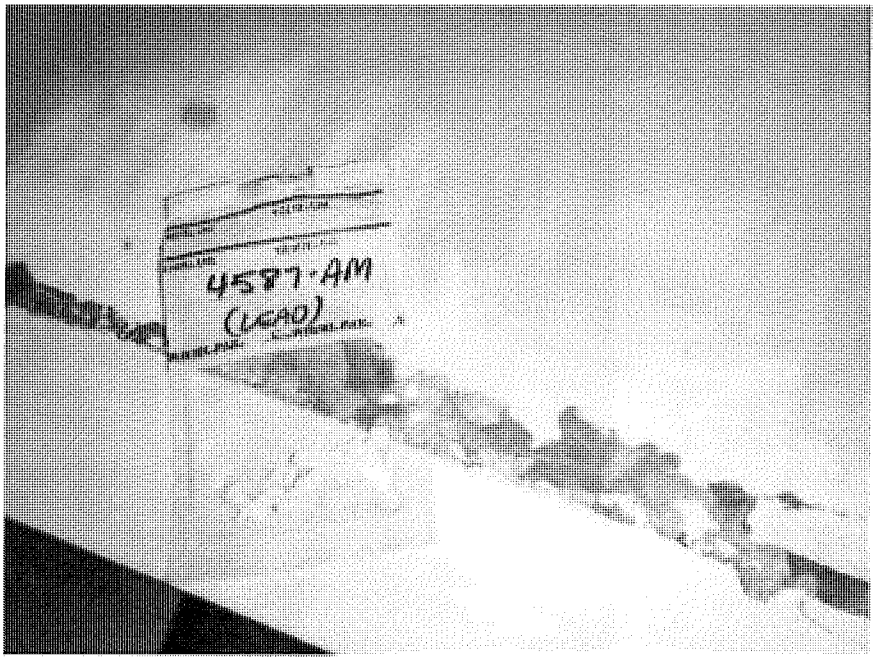
Description	Photo
Suspect Lead-Containing Materials	
Location Men's Washroom, Level 1	 View of green 4" x 4" ceramic tiles (4593-AM) on lower half of walls inside Men's Washroom.
Results **2560 mg/kg of Lead**	
Location Women's Washroom, Level 1	 View of peach 4" x 4" ceramic tiles on lower half of walls inside Women's Washroom.
Results **141 mg/kg of Lead**	

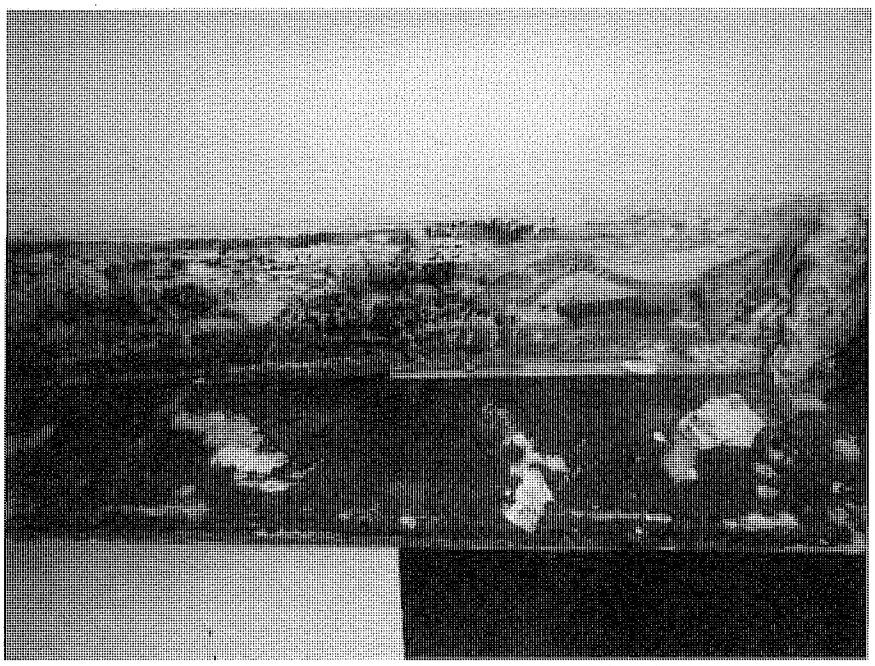
Photographs – St James Community Square, 3214 W 10th Ave, Vancouver, BC.

Description	Photo
Suspect Lead-Containing Materials	
Location Janitor Closet, Level 2	 View of green paint coat (4585-AM) on plaster wall.
Results **217 mg/kg of Lead**	
Location Washroom, Level 2	 View of beige paint coat (4586-AM) on drywall wall.
Results **2210 mg/kg of Lead**	

Photographs – St James Community Square, 3214 W 10th Ave, Vancouver, BC.	
Description	**Photo**

Suspect Lead-Containing Materials

Location	
Kitchen, Level 2	
Results	
2360 mg/kg of Lead	View of yellow paint (4587-AM) on metal siding of former dumbwaiter.

Photographs – St James Community Square, 3214 W 10th Ave, Vancouver, BC.	
Description	**Photo**
Other Suspect Hazardous Materials	
Location Hallway, Lower Floor	 View of wall-mounted thermostat with mercury vial in control mechanism
Results **Mercury-containing vial**	
Location Washroom, Level 2	 View of suspect black mould growth on wall behind baseboard.
Results **Suspected mould growth**	

Photographs – St James Community Square, 3214 W 10th Ave, Vancouver, BC.

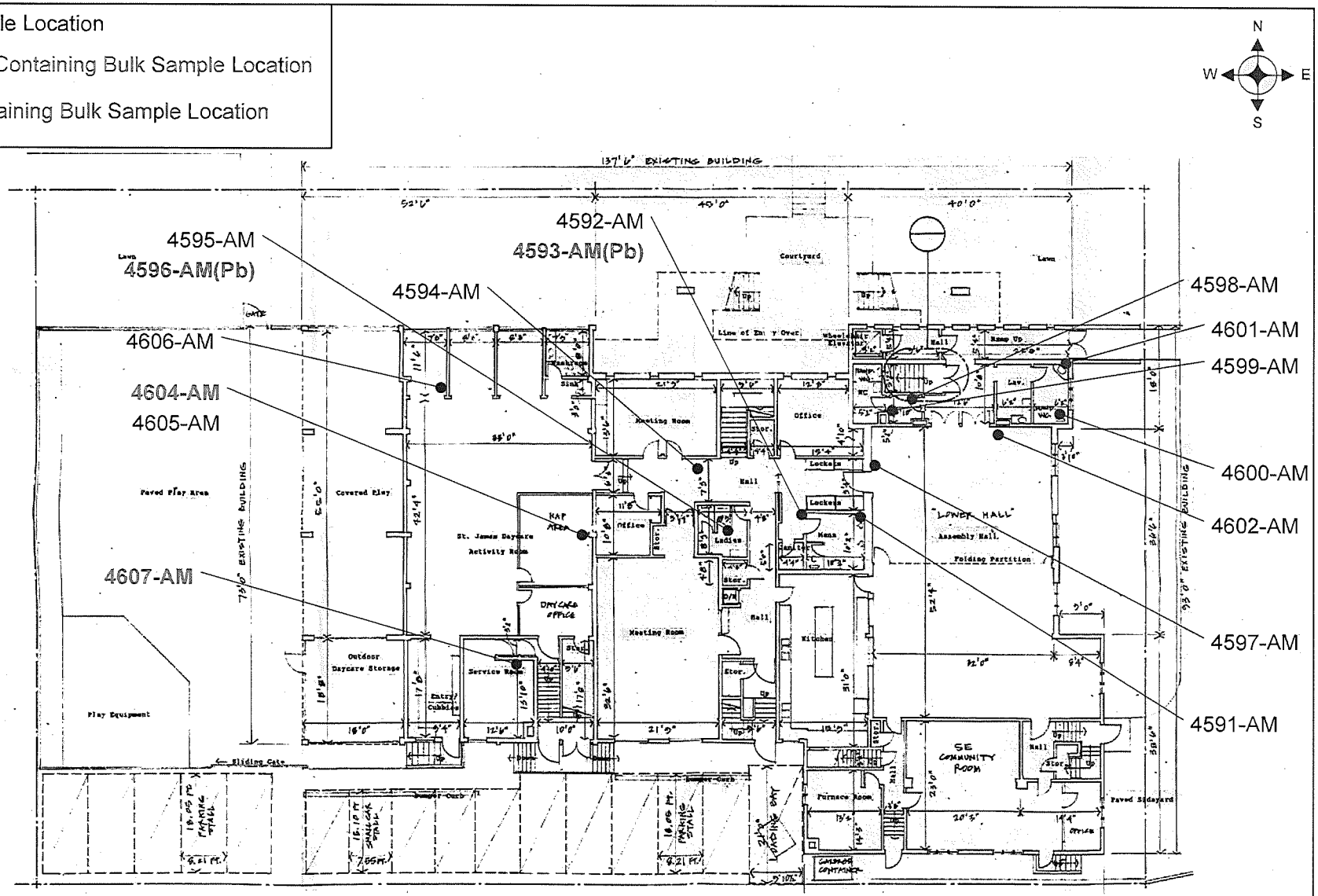
Description	Photo
Other Suspect Hazardous Materials	
Location Throughout building	 View of fluorescent light fixtures.
Results **Suspect PCB in ballast** **Suspect Mercury in light tube**	

Appendix D – Sample Location Drawings

Bulk Sample Location

Asbestos-Containing Bulk Sample Location

Lead-Containing Bulk Sample Location



RJ & ASSOCIATES
ENVIRONMENTAL CONSULTING

St James Community Square
3214 West 10th Avenue, Vancouver, BC
Level 1
Bulk Sampling Location

Date: August 23, 2018

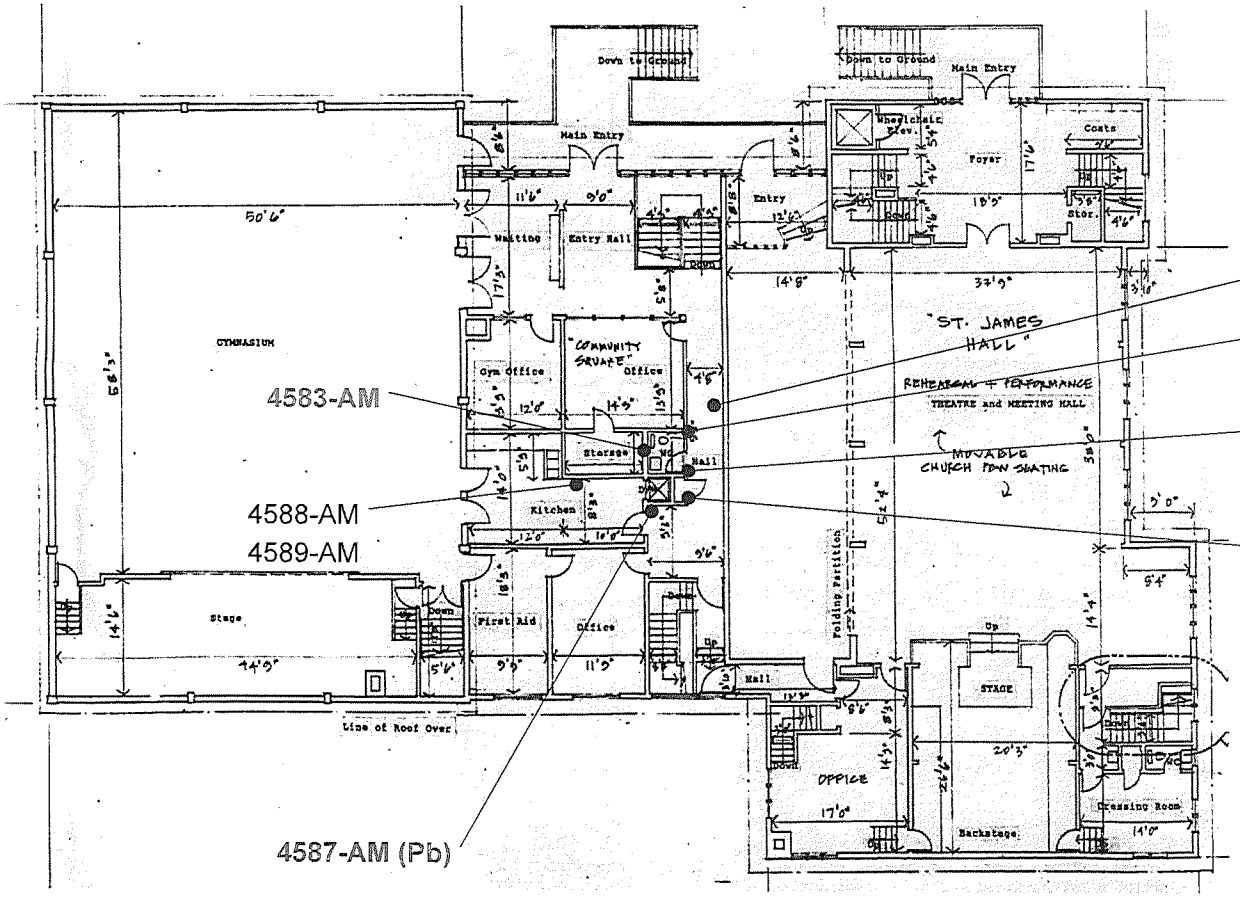
Figure: 1.0

(Drawing not to scale)

Bulk Sample Location

Asbestos-Containing Bulk Sample Location

Lead-Containing Bulk Sample Location



N

W E

S

RJ & ASSOCIATES
ENVIRONMENTAL CONSULTING

St James Community Square
3214 West 10th Avenue, Vancouver, BC
Level 2
Bulk Sampling Location

Date: August 23, 2018

Figure: 1.1

(Drawing not to scale)