PART 6

HAZARDOUS MATERIALS SURVEYS

Please refer to attached Hazardous Materials Survey reports prepared by WSP Canada Inc.

REPORT N^{O} 151-63666-00 (P30 SP 30D)

PRE-RENOVATIONS HAZARDOUS MATERIALS SURVEY - PUBLIC MARKET, GRANVILLE ISLAND, VANCOUVER, BC

CANADA MORTGAGE AND HOUSING CORPORATION

AUGUST 23, 2016

WSP

PRE-RENOVATIONS HAZARDOUS MATERIALS SURVEY - PUBLIC MARKET, GRANVILLE ISLAND, VANCOUVER, BC

CANADA MORTGAGE AND HOUSING CORPORATION

Project No: 151-63666-00 (P30 SP30D)
Date: August 23, 2016

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Our Ref: 151-63666-00 (P30 SP30D),

August 23, 2016

Canada Mortgage and Housing Corporation
Granville Island Administration Office
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Attention: Ms. Janet Flowers, Director

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Dear Ms. Flowers,

Subject: Pre-Renovations Hazardous Materials Survey – Public Market (Buildings # 2-5 and 7), Granville Island, Vancouver, BC

Please find enclosed the pre-renovations hazardous materials survey report conducted for the Public Market building located at Granville Island in Vancouver, BC.

Hazardous materials were identified within the areas identified for the Survey. Proper procedures should be implemented for the safe removal and disposal of these materials.

If you have any questions about the information contained in the attached report please contact either Arvind Chowdharri (604) 533-2992 or Anthony Dickinson at (604) 736-5421.

Yours sincerely,

Arvind Chowdharri, P.Eng.
Environmental Engineer

Anthony Dickinson, M.A.Sc., P.Eng.
Senior Environmental Engineer – EHS Group

EXECUTIVE SUMMARY

WSP Consultants Inc. (WSP) was retained by Canada Mortgage and Housing Corporation (the client) for the provision of a Pre-Renovations Hazardous Materials Survey (the Survey) of the Public Market building (also known as buildings #2-5 and 7) located at Granville Island in Vancouver, BC (herein referred to as the "Subject Site" or "Site").

As per the City of Vancouver's online mapping system (Vanmap), the Public Market building was constructed in 1912 and renovated in 1970. Based on the estimated construction date of the buildings, hazardous building materials are anticipated to be present within the building structure.

WSP understands that the Survey is required for regulatory compliance purposes prior to proposed renovations.

The objective of a Hazardous Materials Survey is to establish the presence / absence, and type of hazardous building materials utilized in the construction of the building at the specified locations by means of sample collection and subsequent laboratory analysis. Section 20.112 of the BC Occupational Health and Safety Regulation requires that a hazardous materials survey should be conducted by a qualified person prior to any demolition or renovation activity which might disturb hazardous materials.

For the purposes of this survey, hazardous building materials were defined as:

- Asbestos-containing building materials (ACM);
- Lead materials and lead-based paints (LBP);
- Mercury;
- Polychlorinated biphenyls (PCB);
- Crystalline silica;
- Ozone depleting substances (ODS);
- Radioactive materials (RAM);
- Urea Formaldehyde Foam Insulation (UFFI);
- Mould and/or microbial growth; and
- Flammable or explosive materials.

The survey and review was conducted in general accordance with WorkSafeBC Occupational Health and Safety Regulations Part 20, Construction, Excavation and Demolition, Section 20.112 Hazardous Materials.

WSP understands that the following renovation will be conducted within the Public Market building structure:

- Sealant replacement at window frames and perimeters;
- Replacement of damaged door and window hardware (i.e. handles, hinges, weather stripping);

- Replace missing/corroded fasteners at metal wall panels;
- Local repair of roof membrane where it has de-bonded;
- Replacement of damaged cladding (upper level below door, ground floor impact damage);
- Removal of vegetation growth and debris from roof areas;
- Clean gutters and skylights;
- Replacement of flashing membrane around vent/roof penetrations at the sloped roofs;
- Replacement of decayed wood fascia at the upper roof levels;
- Extension of sloped metal roofing/flashing to provide better drainage into gutters; and
- Installation of gutters at the upper sloped roof areas of the public market

Based on the aforementioned renovations that are proposed for the Public Market building, the renovation zone includes building exteriors, portion of ceiling extending out of the building and roof of the building. This survey was limited to the “renovation zone”.

The Survey was conducted by identifying the above defined hazardous materials including suspect ACM and LBP through on-site bulk sampling and analysis, review for visual / olfactory presence of suspected mould growth, and review of elements or components which may contain lead products, mercury, PCB, crystalline silica, ODS, RAM, and UFFI in the aforementioned renovation zone.

CONCLUSIONS

Asbestos-Containing Materials

The bulk building material samples (suspected to contain asbestos) collected in the Survey within the renovation area rooms are listed below (Table 7-1) along with the corresponding IATL laboratory results of asbestos content: Based on the representative sampling, corresponding IATL laboratory results for asbestos content, asbestos was not found in any of the samples collected in this survey.

Lead-Based Paints (LBP)

The paint samples collected in the Survey for lead content testing within the renovation area are listed below (Table 7-2) along with the corresponding IATL laboratory results of lead content. The paint samples B1-L5, B1-L10, B1-L11, B1-L12, B1-L13 and B1-L14 were all found to have a lead (Pb) content above the WorkSafe BC criteria of 0.06% (600 mg/kg).

Lead Products

At the time of the onsite building review, lead containing bathroom exhaust vent boots were noted at the roof.

Mould and Water Damage

At the time of the onsite building review, WSP did not observe any area with mould growth or water damage in the renovation zone.

PCBs

At the time of the onsite building review, WSP did not observe any PCB containing light fixtures or transformers within the renovation zone. However, fluorescent light ballasts with the potential to contain PCB were noted inside the Survey building. Based on the areas proposed for renovation these are not likely to be disturbed. However, when the renovations actually occur, if any fluorescent light ballasts are to be removed they should be assumed to contain PCB and disposed of appropriately unless their serial numbers have been checked to determine that they are PCB free.

Mercury

At the time of the onsite building review, WSP noted outdoor light fixtures on the exterior walls of the onsite building. These light fixtures may use mercury containing light bulbs.

Ozone Depleting Substances

At the time of the onsite building review, no ozone depleting substances were noted within the renovation zone.

Radioactive Materials

At the time of the onsite building review, no smoke detectors or other radioactive materials were noted in the renovation zone.

Crystalline Silica

It is anticipated that Crystalline Silica is present in the concrete floor, stucco on portion of the exterior south wall and foundation works of the building.

Flammable and Explosive Materials

At the time of the onsite building review, WSP did not observe any flammable or explosive materials within the renovation zone.

Urea Formaldehyde Foam Insulation

At the time of the onsite building review, WSP did not observe indicators (e.g., patched injection holes or foam seepage) of UFFI in the renovation zone. However, UFFI may have been used during the 1970 renovations.

RECOMMENDATIONS

- Follow safe work procedures when cutting or grinding concrete, cementitious mortar, and/or other items that are assumed to contain crystalline silica.
- The west portion of the roof could not be assessed due to aggressive nesting sea gulls. We recommend any suspicious material noted in the western portion of the roof be considered asbestos containing and should be tested for asbestos content.
- No Asbestos containing materials were identified in this survey. However, there is a likelihood of encountering materials that may contain asbestos at the time of renovations. We recommend that at the time of renovations, any encountered suspicious material be treated as asbestos containing and must be removed using safe work practices, unless the material

is tested in an accredited laboratory and confirmed as non-asbestos containing. The WorkSafeBC publication "Safe Work Practices for Handling Asbestos" and the Occupational Health and Safety (OHS) Guideline G6.8 describes acceptable practices. A risk assessment for any assumed and identified/confirmed asbestos-containing materials must be performed prior to initiation of renovation work to determine the exposure risk to workers and other persons as per OHS Guideline G20.112

- Additional sampling and testing (for asbestos content) of stucco present at the southern exterior wall is recommended, if the renovation work is conducted in its vicinity.
- Proper procedures and documentation such as safe work practices, an exposure control plan, risk assessments and/or other controls must be developed for all workers if lead-containing paint with a lead content of 0.06% or more is to be removed from the surfaces or if otherwise disturbed. Any other paint coatings encountered during renovation activities, which have not been already tested, should be considered lead containing until sampling can demonstrate otherwise.
- If the lead roof vents are replaced during renovations, they should be recycled at a licensed facility.
- If mould materials or animal wastes (rodent droppings) are found during renovation, safe work procedures should be followed when removing mould-contaminated materials and animal waste.
- Any compact fluorescents, halogen bulbs, sodium bulbs, and mercury containing light bulbs removed from the building exteriors should be recycled when removed from service. The Light Recycle website provides a list of recycling facilities on their website, at http://www.lightrecycle.ca/.
- If the renovation area needs to go beyond the current Survey area, WSP should be contacted to identify any additional potentially hazardous materials.
- At the time of the onsite building review, UFFI was not noted in the renovation zone. However there is a possibility that UFFI insulation may have been used to insulate the building envelop during the 1970 renovations. Although, it is unlikely that the exterior walls will be opened up for the proposed renovations, WSP should be contacted to sample for UFFI if any exterior walls are opened up and foam insulation is encountered.
- Retain a copy of this report and provide it to any contractors who may be undertaking Renovation work in the Survey area as required by Section 20.112 of the WorkSafe BC regulations.

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APPENDICES

1 INTRODUCTION

WSP Consultants Inc. (WSP) was retained by Canada Mortgage and Housing Corporation (the client) for the provision of a Pre-Renovations Hazardous Materials Survey (the Survey) of the Public Market building (also known as buildings #2-5 and 7) located at Granville Island in Vancouver, BC (herein referred to as the "Subject Site" or "Site").

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For the purposes of this survey, hazardous building materials were defined as:

- Asbestos-containing building materials (ACM);
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- Radioactive materials (RAM);
- Urea Formaldehyde Foam Insulation (UFFI);
- Mould and/or microbial growth; and
- Flammable or explosive materials.

The survey and review was conducted in general accordance with WorkSafeBC Occupational Health and Safety Regulations Part 20, Construction, Excavation and Demolition, Section 20.112 Hazardous Materials.

WSP understands that the following renovation will be conducted within the Public Market building structure:

- Sealant replacement at window frames and perimeters;
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- Replacement of decayed wood fascia at the upper roof levels;
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Based on the aforementioned renovations that are proposed for the Public Market building, the renovation zone includes building exteriors, portion of ceiling extending out of the building and roof of the building. This survey was limited to the “renovation zone”.

The Survey was conducted by identifying the above defined hazardous materials including suspect ACM and LBP through on-site bulk sampling and analysis, review for visual / olfactory presence of suspected mould growth, and review of elements or components which may contain lead products, mercury, PCB, crystalline silica, ODS, RAM, and UFFI in the aforementioned renovation zone.

2 LIMITATIONS

This Survey included construction materials and components only and was limited to the construction material present within the renovation zone. As it is neither practical nor feasible to sample materials on a foot by foot basis, visually similar materials’ analysis results were extrapolated throughout the structure and / or based on estimated phases of construction, where that information was made available.

Energised electrical and mechanical equipment or systems were not opened for safety reasons. This survey excluded owner or occupant articles such as furniture or stored items.

Concealed or inaccessible materials within the building structure, fire doors, roofing, and below ground materials including tanks and pipes were specifically excluded from our scope of work.

No below-grade water, drainage or plumbing systems or sub surface investigation of materials were included in the scope of this Survey.

As the building is currently occupied and in use, no destructive testing of the building envelope was undertaken (i.e. exterior walls) in order to preserve the integrity of the building envelop.

The roof area could not be completely visually assessed due to safety concerns as a result of aggressive nesting sea gulls.

3 SITE DESCRIPTION

The Public Market building is a two level building that comprised of various shops, retail outlets and offices that is located to the north of Johnston Street, near the intersection of Johnston Street and Anderson Street at Granville Island in Vancouver, BC. The Site location map and Site Plan are attached in Appendix A.

4 SCOPE OF WORK

The survey was limited to the building materials and fixed equipment associated within the renovation zone of the Public Market building structure. To achieve the objective of the Survey, WSP completed the following scope of work:

Visual Review:

- Visually identify building materials potentially containing asbestos;
- Visually identify any foam insulation which may contain urea formaldehyde;
- Visually identify any electrical equipment which may contain PCBs;
- Visually identify any thermostats or fluorescent light tubes which may contain mercury;
- Visually identify any light bulbs that may contain halogens or sodium;
- Visually identify construction materials which may contain silica such as concrete, cement, tile, brick, masonry, mortar;
- Visually identify any equipment which may have ODS-containing halons or refrigerants;
- Visually identify any smoke detectors with the potential to contain radioactive materials;
- Visually identify evidence of UFFI insulation;
- Visually identify areas of current or historic moisture penetration which may support microbial growth, and
- Visually identify stored materials which may be flammable or explosive.

Building Materials Bulk Sampling:

- Bulk samples of any materials suspected to contain asbestos will be collected and sent to an appropriately accredited laboratory for laboratory analyses;
- Paint samples suspected to contain lead will be collected and sent to an appropriately accredited laboratory for laboratory analyses;
- The sampling methodology and number of samples will be in general accordance with the appropriate WorkSafe BC Guidelines; and
- Photographs will be taken of the materials sampled as well as the general area of the sample to give context.

Reporting:

- Preparation of this report summarizing the specific hazardous building materials identified through review and analysis. Photographs were taken of the suspect hazardous building materials as well as the general area to give context. These are included in Appendix B.

5 METHODOLOGY

On 2, 3, and 4 August 2016, WSP conducted the Survey site work as per the scope of work discussed in Section 4. Visual review was conducted for suspect hazardous materials likely to be impacted by renovation activities. The areas typically containing suspect hazardous materials were reviewed from the accessible areas. Selected photographs taken during the site visit are presented in Appendix B. The completed Chain-of-Custody forms (COCs) and the Laboratory Reports of analytical results are presented in Appendix C.

5.1 ASBESTOS-CONTAINING MATERIALS (ACM)

Based on the year of construction and renovation, asbestos containing materials are likely to be present with the onsite building structure. Accordingly, bulk sampling for suspect asbestos materials was conducted. The review was based on experienced professional judgment in consideration of, but not necessarily limited to, the era of construction, and uniformity of materials and size of area of homogeneous materials.

The locations and material descriptions of the collected samples was described in field notes, and the corresponding sample numbers were indicated on the Chain-of-Custody forms submitted along with the original samples.

Each sample was placed in a labelled plastic bag appropriate for the proposed analysis. The samples were sent to International Asbestos Testing Laboratories (IATL) in Mount Laurel, New Jersey, USA for asbestos analyses. IATL participates in the American Industrial Hygiene Association's (AIHA) Bulk Asbestos Proficiency Analytical Testing (BAPAT) Program. Samples were analyzed in accordance with PLM: Bulk Asbestos Building Materials EPA 600 R 93 / 116, 1993.

Based on WSP's professional opinion, the following materials were assumed not to contain asbestos during this survey and were classified as non-asbestos materials:

- Wood, wood paneling
- Carpet
- Concrete, Brick
- Fiberglass
- Plastics, rubbers, metals
- Gypsum board without taping compound / mud

5.2 LEAD-BASED PAINTS (LBPS)

Based on the year of construction and renovation, surface coatings that potentially contain lead in paint could be present. Accordingly, bulk sampling for surface coatings was conducted. The review was

based on experienced professional judgment in consideration of, but not necessarily limited to, the era of construction, and uniformity of materials and size of area of homogeneous materials.

The paint samples were sent to International Asbestos Testing Laboratories (IATL) in Mount Laurel, New Jersey, USA for lead content analyses. Analysis was by ASTM D3335-85A "Standard Method to Test for Low Concentrations of Lead in Paint by Atomic Absorption Spectrophotometry". Chain-of-custody protocol was observed during handling and transportation of the bulk samples

5.3 LEAD PRODUCTS

The renovation zone was visually reviewed for the presence of lead products.

5.4 MOULD AND OTHER MICROBIAL CONTAMINANTS

The renovation zone was visually reviewed for the presence of water damage and suspected mould growth.

5.5 CRYSTALLINE SILICA

The renovation zone was visually reviewed for the presence of concrete or mineral-composite building materials which may contain crystalline silica.

5.6 OTHER HAZARDOUS MATERIALS

The renovation zone was visually reviewed for the presence of fluorescent tubes and light ballasts which could contain mercury or PCBs; equipment which might contain ODS (i.e. halons or refrigerants); smoke detectors which may contain radioactive materials (RAM); potentially toxic/hazardous chemicals (i.e. halide and sodium arc bulbs), signs of urea formaldehyde use (UFFI), and potential flammable or explosive materials.

The aforementioned building materials review and bulk material sample collection for analysis of potential asbestos and lead based surface coatings was consistent with recognized industry standards and principles of good occupational hygiene practice.

6 REGULATORY FRAMEWORK

The details of the regulatory frameworks for ACM, LBP, PCB, mercury, RAM, UFFI, and ODS are found in Appendix D.

7 PRE-RENOVATIONS HAZARDOUS MATERIALS SURVEY RESULTS

The results of the Survey are summarized below. A Site Plan showing sample locations is attached in Appendix A. Selected photographs taken during the site visit are presented in Appendix B. The completed Chain-of-Custody forms (COCs) and the Laboratory Reports of analytical results are presented in in Appendix C.

7.1 ASBESTOS-CONTAINING MATERIALS

The bulk building material samples (suspected to contain asbestos) collected in the Survey within the renovation zone are listed below (Table 7-1) along with the corresponding IATL laboratory results of asbestos content:

Table 7-1 Bulk Building Material Samples (Analyzed for Asbestos Content)

Sample ID	Material Description *	Sample Location	Content/Type
B1-S1	Clear Sealant	West Wall, Letter Box Southwest Exterior	None Detected
B1-S2	Grey Mastic	Overhead Doors, West Exteriors	None Detected
B1-S3	Light Brown Mastic	Windows, Exteriors West wall Washrooms	None Detected
B1-S4	Grey Mastic	2nd Level, West wall, Exteriors	None Detected
B1-S5	Brown Mastic	Around Windows Northwest Portion, Exteriors	None Detected
B1-S6	Grey Mastic	Northwest Portion, Exterior Walls	None Detected
B1-S7	Grey Mastic	Northwest Entrance Door, Exteriors	None Detected
B1-S8	Grey Mastic	Northwest Windows, Exterior	None Detected
B1-S9	Grey Mastic	Overhead Door, Northwest Portion, Exterior	None Detected
B1-S10	Brown Mastic	Exterior Wall, Near #13 Entrance Door	None Detected
B1-S11	Tan Mastic	Windows, North Wall Exterior	None Detected
B1-S12	Tan Mastic	Windows, Northeast Portion, Exteriors	None Detected
B1-S13	White Mastic	Around Door #1, Exteriors	None Detected
B1-S14a	Grey Mastic	Northeast Portion, Roof	None Detected
B1-S14b	Clear Mastic	Northeast Portion, Roof	None Detected
B1-S14c	Black Mastic	Roof, Around Exhaust Fan	None Detected
B1-S14d	White Mastic	Windows Roof Southeast Portion	None Detected
B1-S14e	Brown Mastic	Roof, North Central portion	None Detected
B1-S14f	Brown Mastic	South Central portion, Exhaust Fan, Roof	None Detected
B1-S14g	Clear Mastic	Around Windows, Near Roof Access	None Detected
B1-S14h	Clear Mastic	Around Windows, Roof, South Center Portion	None Detected
B1-S15	Brown Shingle	Northeast Portion, Roof	None Detected
B1-S16	Clear Mastic	Around Windows/Sprinkler, Exteriors Southeast Portion	None Detected
B1-S17	Clear Mastic	Around Windows Southeast Portion, East Wall	None Detected
B1-S18**	Grey Cementitious	South Exterior Wall	None Detected
B1-S19a	White Paint	Ceiling Northeast Portion	None Detected
B1-S19b	White Paint	Ceiling, On Wood Above ZARA, Interiors	None Detected
B1-S19c	White Paint	Ceiling, on Steel Above ZARA, Interiors	None Detected
B1-S19d	Tan Texture	Ceiling, Central Portion	None Detected
B1-S19e	White Paint	Ceiling, Southwest Portion	None Detected

Notes: Bold indicates asbestos detected above WorksafeBC 0.5% criteria.
**- Material Description as noted by iATL during analysis. The description of the material as noted in the field may differ from the description noted in the lab. The COCs in Appendix C can be referred for the field description of the materials.*

***-One sample was collected for analysis. Additional sampling would be required, if the renovation work is conducted on the stucco.*

According to WorkSafeBC, the definition of an asbestos-containing material is 0.5% by weight. Based on the representative sampling, corresponding IATL laboratory results for asbestos content, asbestos was not found in any of the samples collected in this survey.

7.2 LEAD-BASED PAINTS (LBP)

The paint samples collected in the Survey for lead content testing within the renovation area are listed below (Table 7-2) along with the corresponding IATL laboratory results of lead content.

Table 7-2 Paint Samples (Analyzed for Lead Content)

Sample ID	Material Sampled	Location	Content
B1-L1	Light Brown	On Exterior Walls	0.017% Lead by Weight 170 ppm Lead
B1-L2	Red	Exteriors Door Frames	0.021% Lead by Weight 210 ppm Lead
B1-L3	Blue	Exteriors Door / Door Frames	0.017% Lead by Weight 170 ppm Lead
B1-L4	Yellow	Exteriors Door/Window Frames	0.019% Lead by Weight 190 ppm Lead
B1-L5	**Red**	**On Steel Structures Exteriors**	**9.3% Lead by Weight 93,000 ppm Lead**
B1-L6	Dark Yellow	Wall, South Exterior	0.0062% Lead by Weight 62 ppm Lead
B1-L7	Dark Grey	Wall, South Exteriors	0.0079% Lead by Weight 79 ppm Lead
B1-L8	Red	Exterior Wall, East	0.0082% Lead by Weight 82 ppm Lead
B1-L9	Black On Red	Steel Structure SE Portion	0.012% Lead by Weight 120 ppm Lead
B1-L10*	**White**	**Ceiling, NE Portion**	**0.15% Lead by Weight 1,500 ppm Lead**
B1-L11*	**White**	**Ceiling, Steel NE Portion Above Zara's**	**0.18% Lead by Weight 1,800 ppm Lead**
B1-L12*	**White**	**Ceiling, Wood, Above Zara's**	**0.18% Lead by Weight 1,800 ppm Lead**
B1-L13*	**White**	**Ceiling, Central Area**	**0.10% Lead by Weight 1,000 ppm Lead**
B1-L14*	**White**	**Ceiling, SW Portion**	**0.14% Lead by Weight 1,400 ppm Lead**

Notes: *Bold indicates lead concentrations detected above WorksafeBC 0.06% criteria.*
**-Samples collected from building interiors*

Lead based paints are not specifically defined in the WorkSafeBC regulations. BC Environmental Regulations[1] and WorkSafeBC Guidelines[2] require leachate testing prior disposal of lead waste.

[1] Hazardous Waste Regulation
[2] Lead-Containing Coats and Paintings - Preventing Exposure in the Construction Industry

WorkSafeBC has adopted the position that the removal of paint with a lead concentration as low as 0.06% (600 mg / kg) by aggressive techniques (i.e., abrasive blasting) can approach the occupational exposure limit. WorkSafeBC has also stated that lead concentrations as low as 0.009% (90 mg / kg) may present a risk to pregnant women and children.

The paint samples B1-L5, B1-L10, B1-L11, B1-L12, B1-L13 and B1-L14 were found to have a lead (Pb) content above the WorkSafe BC criteria.

7.3 LEAD PRODUCTS

At the time of the onsite building review, lead containing bathroom exhaust vent boots were noted at the roof.

7.4 MOULD AND WATER DAMAGE

At the time of the onsite building review, WSP did not observe any area with mould growth or water damage in the renovation zone.

7.5 PCBS

At the time of the onsite building review, WSP did not observe any PCB containing light fixtures or transformers within the renovation zone. However, fluorescent light ballasts with the potential to contain PCB were noted inside the Survey building. Based on the areas proposed for renovation these are not likely to be disturbed. However, when the renovations actually occur, if any fluorescent light ballasts are to be removed they should be assumed to contain PCB and disposed of appropriately unless their serial numbers have been checked to determine that they are PCB free.

7.6 MERCURY

At the time of onsite building review, WSP noted outdoor light fixtures on the exterior walls of the onsite building. These light fixtures may use mercury containing light bulbs or sodium arc bulbs.

7.7 OZONE DEPLETING SUBSTANCES

At the time of the onsite building review, no ozone depleting substances were noted within the renovation zone.

7.8 RADIOACTIVE MATERIALS

At the time of onsite building review, no smoke detectors or other radioactive materials were noted in the renovation zone.

7.9 CRYSTALLINE SILICA

It is anticipated that Crystalline Silica is present in the concrete floor, stucco on portion of the exterior south wall and foundation works of the building.

7.10 FLAMMABLE AND EXPLOSIVE MATERIALS

At the time of the onsite building review, WSP did not observe any flammable or explosive materials within the renovation zone.

7.11 UREA FORMALDEHYDE FOAM INSULATION

At the time of the onsite building review, WSP did not observe indicators (e.g., patched injection holes or foam extrusions) of UFFI in the renovation zone. However UFFI may have been used during the 1970 renovations.

8 RECOMMENDATIONS

- Follow safe work procedures when cutting or grinding concrete, cementitious mortar, and/or other items that are assumed to contain crystalline silica.
- The west portion of the roof could not be assessed due to aggressive nesting sea gulls. We recommend any suspicious material noted in the western portion of the roof be considered asbestos containing and should be tested for asbestos content.
- No Asbestos containing materials were identified in this survey. However, there is a likelihood of encountering materials that may contain asbestos at the time of renovations. We recommend that at the time of renovations, any encountered suspicious material be treated as asbestos containing and must be removed using safe work practices, unless the material is tested in an accredited laboratory and confirmed as non-asbestos containing. The WorkSafeBC publication "Safe Work Practices for Handling Asbestos" and the Occupational Health and Safety (OHS) Guideline G6.8 describes acceptable practices. A risk assessment for any assumed and identified/confirmed asbestos-containing materials must be performed prior to initiation of renovation work to determine the exposure risk to workers and other persons as per OHS Guideline G20.112
- Additional sampling and testing (for asbestos content) of stucco present at the southern exterior wall is recommended, if the renovation work is conducted in its vicinity.
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- If the lead roof vents are replaced during renovations, they should be recycled at a licensed facility.
- If mould materials or animal wastes (rodent droppings) are found during renovation, safe work procedures should be followed when removing mould-contaminated materials and animal waste.
- Any compact fluorescents, halogen bulbs, sodium bulbs, and mercury containing light bulbs removed from the building exteriors should be recycled when removed from service. The Light Recycle website provides a list of recycling facilities on their website, at http://www.lightrecycle.ca/.
- If the renovation area needs to go beyond the current Survey area, WSP should be contacted to identify any additional potentially hazardous materials.
- At the time of the onsite building review, UFFI was not noted in the renovation zone. However there is a possibility that UFFI insulation may have been used to insulate the building envelop during the 1970 renovations. Although, it is unlikely that the exterior walls will be opened up for the proposed renovations, WSP should be contacted to sample for UFFI if any exterior walls are opened up and foam insulation is encountered.

→ Retain a copy of this report and provide it to any contractors who may be undertaking Renovation work in the Survey area as required by Section 20.112 of the WorkSafe BC regulations.

9 CLOSURE

No hazardous materials survey can wholly eliminate uncertainty regarding the potential for recognized hazardous materials conditions at the site. Performance of a standardized hazardous material survey protocol is intended to reduce, but not eliminate uncertainty regarding the potential for recognized hazardous materials at the site, given reasonable limits of time and cost.

This report has been prepared by WSP exclusively for Canada Mortgage and Housing Corporation and is intended to provide a survey of the potential for the presence of hazardous materials in the Public Market building located at Granville Island in Vancouver, BC.

The conclusions made in this report reflect WSP's best judgment in light of the information available at the time of preparation. No other warranty, expressed or implied, is made. 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. WSP accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions based on this report. The standard limitations of this report are specified in Appendix E.

Yours sincerely,

WSP CANADA INC.

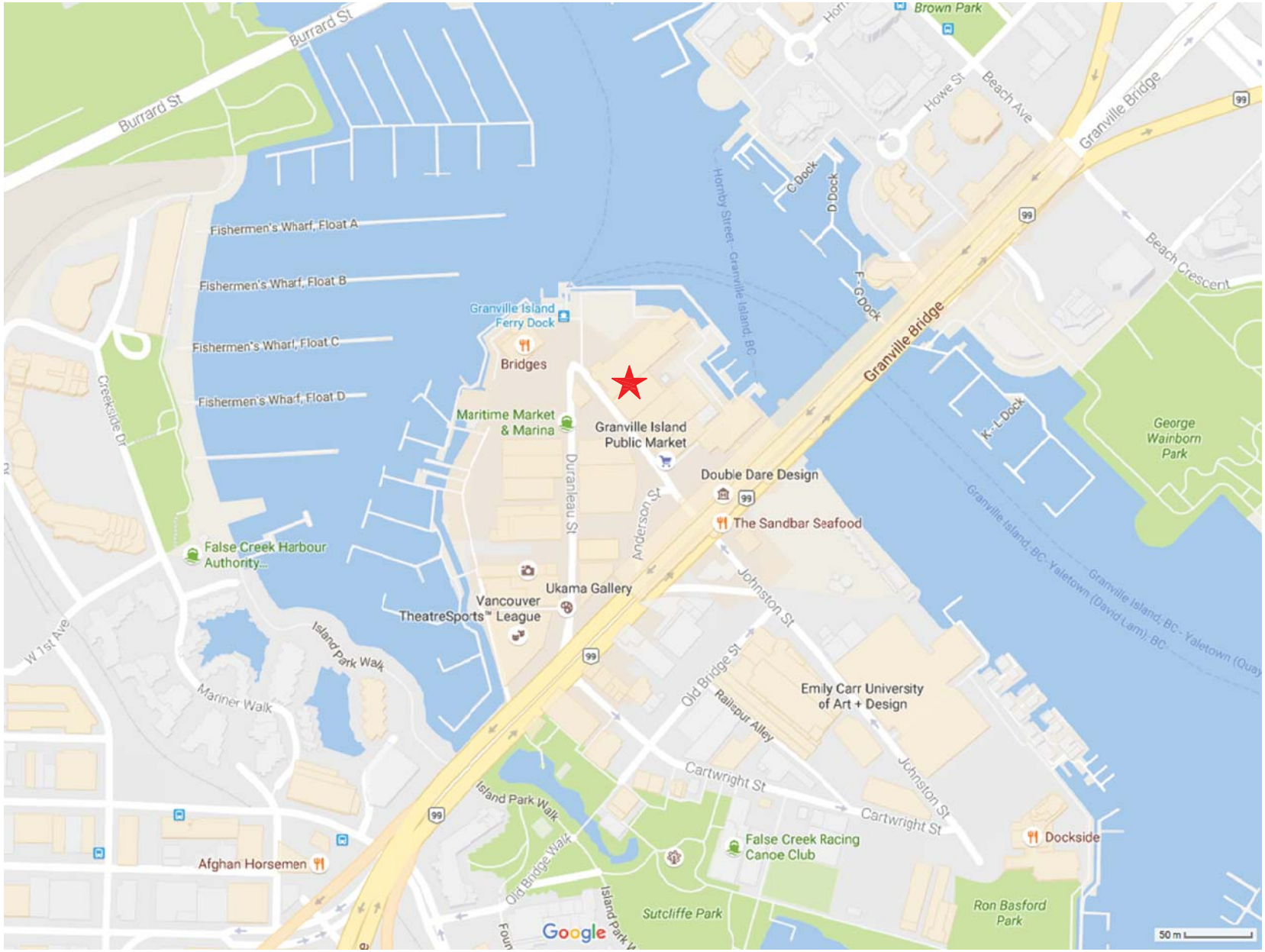
Arvind Chowdharri, P.Eng.
Environmental Engineer

Anthony Dickinson, M.A.Sc., P.Eng.
Senior Environmental Engineer

Appendix A Site Plan
Appendix B Site Photographs
Appendix C Chain-of-Custodies and Laboratory Reports
Appendix D Regulatory Framework
Appendix E Standard Limitations

Appendix A

FIGURES: SITE LOCATION AND SITE PLAN



LEGEND

★ – SUBJECT SITE

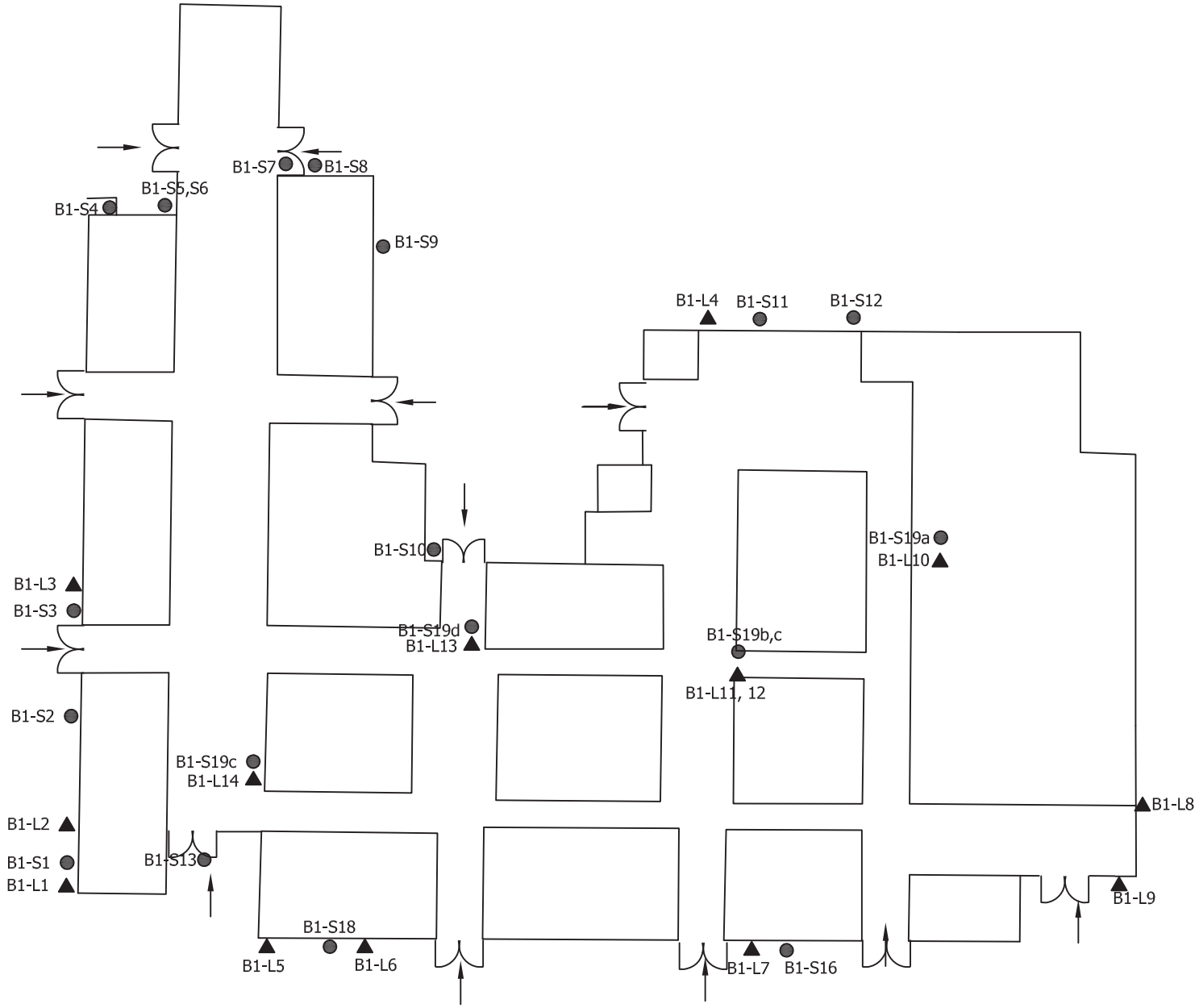
WSP CANADA INC.
100 - 20339 96 AVENUE, LANGLEY, BC V1M 0E4
PHONE: 604 533-2992 - FAX: 604 533-0768 - WWW.WSPGROUP.COM

TITLE: Site Location Map

PROJECT: Pre-Renovations Hazardous Materials Survey
Public Market, Granville Island, Vancouver, BC

CLIENT: Canada Mortgage and Housing Corporation

DES.	DR. JL
CH. AC	SCALE AS SHOWN
APP.	DATE AUG 2016
FILE NO. 151-63666-00 (P30, SP30D)	
DWG. NO. 1	



LEGEND

● – BUILDING MATERIALS SAMPLE (ASBESTOS)

▲ – PAINT SAMPLE (LEAD)

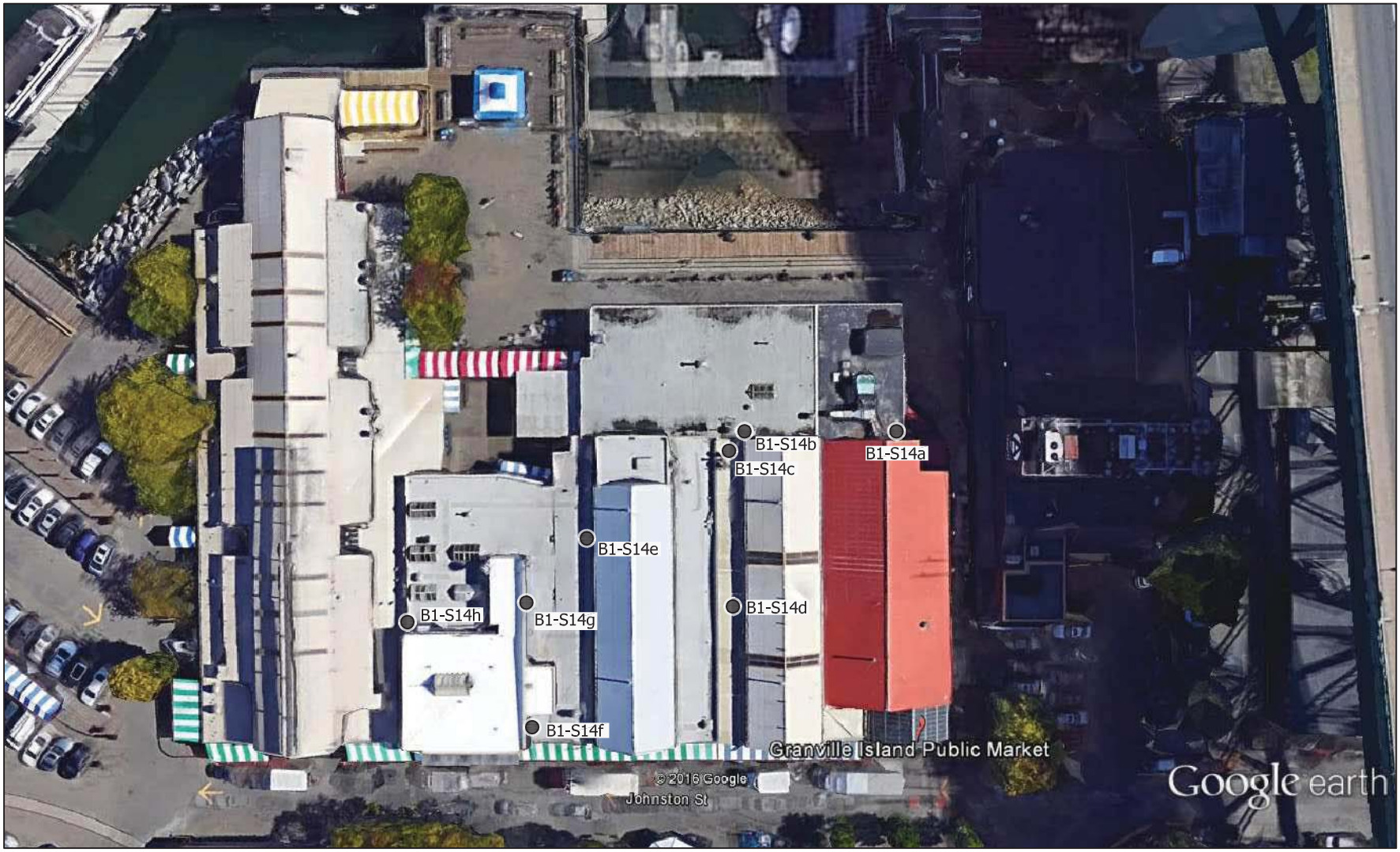
WSP CANADA INC.
100 - 20339 96 AVENUE, LANGLEY, BC V1M 0E4
PHONE: 604 533-2992 - FAX: 604 533-0768 - WWW.WSPGROUP.COM

TITLE: Sample Locations

PROJECT: Pre-Renovations Hazardous Materials Survey
Public Market, Granville Island, Vancouver, BC

CLIENT: Canada Mortgage and Housing Corporation

DES.	DR. JL
CH. AC	SCALE NTS
APP.	DATE AUG 2016
FILE NO. 151-63666-00 (P30, SP30D)	
DWG. NO. 2	



LEGEND

● – BUILDING MATERIALS SAMPLE (ASBESTOS)

▲ – PAINT SAMPLE (LEAD)

WSP CANADA INC.
100 - 20339 96 AVENUE, LANGLEY, BC V1M 0E4
PHONE: 604 533-2992 - FAX: 604 533-0768 - WWW.WSPGROUP.COM

TITLE: Sample Locations

PROJECT: Pre-Renovations Hazardous Materials Survey
Public Market, Granville Island, Vancouver, BC

CLIENT: Canada Mortgage and Housing Corporation

DES.	DR. JL
CH. AC	SCALE NTS
APP.	DATE AUG 2016
FILE NO. 151-63666-00 (P30, SP30D)	
DWG. NO. 3	

Appendix B

SITE PHOTOGRAPHS

Photo 1: View of the Public Market building (west portion).

Photo 2: View of the Public Market building (northeast portion).

Photo 3: View of lead containing the washroom exhaust boot, present at the roof of the building.

Photo 4: View of lead containing the wash room exhaust boots, present at the roof of the building.

Photo 5: View of the red paint applied on the steel structure present at the exteriors. The paint sample is found to contain greater than 0.06% lead.

Photo 6: View of the white paint applied on the ceiling of the building structure. The paint sample is found to contain greater than 0.06% lead.

Appendix C

CHAIN OF CUSTODY SHEETS & LABORATORY REPORTS

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Chain of Custody

–Bulk Asbestos –

Contact Information

Client Company: WSP Canada Inc
Office Address: #100 - 20339 96th Ave
City, State, Zip: Langley, BC V1M 0E4
Fax Number: 604-533-0768
Email Address: Arvind.chowdharrie@wspgroup.com

Project Number: 151-63666-00 [P30, SP 30D]
Project Name: Pre Renovations H.M.S. - Public Market
Primary Contact: ARVIND CHOWDHARRI
Office Phone: 604-533-2992
Cell Phone: 604-368-4289

PLM Instructions:

- ☑ PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993
- ☐ PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982
- ☐ PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010
- ☐ TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009

E-MAILED 8/8/16

- ☐ PLM: Point Counting
  - ☐ PC: via ELAP 198.1
  - ☐ PC: 400 Points
  - ☐ PC: 800 Points *
  - ☐ PC: 1600 Points *
- ☐ PLM: Instructions for Multi-Layered Samples
  - ☐ Analyze and Report All Separable Layers per EPA 600
  - ☐ Report Composite for Drywall Systems per NESHAP
  - ☐ Report All Layers and Composite Where Applicable
  - ☐ Only Analyze and Report Specifically Noted Layer
- ☐ PLM: Analyze Until Positive (Positive Stop)
  - ☐ AUP: by Homogenous Area as Noted
  - ☐ AUP: by Material Type as Noted
- ☐ PLM: NOB via 198.6
  - ☐ PLM: Friable via EPA 600 2.3
  - ☐ If <1% by PLM, to TEM via 198.4 *
  - ☐ If <1% by PLM, Hold for Instructions
- ☐ PLM: Non-Building Material*,** (Dust, Wipe, Tape)
  - ☐ Soil or Vermiculite Analysis*
  - ☐ CARB 435

Special Instructions: BA - Public Market

** Additional charge and turnaround may be required* *** Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory*

Turnaround Time

Preliminary Results Requested Date: _____ (Specific date / time)

☐ Verbal ☑ Email ☐ Fax

☐ 10 Day ☐ 5 Day ☑ 3 Day ☐ 2 Day ☐ 1 Day* ☐ 12 Hour** ☐ 6 Hour** ☐ RUSH**

30

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

Chain of Custody

Relinquished (Name/Organization):	ARVIND C. WSP Canada Inc	Date:	5/Aug/2016	Time:
Received (Name / iATL):		Date:		Time:
Sample Login (Name / iATL):		Date:	8/9/16	Time:
Analysis(Name(s) / iATL):	ND	Date:	8/10/16	Time:
QA/QC Review (Name / iATL):		Date:	8-11-16	Time:
Archived / Released: _____	QA/QC InterLAB Use: _____	Date:		Time:

RECEIVED AUG - 8 2016 IL - M

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Sample Log

–Bulk Asbestos –

Client: WSP Canada Inc Project: 151-63666-00 [P30, SP 30D]

Sampling Date/Time: 24 Aug - 2016

Bulk Asbestos Sample Log			
Client Sample #	**iATL #**	**Location/Description**	**Notes**
B1-S1	6001632	Sealant / Mastic, west wall, letter Box (SW), whitish. Exterior	
B1-S2	6001633	Black / Grey Mastic, overhead doors West, Exteriors	
B1-S3	6001634	Light brown mastic, west, (W/Rs)	windows. Exterior
B1-S4	6001635	Grey mastic along metal flashing 2nd level, west Exteriors	
B1-S5	6001636	Grey Mastic around windows, NW portion, Exteriors	
B1-S6	6001637	Grey Mastic, NW portion, walls	
B1-S7	6001638	Mastic, Grey, NW Exteriors	Entrance Door.
B1-S8	6001639	Mastic, windows, NW Exterior	windows
B1-S9	6001640	Mastic, overhead door, NW portion. Exteriors	
B1-S10	6001641	Mastic, Exterior wall, Entrance door, Grey / Black	Near #13 ~~Entrance~~
B1-S11	6001642	Mastic around windows, North wall Exterior, off-white	
B1-S12	6001643	Mastic around windows, NE portion Exteriors, Grey.	
B1-S13	6001644	Mastic around door #1, Exteriors. off-white	
B1-14a	6001645	Mastic, NE portion, Roof, Greyish.	
B1-14b	6001646	Mastic, NE portion, Roof, Greyish.	
B1-14c	6001647	Mastic, Black, Roof, Around Exhaust Fan.	

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Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Sample Log
–Bulk Asbestos –

Client: WSP Canada Inc Project: 151-63666-00 [P30, SP30D]

Sampling Date/Time: 2-4 Aug-16

Bulk Asbestos Sample Log			
Client Sample #	**iATL #**	**Location/Description**	**Notes**
B1-S14d.	6001648	Mastic, windows, Roof SE portion, off white/Black	
B1-S14e	6001649	Mastic, Roof, North central Greyish	
B1-S14f	6001650	Mastic, (wall) South central, Exhaust Fan, Roof Grey	
B1-S14g	6001651	Mastic around window, Near Roof access, Grey	
B1-S14h	6001652	Mastic around windows, Roof, South (centre) portion, Greyish	
B1-S15	6001653	Roofing Shingle, NE portion, Roof	
B1-S16	6001654	Mastic around windows / sprinkler Exteriors: SE portion off-white.	
B1-S17	6001655	Mastic around windows, SE portion, East wall, Whitish	
B1-S18	6001656	Stucco, south exterior wall.	
B1-S19a	6001657	White paint/coating, ceiling. NE portion	
B1-S19b	6001658	" " " on ceiling, ~~steel~~ wood above ZARA's	
B1-S19c	6001659	" " " on ceiling, ~~wood~~ Steel above ZARA	
B1-S19d	6001660	White paint/coating on ceiling, central portion.	
B1-S19e	6001661	White paint/coating on ceiling, SW portion	

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516763 - PLM
Project: Pre Renovations HMS-Public Market
Project No.: 151-63666-00 (P30,SP300D)

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6001632 **Client No.:** B1-S1	**Description:** Clear Sealant **Facility:**	**Location:** West Wall Letter Box SW Exterior
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001633 **Client No.:** B1-S2	**Description:** Grey Mastic **Facility:**	**Location:** Overhead Doors West Exteriors
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001634 **Client No.:** B1-S3	**Description:** Lt Brown Mastic **Facility:**	**Location:** Windows Exteriors West W/Rs
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001635 **Client No.:** B1-S4	**Description:** Grey Mastic **Facility:**	**Location:** 2nd Level West Exteriors
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001636 **Client No.:** B1-S5	**Description:** Brown Mastic **Facility:**	**Location:** Around Windows NW Portion Exteriors
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Cellulose	Percent Non-Fibrous Material: 98
Lab No.: 6001637 **Client No.:** B1-S6	**Description:** Grey Mastic **Facility:**	**Location:** NW Portion Walls
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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

Date Received: 8/8/2016
Date Analyzed: 08/10/2016
Signature:
Analyst: Nick Daigle

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516763 - PLM
Project: Pre Renovations HMS-Public Market
Project No.: 151-63666-00 (P30,SP300D)

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6001638 **Client No.:** B1-S7	**Description:** Grey Mastic **Facility:**	**Location:** NW Entrance Door Exteriors
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 15 Cellulose	Percent Non-Fibrous Material: 85
Lab No.: 6001639 **Client No.:** B1-S8	**Description:** Grey Mastic **Facility:**	**Location:** NW Windows Exterior
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001640 **Client No.:** B1-S9	**Description:** Grey Mastic **Facility:**	**Location:** Overhead Door NW Portion Exterior
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001641 **Client No.:** B1-S10	**Description:** Brown Mastic **Facility:**	**Location:** Exterior Wall Near #13 Entrance Door
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001642 **Client No.:** B1-S11	**Description:** Tan Mastic **Facility:**	**Location:** Windows North Wall Exterior
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Cellulose	Percent Non-Fibrous Material: 98
Lab No.: 6001643 **Client No.:** B1-S12	**Description:** Tan Mastic **Facility:**	**Location:** Windows NE Portion Exteriors
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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

Date Received: 8/8/2016
Date Analyzed: 08/10/2016
Signature:
Analyst: Nick Daigle

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
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CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516763 - PLM
Project: Pre Renovations HMS-Public Market
Project No.: 151-63666-00 (P30,SP300D)

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6001644 **Client No.:** B1-S13	**Description:** White Mastic **Facility:**	**Location:** Around Door #1 Exteriors
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001645 **Client No.:** B1-S14a	**Description:** Grey Mastic **Facility:**	**Location:** NE Portion Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001646 **Client No.:** B1-S14b	**Description:** Clear Mastic **Facility:**	**Location:** NE Portion Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001647 **Client No.:** B1-S14c	**Description:** Black Mastic **Facility:**	**Location:** Roof Around Exhaust Fan
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001648 **Client No.:** B1-S14d	**Description:** White Mastic **Facility:**	**Location:** Windows Roof SE Portion
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001649 **Client No.:** B1-S14e	**Description:** Brown Mastic **Facility:**	**Location:** Roof North Central
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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

Date Received: 8/8/2016
Date Analyzed: 08/10/2016
Signature:
Analyst: Nick Daigle

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516763 - PLM
Project: Pre Renovations HMS-Public Market
Project No.: 151-63666-00 (P30,SP300D)

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6001650 **Client No.:** B1-S14f	**Description:** Brown Mastic **Facility:**	**Location:** South Central Exhaust Fan Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001651 **Client No.:** B1-S14g	**Description:** Clear Mastic **Facility:**	**Location:** Around Windows Near Roof Access
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001652 **Client No.:** B1-S14h	**Description:** Clear Mastic **Facility:**	**Location:** Around Windows Roof South Center Portion
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001653 **Client No.:** B1-S15	**Description:** Brown Shingle **Facility:**	**Location:** NE Portion Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001654 **Client No.:** B1-S16	**Description:** Clear Mastic **Facility:**	**Location:** Around Windows/Sprinkler Exteriors SE Portion
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001655 **Client No.:** B1-S17	**Description:** Clear Mastic **Facility:**	**Location:** Around Windows SE Portion East Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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

Date Received: 8/8/2016
Date Analyzed: 08/10/2016
Signature:
Analyst: Nick Daigle

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
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Client: WSP967

Report Date: 8/10/2016
Report No.: 516763 - PLM
Project: Pre Renovations HMS-Public Market
Project No.: 151-63666-00 (P30,SP300D)

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6001656 **Client No.:** B1-S18	**Description:** Grey Cementitious **Facility:**	**Location:** South Exterior Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001657 **Client No.:** B1-S19a	**Description:** White Paint **Facility:**	**Location:** Ceiling NE Portion
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001658 **Client No.:** B1-S19b	**Description:** White Paint **Facility:**	**Location:** Ceiling Wood Above ZARA's
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001659 **Client No.:** B1-S19c	**Description:** White Paint **Facility:**	**Location:** Ceiling Steel Above ZARA
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001660 **Client No.:** B1-S19d	**Description:** Tan Texture **Facility:**	**Location:** Ceiling Central Portion
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001661 **Client No.:** B1-S19e	**Description:** White Paint **Facility:**	**Location:** Ceiling SW Portion
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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

Date Received: 8/8/2016
Date Analyzed: 08/10/2016
Signature:
Analyst: Nick Daigle

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
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CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
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Client: WSP967

Report Date: 8/10/2016
Report No.: 516763 - PLM
Project: Pre Renovations HMS-Public Market
Project No.: 151-63666-00 (P30,SP300D)

Appendix to Analytical Report

Customer Contact: Arvind Chowdharri
Analysis: US EPA 600, R93-116

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

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Shirley Clark
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

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

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

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

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

Information Pertinent to this Report:

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

Certifications:

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

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

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

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

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

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

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516763 - PLM
Project: Pre Renovations HMS-Public Market
Project No.: 151-63666-00 (P30,SP300D)

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

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

Disclaimers / Qualifiers:

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

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

Recommendations for Vermiculite Analysis:

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

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

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

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

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

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Chain of Custody

– Environmental Lead –

Contact Information

Client Company: WSP Canada Inc.
Office Address: #100 - 20339 96th Ave
City, State, Zip: Langley, BC V1M 0E4
Fax Number: 604-533-0768
Email Address: Arvind.Chowdharri@wspgroup.com

Project Number: 151-63666-00 [P30, SP30D]
Project Name: Pre Renovations H.M.S. - Public Market
Primary Contact: 604-533-2992
Office Phone: Arvind. Chowdharri
Cell Phone: 604-368-4289

iATL is accredited by the National Lead Laboratory Accreditation Program (NLLAP) to perform analytical testing of environmental samples for lead (Pb). The accreditation is through AIHA-LAP, LLC and several other nationally recognized state programs.

Matrix/Method:

- ☑ Paint by AAS: ASTM D3335-85a, 2009
- ☐ Wipe/Dust by AAS: SW 846: 3050B: 700B, 2010
- ☐ Air by AAS: NIOSH 7082, 1994
- ☐ Soil by AAS: EPA SW 846 (Soil)
- ☐ Water by AAS-GF: ASTM D3559-03D, USEPA 40CFR 141.11B, 2010
- ☐ Other Metals (Cd, Zn, Cr) by AAS
- ☐ Toxicity Characteristic Leaching Procedure (TCLP) by AAS: USEPA 1311
- ☐ Other _____

E-MAILED 8-11-16 AD

Special Instructions:

Turnaround Time

Preliminary Results Requested Date: _____ (Specific date / time) ☐ Verbal ☑ Email ☐ Fax

☐ 10 Day ☐ 5 Day ☑ 3 Day ☐ 2 Day ☐ 1 Day* ☐ 12 Hour** ☐ 6 Hour** ☐ RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

Chain of Custody

Relinquished (Name/Organization):	ARVIND C. WSP Canada Inc.	Date: 5-Aug-16	Time:
Received (Name / iATL):		Date:	Time:
Sample Login (Name / iATL):		Date: 8/8/16	Time:
Analysis(Name(s) / iATL):	8/11/16 ML	Date:	Time:
QA/QC Review (Name / iATL):		Date: 8/11/16	Time:
Archived / Released: _____	QA/QC InterLAB Use: _____	Date:	Time:

RECEIVED AUG - 8 2016 ATL - BY

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Sample Log

–Bulk Asbestos –

Client: WSP Canada Inc Project: 151-63666-00 [P30, SP30D]

Sampling Date/Time: 2-4 Aug 2016

Bulk Asbestos Sample Log			
Client Sample #	**iATL #**	**Location/Description**	**Notes**
B1 - L1	6001410	Light Brown paint on Exterior walls.	
B1 - L2	6001411	Red paint, Exteriors,	door frames
B1 - L3	6001412	Blue paint, Exteriors	doors/door frames
B1 - L4	6001413	Yellow paint, exteriors,	door/window frames
B1 - L5	6001414	Red paint on steel Exteriors	structures,
B1 - L6	6001415	Dark yellow paint on Exterior	wall, South
B1 - L7	6001416	Dark Grey paint on Exteriors	wall, South
B1 - L8	6001417	Red paint, Exterior wall,	East
B1 - L9	6001418	Black paint on Red, SE portion	steel structure
B1 - L10	6001419	White paint, ceiling,	NE portion.
B1 - L11	6001420	White paint on ceiling,	Steel, above ZARA's
B1 - L12	6001421	White paint on ceiling,	wood, above ZARA's
B1 - L13	6001422	White paint on ceiling,	central Area.
B1 - L14	6001423	White paint on ceiling,	SW Portion.

IATL International Asbestos Testing Laboratories

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Telephone: 856-231-9449 Fax: 856-231-9818
INFO@IATL.COM

DAILY QUALITY CONTROL DATA

LEAD SAMPLE ANALYSIS

(DATE: 08 / 11 / 16)

Standard	Total Lead (mg)	Percent Recovery **
Reagent Blank	0.000	< LOQ
Blank Spike	0.500	99
Lab Control Std	1.350	96
Matrix Spike - LBP *	0.37	94
Matrix Spike - Wipe *	0.32	98
Matrix Spike - Soil *	0.343	109
Matrix spike - Air *	0.050	94
2.5 ppm Standard	0.25	103
10.0 ppm Standard	1.0	101
40.0 ppm Standard	4.0	101

AIHA-LAP, LLC No. 100188 **NYSDOH-ELAP No. 11021**

Analysis Method: ASTM D3335-85A
NIOSH 7082
EPA SW846 3050B 7000B

Comments: IATL assumes that all sampling complies with accepted methods.
All client supplied sampling data is assumed to be correct when calculating results.
Detection limit based upon 0.2 mg/L reporting limit and sample size.
* NIST Traceable.
** 80-120% acceptable limits.

Analyzed By: R. Chad Shaffer
Date: 8/11/16

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

AAS.DailyQC.005

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Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/11/2016
Report No.: 516784 - Lead Paint
Project: Pre Renovations HMS-Public Market
Project No.: 151-63666-00 (P30, SP30D)

LEAD PAINT SAMPLE ANALYSIS SUMMARY

Lab No.:6001410 **Client No.:**B1-L1	**Description:**Light Brown **Location:**On Exterior Walls	**Result (% by Weight):**0.017 **Result (ppm):**170 **Comments:***
Lab No.:6001411 **Client No.:**B1-L2	**Description:**Red **Location:**Exteriors Door Frames	**Result (% by Weight):**0.021 **Result (ppm):**210 **Comments:**
Lab No.:6001412 **Client No.:**B1-L3	**Description:**Blue **Location:**Exteriors Door / Door Frames	**Result (% by Weight):**0.017 **Result (ppm):**170 **Comments:**
Lab No.:6001413 **Client No.:**B1-L4	**Description:**Yellow **Location:**Exteriors Door/Window Frames	**Result (% by Weight):**0.019 **Result (ppm):**190 **Comments:**
Lab No.:6001414 **Client No.:**B1-L5	**Description:**Red **Location:**On Steel Structures Exteriors	**Result (% by Weight):**9.3 **Result (ppm):**93000 **Comments:**
Lab No.:6001415 **Client No.:**B1-L6	**Description:**Dark Yellow **Location:** On Wall, South Exterior	**Result (% by Weight):**<0.0062 **Result (ppm):**<62 **Comments:**
Lab No.:6001416 **Client No.:**B1-L7	**Description:**Dark Grey **Location:**On Wall, South Exteriors	**Result (% by Weight):**<0.0079 **Result (ppm):**<79 **Comments:**
Lab No.:6001417 **Client No.:**B1-L8	**Description:**Red **Location:**Exterior Wall, East	**Result (% by Weight):**<0.0082 **Result (ppm):**<82 **Comments:**

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 8/8/2016
Date Analyzed: 08/11/2016
Signature:
Analyst: Chad Shaffer

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/11/2016
Report No.: 516784 - Lead Paint
Project: Pre Renovations HMS-Public Market
Project No.: 151-63666-00 (P30, SP30D)

LEAD PAINT SAMPLE ANALYSIS SUMMARY

Lab No.:6001418 **Client No.:**B1-L9	**Description:**Black On Red **Location:**Steel Structure SE Portion	**Result (% by Weight):**0.012 **Result (ppm):**120 **Comments:**
Lab No.:6001419 **Client No.:**B1-L10	**Description:**White **Location:**Ceiling, NE Portion	**Result (% by Weight):**0.15 **Result (ppm):**1500 **Comments:**
Lab No.:6001420 **Client No.:**B1-L11	**Description:**White **Location:**On Ceiling, Steel NE Portion Above Zara's	**Result (% by Weight):**0.18 **Result (ppm):**1800 **Comments:**
Lab No.:6001421 **Client No.:**B1-L12	**Description:**White **Location:**On Ceiling, Wood, Above Zara's	**Result (% by Weight):**0.18 **Result (ppm):**1800 **Comments:**
Lab No.:6001422 **Client No.:**B1-L13	**Description:**White **Location:**On Ceiling, Central Area	**Result (% by Weight):**0.10 **Result (ppm):**1000 **Comments:**
Lab No.:6001423 **Client No.:**B1-L14	**Description:**White **Location:**On Ceiling, SW Portion	**Result (% by Weight):**0.14 **Result (ppm):**1400 **Comments:**

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 8/8/2016
Date Analyzed: 08/11/2016
Signature:
Analyst: Chad Shaffer

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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ASBESTOS TESTING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/11/2016
Report No.: 516784 - Lead Paint
Project: Pre Renovations HMS-Public Market
Project No.: 151-63666-00 (P30, SP30D)

Appendix to Analytical Report:

Customer Contact: Arvind Chowdharri
Analysis: ASTM D3335-85a

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

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Shirley Clark
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Paint
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

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

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

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

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

Information Pertinent to this Report:

Analysis by ASTM D3335-85a by AAS

Certification:
- National Lead Laboratory Program (NLLAP): AIHA-LAP, LLC No. 100188
- NYSDOH-ELAP No. 11021

Regulatory limit is 0.5% lead by weight (EPA/HUD guidelines). Recommend multiple sampling for all samples less than regulatory limit for confirmation.

All results are based on the samples as received at the lab. iATL assumes that appropriate sampling methods have been used and that the data upon which these results are based have been accurately supplied by the client.

Method Detection Limit (MDL) per EPA Method 40CFR Part 136 Apendix B.

Reporting Limit (RL) based upon Lowest Standard Determined (LSD) in accordance with AIHA-ELLAP policies.

LSD=0.2 ppm MDL=0.005% by weight. RL= 0.010% by weight (based upon 100 mg sampled).

* Insufficient sample provided to perform QC reanalysis (<200 mg)

** Not enough sample provided to analyze (<50 mg)

*** Matrix / substrate interference possible.

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CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/11/2016
Report No.: 516784 - Lead Paint
Project: Pre Renovations HMS-Public Market
Project No.: 151-63666-00 (P30, SP30D)

Disclaimers / Qualifiers:

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

* NOTE: Multiple samples received in container. Composite analysis requested per EPA/HUD guidelines not covered by NLLAP/AIHA accreditation.

Appendix D

REGULATORY FRAMEWORK

REGULATORY FRAMEWORK

1. Occupational Health and Safety Regulation (Including amendments up to B.C. Reg. 195/2015),
2. Safe Work Practices for Handling Asbestos, WorkSafe BC, (Publication Date January 15, 2013).
3. Hazardous Waste Regulation, BC Ministry Of Environment. (Including amendments up to B.C. Reg. 63/2009, April 1, 2009).
4. Ozone Depleting Substances and other Halocarbons Regulation. (Including amendments up to B.C. Reg. 317/2012, November 9, 2012).
5. Environmental Management Act (As Current to June 22, 2016).
6. PCB Regulations, SOR / 2008-273, Canadian Environmental Protection Act.
7. Lead-Containing Paint and Coatings, Preventing Exposure in the Construction Industry, WorkSafe BC, June 2011.
8. Federal Register, 40 CFR Part 745 Lead; Identification of Dangerous Levels of Lead; Final Rule, Environmental Protection Agency, January 5, 2001
9. Transportation of Dangerous Goods Regulations SOR / 2015-100, Transportation of Dangerous Goods Act.
10. Consumer Products Safety Act, SOR/2014-79.

Appendix E

STANDARD LIMITATIONS

TERMS OF REFERENCE FOR HAZARDOUS MATERIALS AND OCCUPATIONAL HEALTH AND SAFETY REPORTS ISSUED BY WSP CANADA INC.

1. STANDARD OF CARE

WSP Canada Inc. ("WSP") prepared and issued this report (the "Report") for its client (the "Client") in accordance with generally-accepted consulting practices for the hazardous materials and occupational health and safety disciplines. No other warranty, expressed or implied, is made. Unless specifically stated in the Report, the Report does not address environmental issues.

The terms of reference for hazardous materials and occupational health and safety reports issued by WSP (the "Terms of Reference") contained in the present document provide additional information and caution related to standard of care and the use of the Report. The Client should read and familiarize itself with these Terms of Reference.

2. COMPLETENESS OF THE REPORT

All documents, records, drawings, correspondence, data, files and deliverables, whether hard copy, electronic or otherwise, generated as part of the services for the Client are inherent components of the Report and, collectively, form the instruments of professional services (the "Instruments of Professional Services"). The Report is of a summary nature and is not intended to stand alone without reference to the instructions given to WSP by the Client, the communications between WSP and the Client, and to any other reports, writings, proposals or documents prepared by WSP for the Client relative to the specific site described in the Report, all of which constitute the Report.

TO PROPERLY UNDERSTAND THE INFORMATION, OBSERVATIONS, FINDINGS, SUGGESTIONS, RECOMMENDATIONS AND OPINIONS CONTAINED IN THE REPORT, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. WSP CANNOT BE RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT AND ITS VARIOUS COMPONENTS.

3. BASIS OF THE REPORT

WSP prepared the Report for the Client for the specific objectives and purpose that the Client described to WSP. The applicability and reliability of any of the information, observations, findings, suggestions, recommendations and opinions contained in the Report are only valid to the extent that there was no material alteration to or variation from any of the said descriptions provided by the Client to WSP unless the Client specifically requested WSP to review and revise the Report in light of such alteration or variation.

4. USE OF THE REPORT

The information, observations, findings, suggestions, recommendations and opinions contained in the Report, or any component forming the Report, are for the sole use and benefit of the Client and the team of consultants selected by the Client for the specific project that the Report was provided. NO OTHER PARTY MAY USE OR RELY UPON THE REPORT OR ANY PORTION OR COMPONENT WITHOUT THE WRITTEN CONSENT OF WSP. WSP will consent to any reasonable request by the Client to approve the use of this Report by other parties designated by the Client as the "Approved Users". As a condition for the consent of WSP to approve the use of the Report by an Approved User, the Client must provide a copy of these Terms of Reference to that Approved User and the Client must obtain written confirmation from that Approved User that the Approved User will comply with these Terms of Reference, such written confirmation to be provided separately by each Approved User prior to beginning use of the Report. The Client will provide WSP with a copy of the written confirmation from an Approved User when it becomes available to the Client, and in any case, within two weeks of the Client receiving such written confirmation.

The Report and all its components remain the copyright property of WSP and WSP authorizes only the Client and the Approved Users to make copies of the Report, but only in such quantities as are reasonably necessary for the use of the Report by the Client and the Approved Users. The Client and the Approved Users may not give, lend, sell or otherwise disseminate or make the Report, or any portion thereof, available to any party without the written permission of WSP. Any use which a third party makes of the Report, or any portion of the Report, is the sole responsibility of such third parties. WSP accepts no responsibility for damages suffered by any third party resulting from the use of the Report. The Client and the Approved Users acknowledge and agree to indemnify and hold harmless WSP, its officers, directors, employees, agents, representatives or sub-consultants, or any or all of them, against any claim of any nature whatsoever brought against WSP by any third parties, whether in contract or in tort, arising or related to the use of contents of the Report.

TERMS OF REFERENCE FOR HAZARDOUS MATERIALS AND OCCUPATIONAL HEALTH AND SAFETY REPORTS ISSUED BY WSP CANADA INC. (continued)

5. INTERPRETATION OF THE REPORT

a. **Hidden Conditions**: The Client acknowledges that subsurface and concealed conditions may vary from those encountered or reviewed. WSP can only comment on the conditions observed on the date(s) the Survey is performed. The work is limited to those areas of concern identified by the Client and/or outlined in our proposal. Other areas of concern may exist but were not investigated within the scope of this Survey.

b. **Reliance on information**: The evaluation and conclusions contained in the Report have been prepared on the basis of conditions in evidence at the time of site investigation and field review and on the basis of information provided to WSP. WSP has relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, WSP cannot accept responsibility for any deficiency, misstatement or inaccuracy contained in the report as a result of misstatements, omissions, misrepresentations or fraudulent acts of persons providing information.

c. **Additional Involvement by WSP**: To avoid misunderstandings, WSP should be retained to assist other professionals to explain relevant hazardous materials and occupational health and safety findings and to review the hazardous materials and occupational health and safety aspects of the plans, drawings and specifications of other professionals relative to the services provided by WSP. To ensure compliance and consistency with the applicable hazardous materials and occupational health and safety codes, legislation, regulations, guidelines and generally-accepted practices, WSP should also be retained to provide field review services during the performance of any related work. Where applicable, it is understood that such field review services must meet or exceed the minimum necessary requirements to ascertain that the work being carried out is in general conformity with the recommendations made by WSP. Any reduction from the level of services recommended by WSP will result in WSP providing qualified opinions regarding adequacy of the work.

6. ALTERNATE REPORT FORMAT

When WSP submits both electronic and hard copy versions of the Instruments of Professional Services, the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding upon WSP. The hard copy versions submitted by WSP shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancy, the hard copy versions shall govern over the electronic versions; furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed and sealed versions of the Instruments of Professional Services maintained or retained, or both, by WSP shall be deemed to be the overall originals for the Project.

The Client agrees that the electronic file and hard copy versions of Instruments of Professional Services shall not, under any circumstances, no matter who owns or uses them, be altered by any party except WSP. The Client warrants that the Instruments of Professional Services will be used only and exactly as submitted by WSP.

The Client recognizes and agrees that WSP prepared and submitted electronic files using specific software or hardware systems, or both. WSP makes no representation about the compatibility of these files with the current or future software and hardware systems of the Client, the Approved Users or any other party. The Client further agrees that WSP is under no obligation, unless otherwise expressly specified, to provide the Client, the Approved Users and any other party, or any or all of them, with specific software and hardware systems that are compatible with any electronic submitted by WSP. The Client further agrees that should the Client, an Approved User or a third party require WSP to provide specific software or hardware systems, or both, compatible with the electronic files prepared and submitted by WSP, for any reason whatsoever included but not restricted to an order from a court, then the Client will pay WSP for all reasonable costs related to the provision of the specific software or hardware systems, or both. The Client further agrees to indemnify and hold harmless WSP, its officers, directors, employees, agents, representative or sub-consultant, or any or all of them, against any claim or any nature whatsoever brought against WSP, whether in contract or in tort, arising or related to the provision or use or any specific software or hardware provided by WSP.

REPORT N^{O} 151-63666-00 (P30 SP 30D)

PRE-RENOVATIONS HAZARDOUS MATERIALS SURVEY - NET LOFT, GRANVILLE ISLAND, VANCOUVER, BC

CANADA MORTGAGE AND HOUSING CORPORATION

AUGUST 23, 2016

WSP

PRE-RENOVATIONS HAZARDOUS MATERIALS SURVEY - NET LOFT, GRANVILLE ISLAND, VANCOUVER, BC

CANADA MORTGAGE AND HOUSING CORPORATION

Project no: 151-63666-00 (P30 SP30D)
Date: August 23, 2016

WSP Canada Inc.
#100 20339 – 96th Avenue
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www.wspgroup.com

Our Ref#: 151-63666-00 (P30 SP30D)

August 23, 2016

Canada Mortgage and Housing Corporation
Granville Island Administration Office
1661 Duranleau Street, 2nd Floor
Vancouver, BC V6H 3S3

Attn: - Ms. Janet Flowers, Director

WSP Canada Inc.
#100 20339 – 96th Avenue
Langley, BC V1M 0E4

Tel: ++1 604-533-2992
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www.wspgroup.com
www.pbworld.com

Dear Ms. Flowers,

Subject: Pre-Renovations Hazardous Materials Survey – Net Loft (Buildings # 39-41), Granville Island, Vancouver, BC

Please find enclosed the pre-renovations hazardous materials survey report conducted for the Net Loft building located at Granville Island in Vancouver, BC.

Hazardous materials were identified within the areas identified for Survey. Proper procedures should be implemented for the safe removal and disposal of these materials.

If you have any questions about the information contained in the attached report please contact either Arvind Chowdharri (604) 533-2992 or Anthony Dickinson at (604) 736-5421.

Yours sincerely,

Arvind Chowdharri, P.Eng.
Environmental Engineer

Anthony Dickinson, M.A.Sc., P.Eng.
Senior Environmental Engineer – EHS Group

EXECUTIVE SUMMARY

WSP Consultants Inc. (WSP) was retained by Canada Mortgage and Housing Corporation (the client) for the provision of a Pre-Renovations Hazardous Materials Survey (the Survey) of the Net Loft building (also known as buildings #39-41) located at Granville Island in Vancouver, BC, (herein referred to as the "Subject Site" or "Site").

As per the BC Assessment Authority, the Net Loft building was constructed in 1965. Based on the estimated construction date of the building, hazardous building materials are anticipated to be present within the building structure.

WSP understands that the Survey is required for regulatory compliance purposes prior to proposed renovations.

The objective of a Hazardous Materials Survey is to establish the presence / absence, and type of hazardous building materials utilized in the construction of the building at the specified locations by means of sample collection and subsequent laboratory analysis. Section 20.112 of the BC Occupational Health and Safety Regulation requires that a hazardous materials survey should be conducted by a qualified person prior to any demolition or renovation activity which might disturb hazardous materials.

For the purposes of this survey, hazardous building materials were defined as:

- Asbestos-containing building materials (ACM);
- Lead materials and lead-based paints (LBP);
- Mercury;
- Polychlorinated biphenyls (PCB);
- Crystalline silica;
- Ozone depleting substances (ODS);
- Radioactive materials (RAM);
- Urea Formaldehyde Foam Insulation (UFFI);
- Mould and/or microbial growth; and
- Flammable or explosive materials.

The survey and review was conducted in general accordance with WorkSafeBC Occupational Health and Safety Regulations Part 20, Construction, Excavation and Demolition, Section 20.112 Hazardous Materials.

WSP understands that the following renovation will be conducted within the Net Loft building structure:

- General flat roof maintenance work to remove vegetation growth and debris, and to re-granulate the cap sheet where bitumen is exposed due to granule loss/alligator cracking;
- Clean and remove vegetation growth from skylights;
- Installation of gutter at sloped roof (south elevation);
- Installation of sealants where missing at wall penetrations (i.e. hose bibs, wall anchorage for awning support, etc.), and at wall transitions between different cladding materials;

- Repair deteriorated timber elements as necessary;
- Replacement soffit/base-of-wall flashing where missing at the south elevation walkway;
- Replacement of missing/corroded fasteners through the metal cladding;
- Removal of surface corrosion on metal cladding and repaint as necessary; and
- Repaint wood window frames where paint finish is peeled.

Based on the aforementioned renovations that are proposed for the Net Loft building, the renovation zone includes building exteriors and roof of the building. This survey was limited to the "renovation zone".

The Survey was conducted by identifying the above defined hazardous materials including suspect ACM and LBP through on-site bulk sampling and analysis, review for visual / olfactory presence of suspected mould growth, and review of elements or components which may contain lead products, mercury, PCB, crystalline silica, ODS, RAM, and UFFI in the aforementioned renovation zone.

CONCLUSIONS

Asbestos-Containing Materials (ACM)

The bulk building material samples (suspected to contain asbestos) collected in the Survey within the renovation zone are listed in Table 7-1 along with the corresponding IATL laboratory results of asbestos content. Based on the representative sampling, corresponding IATL laboratory results for asbestos content, asbestos was not found in any of the samples collected in this survey.

Lead-Based Paints (LBP)

The paint samples collected in the Survey for lead content testing within the renovation zone are listed in Table 7-2 along with the corresponding IATL laboratory results of lead content. The paint sample B2-L2 was found to have a lead (Pb) content above the WorkSafe BC criteria.

Lead Products

At the time of the onsite building review, no lead containing products were noted in the renovation zone.

Mould and Water Damage

At the time of the onsite building review, WSP did not observe any area with mould growth or water damage in the renovation zone.

PCBs

At the time of the onsite building review, WSP did not observe any PCB containing light fixtures or transformers within the renovation zone. However, fluorescent light ballasts with the potential to contain PCB were noted inside the Survey building. Based on the areas proposed for renovation these are not likely to be disturbed. However, when the renovations actually occur, if any fluorescent light ballasts are to be removed they should be assumed to contain PCB and disposed of appropriately unless their serial numbers have been checked to determine that they are PCB free.

Mercury

At the time of onsite building review, WSP noted outdoor light fixtures on the exterior walls and roof of the onsite building. These light fixtures may use mercury containing light bulbs.

Ozone Depleting Substances

At the time of the onsite building review, various roof mounted HVAC units (potentially containing ODS refrigerant) were noted. These HVAC units are not likely to be disturbed during the proposed renovations.

Radioactive Materials

At the time of the onsite building review, no smoke detectors or other radioactive materials were noted in the renovation zone.

Crystalline Silica

It is anticipated that Crystalline Silica is present in the concrete floor and foundation works of the building.

Flammable and Explosive Materials

At the time of the onsite building review, WSP did not observe any flammable or explosive materials within the renovation zone.

Urea Formaldehyde Foam Insulation

At the time of the onsite building review, WSP did not observe indicators (e.g., patched injection holes or foam extrusions) of UFFI in the renovation zone. WSP also reviewed a portion of the south exterior wall that was damaged in the recent vehicle accident. No UFFI was noted in the wall cavities at that location. However there is a possibility that UFFI insulation may have been used to insulate the building envelop during construction or renovations. WSP should be contacted to sample for UFFI if any exterior walls are opened up and foam insulation is encountered.

RECOMMENDATIONS

- Follow safe work procedures when cutting or grinding concrete, cementitious mortar, and/or other items that are assumed to contain crystalline silica.
- The roof could not be assessed thoroughly due to aggressive nesting sea gulls. We recommend any suspicious material noted at the roof during renovations be considered asbestos containing and should be tested for asbestos content.
- No Asbestos containing materials were identified in this survey. However, there is likelihood of encountering materials that may contain asbestos at the time of renovations. We recommend that at the time of renovations, any encountered suspicious material be treated as asbestos containing and must be removed using safe work practices, unless the material is tested in an accredited laboratory and confirmed as non-asbestos containing. The WorkSafeBC publication "Safe Work Practices for Handling Asbestos" and the Occupational Health and Safety (OHS) Guideline G6.8 describes acceptable practices. A risk assessment for any assumed and identified/confirmed asbestos-containing materials must be performed prior to initiation of renovation work to determine the exposure risk to workers and other persons as per OHS Guideline G20.112

- Proper procedures and documentation such as safe work practices, an exposure control plan, risk assessments and/or other controls must be developed for all workers if lead-containing paint with a lead content of 0.06% or more is to be removed from the surfaces or if otherwise disturbed. Any other paint coatings encountered during renovation activities, which have not been already tested, should be considered lead containing until sampling can demonstrate otherwise.
- If mould materials or animal wastes (rodent droppings) are found during renovation, safe work procedures should be followed when removing mould-contaminated materials and animal waste.
- Any compact fluorescents, halogen bulbs, sodium bulbs, and mercury containing light bulbs removed from the building exteriors should be recycled when removed from service. The Light Recycle website provides a list of recycling facilities on their website, at http://www.lightrecycle.ca/.
- If the renovation area needs to go beyond the current Survey area, WSP should be contacted to identify any additional potentially hazardous materials.
- At the time of the onsite building review, UFFI was not noted in the renovation zone. WSP should be contacted to sample for UFFI if any exterior walls are opened up and foam insulation is encountered.
- The roof mount HVAC units should be degassed by a certified/ licensed contractor as required by British Columbia's Ozone Depleting Substances Regulation, if considered for removal or replacement during renovations
- Retain a copy of this report and provide it to any contractors who may be undertaking Renovation work in the Survey area as required by Section 20.112 of the WorkSafe BC regulations.

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TABLES

APPENDICES

1 INTRODUCTION

WSP Consultants Inc. (WSP) was retained by Canada Mortgage and Housing Corporation (the client) for the provision of a Pre-Renovations Hazardous Materials Survey (the Survey) of the Net Loft building (also known as buildings #39-41) located at Granville Island in Vancouver, BC, (herein referred to as the "Subject Site" or "Site").

As per the BC Assessment Authority, the Net Loft building was constructed in 1965. Based on the estimated construction date of the onsite building, hazardous building materials are anticipated to be present within the building structure.

WSP understands that the Survey is required for regulatory compliance purposes prior to proposed renovations.

The objective of a Hazardous Materials Survey is to establish the presence / absence, and type of hazardous building materials utilized in the construction of the building at the specified locations by means of sample collection and subsequent laboratory analysis. Section 20.112 of the BC Occupational Health and Safety Regulation requires that a hazardous materials survey should be conducted by a qualified person prior to any demolition or renovation activity which might disturb hazardous materials.

For the purposes of this survey, hazardous building materials were defined as:

- Asbestos-containing building materials (ACM);
- Lead materials and lead-based paints (LBP);
- Mercury;
- Polychlorinated biphenyls (PCB);
- Crystalline silica;
- Ozone depleting substances (ODS);
- Radioactive materials (RAM);
- Urea Formaldehyde Foam Insulation (UFFI);
- Mould and/or microbial growth; and
- Flammable or explosive materials.

The survey and review was conducted in general accordance with WorkSafeBC Occupational Health and Safety Regulations Part 20, Construction, Excavation and Demolition, Section 20.112 Hazardous Materials.

WSP understands that the following renovation will be conducted within the Net Loft building structure:

- General flat roof maintenance work to remove vegetation growth and debris, and to re-granulate the cap sheet where bitumen is exposed due to granule loss/alligator cracking;
- Clean and remove vegetation growth from skylights;
- Installation of gutter at sloped roof (south elevation);

- Installation of sealants where missing at wall penetrations (i.e. hose bibs, wall anchorage for awning support, etc.), and at wall transitions between different cladding materials;
- Repair deteriorated timber elements as necessary;
- Replacement soffit/base-of-wall flashing where missing at the south elevation walkway;
- Replacement of missing/corroded fasteners through the metal cladding;
- Removal of surface corrosion on metal cladding and repaint as necessary; and
- Repaint wood window frames where paint finish is peeled.

Based on the aforementioned renovations that are proposed for the Net Loft building, the renovation zone includes building exteriors and roof of the building. This survey was limited to the "renovation zone".

The Survey was conducted by identifying the above defined hazardous materials including suspect ACM and LBP through on-site bulk sampling and analysis, review for visual / olfactory presence of suspected mould growth, and review of elements or components which may contain lead products, mercury, PCB, crystalline silica, ODS, RAM, and UFFI in the aforementioned renovation zone.

2 LIMITATIONS

This Survey included construction materials and components only and was limited to the construction material present within the renovation zone that may be disturbed during the proposed renovations. As it is neither practical nor feasible to sample materials on a foot by foot basis, visually similar materials' analysis results were extrapolated throughout the structure and / or based on estimated phases of construction, where that information was made available.

Energised electrical and mechanical equipment or systems were not opened for safety reasons. This survey excluded owner or occupant articles such as furniture or stored items.

Concealed or inaccessible materials within the building structure, fire doors, roofing, and below ground materials including tanks and pipes were specifically excluded from our scope of work.

No below-grade water, drainage or plumbing systems or sub surface investigation of materials were included in the scope of this Survey.

As the building is currently occupied and in use, no destructive testing of the building envelope was undertaken (i.e. exterior walls) in order to preserve the integrity of the building envelop.

The roof area could not be completely visually assessed due to safety concerns as a result of aggressive nesting sea gulls.

3 SITE DESCRIPTION

The Net Loft building is a two level building that comprised of various shops, retail outlets and offices, located to the south of Johnston Street, near the intersection of Johnston Street and Anderson Street at Granville Island in Vancouver, BC. The Site location map and Site Plan are attached in Appendix A.

4 SCOPE OF WORK

The survey was limited to the building materials and fixed equipment associated within the renovation zone of the Net Loft building structure. To achieve the objective of the Survey, WSP completed the following scope of work:

Visual Review:

- Visually identify building materials potentially containing asbestos;
- Visually identify any foam insulation which may contain urea formaldehyde;
- Visually identify any electrical equipment which may contain PCBs;
- Visually identify any thermostats or fluorescent light tubes which may contain mercury;
- Visually identify any light bulbs that may contain halogens or sodium;
- Visually identify construction materials which may contain silica such as concrete, cement, tile, brick, masonry, mortar;
- Visually identify any equipment which may have ODS-containing halons or refrigerants;
- Visually identify any smoke detectors with the potential to contain radioactive materials;
- Visually identify evidence of UFFI insulation;
- Visually identify areas of current or historic moisture penetration which may support microbial growth, and
- Visually identify stored materials which may be flammable or explosive.

Building Materials Bulk Sampling:

- Collection of bulk samples of any materials suspected to contain asbestos for laboratory analyses at an accredited laboratory;
- Collection of paint samples suspected to contain lead for laboratory analyses at an accredited laboratory;
- The sampling methodology and number of samples were in general accordance with the appropriate WorkSafe BC Guidelines; and
- Photographs were taken of the materials sampled as well as the general area of the sample to give context.

Reporting:

- Preparation of this report summarizing the specific hazardous building materials identified through review and analysis. Photographs were taken of the suspect hazardous building materials as well as the general area to give context. These are included in Appendix B.

5 METHODOLOGY

On 2, 3 and 4 August 2016, WSP conducted the Survey site work as per the scope of work discussed in Section 4. Visual review was conducted for suspect hazardous materials likely to be impacted by renovation activities. The areas typically containing suspect hazardous materials were reviewed from the accessible areas. Selected photographs taken during the site visit are presented in Appendix B. The completed Chain-of Custody forms (COCs) and the Laboratory Reports of analytical results are presented in Appendix C.

5.1 ASBESTOS-CONTAINING MATERIALS (ACM)

Based on the year of construction and renovation, asbestos containing materials are likely to be present with the onsite building structure. Accordingly, bulk sampling for suspect asbestos materials was conducted. The review was based on experienced professional judgment in consideration of, but not necessarily limited to, the era of construction, and uniformity of materials and size of area of homogeneous materials.

The locations and material descriptions of the collected samples was described in field notes, and the corresponding sample numbers were indicated on the Chain-of-Custody forms submitted along with the original samples.

Each sample was placed in a labelled plastic bag appropriate for the proposed analysis. The samples were sent to International Asbestos Testing Laboratories (IATL) in Mount Laurel, New Jersey, USA for asbestos analyses. IATL participates in the American Industrial Hygiene Association's (AIHA) Bulk Asbestos Proficiency Analytical Testing (BAPAT) Program. Samples were analyzed in accordance with PLM: Bulk Asbestos Building Materials EPA 600 R 93 / 116. 1993.

Based on WSP's professional opinion, the following materials were assumed not to contain asbestos during this survey and were classified as non-asbestos materials:

- Wood, wood paneling
- Carpet
- Concrete, Brick
- Fiberglass
- Plastics, rubbers, metals
- Gypsum board without taping compound / mud

5.2 LEAD-BASED PAINTS (LBP)

Based on the year of construction and renovation, surface coatings that potentially contain lead in paint could be present. Accordingly, bulk sampling for surface coatings was conducted. The review was based on experienced professional judgment in consideration of, but not necessarily limited to, the era of construction, and uniformity of materials and size of area of homogeneous materials.

The paint samples were sent to International Asbestos Testing Laboratories (IATL) in Mount Laurel, New Jersey, USA for lead content analyses. Analysis was by ASTM D3335-85A "Standard Method to Test for Low Concentrations of Lead in Paint by Atomic Absorption Spectrophotometry". Chain-of-custody protocol was observed during handling and transportation of the bulk samples

5.3 LEAD PRODUCTS

The renovation zone was visually reviewed for the presence of lead products (e.g. washroom exhaust boots, roof sheeting etc.).

5.4 MOULD AND OTHER MICROBIAL CONTAMINANTS

The renovation zone was visually reviewed for the presence of water damage and suspected mould growth.

5.5 CRYSTALLINE SILICA

The renovation zone was visually reviewed for the presence of concrete or mineral-composite building materials which may contain crystalline silica.

5.6 OTHER HAZARDOUS MATERIALS

The renovation zone was visually reviewed for the presence of fluorescent tubes and light ballasts which could contain mercury or PCBs; equipment which might contain ODS (i.e. halons or refrigerants);: smoke detectors which may contain radioactive materials (RAM); potentially toxic/hazardous chemicals (i.e. halide and sodium arc bulbs); signs of urea formaldehyde use (UFFI); and potentially flammable or explosive materials.

The aforementioned building materials review and bulk material sample collection for analysis of potential asbestos and lead based surface coatings was consistent with recognized industry standards and principles of good occupational hygiene practice.

6 REGULATORY FRAMEWORK

The details of the regulatory frameworks for ACM, LBP, PCB, mercury, RAM, UFFI, and ODS are found in Appendix D.

7 PRE-RENOVATION HAZARDOUS MATERIALS SURVEY RESULTS

The results of the Survey are summarized below. A Site Plan showing sample locations is attached in Appendix A. Selected photographs taken during the site visit are presented in Appendix B. The completed Chain-of-Custody forms (COCs) and the Laboratory Reports of analytical results are presented in Appendix C.

7.1 ASBESTOS-CONTAINING MATERIALS

The bulk building material samples (suspected to contain asbestos) collected in the Survey within the renovation zone are listed below (Table 7-1) along with the corresponding IATL laboratory results of asbestos content:

Table 7-1 Bulk Building Material Samples (Analyzed for Asbestos Content)

Sample ID	Material Description *	Sample Location	Content/Type
B2-S1a	Black Mastic	Skylight Roof	None Detected
B2-S1b	Black Mastic	Skylight Roof	None Detected
B2-S1c	Black Mastic	Skylight Roof	None Detected
B2-S2	Clear Sealant	West Wall Exteriors	None Detected
B2-S3	Clear Sealant	SW Corner Exteriors	None Detected
B2-S4	Clear Sealant	South Exterior Wall Exhaust Fan	None Detected
B2-S5	Clear Sealant	SE Corner Exteriors	None Detected
B2-S6	Clear Sealant	NE Portion Windows Exteriors	None Detected
B2-S7	Clear Sealant	NE Entrance Door Exteriors	None Detected

Notes: Bold indicates asbestos detected above WorksafeBC's 0.5% criteria.
**- Material Description as noted by iATL during analysis. The description of the material as noted in the field may differ from the description noted in the lab. The COCs in Appendix C may be referred for the field description of the materials.*

According to WorkSafeBC, the definition of an asbestos-containing material is 0.5% by weight. Based on the representative sampling, corresponding IATL laboratory results for asbestos content, asbestos was not found in any of the samples collected in this survey.

7.2 LEAD-BASED PAINTS (LBP)

The paint samples collected in the Survey for lead content testing within the renovation zone are listed below (Table 7-2) along with the corresponding IATL laboratory results of lead content.

Table 7-2 Paint Samples (Analyzed for Lead Content)

Sample ID	Material Sampled	Location	Content
B2-L1	Sky Blue	Exterior Walls	0.016% by Weight 160 ppm Lead
B2-L2	**Dark Blue**	**Exterior Steel Structure**	**0.11% by Weight** **1100 ppm Lead**

Sample ID	Material Sampled	Location	Content
B2-L3	Red on Blue	Exterior Walls	0.026% by Weight 260 ppm Lead

Notes: *Bold indicates lead concentrations detected above 0.06% criteria.*

Lead based paints are not specifically defined in the WorkSafeBC regulations. BC Environmental Regulations[1] and WorkSafeBC Guidelines[2] require leachate testing prior disposal of lead waste.

WorkSafeBC has adopted the position that the removal of paint with a lead concentration as low as 0.06% (600 ppm) by aggressive techniques (i.e., abrasive blasting) can approach the occupational exposure limit. WorkSafeBC has also stated that lead concentrations as low as 0.009% (90 ppm) may present a risk to pregnant women and children.

The paint sample B2-L2 was found to have a lead (Pb) content above the WorkSafe BC criteria.

7.3 LEAD PRODUCTS

At the time of the onsite building review, no lead containing products were noted in the renovation zone.

7.4 MOULD AND WATER DAMAGE

At the time of the onsite building review, WSP did not observe any area with mould growth or water damage in the renovation zone.

7.5 PCBS

At the time of the onsite building review, WSP did not observe any PCB containing light fixtures or transformers within the renovation zone. However, fluorescent light ballasts with the potential to contain PCB were noted inside the Survey building. Based on the areas proposed for renovation these are not likely to be disturbed. However, when the renovations actually occur, if any fluorescent light ballasts are to be removed they should be assumed to contain PCB and disposed of appropriately unless their serial numbers have been checked to determine that they are PCB free.

7.6 MERCURY

At the time of the onsite building review, WSP noted outdoor light fixtures on the exterior walls and roof of the onsite building. These light fixtures may use mercury containing light bulbs.

7.7 OZONE DEPLETING SUBSTANCES

At the time of the onsite building review, various roof mounted HVAC units (potentially containing ODS refrigerant) were noted. These HVAC units are not likely to be disturbed during the proposed renovations. However, if these units are to be moved or disconnected during the renovation, a certified refrigeration technician should remove the refrigerant or secure it to prevent accidental releases of ODS to the environment.

[1] Hazardous Waste Regulation
[2] Lead-Containing Coats and Paintings - Preventing Exposure in the Construction Industry

7.8 RADIOACTIVE MATERIALS

At the time of the onsite building review, no smoke detectors or other radioactive materials were noted in the renovation zone.

7.9 CRYSTALLINE SILICA

It is anticipated that Crystalline Silica is present in the concrete floor and foundation works of the building.

7.10 FLAMMABLE AND EXPLOSIVE MATERIALS

At the time of the onsite building review, WSP did not observe any flammable or explosive materials within the renovation zone.

7.11 UREA FORMALDEHYDE FOAM INSULATION

At the time of the onsite building review, WSP did not observe indicators (e.g., patched injection holes or foam extrusions) of UFFI in the renovation zone. WSP also reviewed a portion of the south exterior wall that was damaged in the recent vehicle accident. No UFFI was noted in the wall cavities at that location. However there is a possibility that UFFI insulation may have been used to insulate the building envelop during construction or renovations. WSP should be contacted to sample for UFFI if any exterior walls are opened up and foam insulation is encountered.

8 RECOMMENDATIONS

- Follow safe work procedures when cutting or grinding concrete, cementitious mortar, and/or other items that are assumed to contain crystalline silica.
- The roof of the building could not be assessed thoroughly due to aggressive nesting sea gulls. We recommend any suspicious material noted at the roof during renovations be considered asbestos containing and should be tested for asbestos content.
- No Asbestos containing materials were identified in this survey. However, there is likelihood of encountering materials that may contain asbestos at the time of renovations. We recommend that at the time of renovations, any encountered suspicious material be treated as asbestos containing and must be removed using safe work practices, unless the material is tested in an accredited laboratory and confirmed as non-asbestos containing. The WorkSafeBC publication "Safe Work Practices for Handling Asbestos" and the Occupational Health and Safety (OHS) Guideline G6.8 describes acceptable practices. A risk assessment for any assumed and identified/confirmed asbestos-containing materials must be performed prior to initiation of renovation work to determine the exposure risk to workers and other persons as per OHS Guideline G20.112
- Proper procedures and documentation such as safe work practices, an exposure control plan, risk assessments and/or other controls must be developed for all workers if lead-containing paint with a lead content of 0.06% or more is to be removed from the surfaces or if otherwise disturbed. Any other paint coatings encountered during renovation activities, which have not been already tested, should be considered lead containing until sampling can demonstrate otherwise.

- If mould materials or animal wastes (rodent droppings) are found during renovation, safe work procedures should be followed when removing mould-contaminated materials and animal waste.
- Any compact fluorescents, halogen bulbs, sodium bulbs and mercury containing light bulbs removed from the building exteriors should be recycled when removed from service. The Light Recycle website provides a list of recycling facilities on their website, at http://www.lightrecycle.ca/.
- If the renovation area needs to go beyond the current Survey area, WSP should be contacted to identify any additional potentially hazardous materials.
- At the time of the onsite building review, UFFI was not noted in the renovation zone. However there is a possibility that UFFI insulation may have been used to insulate the building envelop during the original 1965 construction or later renovations. Although, it is unlikely that the exterior walls will be opened up for the proposed renovations, WSP should be contacted to sample for UFFI if any exterior walls are opened up and foam insulation is encountered.
- The roof mount HVAC units should be degassed by a certified/ licensed contractor as required by British Columbia's Ozone Depleting Substances Regulation, if considered for removal or replacement during renovations
- Retain a copy of this report and provide it to any contractors who may be undertaking Renovation work in the Survey area as required by Section 20.112 of the WorkSafe BC regulations.

9 CLOSURE

No hazardous materials survey can wholly eliminate uncertainty regarding the potential for recognized hazardous materials conditions at the site. Performance of a standardized hazardous material survey protocol is intended to reduce, but not eliminate uncertainty regarding the potential for recognized hazardous materials at the site, given reasonable limits of time and cost.

This report has been prepared by WSP exclusively for Canada Mortgage and Housing Corporation and is intended to provide a survey of the potential for the presence of hazardous materials in the Net Loft building located at Granville Island in Vancouver, BC.

The conclusions made in this report reflect WSP's best judgment in light of the information available at the time of preparation. No other warranty, expressed or implied, is made. 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. WSP accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions based on this report. The standard limitations of this report are specified in Appendix E.

Yours sincerely,

WSP CANADA INC.

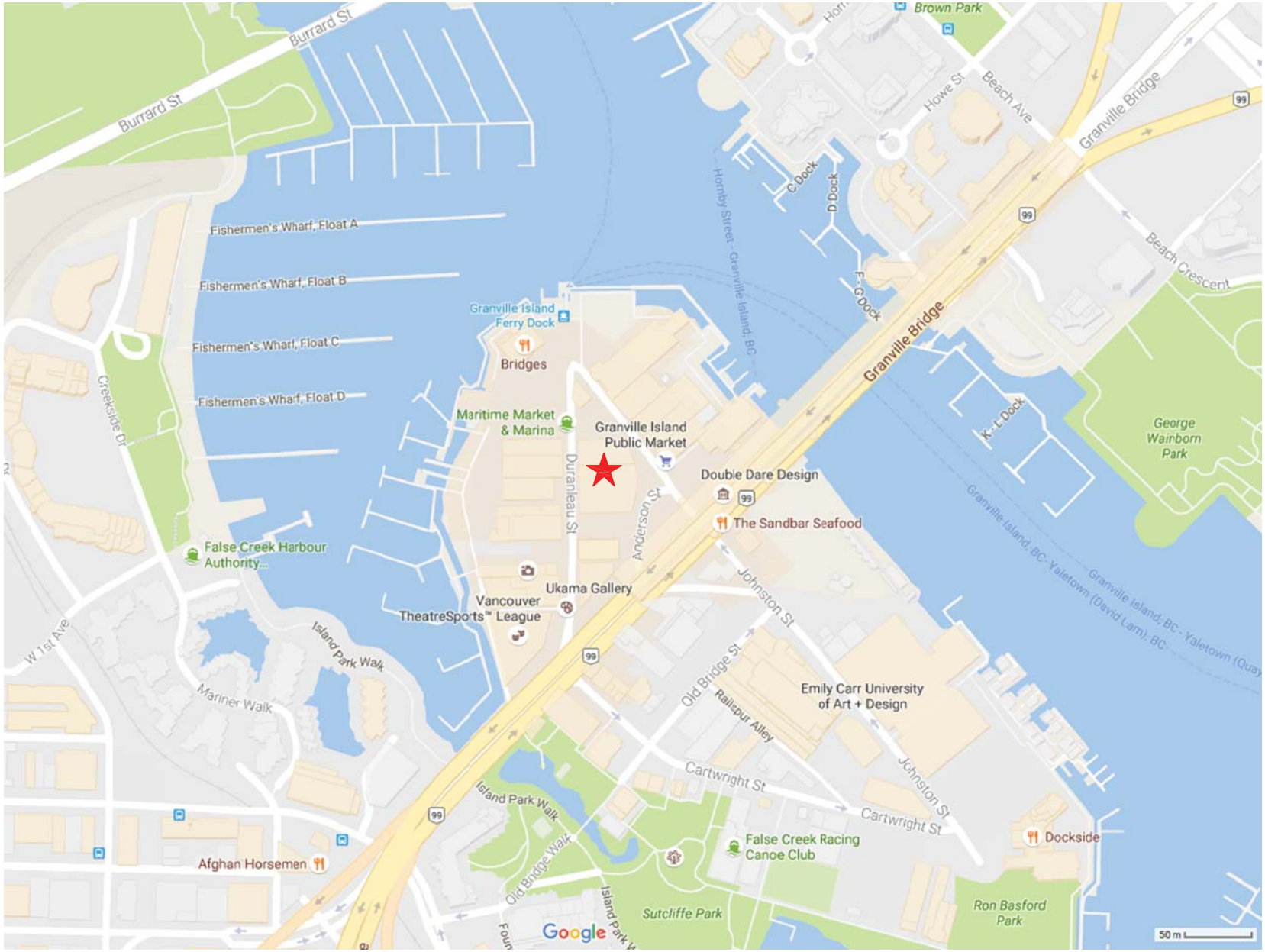
Arvind Chowdharri, P.Eng.
Environmental Engineer

Anthony Dickinson, M.A.Sc., P.Eng.
Senior Environmental Engineer

Appendix A	Site Plan
Appendix B	Site Photographs
Appendix C	Chain-of-Custodies and Laboratory Reports
Appendix D	Regulatory Framework
Appendix E	Standard Limitations

Appendix A

SITE PLAN & SAMPLE LOCATIONS



LEGEND

★ – SUBJECT SITE

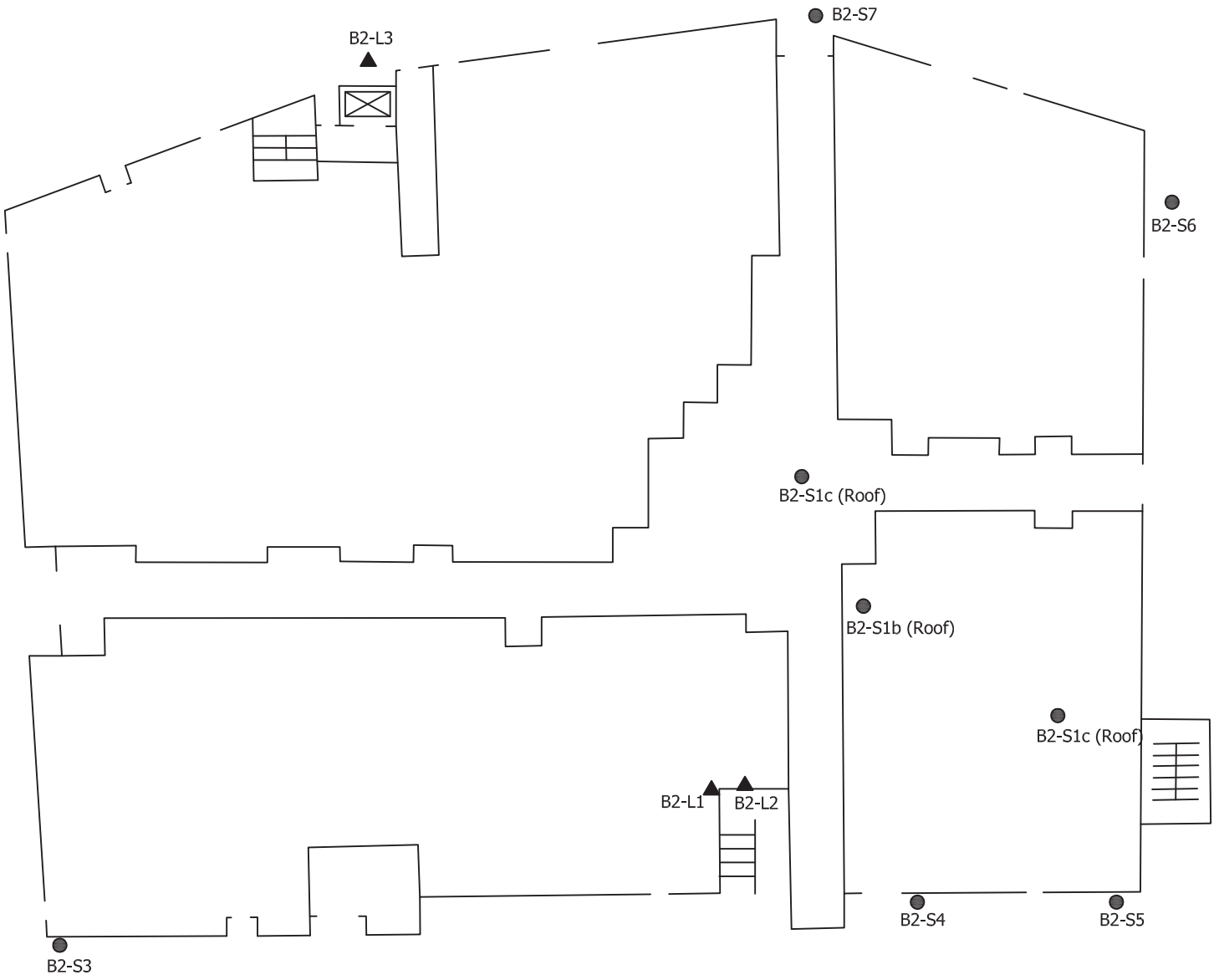
WSP CANADA INC.
100 - 20339 96 AVENUE, LANGLEY, BC V1M 0E4
PHONE: 604 533-2992 - FAX: 604 533-0768 - WWW.WSPGROUP.COM

TITLE: Site Location Map

PROJECT: Pre-Renovations Hazardous Materials Survey
Net Loft, Granville Island, Vancouver, BC

CLIENT: Canada Mortgage and Housing Corporation

DES.	DR. JL
CH. AC	SCALE AS SHOWN
APP.	DATE AUG 2016
FILE NO. 151-63666-00 (P30, SP30D)	
DWG. NO. 1	



LEGEND

● – BUILDING MATERIALS SAMPLE (ASBESTOS)

▲ – PAINT SAMPLE (LEAD)

WSP CANADA INC.
100 - 20339 96 AVENUE, LANGLEY, BC V1M 0E4
PHONE: 604 533-2992 - FAX: 604 533-0768 - WWW.WSPGROUP.COM

TITLE: Sample Locations

PROJECT: Pre-Renovations Hazardous Materials Survey
Net Loft, Granville Island, Vancouver, BC

CLIENT: Canada Mortgage and Housing Corporation

DES.	DR. JL
CH. AC	SCALE NTS
APP.	DATE AUG 2016
FILE NO. 151-63666-00 (P30, SP30D)	
DWG. NO. 2	

Appendix B

SITE PHOTOGRAPHS

Photo 1: View of the Net Loft building (south side).

Photo 2: View of the Net Loft building (north side).

Photo 3: View of paint sample location B2-L2 of dark blue paint sample applied on the steel structure. The paint is found to contain more than 0.06% of lead.

Photo 4: View of the onsite building's roof.

Photo 5: View of the south portion of the building that was damaged in the vehicle accident.

Photo 6: View of the Net Loft building (west side).

Appendix C

COC'S & LABORATORY REPORTS

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Chain of Custody

–Bulk Asbestos –

Contact Information

Client Company: WSP Canada Inc.
Office Address: #100 - 20339 96th Ave
City, State, Zip: Langley, BC V1M 0E4
Fax Number: 604-533-0768
Email Address: Arvind.Chowdharri@wspgroup.com

Project Number: 151-63666-00 [P30 SP30D]
Project Name: Pre Renovations H.M.S - Net Lofl
Primary Contact: ARVIND CHOWDHARRI
Office Phone: 604-533-2992
Cell Phone: 604-368-4289

PLM Instructions:

- ☑ PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993
- ☐ PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982
- ☐ PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010
- ☐ TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009

E-MAILED

- ☐ PLM: Point Counting
  - ☐ PC: via ELAP 198.1
  - ☐ PC: 400 Points
  - ☐ PC: 800 Points *
  - ☐ PC: 1600 Points *
- ☐ PLM: Instructions for Multi-Layered Samples
  - ☐ Analyze and Report All Separable Layers per EPA 600
  - ☐ Report Composite for Drywall Systems per NESHAP
  - ☐ Report All Layers and Composite Where Applicable
  - ☐ Only Analyze and Report Specifically Noted Layer
- ☐ PLM: Analyze Until Positive (Positive Stop)
  - ☐ AUP: by Homogenous Area as Noted
  - ☐ AUP: by Material Type as Noted
- ☐ PLM: NOB via 198.6
  - ☐ PLM: Friable via EPA 600 2.3
  - ☐ If <1% by PLM, to TEM via 198.4 *
  - ☐ If <1% by PLM, Hold for Instructions
- ☐ PLM: Non-Building Material*,** (Dust, Wipe, Tape)
  - ☐ Soil or Vermiculite Analysis*
  - ☐ CARB 435

Special Instructions: B2- Net Loft Building

** Additional charge and turnaround may be required* *** Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory*

Turnaround Time

Preliminary Results Requested Date: _____ (Specific date / time)

☐ Verbal ☑ Email ☐ Fax 9

☐ 10 Day ☐ 5 Day ☑ 3 Day ☐ 2 Day ☐ 1 Day* ☐ 12 Hour** ☐ 6 Hour** ☐ RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

Chain of Custody

Relinquished (Name/Organization): ARVIND C. WSP Canada Inc	Date: 5-Aug-2016	Time:	
Received (Name / iATL):	Date:	Time:	
Sample Login (Name / iATL):	Date: 8/9/16	Time:	
Analysis(Name(s) / iATL):	Date: 8/10/16	Time:	
QA/QC Review (Name / iATL):	Date: 8/11/16	Time:	
Archived / Released: _____ QA/QC InterLAB Use: _____	Date:	Time:	

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Sample Log

–Bulk Asbestos –

Client: WSP Canada Inc. Project: 151-63666-00 [P30, SP 30D]

Sampling Date/Time: 2-4 Aug 2016

Bulk Asbestos Sample Log			
Client Sample #	iATL #	Location/Description	Notes
B2-S1a	6001684	Mastic, Skylight, Roof, Black	
~~SB~~ B2-S1b	6001685	" " "	" "
B2-S1c	6001686	" " "	"
B2-S2	6001687	Mastic/Sealant, West wooden Beam + Metal sheet, whitish	Wall, Exteriors
B2-S3	6001688	Mastic/Sealant, SW corner, Exteriors whitish	
B2-S4	6001689	Mastic/Sealant, South Exhaust Fan, whitish	Exterior wall,
B2-S5	6001690	Mastic/Sealant, SE Exteriors	corner,
B2-S6	6001691	Mastic/Sealant, NE Windows, Exteriors,	portion whitish
B2-S7	6001692	Mastic/Sealant, NE Yellowish, Exteriors,	Entrance door

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Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516761 - PLM
Project: Pre Renovations H.M.S-Net Loft
Project No.: 151-63666-00 (P30,SP30D)

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6001684 **Client No.:** B2-S1a	**Description:** Black Mastic **Facility:**	**Location:** Skylight Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001685 **Client No.:** B2-S1b	**Description:** Black Mastic **Facility:**	**Location:** Skylight Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001686 **Client No.:** B2-S1c	**Description:** Black Mastic **Facility:**	**Location:** Skylight Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001687 **Client No.:** B2-S2	**Description:** Clear Sealant **Facility:**	**Location:** West Wall Exteriors
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001688 **Client No.:** B2-S3	**Description:** Clear Sealant **Facility:**	**Location:** SW Corner Exteriors
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001689 **Client No.:** B2-S4	**Description:** Clear Sealant **Facility:**	**Location:** South Exterior Wall Exhaust Fan
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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

Date Received: 8/8/2016
Date Analyzed: 08/10/2016
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516761 - PLM
Project: Pre Renovations H.M.S-Net Loft
Project No.: 151-63666-00 (P30,SP30D)

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6001690 **Client No.:** B2-S5	**Description:** Clear Sealant **Facility:**	**Location:** SE Corner Exteriors
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001691 **Client No.:** B2-S6	**Description:** Clear Sealant **Facility:**	**Location:** NE Portion Windows Exteriors
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001692 **Client No.:** B2-S7	**Description:** Clear Sealant **Facility:**	**Location:** NE Entrance Door Exteriors
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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

Date Received: 8/8/2016
Date Analyzed: 08/10/2016
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516761 - PLM
Project: Pre Renovations H.M.S-Net Loft
Project No.: 151-63666-00 (P30,SP30D)

Appendix to Analytical Report

Customer Contact: Arvind Chowdharri
Analysis: US EPA 600, R93-116

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

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Shirley Clark
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

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

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

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

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

Information Pertinent to this Report:

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

Certifications:

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

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

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

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

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

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

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CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516761 - PLM
Project: Pre Renovations H.M.S-Net Loft
Project No.: 151-63666-00 (P30,SP30D)

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

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

Disclaimers / Qualifiers:

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

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

Recommendations for Vermiculite Analysis:

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

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

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

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

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

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

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Chain of Custody

– Environmental Lead –

Contact Information

Client Company:	WSP Canada Inc	**Project Number:**	151-63666-00[P30,SP30]
Office Address:	#100 - 20339 96th Ave	**Project Name:**	Pre-Renovations HMS - Net Loft
City, State, Zip:	Langley, BC V1M 0E4	**Primary Contact:**	Arvind. Chowdharri
Fax Number:	604-533-0768	**Office Phone:**	604-533-2992
Email Address:	Arvind.Chowdharri@wspgroup.com	**Cell Phone:**	604-368-4289

iATL is accredited by the National Lead Laboratory Accreditation Program (NLLAP) to perform analytical testing of environmental samples for lead (Pb). The accreditation is through AIHA-LAP, LLC and several other nationally recognized state programs.

Matrix/Method:

- ☑ Paint by AAS: ASTM D3335-85a, 2009
- ☐ Wipe/Dust by AAS: SW 846: 3050B: 700B, 2010
- ☐ Air by AAS: NIOSH 7082, 1994
- ☐ Soil by AAS: EPA SW 846 (Soil)
- ☐ Water by AAS-GF: ASTM D3559-03D, USEPA 40CFR 141.11B, 2010
- ☐ Other Metals (Cd, Zn, Cr) by AAS
- ☐ Toxicity Characteristic Leaching Procedure (TCLP) by AAS: USEPA 1311
- ☐ Other _____

E-MAILED 8-11-16 AD

Special Instructions:

B2- Net Loft building.

Turnaround Time

Preliminary Results Requested Date: _____ ☐ Verbal ☑ Email ☐ Fax

Specific date / time

☐ 10 Day ☐ 5 Day ☑ 3 Day ☐ 2 Day ☐ 1 Day* ☐ 12 Hour** ☐ 6 Hour** ☐ RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

Chain of Custody

Relinquished (Name/Organization):	ARVIND C. WSP Canada Inc	Date:	5 Aug 16	Time:	
Received (Name / iATL):		Date:		Time:	
Sample Login (Name / iATL):		Date:	5/8/16	Time:	AUG - 8 2016
Analysis(Name(s) / iATL):	cs 8/11/16 ML	Date:		Time:	
QA/QC Review (Name / iATL):		Date:	8/11/16	Time:	
Archived / Released: _____ QA/QC InterLAB Use: ____		Date:		Time:	

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Sample Log

–Environmental Lead –

Client: WSP Canada Inc Project: 151-63666-00 [P30, SP 30D]

Sampling Date/Time: 2-4 Aug 2016

Client Sample #	iATL #	Location/ Description	Flow Rate	Start / End	Sampling time (min)	Area (ft2) Volume (L)	Results ( )
B2-L1	6001433	Sky blue Paint on Exterior walls					
B2-L2	6001434	Dark Blue paint, exteriors					
B2-L3	6001435	Red paint on blue exteriors					

** = Insufficient Sample Provided to Perform QC Reanalysis (<200mg)*
*** = Insufficient Sample Provided to Analyze (<50mg) ***= Matrix / Substrate Interference Possible*
FB = Method Requires the submittal of blank(s). ML = Multi Layered Sample. May result in inconsistent results.
These **preliminary results** are issued by iATL to expedite procedures by clients based upon the above data. iATL assumes that all of the sampling methods and data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificate of Analysis will follow these preliminary results. The signed COA is to be considered the official results. All EPA, HUD, and NJDEP conditions apply.

IATL International Asbestos Testing Laboratories

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INFO@IATL.COM

DAILY QUALITY CONTROL DATA

LEAD SAMPLE ANALYSIS

(DATE: 08 / 11 / 16)

Standard	Total Lead (mg)	Percent Recovery **
Reagent Blank	0.000	< LOQ
Blank Spike	0.500	99
Lab Control Std	1.350	96
Matrix Spike - LBP *	0.37	94
Matrix Spike - Wipe *	0.32	98
Matrix Spike - Soil *	0.343	109
Matrix spike - Air *	0.050	94
2.5 ppm Standard	0.25	103
10.0 ppm Standard	1.0	101
40.0 ppm Standard	4.0	101

AIHA-LAP, LLC No. 100188 **NYSDOH-ELAP No. 11021**

Analysis Method: ASTM D3335-85A
NIOSH 7082
EPA SW846 3050B 7000B

Comments: IATL assumes that all sampling complies with accepted methods.
All client supplied sampling data is assumed to be correct when calculating results.
Detection limit based upon 0.2 mg/L reporting limit and sample size.
* NIST Traceable.
** 80-120% acceptable limits.

Analyzed By: R. Chad Shaffer
Date: 8/11/16

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

AAS.DailyQC.005

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CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/11/2016
Report No.: 516787 - Lead Paint
Project: Pre Renovations HMS-Net Loft
Project No.: 151-63666-00 (P30, SP30D)

LEAD PAINT SAMPLE ANALYSIS SUMMARY

Lab No.: 6001433
Client No.: B2-L1
Description: Sky Blue
Location: On Exterior Walls
Result (% by Weight): 0.016
Result (ppm): 160
Comments:

Lab No.: 6001434
Client No.: B2-L2
Description: Dark Blue
Location: Exteriors
Result (% by Weight): 0.11
Result (ppm): 1100
Comments:

Lab No.: 6001435
Client No.: B2-L3
Description: Red
Location: On Blue Exteriors
Result (% by Weight): 0.026
Result (ppm): 260
Comments:

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 8/8/2016
Date Analyzed: 08/11/2016
Signature:
Analyst: Chad Shaffer

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/11/2016
Report No.: 516787 - Lead Paint
Project: Pre Renovations HMS-Net Loft
Project No.: 151-63666-00 (P30, SP30D)

Appendix to Analytical Report:

Customer Contact: Arvind Chowdharri
Analysis: ASTM D3335-85a

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

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Shirley Clark
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Paint
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

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

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

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

Information Pertinent to this Report:

Analysis by ASTM D3335-85a by AAS

Certification:
- National Lead Laboratory Program (NLLAP): AIHA-LAP, LLC No. 100188
- NYSDOH-ELAP No. 11021

Regulatory limit is 0.5% lead by weight (EPA/HUD guidelines). Recommend multiple sampling for all samples less than regulatory limit for confirmation.

All results are based on the samples as received at the lab. iATL assumes that appropriate sampling methods have been used and that the data upon which these results are based have been accurately supplied by the client.

Method Detection Limit (MDL) per EPA Method 40CFR Part 136 Apendix B.

Reporting Limit (RL) based upon Lowest Standard Determined (LSD) in accordance with AIHA-ELLAP policies.

LSD=0.2 ppm MDL=0.005% by weight. RL= 0.010% by weight (based upon 100 mg sampled).

* Insufficient sample provided to perform QC reanalysis (<200 mg)

** Not enough sample provided to analyze (<50 mg)

*** Matrix / substrate interference possible.

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CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/11/2016
Report No.: 516787 - Lead Paint
Project: Pre Renovations HMS-Net Loft
Project No.: 151-63666-00 (P30, SP30D)

Disclaimers / Qualifiers:

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* NOTE: Multiple samples received in container. Composite analysis requested per EPA/HUD guidelines not covered by NLLAP/AIHA accreditation.

Appendix D

REGULATORY FRAMEWORK

REGULATORY FRAMEWORK

1. Occupational Health and Safety Regulation (Including amendments up to B.C. Reg. 195/2015),
2. Safe Work Practices for Handling Asbestos, WorkSafe BC, (Publication Date January 15, 2013).
3. Hazardous Waste Regulation, BC Ministry Of Environment. (Including amendments up to B.C. Reg. 63/2009, April 1, 2009).
4. Ozone Depleting Substances and other Halocarbons Regulation. (Including amendments up to B.C. Reg. 317/2012, November 9, 2012).
5. Environmental Management Act (As Current to June 22, 2016).
6. PCB Regulations, SOR / 2008-273, Canadian Environmental Protection Act.
7. Lead-Containing Paint and Coatings, Preventing Exposure in the Construction Industry, WorkSafe BC, June 2011.
8. Federal Register, 40 CFR Part 745 Lead; Identification of Dangerous Levels of Lead; Final Rule, Environmental Protection Agency, January 5, 2001
9. Transportation of Dangerous Goods Regulations SOR / 2015-100, Transportation of Dangerous Goods Act.
10. Consumer Products Safety Act, SOR/2014-79.

Appendix E

STANDARD LIMITATIONS

TERMS OF REFERENCE FOR HAZARDOUS MATERIALS AND OCCUPATIONAL HEALTH AND SAFETY REPORTS ISSUED BY WSP CANADA INC.

1. STANDARD OF CARE

WSP Canada Inc. ("WSP") prepared and issued this report (the "Report") for its client (the "Client") in accordance with generally-accepted consulting practices for the hazardous materials and occupational health and safety disciplines. No other warranty, expressed or implied, is made. Unless specifically stated in the Report, the Report does not address environmental issues.

The terms of reference for hazardous materials and occupational health and safety reports issued by WSP (the "Terms of Reference") contained in the present document provide additional information and caution related to standard of care and the use of the Report. The Client should read and familiarize itself with these Terms of Reference.

2. COMPLETENESS OF THE REPORT

All documents, records, drawings, correspondence, data, files and deliverables, whether hard copy, electronic or otherwise, generated as part of the services for the Client are inherent components of the Report and, collectively, form the instruments of professional services (the "Instruments of Professional Services"). The Report is of a summary nature and is not intended to stand alone without reference to the instructions given to WSP by the Client, the communications between WSP and the Client, and to any other reports, writings, proposals or documents prepared by WSP for the Client relative to the specific site described in the Report, all of which constitute the Report.

TO PROPERLY UNDERSTAND THE INFORMATION, OBSERVATIONS, FINDINGS, SUGGESTIONS, RECOMMENDATIONS AND OPINIONS CONTAINED IN THE REPORT, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. WSP CANNOT BE RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT AND ITS VARIOUS COMPONENTS.

3. BASIS OF THE REPORT

WSP prepared the Report for the Client for the specific objectives and purpose that the Client described to WSP. The applicability and reliability of any of the information, observations, findings, suggestions, recommendations and opinions contained in the Report are only valid to the extent that there was no material alteration to or variation from any of the said descriptions provided by the Client to WSP unless the Client specifically requested WSP to review and revise the Report in light of such alteration or variation.

4. USE OF THE REPORT

The information, observations, findings, suggestions, recommendations and opinions contained in the Report, or any component forming the Report, are for the sole use and benefit of the Client and the team of consultants selected by the Client for the specific project that the Report was provided. NO OTHER PARTY MAY USE OR RELY UPON THE REPORT OR ANY PORTION OR COMPONENT WITHOUT THE WRITTEN CONSENT OF WSP. WSP will consent to any reasonable request by the Client to approve the use of this Report by other parties designated by the Client as the "Approved Users". As a condition for the consent of WSP to approve the use of the Report by an Approved User, the Client must provide a copy of these Terms of Reference to that Approved User and the Client must obtain written confirmation from that Approved User that the Approved User will comply with these Terms of Reference, such written confirmation to be provided separately by each Approved User prior to beginning use of the Report. The Client will provide WSP with a copy of the written confirmation from an Approved User when it becomes available to the Client, and in any case, within two weeks of the Client receiving such written confirmation.

The Report and all its components remain the copyright property of WSP and WSP authorizes only the Client and the Approved Users to make copies of the Report, but only in such quantities as are reasonably necessary for the use of the Report by the Client and the Approved Users. The Client and the Approved Users may not give, lend, sell or otherwise disseminate or make the Report, or any portion thereof, available to any party without the written permission of WSP. Any use which a third party makes of the Report, or any portion of the Report, is the sole responsibility of such third parties. WSP accepts no responsibility for damages suffered by any third party resulting from the use of the Report. The Client and the Approved Users acknowledge and agree to indemnify and hold harmless WSP, its officers, directors, employees, agents, representatives or sub-consultants, or any or all of them, against any claim of any nature whatsoever brought against WSP by any third parties, whether in contract or in tort, arising or related to the use of contents of the Report.

TERMS OF REFERENCE FOR HAZARDOUS MATERIALS AND OCCUPATIONAL HEALTH AND SAFETY REPORTS ISSUED BY WSP CANADA INC. (continued)

5. INTERPRETATION OF THE REPORT

a. **Hidden Conditions**: The Client acknowledges that subsurface and concealed conditions may vary from those encountered or reviewed. WSP can only comment on the conditions observed on the date(s) the Survey is performed. The work is limited to those areas of concern identified by the Client and/or outlined in our proposal. Other areas of concern may exist but were not investigated within the scope of this Survey.

b. **Reliance on information**: The evaluation and conclusions contained in the Report have been prepared on the basis of conditions in evidence at the time of site investigation and field review and on the basis of information provided to WSP. WSP has relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, WSP cannot accept responsibility for any deficiency, misstatement or inaccuracy contained in the report as a result of misstatements, omissions, misrepresentations or fraudulent acts of persons providing information.

c. **Additional Involvement by WSP**: To avoid misunderstandings, WSP should be retained to assist other professionals to explain relevant hazardous materials and occupational health and safety findings and to review the hazardous materials and occupational health and safety aspects of the plans, drawings and specifications of other professionals relative to the services provided by WSP. To ensure compliance and consistency with the applicable hazardous materials and occupational health and safety codes, legislation, regulations, guidelines and generally-accepted practices, WSP should also be retained to provide field review services during the performance of any related work. Where applicable, it is understood that such field review services must meet or exceed the minimum necessary requirements to ascertain that the work being carried out is in general conformity with the recommendations made by WSP. Any reduction from the level of services recommended by WSP will result in WSP providing qualified opinions regarding adequacy of the work.

6. ALTERNATE REPORT FORMAT

When WSP submits both electronic and hard copy versions of the Instruments of Professional Services, the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding upon WSP. The hard copy versions submitted by WSP shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancy, the hard copy versions shall govern over the electronic versions; furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed and sealed versions of the Instruments of Professional Services maintained or retained, or both, by WSP shall be deemed to be the overall originals for the Project.

The Client agrees that the electronic file and hard copy versions of Instruments of Professional Services shall not, under any circumstances, no matter who owns or uses them, be altered by any party except WSP. The Client warrants that the Instruments of Professional Services will be used only and exactly as submitted by WSP.

The Client recognizes and agrees that WSP prepared and submitted electronic files using specific software or hardware systems, or both. WSP makes no representation about the compatibility of these files with the current or future software and hardware systems of the Client, the Approved Users or any other party. The Client further agrees that WSP is under no obligation, unless otherwise expressly specified, to provide the Client, the Approved Users and any other party, or any or all of them, with specific software and hardware systems that are compatible with any electronic submitted by WSP. The Client further agrees that should the Client, an Approved User or a third party require WSP to provide specific software or hardware systems, or both, compatible with the electronic files prepared and submitted by WSP, for any reason whatsoever included but not restricted to an order from a court, then the Client will pay WSP for all reasonable costs related to the provision of the specific software or hardware systems, or both. The Client further agrees to indemnify and hold harmless WSP, its officers, directors, employees, agents, representative or sub-consultant, or any or all of them, against any claim or any nature whatsoever brought against WSP, whether in contract or in tort, arising or related to the provision or use or any specific software or hardware provided by WSP.

REPORT N^{O} 151-63666-00 (P30 SP 30D)

PRE-RENOVATIONS HAZARDOUS MATERIALS SURVEY - FESTIVAL HOUSE, GRANVILLE ISLAND, VANCOUVER, BC

CANADA MORTGAGE AND HOUSING CORPORATION

AUGUST 23, 2016

WSP

PRE-RENOVATIONS HAZARDOUS MATERIALS SURVEY - FESTIVAL HOUSE, GRANVILLE ISLAND, VANCOUVER, BC

CANADA MORTGAGE AND HOUSING CORPORATION

Project no: 151-63666-00 (P30 SP30D)
Date: August 23, 2016

WSP Canada Inc.
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Our Ref: 151-63666-00 (P30 SP30D)

August 23, 2016

Canada Mortgage and Housing Corporation
Granville Island Administration Office
1661 Duranleau Street, 2nd Floor
Vancouver, BC V6H 3S3

Attn: - Ms. Janet Flowers, Director

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Dear Ms. Flowers,

Subject: Pre-Renovations Hazardous Materials Survey – Festival House (Building 89), Granville Island, Vancouver, BC

Please find enclosed the pre-renovations hazardous materials survey report conducted for the Festival House building located at Granville Island in Vancouver, BC.

Hazardous materials were identified within the areas identified for Survey. Proper procedures should be implemented for the safe removal and disposal of these materials.

If you have any questions about the information contained in the attached report please contact either Arvind Chowdharri (604) 533-2992 or Anthony Dickinson at (604) 736-5421.

Yours sincerely,

Arvind Chowdharri, P.Eng.
Environmental Engineer

Anthony Dickinson, M.A.Sc., P.Eng.
Senior Environmental Engineer – EHS Group

EXECUTIVE SUMMARY

WSP Consultants Inc. (WSP) was retained by Canada Mortgage and Housing Corporation (the client) for the provision of a Pre-Renovations Hazardous Materials Survey (the Survey) of the Festival House building (also known as building #89) located at Granville Island in Vancouver, BC, (herein referred to as the "Subject Site" or "Site").

As per the BC Assessment, the Festival House building was constructed in 1970. Based on the estimated construction date of the building, hazardous building materials are anticipated to be present within the building structure.

WSP understands that the Survey is required for regulatory compliance purposes prior to proposed renovations.

The objective of a Hazardous Materials Survey is to establish the presence / absence, and type of hazardous building materials utilized in the construction of the building at the specified locations by means of sample collection and subsequent laboratory analysis. Section 20.112 of the BC Occupational Health and Safety Regulation requires that a hazardous materials survey should be conducted by a qualified person prior to any demolition or renovation activity which might disturb hazardous materials.

For the purposes of this survey, hazardous building materials were defined as:

- Asbestos-containing building materials (ACM);
- Lead materials and lead-based paints (LBP);
- Mercury;
- Polychlorinated biphenyls (PCB);
- Crystalline silica;
- Ozone depleting substances (ODS);
- Radioactive materials (RAM);
- Urea Formaldehyde Foam Insulation (UFFI);
- Mould and/or microbial growth; and
- Flammable or explosive materials.

The survey and review was conducted in general accordance with WorkSafeBC Occupational Health and Safety Regulations Part 20, Construction, Excavation and Demolition, Section 20.112 Hazardous Materials.

WSP understands that the following renovation will be conducted within the Festival House building structure:

- General flat roof maintenance work to remove vegetation growth and debris and clean out roof drains and gutters;
- Repaint the wood fence at the roof level;
- Replacement of failed sealants and application where missing at wall penetrations (i.e. hose bibs, vents, etc.), and at wall transitions between different cladding materials;

- Repair cracked mortar joints at concrete masonry walls;
- Replacement of damaged cap flashings to ensure positive slope;
- Replacement of damaged glazing units/ failed sealed units at windows and skylights; and
- Replacement of damaged and/or corroded window hardware.

Based on the aforementioned renovations that are proposed for the Festival House building, the renovation zone includes building exteriors and roof of the building. This survey was limited to the "renovation zone".

The Survey was conducted by identifying the above defined hazardous materials including suspect ACM and LBP through on-site bulk sampling and analysis, review for visual / olfactory presence of suspected mould growth, and review of elements or components which may contain lead products, mercury, PCB, crystalline silica, ODS, RAM, and UFFI in the aforementioned renovation zone.

CONCLUSIONS

Asbestos-Containing Materials (ACM)

The bulk building material samples (suspected to contain asbestos) collected in the Survey within the renovation area are listed in Table 7-1 along with the corresponding IATL laboratory results of asbestos content. Based on the representative sampling, corresponding IATL laboratory results for asbestos content, asbestos (1.5 to 10% Chrysotile) was found in the caulking material present around the windows of the building.

Lead-Based Paints (LBP)

The paint samples collected in the Survey for lead content testing within the renovation area are listed in Table 7-2 along with the corresponding IATL laboratory results of lead content. The paint sample B4-L1 was found to have a lead (Pb) content above the WorkSafe BC criteria.

Lead Products

At the time of the onsite building review, no lead containing products were noted in the renovation zone (e.g., washroom exhaust boots, lead containing roof flashing etc.).

Mould and Water Damage

At the time of the onsite building review, WSP did not observe any area with mould growth or water damage in the renovation zone.

PCBs

At the time of the onsite building review, WSP did not observe any PCB containing light fixtures or transformers within the renovation zone. However, fluorescent light ballasts with the potential to contain PCB were noted inside the Survey building. Based on the areas proposed for renovation these are not likely to be disturbed. However, when the renovations actually occur, if any fluorescent light ballasts

are to be removed they should be assumed to contain PCB and disposed of appropriately unless their serial numbers have been checked to determine that they are PCB free.

Mercury

At the time of onsite building review, WSP noted outdoor light fixtures on the exterior walls of the onsite building. These light fixtures may use mercury containing light bulbs.

Ozone Depleting Substances

At the time of onsite building review, various roof mounted HVAC units (potentially containing ODS refrigerant) were noted. These roof top HVAC units are not likely to be disturbed during the proposed renovations.

Radioactive Materials

At the time of the onsite building review, no smoke detectors or other radioactive materials were noted in the renovation zone.

Crystalline Silica

It is anticipated that Crystalline Silica is present in the cinder blocks, brick mortar and foundation works of the building.

Flammable and Explosive Materials

At the time of the onsite building review, WSP did not observe any flammable or explosive materials within the renovation zone.

Urea Formaldehyde Foam Insulation

At the time of the onsite building review, WSP did not visually observe indicators (e.g., patched injection holes and foam extrusions) of UFFI in the renovation zone. However UFFI may have been used during the 1970 construction or subsequent renovations. WSP should be contacted to sample for UFFI if any exterior walls are opened up and foam insulation is encountered.

RECOMMENDATIONS

- Follow safe work procedures when cutting or grinding cinder blocks, concrete, cementitious mortar, and/or other items that are assumed to contain crystalline silica.
- The roof of the building could not be thoroughly assessed due to aggressive nesting sea gulls. We recommend any suspicious material noted at the roof during renovations be considered asbestos containing and should be tested for asbestos content.
- The caulking around windows was found to be asbestos containing. We recommend during renovations that caulking material around the windows and doors be considered asbestos containing. The WorkSafeBC publication "Safe Work Practices for Handling Asbestos" and the Occupational Health and Safety (OHS) Guideline G6.8 describes acceptable practices. A risk assessment for any assumed and identified/confirmed asbestos-containing materials must

be performed prior to initiation of renovation work to determine the exposure risk to workers and other persons as per OHS Guideline G20.112.

- At the time of renovations, any encountered suspicious material be treated as asbestos containing and must be removed using safe work practices, unless the material is tested in an accredited laboratory and confirmed as non-asbestos containing.
- Proper procedures and documentation such as safe work practices, an exposure control plan, risk assessments and/or other controls must be developed for all workers if lead-containing paint with a lead content of 0.06% or more is to be removed from the surfaces or if otherwise disturbed. Any other paint coatings encountered during renovation activities, which have not been already tested, should be considered lead containing until sampling can demonstrate otherwise.
- If mould materials or animal wastes (rodent droppings) are found during renovation, safe work procedures should be followed when removing mould-contaminated materials and animal waste.
- Any compact fluorescents, halogen bulbs, sodium bulbs and mercury containing light bulbs removed from the building exteriors should be recycled when removed from service. The Light Recycle website provides a list of recycling facilities on their website, at http://www.lightrecycle.ca/.
- If the renovation area needs to go beyond the current Survey area, WSP should be contacted to identify any additional potentially hazardous materials.
- At the time of onsite building review, UFFI was not noted in the renovation zone. However there is a possibility that UFFI insulation may have been used to insulate the building envelop during the 1970 construction or subsequent renovations. Although, it is unlikely that the exterior walls will be opened up for the proposed renovations, WSP should be contacted to sample for UFFI if any exterior walls are opened up and foam insulation is encountered.
- The roof mount HVAC units should be degassed by a certified/ licensed contractor as required by British Columbia's Ozone Depleting Substances Regulation, if considered for removal or replacement during renovations
- Retain a copy of this report and provide it to any contractors who may be undertaking Renovation work in the Survey area as required by Section 20.112 of the WorkSafe BC regulations.

TABLE OF CONTENTS

TABLES

APPENDICES

1 INTRODUCTION

WSP Consultants Inc. (WSP) was retained by Canada Mortgage and Housing Corporation (the client) for the provision of a Pre-Renovations Hazardous Materials Survey (the Survey) of the Festival House building (also known as building #89) located at Granville Island in Vancouver, BC, (herein referred to as the "Subject Site" or "Site").

As per the BC Assessment, the Festival House building was constructed in 1970. Based on the estimated construction date of the building, hazardous building materials are anticipated to be present within the building structure.

WSP understands that the Survey is required for regulatory compliance purposes prior to proposed renovations.

The objective of a Hazardous Materials Survey is to establish the presence / absence, and type of hazardous building materials utilized in the construction of the building at the specified locations by means of sample collection and subsequent laboratory analysis. Section 20.112 of the BC Occupational Health and Safety Regulation requires that a hazardous materials survey should be conducted by a qualified person prior to any demolition or renovation activity which might disturb hazardous materials.

For the purposes of this survey, hazardous building materials were defined as:

- Asbestos-containing building materials (ACM);
- Lead materials and lead-based paints (LBP);
- Mercury;
- Polychlorinated biphenyls (PCB);
- Crystalline silica;
- Ozone depleting substances (ODS);
- Radioactive materials (RAM);
- Urea Formaldehyde Foam Insulation (UFFI);
- Mould and/or microbial growth; and
- Flammable or explosive materials.

The survey and review was conducted in general accordance with WorkSafeBC Occupational Health and Safety Regulations Part 20, Construction, Excavation and Demolition, Section 20.112 Hazardous Materials.

WSP understands that the following renovation will be conducted within the Festival House building structure:

- General flat roof maintenance work to remove vegetation growth and debris and clean out roof drains and gutters;
- Repaint the wood fence at the roof level;

- Replacement of failed sealants and application where missing at wall penetrations (i.e. hose bibs, vents, etc.), and at wall transitions between different cladding materials;
- Repair cracked mortar joints at concrete masonry walls;
- Replacement of damaged cap flashings to ensure positive slope;
- Replacement of damaged glazing units/ failed sealed units at windows and skylights; and
- Replacement of damaged and/or corroded window hardware.

Based on the aforementioned renovations that are proposed for the Festival House building, the renovation zone includes building exteriors and roof of the building. This survey was limited to the "renovation zone".

The Survey was conducted by identifying the above defined hazardous materials including suspect ACM and LBP through on-site bulk sampling and analysis, review for visual / olfactory presence of suspected mould growth, and review of elements or components which may contain lead products, mercury, PCB, crystalline silica, ODS, RAM, and UFFI in the aforementioned renovation zone.

2 LIMITATIONS

This Survey included construction materials and components only and was limited to the construction material present within the renovation zone that may be disturbed during the proposed renovations. As it is neither practical nor feasible to sample materials on a foot by foot basis, visually similar materials' analysis results were extrapolated throughout the structure and / or based on estimated phases of construction, where that information was made available.

Energised electrical and mechanical equipment or systems were not opened for safety reasons. This survey excluded owner or occupant articles such as furniture or stored items.

Concealed or inaccessible materials within the building structure, fire doors, roofing, and below ground materials including tanks and pipes were specifically excluded from our scope of work.

No below-grade water, drainage or plumbing systems or sub surface investigation of materials were included in the scope of this survey.

As the building is currently occupied and in use, no destructive testing of the building envelope was undertaken (i.e. exterior walls) in order to preserve the integrity of the building envelop.

The roof area could not be completely visually assessed due to safety concerns as a result of aggressive nesting sea gulls.

3 SITE DESCRIPTION

The Festival House building is a three level building that is located to the south of Cartwright Street, near the intersection of Cartwright Street and Old Bridge Street at Granville Island in Vancouver, BC. The Site location map and Site Plan are attached in Appendix A.

4 SCOPE OF WORK

The survey was limited to the building materials and fixed equipment associated within the renovation zone of the Festival House building structure. To achieve the objective of the Survey, WSP completed the following scope of work:

Visual Review:

- Visually identify building materials potentially containing asbestos;
- Visually identify any foam insulation which may contain urea formaldehyde;
- Visually identify any electrical equipment which may contain PCBs;
- Visually identify any thermostats or fluorescent light tubes which may contain mercury;
- Visually identify any light bulbs that may contain halogens or sodium;
- Visually identify construction materials which may contain silica such as concrete, cement, tile, brick, masonry, mortar;
- Visually identify any equipment which may have ODS-containing halons or refrigerants;
- Visually identify any smoke detectors with the potential to contain radioactive materials;
- Visually identify evidence of UFFI insulation;
- Visually identify areas of current or historic moisture penetration which may support microbial growth, and
- Visually identify stored materials which may be flammable or explosive.

Building Materials Bulk Sampling:

- Collection of bulk samples of any materials suspected to contain asbestos for laboratory analyses at an accredited laboratory;
- Collection of paint samples suspected to contain lead for laboratory analyses at an accredited laboratory;
- The sampling methodology and number of samples were in general accordance with the appropriate WorkSafe BC Guidelines; and
- Photographs were taken of the materials sampled as well as the general area of the sample to give context.

Reporting:

- Preparation of this report summarizing the specific hazardous building materials identified through review and analysis. Photographs were taken of the suspect hazardous building materials as well as the general area to give context. These are included in Appendix B.

5 METHODOLOGY

On 2, 3 and 4 August 2016, WSP conducted the Survey site work as per the scope of work discussed in Section 4. Visual review was conducted for suspect hazardous materials likely to be impacted by renovation activities. The areas typically containing suspect hazardous materials were reviewed from the accessible areas. Selected photographs taken during the site visit are presented in Appendix B. The completed Chain-of Custody forms (COCs) and the Laboratory Reports of analytical results are presented in Appendix C.

5.1 ASBESTOS-CONTAINING MATERIALS (ACM)

Based on the year of construction and renovation, asbestos containing materials are likely to be present with the onsite building structure. Accordingly, bulk sampling for suspect asbestos materials was conducted. The review was based on experienced professional judgment in consideration of, but not necessarily limited to, the era of construction, and uniformity of materials and size of area of homogeneous materials.

The locations and material descriptions of the collected samples was described in field notes, and the corresponding sample numbers were indicated on the Chain-of-Custody forms submitted along with the original samples.

Each sample was placed in a labelled plastic bag appropriate for the proposed analysis. The samples were sent to International Asbestos Testing Laboratories (IATL) in Mount Laurel, New Jersey, USA for asbestos analyses. IATL participates in the American Industrial Hygiene Association's (AIHA) Bulk Asbestos Proficiency Analytical Testing (BAPAT) Program. Samples were analyzed in accordance with PLM: Bulk Asbestos Building Materials EPA 600 R 93 / 116. 1993.

Based on WSP's professional opinion, the following materials were assumed not to contain asbestos during this survey and were classified as non-asbestos materials:

- Wood, wood paneling
- Carpet
- Concrete, Brick
- Fiberglass
- Plastics, rubbers, metals
- Gypsum board without taping compound / mud

5.2 LEAD-BASED PAINTS (LBP)

Based on the year of construction and renovation, surface coatings that potentially contain lead in paint could be present. Accordingly, bulk sampling for surface coatings was conducted. The review was based on experienced professional judgment in consideration of, but not necessarily limited to, the era of construction, and uniformity of materials and size of area of homogeneous materials.

The paint samples were sent to International Asbestos Testing Laboratories (IATL) in Mount Laurel, New Jersey, USA for lead content analyses. Analysis was by ASTM D3335-85A "Standard Method to

Test for Low Concentrations of Lead in Paint by Atomic Absorption Spectrophotometry". Chain-of-custody protocol was observed during handling and transportation of the bulk samples

5.3 LEAD PRODUCTS

The renovation zone was visually reviewed for the presence of lead products (e.g., washroom exhaust boots, lead containing roof flashing etc.).

5.4 MOULD AND OTHER MICROBIAL CONTAMINANTS

The renovation zone was visually reviewed for the presence of water damage and suspected mould growth.

5.5 CRYSTALLINE SILICA

The renovation zone was visually reviewed for the presence of concrete or mineral-composite building materials which may contain crystalline silica.

5.6 OTHER HAZARDOUS MATERIALS

The renovation zone was visually reviewed for the presence of fluorescent tubes and light ballasts which could contain mercury or PCBs; equipment which might contain ODS (i.e. halons or refrigerants); smoke detectors which may contain radioactive materials (RAM); potentially toxic/hazardous chemicals (i.e. halide and sodium arc bulbs), signs of urea formaldehyde use (UFFI); and potentially flammable or explosive materials.

The aforementioned building materials review and bulk material sample collection for analysis of potential asbestos and lead based surface coatings was consistent with recognized industry standards and principles of good occupational hygiene practice.

6 REGULATORY FRAMEWORK

The details of the regulatory frameworks for ACM, LBP, PCB, mercury, RAM, UFFI, and ODS are found in Appendix D.

7 PRE-RENOVATION HAZARDOUS MATERIALS SURVEY RESULTS

The results of the Survey are summarized below. A Site Plan showing sample locations is attached in Appendix A. Selected photographs taken during the site visit are presented in Appendix B. The completed the Chain-of-Custody forms (COCs) and the Laboratory Reports of analytical results are presented in Appendix C.

7.1 ASBESTOS-CONTAINING MATERIALS

The bulk building material samples (suspected to contain asbestos) collected in the Survey within the renovation area are listed below (Table 7-1) along with the corresponding IATL laboratory results of asbestos content:

Table 7-1 Bulk Building Material Samples (Analyzed for Asbestos Content)

Sample ID	Material Description *	Sample Location	Content/Type
B4-S1	Clear Caulking	Roof Duct	None Detected
B4-S2	Off-White Caulking	Roof Duct	None Detected
B4-S3	Clear Mastic	Roof Duct	None Detected
B4-S4	Grey Mastic	Roof Duct	None Detected
B4-S5	Black Caulking	Ladder To Upper Roof	None Detected
B4-S5	Clear Mastic	Ladder To Upper Roof	None Detected
B4-S6a	Black Caulking	Roof Skylight	None Detected
B4-S6b	Black Caulking	Roof Skylight	None Detected
B4-S6c	Black Caulking	Roof Skylight	None Detected
B4-S7a	**Off-White Caulking**	**Around Window Southwest Portion, South Wall**	**Traces of Chrysotile**
B4-S7b	Off-White Caulking	Around Door Southeast Portion, South Side	None Detected
B4-S7c	Off-White Caulking	East Wall	None Detected
B4-S7d	Off-White Caulking	Around Main Entrance Door North	None Detected
B4-S7e	**White Caulking**	**Around Window West Side**	**1.5%, Chrysotile**
B4-S7f	**Black Caulking**	**Around Window West Side**	**Traces of Chrysotile**
B4-S7g	**Grey Caulking**	**Around Window Northwest Portion, North Wall**	**10%, Chrysotile**

Notes: Bold indicates asbestos detected above WorksafeBC's 0.5% criteria.
**- Material Description as noted by iATL during analysis. The description of the material as noted in the field may differ from the description noted in the lab. The COCs in Appendix C can be referred for the field description of the materials.*

According to WorkSafeBC, the definition of an asbestos-containing material is 0.5% by weight. Based on the representative sampling, corresponding IATL laboratory results for asbestos content, asbestos (1.5 to 10% Chrysotile) was found in the caulking material present around the windows of the building.

7.2 LEAD-BASED PAINTS (LBP)

The paint samples collected in the Survey for lead content testing within the renovation area are listed below (Table 7-2) along with the corresponding IATL laboratory results of lead content.

Table 7-2 Paint Samples (Analyzed for Lead Content)

Sample ID	Material Sampled	Location	Content
B4-L1	**White**	**Roof, Metal Flashing**	**0.067% by Weight 670 ppm Lead**
B4-L2	White	Roof, Wooden Fence	0.0088% by Weight 88 ppm Lead

Sample ID	Material Sampled	Location	Content
B4-L3	Light Grey	Exterior Walls	0.0075 % by Weight 75 ppm Lead

Notes: *Bold indicates lead concentrations detected above WorksafeBC's 0.06% criteria.*

Lead based paints are not specifically defined in the WorkSafeBC regulations. BC Environmental Regulations[1] and WorkSafeBC Guidelines[2] require leachate testing prior disposal of lead waste.

WorkSafeBC has adopted the position that the removal of paint with a lead concentration as low as 0.06% (600 mg / kg) by aggressive techniques (i.e., abrasive blasting) can approach the occupational exposure limit. WorkSafeBC has also stated that lead concentrations as low as 0.009% (90 mg / kg) may present a risk to pregnant women and children.

The paint sample B4-L1 was found to have a lead (Pb) content above the WorkSafe BC criteria.

7.3 LEAD PRODUCTS

At the time of the onsite building review, no lead containing products were noted in the renovation zone.

7.4 MOULD AND WATER DAMAGE

At the time of the onsite building review, WSP did not observe any area with mould growth or water damage in the renovation zone.

7.5 PCBS

At the time of the onsite building review, WSP did not observe any PCB containing light fixtures or transformers within the renovation zone. However, fluorescent light ballasts with the potential to contain PCB were noted inside the Survey building. Based on the areas proposed for renovation these are not likely to be disturbed. However, when the renovations actually occur, if any fluorescent light ballasts are to be removed they should be assumed to contain PCB and disposed of appropriately unless their serial numbers have been checked to determine that they are PCB free.

7.6 MERCURY

At the time of the onsite building review, WSP noted outdoor light fixtures on the exterior walls of the onsite building. These light fixtures may use mercury containing light bulbs.

7.7 OZONE DEPLETING SUBSTANCES

At the time of the onsite building review, various roof mounted HVAC units (potentially containing ODS refrigerant) were noted. These HVAC units are not likely to be disturbed during the proposed renovations. However, if these units are to be moved or disconnected during the renovation, a certified refrigeration technician should remove the refrigerant or secure it to prevent accidental releases of ODS to the environment.

[1] Hazardous Waste Regulation
[2] Lead-Containing Coats and Paintings - Preventing Exposure in the Construction Industry

7.8 RADIOACTIVE MATERIALS

At the time of the onsite building review, no smoke detectors or other radioactive materials were noted in the renovation zone.

7.9 CRYSTALLINE SILICA

It is anticipated that Crystalline Silica is present in the cinder blocks, brick mortar and foundation works of the building.

7.10 FLAMMABLE AND EXPLOSIVE MATERIALS

At the time of the onsite building review, WSP did not observe any flammable or explosive materials within the renovation zone.

7.11 UREA FORMALDEHYDE FOAM INSULATION

At the time of the onsite building review, WSP did not visually observe indicators (e.g., patched injection holes and foam extrusions) of UFFI in the renovation zone. However UFFI may have been used during the 1970 construction or subsequent renovations. WSP should be contacted to sample for UFFI if any exterior walls are opened up and foam insulation is encountered.

8 RECOMMENDATIONS

- Follow safe work procedures when cutting or grinding cinder blocks, concrete, cementitious mortar, and/or other items that are assumed to contain crystalline silica.
- The roof of the building could not be thoroughly assessed due to aggressive nesting sea gulls. We recommend any suspicious material noted at the roof during renovations be considered asbestos containing and should be tested for asbestos content.
- The caulking around windows was found to be asbestos containing. We recommend during renovations that caulking material around the windows and doors be considered asbestos containing. The WorkSafeBC publication "Safe Work Practices for Handling Asbestos" and the Occupational Health and Safety (OHS) Guideline G6.8 describes acceptable practices. A risk assessment for any assumed and identified/confirmed asbestos-containing materials must be performed prior to initiation of renovation work to determine the exposure risk to workers and other persons as per OHS Guideline G20.112.
- At the time of renovations, any encountered suspicious material be treated as asbestos containing and must be removed using safe work practices, unless the material is tested in an accredited laboratory and confirmed as non-asbestos containing.
- Proper procedures and documentation such as safe work practices, an exposure control plan, risk assessments and/or other controls must be developed for all workers if lead-containing paint with a lead content of 0.06% or more is to be removed from the surfaces or if otherwise disturbed. Any other paint coatings encountered during renovation activities, which have not been already tested, should be considered lead containing until sampling can demonstrate otherwise.
- If mould materials or animal wastes (rodent droppings) are found during renovation, safe work procedures should be followed when removing mould-contaminated materials and animal waste.

- Any compact fluorescents, halogen bulbs, sodium bulbs and mercury containing light bulbs removed from the building exteriors should be recycled when removed from service. The Light Recycle website provides a list of recycling facilities on their website, at http://www.lightrecycle.ca/.
- If the renovation area needs to go beyond the current Survey area, WSP should be contacted to identify any additional potentially hazardous materials.
- At the time of onsite building review, UFFI was not noted in the renovation zone. However there is a possibility that UFFI insulation may have been used to insulate the building envelop during the 1970 construction or subsequent renovations. Although, it is unlikely that the exterior walls will be opened up for the proposed renovations, WSP should be contacted to sample for UFFI if any exterior walls are opened up and foam insulation is encountered.
- The roof mount HVAC units should be degassed by a certified/ licensed contractor as required by British Columbia's Ozone Depleting Substances Regulation, if considered for removal or replacement during renovations
- Retain a copy of this report and provide it to any contractors who may be undertaking Renovation work in the Survey area as required by Section 20.112 of the WorkSafe BC regulations.

9 CLOSURE

No hazardous materials survey can wholly eliminate uncertainty regarding the potential for recognized hazardous materials conditions at the site. Performance of a standardized hazardous material survey protocol is intended to reduce, but not eliminate uncertainty regarding the potential for recognized hazardous materials at the site, given reasonable limits of time and cost.

This report has been prepared by WSP exclusively for Canada Mortgage and Housing Corporation and is intended to provide a survey of the potential for the presence of hazardous materials in the Festival House building located at Granville Island in Vancouver, BC.

The conclusions made in this report reflect WSP's best judgment in light of the information available at the time of preparation. No other warranty, expressed or implied, is made. 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. WSP accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions based on this report. The standard limitations of this report are specified in Appendix E.

Yours sincerely,

WSP CANADA INC.

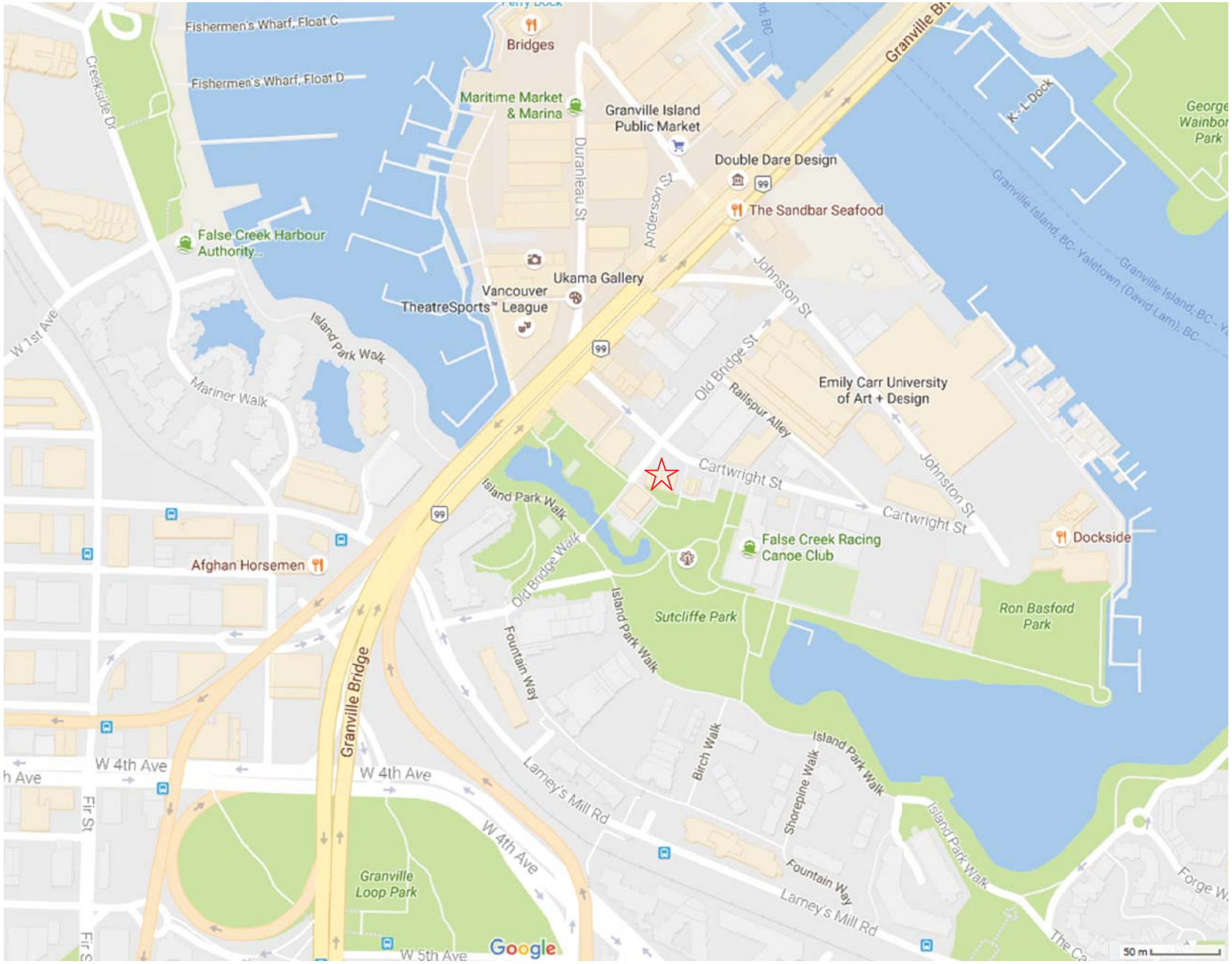
Arvind Chowdharri, P.Eng.
Environmental Engineer

Anthony Dickinson, M.A.Sc., P.Eng.
Senior Environmental Engineer

Appendix A	Site Plan
Appendix B	Site Photographs
Appendix C	Chain-of-Custodies and Laboratory Reports
Appendix D	Regulatory Framework
Appendix E	Standard Limitations

Appendix A

FIGURES: SITE LOCATION & SITE PLAN



LEGEND

☆ – SUBJECT SITE

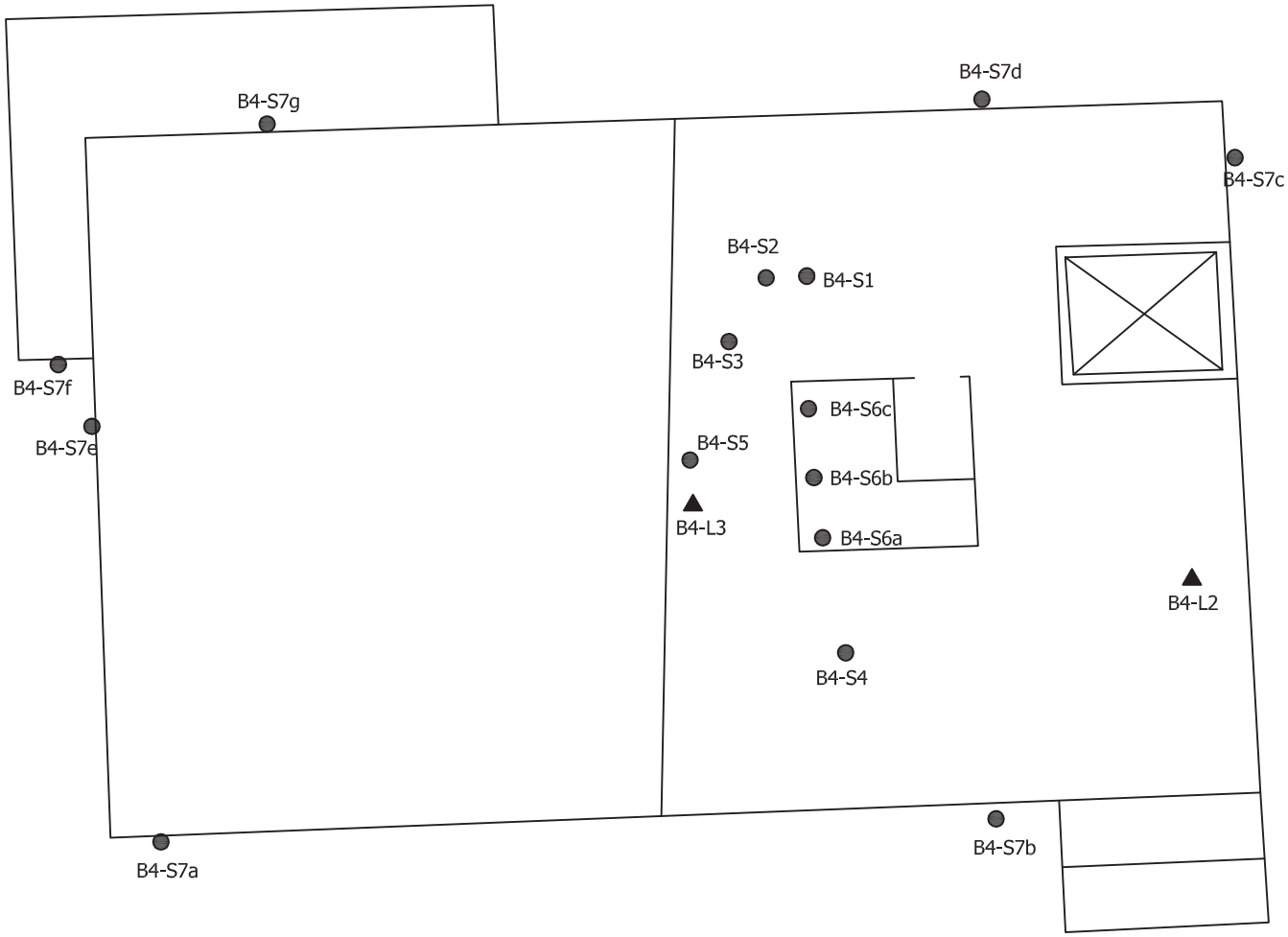
WSP CANADA INC.
100 - 20339 96 AVENUE, LANGLEY, BC V1M 0E4
PHONE: 604 533-2992 - FAX: 604 533-0768 - WWW.WSPGROUP.COM

TITLE: Site Location Map

PROJECT: Pre-Renovations Hazardous Materials Survey
Festival House, Granville Island, Vancouver, BC

CLIENT: Canada Mortgage and Housing Corporation

DES.	DR. JL
CH. AC	SCALE AS SHOWN
APP.	DATE AUG 2016
FILE NO. 151-63666-00 (P30, SP30D)	
DWG. NO. 1	



LEGEND

● – BUILDING MATERIALS SAMPLE (ASBESTOS)

▲ – PAINT SAMPLE (LEAD)

WSP CANADA INC.
100 - 20339 96 AVENUE, LANGLEY, BC V1M 0E4
PHONE: 604 533-2992 - FAX: 604 533-0768 - WWW.WSPGROUP.COM

TITLE: Sample Locations

PROJECT: Pre-Renovations Hazardous Materials Survey
Festival House, Granville Island, Vancouver, BC

CLIENT: Canada Mortgage and Housing Corporation

DES.	DR. JL
CH. AC	SCALE NTS
APP.	DATE AUG 2016
FILE NO. 151-63666-00 (P30, SP30D)	
DWG. NO. 2	

Appendix B

SITE PHOTOGRAPHS

Photo 1: View of the Festival House building (East Side)

Photo 2: View of the Festival House building (West Side)

Photo 3: The sample B4-S7g of grey caulking material (10% Chrysotile) present at the northwest portion of the building.

Photo 4: View of the white paint coat applied over the metal flashing. The paint is found to contain lead greater than 0.06%.

Appendix C

COC'S & LABORATORY REPORTS

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Chain of Custody

–Bulk Asbestos –

Contact Information

Client Company: WSP Canada Inc.
Office Address: #100 - 20339 96th Ave
City, State, Zip: Langley, BC V1M 0E4
Fax Number: 604-533-0768
Email Address: Arvind.chowdharri@wspgroup.com

Project Number: 151-63666-00 [P30, SP30D]
Project Name: Pie Renovations H.M.S. - Festival House
Primary Contact: ARVIND CHOWDHARRI
Office Phone: 604-533-2992
Cell Phone: 604-368-4289

PLM Instructions:

- [x] PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993
- [ ] PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982
- [ ] PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985
- [ ] PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002
- [ ] PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010
- [ ] TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009

E-MAILED 8-8-16

- [ ] PLM: Point Counting
  - [ ] PC: via ELAP 198.1
  - [ ] PC: 400 Points
  - [ ] PC: 800 Points *
  - [ ] PC: 1600 Points *
- [ ] PLM: Instructions for Multi-Layered Samples
  - [ ] Analyze and Report All Separable Layers per EPA 600
  - [ ] Report Composite for Drywall Systems per NESHAP
  - [ ] Report All Layers and Composite Where Applicable
  - [ ] Only Analyze and Report Specifically Noted Layer
- [ ] PLM: Analyze Until Positive (Positive Stop)
  - [ ] AUP: by Homogenous Area as Noted
  - [ ] AUP: by Material Type as Noted
- [ ] PLM: NOB via 198.6
  - [ ] PLM: Friable via EPA 600 2.3
  - [ ] If <1% by PLM, to TEM via 198.4 *
  - [ ] If <1% by PLM, Hold for Instructions
- [ ] PLM: Non-Building Material*,** (Dust, Wipe, Tape)
  - [ ] Soil or Vermiculite Analysis*
  - [ ] CARB 435

Special Instructions: B4 - Festival House

** Additional charge and turnaround may be required* *** Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory*

Turnaround Time

Preliminary Results Requested Date: _____ (Specific date / time)

- [ ] Verbal
- [x] Email
- [ ] Fax

- [ ] 10 Day
- [x] 5 Day
- [x] 3 Day
- [ ] 2 Day
- [ ] 1 Day*
- [ ] 12 Hour**
- [ ] 6 Hour**
- [ ] RUSH**

15

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

RECEIVED AUG - 8 2016

Chain of Custody ARVIND for WSP Canada Inc

Relinquished (Name/Organization):		Date:	5-Aug-2016	Time:	
Received (Name / iATL):		Date:		Time:	
Sample Login (Name / iATL):		Date:	8/9/16	Time:	
Analysis(Name(s) / iATL):		Date:		Time:	
QA/QC Review (Name / iATL):		Date:	8-11-16	Time:	
Archived / Released:	QA/QC InterLAB Use:	Date:		Time:	

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Sample Log

–Bulk Asbestos –

Client: WSP Canada Inc Project: 151-63666-00 [P30, SP 30D]

Sampling Date/Time: 2-4 Aug 2016

Bulk Asbestos Sample Log			
Client Sample #	**iATL #**	**Location/Description**	**Notes**
B4-S1	6001693	Mastic/Sealant, Duct, white	Roof
B4-S2	6001694	Mastic, Duct, Roof Grey	
B4-S3	6001695	Mastic, Duct Black,	Roof
B4-S4	6001696	Mastic Duct, Grey,	Roof.
B4-S5	6001697	Sealant / Mastic, ladder to upper Roof White / Black	
B4-S6a	6001698	Skylight Putty, Roof, Black	
B4-S6b	6001699	" " "	"
B4-S6c	6001700	" " "	"
B4-S7a	6001701	Mastic around window, SW Portion south wall Grey	
B4-S7b	6001702	Mastic around Door, Grey	SE, South side
B4-S7c	6001703	Sealant / Mastic, East wall ~~Concrete~~ Concrete Grey	
B4-S7d	6001704	Mastic around main North, Grey	Entrance door
B4-S7e	6001705	Mastic around window, Grey	west side,
B4-S7f	6001706	Mastic around window, Black	west side
B4-S7g	6001707	Mastic around window, North wall, White	NW

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516762 - PLM
Project: Pre Renovations HMS-Festival House
Project No.: 151-63666-00 (P30,SP30D)

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6001693
Client No.: B4-S1
Description: Clear Caulk
Facility:
Location: Roof Duct

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 6001694
Client No.: B4-S2
Description: Off-White Caulk
Facility:
Location: Roof Duct

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 6001695
Client No.: B4-S3
Description: Clear Mastic
Facility:
Location: Roof Duct

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 6001696
Client No.: B4-S4
Description: Grey Mastic
Facility:
Location: Roof Duct

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 6001697
Client No.: B4-S5
Description: Black Roof Material
Facility:
Location: Ladder To Upper Roof

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 6001697(L2)
Client No.: B4-S5
Description: Clear Mastic
Facility:
Location: Ladder To Upper Roof

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

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

Date Received: 8/8/2016
Date Analyzed: 08/10/2016
Signature:
Analyst: Shane Cone

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516762 - PLM
Project: Pre Renovations HMS-Festival House
Project No.: 151-63666-00 (P30,SP30D)

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6001698 **Client No.:** B4-S6a	**Description:** Black Caulk **Facility:**	**Location:** Roof Skylight
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001699 **Client No.:** B4-S6b	**Description:** Black Caulk **Facility:**	**Location:** Roof Skylight
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001700 **Client No.:** B4-S6c	**Description:** Black Caulk **Facility:**	**Location:** Roof Skylight
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001701 **Client No.:** B4-S7a	**Description:** Off-White Caulk **Facility:**	**Location:** Around Window SW Portion South Wall
Percent Asbestos: ***PC Trace*** *Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001702 **Client No.:** B4-S7b	**Description:** Off-White Caulk **Facility:**	**Location:** Around Door SE South Side
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001703 **Client No.:** B4-S7c	**Description:** Off-White Caulk **Facility:**	**Location:** East Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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

Date Received: 8/8/2016
Date Analyzed: 08/10/2016
Signature:
Analyst: Shane Cone

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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CERTIFICATE OF ANALYSIS

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Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516762 - PLM
Project: Pre Renovations HMS-Festival House
Project No.: 151-63666-00 (P30,SP30D)

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6001704 **Client No.:** B4-S7d	**Description:** Off-White Caulk **Facility:**	**Location:** Around Main Entrance Door North
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001705 **Client No.:** B4-S7e	**Description:** White Caulk **Facility:**	**Location:** Around Window West Side
Percent Asbestos: ***PC 1.5*** *Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.5
Lab No.: 6001706 **Client No.:** B4-S7f	**Description:** Black Caulk **Facility:**	**Location:** Around Window West Side
Percent Asbestos: ***PC Trace*** *Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001707 **Client No.:** B4-S7g	**Description:** Grey Caulk **Facility:**	**Location:** Around Window NW North Wall
Percent Asbestos: ***10*** *Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 90

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

Date Received: 8/8/2016
Date Analyzed: 08/10/2016
Signature:
Analyst: Shane Cone

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516762 - PLM
Project: Pre Renovations HMS-Festival House
Project No.: 151-63666-00 (P30,SP30D)

Appendix to Analytical Report

Customer Contact: Arvind Chowdharri
Analysis: US EPA 600, R93-116

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

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Shirley Clark
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

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

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

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

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

Information Pertinent to this Report:

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

Certifications:

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

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

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

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

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

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

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CERTIFICATE OF ANALYSIS

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Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516762 - PLM
Project: Pre Renovations HMS-Festival House
Project No.: 151-63666-00 (P30,SP30D)

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

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

Disclaimers / Qualifiers:

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

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

Recommendations for Vermiculite Analysis:

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

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

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

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

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

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Chain of Custody

– Environmental Lead –

Contact Information

Client Company:	WSP Canada Inc.	**Project Number:**	151-63666-00 [P30, SP30D]
Office Address:	#100 - 20339 96th Ave	**Project Name:**	Pre Renovations H.M.S - festival House
City, State, Zip:	Langley, BC V1M 0E4	**Primary Contact:**	Arvind Chowdharri
Fax Number:	604-533-0768	**Office Phone:**	604-533-2992
Email Address:	Arvind.Chowdharri@WSPgroup.com	**Cell Phone:**	604-368-4289

iATL is accredited by the National Lead Laboratory Accreditation Program (NLLAP) to perform analytical testing of environmental samples for lead (Pb). The accreditation is through AIHA-LAP, LLC and several other nationally recognized state programs.

Matrix/Method:

- ☑ Paint by AAS: ASTM D3335-85a, 2009
- ☐ Wipe/Dust by AAS: SW 846: 3050B: 700B, 2010
- ☐ Air by AAS: NIOSH 7082, 1994
- ☐ Soil by AAS: EPA SW 846 (Soil)
- ☐ Water by AAS-GF: ASTM D3559-03D, USEPA 40CFR 141.11B, 2010
- ☐ Other Metals (Cd, Zn, Cr) by AAS
- ☐ Toxicity Characteristic Leaching Procedure (TCLP) by AAS: USEPA 1311
- ☐ Other _____

E-MAILED 8-11-16 AD

Special Instructions:

B4- Festival House

Turnaround Time

Preliminary Results Requested Date: _____ (Specific date / time) ☐ Verbal ☑ Email ☐ Fax

☐ 10 Day ☐ 5 Day ☑ 3 Day ☐ 2 Day ☐ 1 Day* ☐ 12 Hour** ☐ 6 Hour** ☐ RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

Chain of Custody

Relinquished (Name/Organization):	ARUIND C. for WSP Canada Inc.	Date:	5-Aug-16	Time:	
Received (Name / iATL):		Date:		Time:	RECEIVED
Sample Login (Name / iATL):		Date:	8/8/16	Time:	
Analysis(Name(s) / iATL):	CSS/11/16	Date:		Time:	
QA/QC Review (Name / iATL):	ML	Date:	8/11/16	Time:	AUG - 8 2016
Archived / Released: _____	QA/QC InterLAB Use: ____	Date:		Time:	

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ASBESTOS TESTING LABORATORIES

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Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Sample Log

–Environmental Lead –

Client: WSP Canada Inc Project: 151-63666-00 [P30, SP 30D]

Sampling Date/Time: 2-4 Aug 2016

Client Sample #	iATL #	Location/ Description	Flow Rate	Start End	Sampling time (min)	Area (ft2) Volume (L)	Results ( )
B4-L1	6001424	White Paint, Metal Flashing, Roof					
B4-L2	6001425	White Paint, Roof			Wooden Fence		
B4-L3	6001426	Light Grey	paint, Exterior		walls		

* = *Insufficient Sample Provided to Perform QC Reanalysis (<200mg)*
** = *Insufficient Sample Provided to Analyze (<50mg)* ***= *Matrix / Substrate Interference Possible*
FB = Method Requires the submittal of blank(s). ML = Multi Layered Sample. May result in inconsistent results.
These **preliminary results** are issued by iATL to expedite procedures by clients based upon the above data. iATL assumes that all of the sampling methods and data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificate of Analysis will follow these preliminary results. The signed COA is to be considered the official results. All EPA, HUD, and NJDEP conditions apply.

IATL International Asbestos Testing Laboratories

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Telephone: 856-231-9449 Fax: 856-231-9818
INFO@IATL.COM

DAILY QUALITY CONTROL DATA

LEAD SAMPLE ANALYSIS

(DATE: 08 / 11 / 16)

Standard	Total Lead (mg)	Percent Recovery **
Reagent Blank	0.000	< LOQ
Blank Spike	0.500	99
Lab Control Std	1.350	96
Matrix Spike - LBP *	0.37	94
Matrix Spike - Wipe *	0.32	98
Matrix Spike - Soil *	0.343	109
Matrix spike - Air *	0.050	94
2.5 ppm Standard	0.25	103
10.0 ppm Standard	1.0	101
40.0 ppm Standard	4.0	101

AIHA-LAP, LLC No. 100188 **NYSDOH-ELAP No. 11021**

Analysis Method: ASTM D3335-85A
NIOSH 7082
EPA SW846 3050B 7000B

Comments: IATL assumes that all sampling complies with accepted methods.
All client supplied sampling data is assumed to be correct when calculating results.
Detection limit based upon 0.2 mg/L reporting limit and sample size.
* NIST Traceable.
** 80-120% acceptable limits.

Analyzed By: Chad Shaffer
R. Chad Shaffer

Date: 8/11/16

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

AAS.DailyQC.005

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/11/2016
Report No.: 516785 - Lead Paint
Project: Pre Renovations HMS-Festival House
Project No.: 151-63666-00 (P30, SP30D)

LEAD PAINT SAMPLE ANALYSIS SUMMARY

Lab No.: 6001424
Client No.: B4-L1
Description: White
Location: Roof, Metal Flashing
Result (% by Weight): 0.067
Result (ppm): 670
Comments: *

Lab No.: 6001425
Client No.: B4-L2
Description: White
Location: Roof, Wooden Fence
Result (% by Weight): <0.0088
Result (ppm): <88
Comments: ***

Lab No.: 6001426
Client No.: B4-L3
Description: Light Grey
Location: Exterior Walls
Result (% by Weight): 0.0075
Result (ppm): 75
Comments:

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 8/8/2016
Date Analyzed: 08/11/2016
Signature:
Analyst: Chad Shaffer

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/11/2016
Report No.: 516785 - Lead Paint
Project: Pre Renovations HMS-Festival House
Project No.: 151-63666-00 (P30, SP30D)

Appendix to Analytical Report:

Customer Contact: Arvind Chowdharri
Analysis: ASTM D3335-85a

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

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Shirley Clark
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Paint
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

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

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

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

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

Information Pertinent to this Report:

Analysis by ASTM D3335-85a by AAS

Certification:
- National Lead Laboratory Program (NLLAP): AIHA-LAP, LLC No. 100188
- NYSDOH-ELAP No. 11021

Regulatory limit is 0.5% lead by weight (EPA/HUD guidelines). Recommend multiple sampling for all samples less than regulatory limit for confirmation.

All results are based on the samples as received at the lab. iATL assumes that appropriate sampling methods have been used and that the data upon which these results are based have been accurately supplied by the client.

Method Detection Limit (MDL) per EPA Method 40CFR Part 136 Apendix B.

Reporting Limit (RL) based upon Lowest Standard Determined (LSD) in accordance with AIHA-ELLAP policies.

LSD=0.2 ppm MDL=0.005% by weight. RL= 0.010% by weight (based upon 100 mg sampled).

* Insufficient sample provided to perform QC reanalysis (<200 mg)

** Not enough sample provided to analyze (<50 mg)

*** Matrix / substrate interference possible.

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/11/2016
Report No.: 516785 - Lead Paint
Project: Pre Renovations HMS-Festival House
Project No.: 151-63666-00 (P30, SP30D)

Disclaimers / Qualifiers:

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

* NOTE: Multiple samples received in container. Composite analysis requested per EPA/HUD guidelines not covered by NLLAP/AIHA accreditation.

Appendix D

REGULATORY FRAMEWORK

REGULATORY FRAMEWORK

1. Occupational Health and Safety Regulation (Including amendments up to B.C. Reg. 195/2015),
2. Safe Work Practices for Handling Asbestos, WorkSafe BC, (Publication Date January 15, 2013).
3. Hazardous Waste Regulation, BC Ministry Of Environment. (Including amendments up to B.C. Reg. 63/2009, April 1, 2009).
4. Ozone Depleting Substances and other Halocarbons Regulation. (Including amendments up to B.C. Reg. 317/2012, November 9, 2012).
5. Environmental Management Act (As Current to June 22, 2016).
6. PCB Regulations, SOR / 2008-273, Canadian Environmental Protection Act.
7. Lead-Containing Paint and Coatings, Preventing Exposure in the Construction Industry, WorkSafe BC, June 2011.
8. Federal Register, 40 CFR Part 745 Lead; Identification of Dangerous Levels of Lead; Final Rule, Environmental Protection Agency, January 5, 2001
9. Transportation of Dangerous Goods Regulations SOR / 2015-100, Transportation of Dangerous Goods Act.
10. Consumer Products Safety Act, SOR/2014-79.

Appendix E

STANDARD LIMITATIONS

TERMS OF REFERENCE FOR HAZARDOUS MATERIALS AND OCCUPATIONAL HEALTH AND SAFETY REPORTS ISSUED BY WSP CANADA INC.

1. STANDARD OF CARE

WSP Canada Inc. ("WSP") prepared and issued this report (the "Report") for its client (the "Client") in accordance with generally-accepted consulting practices for the hazardous materials and occupational health and safety disciplines. No other warranty, expressed or implied, is made. Unless specifically stated in the Report, the Report does not address environmental issues.

The terms of reference for hazardous materials and occupational health and safety reports issued by WSP (the "Terms of Reference") contained in the present document provide additional information and caution related to standard of care and the use of the Report. The Client should read and familiarize itself with these Terms of Reference.

2. COMPLETENESS OF THE REPORT

All documents, records, drawings, correspondence, data, files and deliverables, whether hard copy, electronic or otherwise, generated as part of the services for the Client are inherent components of the Report and, collectively, form the instruments of professional services (the "Instruments of Professional Services"). The Report is of a summary nature and is not intended to stand alone without reference to the instructions given to WSP by the Client, the communications between WSP and the Client, and to any other reports, writings, proposals or documents prepared by WSP for the Client relative to the specific site described in the Report, all of which constitute the Report.

TO PROPERLY UNDERSTAND THE INFORMATION, OBSERVATIONS, FINDINGS, SUGGESTIONS, RECOMMENDATIONS AND OPINIONS CONTAINED IN THE REPORT, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. WSP CANNOT BE RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT AND ITS VARIOUS COMPONENTS.

3. BASIS OF THE REPORT

WSP prepared the Report for the Client for the specific objectives and purpose that the Client described to WSP. The applicability and reliability of any of the information, observations, findings, suggestions, recommendations and opinions contained in the Report are only valid to the extent that there was no material alteration to or variation from any of the said descriptions provided by the Client to WSP unless the Client specifically requested WSP to review and revise the Report in light of such alteration or variation.

4. USE OF THE REPORT

The information, observations, findings, suggestions, recommendations and opinions contained in the Report, or any component forming the Report, are for the sole use and benefit of the Client and the team of consultants selected by the Client for the specific project that the Report was provided. NO OTHER PARTY MAY USE OR RELY UPON THE REPORT OR ANY PORTION OR COMPONENT WITHOUT THE WRITTEN CONSENT OF WSP. WSP will consent to any reasonable request by the Client to approve the use of this Report by other parties designated by the Client as the "Approved Users". As a condition for the consent of WSP to approve the use of the Report by an Approved User, the Client must provide a copy of these Terms of Reference to that Approved User and the Client must obtain written confirmation from that Approved User that the Approved User will comply with these Terms of Reference, such written confirmation to be provided separately by each Approved User prior to beginning use of the Report. The Client will provide WSP with a copy of the written confirmation from an Approved User when it becomes available to the Client, and in any case, within two weeks of the Client receiving such written confirmation.

The Report and all its components remain the copyright property of WSP and WSP authorizes only the Client and the Approved Users to make copies of the Report, but only in such quantities as are reasonably necessary for the use of the Report by the Client and the Approved Users. The Client and the Approved Users may not give, lend, sell or otherwise disseminate or make the Report, or any portion thereof, available to any party without the written permission of WSP. Any use which a third party makes of the Report, or any portion of the Report, is the sole responsibility of such third parties. WSP accepts no responsibility for damages suffered by any third party resulting from the use of the Report. The Client and the Approved Users acknowledge and agree to indemnify and hold harmless WSP, its officers, directors, employees, agents, representatives or sub-consultants, or any or all of them, against any claim of any nature whatsoever brought against WSP by any third parties, whether in contract or in tort, arising or related to the use of contents of the Report.

TERMS OF REFERENCE FOR HAZARDOUS MATERIALS AND OCCUPATIONAL HEALTH AND SAFETY REPORTS ISSUED BY WSP CANADA INC. (continued)

5. INTERPRETATION OF THE REPORT

a. **Hidden Conditions**: The Client acknowledges that subsurface and concealed conditions may vary from those encountered or reviewed. WSP can only comment on the conditions observed on the date(s) the Survey is performed. The work is limited to those areas of concern identified by the Client and/or outlined in our proposal. Other areas of concern may exist but were not investigated within the scope of this Survey.

b. **Reliance on information**: The evaluation and conclusions contained in the Report have been prepared on the basis of conditions in evidence at the time of site investigation and field review and on the basis of information provided to WSP. WSP has relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, WSP cannot accept responsibility for any deficiency, misstatement or inaccuracy contained in the report as a result of misstatements, omissions, misrepresentations or fraudulent acts of persons providing information.

c. **Additional Involvement by WSP**: To avoid misunderstandings, WSP should be retained to assist other professionals to explain relevant hazardous materials and occupational health and safety findings and to review the hazardous materials and occupational health and safety aspects of the plans, drawings and specifications of other professionals relative to the services provided by WSP. To ensure compliance and consistency with the applicable hazardous materials and occupational health and safety codes, legislation, regulations, guidelines and generally-accepted practices, WSP should also be retained to provide field review services during the performance of any related work. Where applicable, it is understood that such field review services must meet or exceed the minimum necessary requirements to ascertain that the work being carried out is in general conformity with the recommendations made by WSP. Any reduction from the level of services recommended by WSP will result in WSP providing qualified opinions regarding adequacy of the work.

6. ALTERNATE REPORT FORMAT

When WSP submits both electronic and hard copy versions of the Instruments of Professional Services, the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding upon WSP. The hard copy versions submitted by WSP shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancy, the hard copy versions shall govern over the electronic versions; furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed and sealed versions of the Instruments of Professional Services maintained or retained, or both, by WSP shall be deemed to be the overall originals for the Project.

The Client agrees that the electronic file and hard copy versions of Instruments of Professional Services shall not, under any circumstances, no matter who owns or uses them, be altered by any party except WSP. The Client warrants that the Instruments of Professional Services will be used only and exactly as submitted by WSP.

The Client recognizes and agrees that WSP prepared and submitted electronic files using specific software or hardware systems, or both. WSP makes no representation about the compatibility of these files with the current or future software and hardware systems of the Client, the Approved Users or any other party. The Client further agrees that WSP is under no obligation, unless otherwise expressly specified, to provide the Client, the Approved Users and any other party, or any or all of them, with specific software and hardware systems that are compatible with any electronic submitted by WSP. The Client further agrees that should the Client, an Approved User or a third party require WSP to provide specific software or hardware systems, or both, compatible with the electronic files prepared and submitted by WSP, for any reason whatsoever included but not restricted to an order from a court, then the Client will pay WSP for all reasonable costs related to the provision of the specific software or hardware systems, or both. The Client further agrees to indemnify and hold harmless WSP, its officers, directors, employees, agents, representative or sub-consultant, or any or all of them, against any claim or any nature whatsoever brought against WSP, whether in contract or in tort, arising or related to the provision or use or any specific software or hardware provided by WSP.

REPORT N^{O} 151-63666-00 (P30 SP 30D)

PRE-RENOVATIONS HAZARDOUS MATERIALS SURVEY - WATERFRONT THEATRE, GRANVILLE ISLAND, VANCOUVER, BC

CANADIAN MORTGAGE AND HOUSING CORPORATION

AUGUST 23, 2016

WSP

PRE-RENOVATIONS HAZARDOUS MATERIALS SURVEY - WATERFRONT THEATRE, GRANVILLE ISLAND, VANCOUVER, BC

CANADA MORTGAGE AND HOUSING CORPORATION

Project no: 151-63666-00 (P30 SP30D)
Date: August 23, 2016

WSP Canada Inc.
#100 20339 – 96th Avenue
Langley, BC V1M 0E4

Phone: +1 604-533-2992
Fax: +1 604-533-0768
www.wspgroup.com

Our Ref: 151-63666-00 (P30 SP30D)

August 23, 2016

Canada Mortgage and Housing Corporation
Granville Island Administration Office
1661 Duranleau Street, 2nd Floor
Vancouver, BC V6H 3S3

Attn: - Ms. Janet Flowers, Director

WSP Canada Inc.
#100 20339 – 96th Avenue
Langley, BC V1M 0E4

Tel: ++1 604-533-2992
Fax: +1 604-533-0768

www.wspgroup.com
www.pbworld.com

Dear Ms. Flowers,

Subject: Pre-Renovations Hazardous Materials Survey –Waterfront Theatre (Building #93), Granville Island, Vancouver, BC

Please find enclosed the pre-renovations hazardous materials survey report conducted for the Waterfront Theatre building located at Granville Island in Vancouver, BC.

Hazardous materials were identified within the areas identified for Survey. Proper procedures should be implemented for the safe removal and disposal of these materials.

If you have any questions about the information contained in the attached report please contact either Arvind Chowdharri (604) 533-2992 or Anthony Dickinson at (604) 736-5421.

Yours sincerely,

Arvind Chowdharri, P.Eng.
Environmental Engineer

Anthony Dickinson, M.A.Sc., P.Eng.
Senior Environmental Engineer – EHS Group

EXECUTIVE SUMMARY

WSP Consultants Inc. (WSP) was retained by Canada Mortgage and Housing Corporation (the client) for the provision of a Pre-Renovations Hazardous Materials Survey (the Survey) of the Waterfront Theatre building (also known as building #93) located at Granville Island in Vancouver, BC, (herein referred to as the "Subject Site" or "Site").

As per the BC Assessment, the Waterfront Theatre building was constructed in 1955. Based on the estimated construction date of the building, hazardous building materials are anticipated to be present within the building structure.

WSP understands that the Survey is required for regulatory compliance purposes prior to proposed renovations.

The objective of a Hazardous Materials Survey is to establish the presence / absence, and type of hazardous building materials utilized in the construction of the building at the specified locations by means of sample collection and subsequent laboratory analysis. Section 20.112 of the BC Occupational Health and Safety Regulation requires that a hazardous materials survey should be conducted by a qualified person prior to any demolition or renovation activity which might disturb hazardous materials.

For the purposes of this survey, hazardous building materials were defined as:

- Asbestos-containing building materials (ACM);
- Lead materials and lead-based paints (LBP);
- Mercury;
- Polychlorinated biphenyls (PCB);
- Crystalline silica;
- Ozone depleting substances (ODS);
- Radioactive materials (RAM);
- Urea Formaldehyde Foam Insulation (UFFI);
- Mould and/or microbial growth; and
- Flammable or explosive materials.

The survey and review was conducted in general accordance with WorkSafeBC Occupational Health and Safety Regulations Part 20, Construction, Excavation and Demolition, Section 20.112 Hazardous Materials.

WSP understands that the following renovation will be conducted within the Public Market building structure:

- General flat roof maintenance to remove vegetation growth and debris, and to clean out gutters and roof drains;
- Replacement of failed sealants and application where missing at wall penetrations (i.e. hose bibs, vents, etc.), at wall transitions between different cladding materials, and at window perimeters;

- Local repairs to damaged stucco cladding; Repair damaged flashing to conceal exposed wood elements;
- Repair gaps in wood cladding adjacent to the 2nd floor east exit door;
- Repair damaged and/or corroded window hardware;
- Replacement of damaged glazing units/ failed sealed units at windows and skylights; and
- Installation of appropriate landing at the south emergency exit

Based on the aforementioned renovations that are proposed for the Waterfront Theatre building, the renovation zone includes building exteriors and roof of the building. This survey was limited to the "renovation zone".

The Survey was conducted by identifying the above defined hazardous materials including suspect ACM and LBP through on-site bulk sampling and analysis, review for visual / olfactory presence of suspected mould growth, and review of elements or components which may contain lead products, mercury, PCB, crystalline silica, ODS, RAM, and UFFI in the aforementioned renovation zone.

CONCLUSIONS

Asbestos-Containing Materials (ACM)

The bulk building material samples (suspected to contain asbestos) collected in the Survey within the renovation zone are listed in Table 7-1 along with the corresponding IATL laboratory results of asbestos content. Based on the representative sampling and corresponding IATL laboratory results for asbestos content, the grey/orange mastic present on the exterior walls of the building was found to be asbestos containing (1.2% Chrysotile). The corrugated cement panels present on the exterior walls of the building were assumed to be asbestos containing. The off-white mastic present on the exterior of the building was found to be asbestos containing but less than the BC Criteria of 0.5%.

Lead-Based Paints (LBP)

The paint samples collected in the Survey for lead content testing within the renovation area rooms are listed in Table 7-2 along with the corresponding IATL laboratory results of lead content. The paint samples B3-L1, B3-L2, B3-L4, B3-L5 and B3-L6 were found to have a lead (Pb) content above the WorkSafe BC criteria.

Lead Products

At the time of the onsite building review, no lead containing products were noted in the renovation zone.

Mould and Water Damage

At the time of the onsite building review, WSP did not observe any area with mould growth or water damage in the renovation zone.

PCBs

At the time of the onsite building review, WSP did not observe any PCB containing light fixtures or transformers within the renovation zone. However, fluorescent light ballasts with the potential to contain

PCB were noted inside the Survey building. Based on the areas proposed for renovation these are not likely to be disturbed. However, when the renovations actually occur, if any fluorescent light ballasts are to be removed they should be assumed to contain PCB and disposed of appropriately unless their serial numbers have been checked to determine that they are PCB free.

Mercury

At the time of the onsite building review, WSP noted outdoor light fixtures on the exterior walls of the onsite building. These light fixtures may use mercury containing light bulbs.

Ozone Depleting Substances

At the time of the onsite building review, roof mounted HVAC units (potentially containing ODS refrigerant) were noted. These HVAC units are not likely to be disturbed during the proposed renovations. However, if these units are to be moved or disconnected during the renovation, a certified refrigeration technician should remove the refrigerant or secure it to prevent accidental releases of ODS to the environment.

Radioactive Materials

At the time of the onsite building review, no smoke detectors or other radioactive materials were noted in the renovation zone.

Crystalline Silica

It is anticipated that Crystalline Silica is present in the concrete floor, stucco on the exterior wall, corrugated cement panel and foundation works of the building.

Flammable and Explosive Materials

At the time of the onsite building review, WSP did not observe any flammable or explosive materials within the renovation zone.

Urea Formaldehyde Foam Insulation

At the time of the onsite building review, WSP did not observe indicators (e.g., patched injection holes or foam extrusions) of UFFI in the renovation zone. However there is a possibility that UFFI insulation may have been used to insulate the building envelop in the 1970s. WSP should be contacted to sample for UFFI if any exterior walls are opened up and foam insulation is encountered.

RECOMMENDATIONS

- Follow safe work procedures when cutting or grinding concrete, cementitious mortar, and/or other items that are assumed to contain crystalline silica.
- The caulking around doors was found to be asbestos containing and the corrugated cement panels present on the exterior walls of the building were assumed to be asbestos containing. We recommend that during renovations, caulking material around the windows/doors and the exterior walls be considered asbestos containing. The WorkSafeBC publication "Safe Work Practices for Handling Asbestos" and the Occupational Health and Safety (OHS) Guideline G6.8 describes acceptable practices.

- A risk assessment for any assumed and identified/confirmed asbestos-containing materials must be performed prior to initiation of renovation work to determine the exposure risk to workers and other persons as per OHS Guideline G20.112.
- At the time of renovations, any encountered suspicious material be treated as asbestos containing and must be removed using safe work practices, unless the material is tested in an accredited laboratory and confirmed as non-asbestos containing.
- Proper procedures and documentation such as safe work practices, an exposure control plan, risk assessments and/or other controls must be developed for all workers if lead-containing paint with a lead content of 0.06% or more is to be removed from the surfaces or if otherwise disturbed. Any other paint coatings encountered during renovation activities, which have not been already tested, should be considered lead containing until sampling can demonstrate otherwise.
- If mould materials or animal wastes (rodent droppings) are found during renovation, safe work procedures should be followed when removing mould-contaminated materials and animal waste.
- Any compact fluorescents, halogen bulbs, sodium bulbs and mercury containing light bulbs removed from the building exteriors should be recycled when removed from service. The Light Recycle website provides a list of recycling facilities on their website, at http://www.lightrecycle.ca/.
- If the renovation area needs to go beyond the current Survey area, WSP should to be contacted to identify any additional potentially hazardous materials.
- At the time of onsite building review, UFFI was not noted in the renovation zone. However there is a possibility that UFFI insulation may have been used to insulate the building envelop in the 1970s. Although, it is unlikely that the exterior walls will be opened up for the proposed renovations, WSP should be contacted to sample for UFFI if any exterior walls are opened up and foam insulation is encountered.
- The roof mount HVAC units should be degassed by a certified/ licensed contractor as required by British Columbia's Ozone Depleting Substances Regulation, if considered for removal or replacement during renovations
- Retain a copy of this report and provide it to any contractors who may be undertaking Renovation work in the Survey area as required by Section 20.112 of the WorkSafe BC regulations.

TABLE OF CONTENTS

TABLES

APPENDICES

1 INTRODUCTION

WSP Consultants Inc. (WSP) was retained by Canada Mortgage and Housing Corporation (the client) for the provision of a Pre-Renovations Hazardous Materials Survey (the Survey) of the Waterfront Theatre building (also known as building #93) located at Granville Island in Vancouver, BC, (herein referred to as the "Subject Site" or "Site").

As per the BC Assessment, the Waterfront Theatre building was constructed in 1955. Based on the estimated construction date of the building, hazardous building materials are anticipated to be present within the building structure.

WSP understands that the Survey is required for regulatory compliance purposes prior to proposed renovations.

The objective of a Hazardous Materials Survey is to establish the presence / absence, and type of hazardous building materials utilized in the construction of the building at the specified locations by means of sample collection and subsequent laboratory analysis. Section 20.112 of the BC Occupational Health and Safety Regulation requires that a hazardous materials survey should be conducted by a qualified person prior to any demolition or renovation activity which might disturb hazardous materials.

For the purposes of this survey, hazardous building materials were defined as:

- Asbestos-containing building materials (ACM);
- Lead materials and lead-based paints (LBP);
- Mercury;
- Polychlorinated biphenyls (PCB);
- Crystalline silica;
- Ozone depleting substances (ODS);
- Radioactive materials (RAM);
- Urea Formaldehyde Foam Insulation (UFFI);
- Mould and/or microbial growth; and
- Flammable or explosive materials.

The survey and review was conducted in general accordance with WorkSafeBC Occupational Health and Safety Regulations Part 20, Construction, Excavation and Demolition, Section 20.112 Hazardous Materials.

WSP understands that the following renovation will be conducted within the Waterfront Theatre building structure:

- General flat roof maintenance to remove vegetation growth and debris, and to clean out gutters and roof drains;

- Replacement of failed sealants and application where missing at wall penetrations (i.e. hose bibs, vents, etc.), at wall transitions between different cladding materials, and at window perimeters;
- Local repairs to damaged stucco cladding; Repair damaged flashing to conceal exposed wood elements;
- Repair gaps in wood cladding adjacent to the 2nd floor east exit door;
- Repair damaged and/or corroded window hardware;
- Replacement of damaged glazing units/ failed sealed units at windows and skylights; and
- Installation of appropriate landing at the south emergency exit

Based on the aforementioned renovations that are proposed for the Waterfront Theatre building, the renovation zone includes the building exteriors and roof of the building. This survey was limited to the "renovation zone".

The Survey was conducted by identifying the above defined hazardous materials including suspect ACM and LBP through on-site bulk sampling and analysis, review for visual / olfactory presence of suspected mould growth, and review of elements or components which may contain lead products, mercury, PCB, ODS, and RAM in the aforementioned renovation zone.

2 LIMITATIONS

This Survey included construction materials and components only and was limited to the construction material present within the renovation zone that may be disturbed during the proposed renovations. As it is neither practical nor feasible to sample materials on a foot by foot basis, visually similar materials' analysis results were extrapolated throughout the structure and / or based on estimated phases of construction, where that information was made available.

Energised electrical and mechanical equipment or systems were not opened for safety reasons. This survey excluded owner or occupant articles such as furniture or stored items.

Concealed or inaccessible materials within the building structure, fire doors, roofing, and below ground materials including tanks and pipes were specifically excluded from our scope of work.

No below-grade water, drainage or plumbing systems or sub surface investigation of materials were included in the scope of this Survey.

As the building is currently occupied and in use, no destructive testing of the building envelope was undertaken (i.e. exterior walls) in order to preserve the integrity of the building envelop.

3 SITE DESCRIPTION

The Waterfront Theatre building is located to the south of Cartwright Street, near the intersection of Cartwright Street and Old Bridge Street at Granville Island in Vancouver, BC. The Site location map and Site Plan are attached in Appendix A.

4 SCOPE OF WORK

The survey was limited to the building materials and fixed equipment associated within the renovation zone of the Waterfront Theatre building structure. To achieve the objective of the Survey, WSP completed the following scope of work:

Visual Review:

- Visually identify building materials potentially containing asbestos;
- Visually identify any foam insulation which may contain urea formaldehyde;
- Visually identify any electrical equipment which may contain PCBs;
- Visually identify any thermostats or fluorescent light tubes which may contain mercury;
- Visually identify any light bulbs that may contain halogens or sodium;
- Visually identify construction materials which may contain silica such as concrete, cement, tile, brick, masonry, mortar;
- Visually identify any equipment which may have ODS-containing halons or refrigerants;
- Visually identify any smoke detectors with the potential to contain radioactive materials;
- Visually identify evidence of UFFI insulation;
- Visually identify areas of current or historic moisture penetration which may support microbial growth, and
- Visually identify stored materials which may be flammable or explosive.

Building Materials Bulk Sampling:

- Collection of bulk samples of any materials suspected to contain asbestos for laboratory analyses at an accredited laboratory;
- Collection of paint samples suspected to contain lead for laboratory analyses at an accredited laboratory;
- The sampling methodology and number of samples were in general accordance with the appropriate WorkSafe BC Guidelines; and
- Photographs were taken of the materials sampled as well as the general area of the sample to give context.

Reporting:

- Preparation of this report summarizing the specific hazardous building materials identified through review and analysis. Photographs were taken of the suspect hazardous building materials as well as the general area to give context. These are included in Appendix B.

5 METHODOLOGY

On 2, 3 and 4 August 2016, WSP conducted the Survey site work as per the scope of work discussed in Section 4. Visual review was conducted for suspect hazardous materials likely to be impacted by renovation activities. The areas typically containing suspect hazardous materials were reviewed from the accessible areas. Selected photographs taken during the site visit are presented in Appendix B. The completed Chain-of-Custody forms (COCs) and the Laboratory Reports of analytical results are presented in Appendix C.

5.1 ASBESTOS-CONTAINING MATERIALS (ACM)

Based on the year of construction and renovation, asbestos containing materials are likely to be present with the onsite building structure. Accordingly, bulk sampling for suspect asbestos materials was conducted. The review was based on experienced professional judgment in consideration of, but not necessarily limited to, the era of construction, and uniformity of materials and size of area of homogeneous materials.

The locations and material descriptions of the collected samples was described in field notes, and the corresponding sample numbers were indicated on the Chain-of-Custody forms submitted along with the original samples.

Each sample was placed in a labelled plastic bag appropriate for the proposed analysis. The samples were sent to International Asbestos Testing Laboratories (IATL) in Mount Laurel, New Jersey, USA for asbestos analyses. IATL participates in the American Industrial Hygiene Association's (AIHA) Bulk Asbestos Proficiency Analytical Testing (BAPAT) Program. Samples were analyzed in accordance with PLM: Bulk Asbestos Building Materials EPA 600 R 93 / 116. 1993.

Based on WSP's professional opinion, the following materials were assumed not to contain asbestos during this survey and were classified as non-asbestos materials:

- Wood, wood paneling
- Carpet
- Concrete, Brick
- Fiberglass
- Plastics, rubbers, metals
- Gypsum board without taping compound / mud

5.2 LEAD-BASED PAINTS (LBP)

Based on the year of construction and renovation, surface coatings that potentially contain lead in paint could be present. Accordingly, bulk sampling for surface coatings was conducted. The review was

based on experienced professional judgment in consideration of, but not necessarily limited to, the era of construction, and uniformity of materials and size of area of homogeneous materials.

The paint samples were sent to International Asbestos Testing Laboratories (IATL) in Mount Laurel, New Jersey, USA for lead content analyses. Analysis was by ASTM D3335-85A "Standard Method to Test for Low Concentrations of Lead in Paint by Atomic Absorption Spectrophotometry". Chain-of-custody protocol was observed during handling and transportation of the bulk samples

5.3 LEAD PRODUCTS

The renovation zone was visually reviewed for the presence of lead products (e.g. lead containing washroom exhaust boots, lead roof flashing etc.).

5.4 MOULD AND OTHER MICROBIAL CONTAMINANTS

The renovation zone was visually reviewed for the presence of water damage and suspected mould growth.

5.5 CRYSTALLINE SILICA

The renovation zone was visually reviewed for the presence of concrete or mineral-composite building materials which may contain crystalline silica.

5.6 OTHER HAZARDOUS MATERIALS

The renovation zone was visually reviewed for the presence of fluorescent tubes and light ballasts which could contain mercury or PCBs; equipment which might contain ODS (i.e. halons or refrigerants); smoke detectors which may contain radioactive materials (RAM); potentially toxic/hazardous chemicals (i.e. halide and sodium arc bulbs); signs of urea formaldehyde use (UFFI); and potentially flammable or explosive materials.

The aforementioned building materials review and bulk material sample collection for analysis of potential asbestos and lead based surface coatings was consistent with recognized industry standards and principles of good occupational hygiene practice.

6 REGULATORY FRAMEWORK

The details of the regulatory frameworks for ACM, LBP, PCB, mercury, RAM, UFFI, and ODS are found in Appendix D.

7 PRE-RENOVATION HAZARDOUS MATERIALS SURVEY RESULTS

The results of the Survey are summarized below. A Site Plan showing sample locations is attached in Appendix A. Selected photographs taken during the site visit are presented in Appendix B. The

completed Chain-of-Custody forms (COCs) and the Laboratory Reports of analytical results are presented in Appendix C.

7.1 ASBESTOS-CONTAINING MATERIALS

The bulk building material samples (suspected to contain asbestos) collected in the Survey within the renovation zone are listed in the following table (Table 7-1) along with the corresponding IATL laboratory results of asbestos content:

Table 7-1 Bulk Building Material Samples (Analyzed for Asbestos Content)

Sample ID	Material Description *	Sample Location	Content/Type
B3-S1	Black Mastic	Roof Access	None Detected
B3-S2a	Grey Mastic	Roof, West Side	None Detected
B3-S2b	Grey Mastic	Roof, West Side	None Detected
B3-S2c	Grey Mastic	Roof, West Side	None Detected
B3-S3a**	Off-White Mastic	Exterior Wall, Along Roof, West Side	0.25% Chrysotile
B3-S3b**	Off-White Mastic	Exterior Wall, Along Roof, West Side	0.25% Chrysotile
B3-S3c	Grey Mastic	Exterior Wall, Along Roof, West Side	None Detected
B3-S4	Black Mastic	Safety Railing, Roof, West Side	None Detected
B3-S5	White Mastic	Safety Railing, Roof, West Side	None Detected
B3-S6	Grey Mastic	Drainage Pipes, Roof, West Side	None Detected
B3-S7	Black Mastic	Drainage Pipes, Roof, West Side	None Detected
B3-S8a	Grey Plaster	Exteriors Southwest Corner	None Detected
B3-S8a	Grey Covering Material	Exteriors Southwest Corner	None Detected
B3-S8b	Grey Plaster	Exteriors Southwest Corner	None Detected
B3-S8b	Grey Covering Material	Exteriors Southeast Corner	None Detected
B3-S8c	Grey Plaster	Exteriors Northwest Corner	None Detected
B3-S8c	Grey Covering Material	Exteriors Northwest Corner	None Detected
B3-S9	Grey Mastic	Exteriors Southwest Door	None Detected
B3-S10	Grey Mastic	South Door	None Detected
B3-S11	Grey Mastic	Exteriors South Wall	None Detected
B3-S12**	Grey Mastic	Around Loading Door Exteriors	0.25% Chrysotile
B3-S13	Clear Mastic	Around East Door Exteriors	None Detected
B3-S14	Grey Mastic	Around Door Exteriors 2nd Level	None Detected
B3-S15	**Grey/Orange Mastic**	**Northeast Corner East Wall Exteriors**	**1.2% Chrysotile**
B3-S16	Olive Mastic	Exterior Wall + Ground Surface North Wall	None Detected
-	**Corrugated Cement Panels**	**Exterior Walls**	**Assumed Asbestos Containing**

Notes: *Bold indicates asbestos detected above WorksafeBC 0.5% criteria.*

*- Material Description as noted by iATL during analysis. The description of the material as noted in the field may differ from the description noted in the lab. The COCs in Appendix C can be referred for the field description of the materials.
**-Contains less than 0.5% Asbestos

According to WorkSafeBC, the definition of an asbestos-containing material is 0.5% by weight. Based on the representative sampling, corresponding IATL laboratory results for asbestos content, grey/orange mastic present at the exterior walls of the building was found to be asbestos containing (1.2% Chrysotile). The corrugated cement panels present at the exterior walls of the building were considered to be asbestos containing. The off-white mastic present on the exterior of the building was found to be asbestos containing but less than the BC Criteria of 0.5%.

7.2 LEAD-BASED PAINTS (LBP)

The paint samples collected in the Survey for lead content testing within the renovation area rooms are listed below (Table 7-2) along with the corresponding IATL laboratory results of lead content.

Table 7-2 Paint Samples (Analyzed for Lead Content)

Sample ID	Paint Sampled	Location	Content
B3-L1*	**Black**	**Roof, West Portion, Flashing**	**0.063% by Weight 630 ppm Lead**
B3-L2	**White**	**Roof, Wooden Panels**	**4.4% by Weight 44000 ppm Lead**
B3-L3	Grey	Exteriors	0.0072% by Weight 72 ppm Lead
B3-L4	**White**	**Exteriors**	**0.63% by Weight 6300 ppm Lead**
B3-L5	**Black on Yellow**	**Steel Railings, Southwest Portion**	**5.2% by Weight 52000ppm Lead**
B3-L6	**Black**	**Metal Flashing, Exteriors**	**0.063% by Weight 630ppm Lead**

Notes: *Bold indicates lead concentrations detected above WorksafeBC 0.06% criteria.*
**- Assumed same as sample B3-L6*

Lead based paints are not specifically defined in the WorkSafeBC regulations. BC Environmental Regulations[1] and WorkSafeBC Guidelines[2] require leachate testing prior disposal of lead waste.

WorkSafeBC has adopted the position that the removal of paint with a lead concentration as low as 0.06% (600 ppm) by aggressive techniques (i.e., abrasive blasting) can approach the occupational exposure limit. WorkSafeBC has also stated that lead concentrations as low as 0.009% (90 ppm) may present a risk to pregnant women and children.

The paint samples B3-L1, B3-L2, B3-L4, B3-L5 and B3-L6 were found to have a lead (Pb) content above the WorkSafe BC criteria.

7.3 LEAD PRODUCTS

At the time of the onsite building review, no lead containing products were noted in the renovation zone.

[1] Hazardous Waste Regulation
[2] Lead-Containing Coats and Paintings - Preventing Exposure in the Construction Industry

7.4 MOULD AND WATER DAMAGE

At the time of the onsite building review, WSP did not observe any area with mould growth or water damage in the renovation zone.

7.5 PCBS

At the time of the onsite building review, WSP did not observe any PCB containing light fixtures or transformers within the renovation zone. However, fluorescent light ballasts with the potential to contain PCB were noted inside the Survey building. Based on the areas proposed for renovation these are not likely to be disturbed. However, when the renovations actually occur, if any fluorescent light ballasts are to be removed they should be assumed to contain PCB and disposed of appropriately unless their serial numbers have been checked to determine that they are PCB free.

7.6 MERCURY

At the time of the onsite building review, WSP noted outdoor light fixtures on the exterior walls of the onsite building. These light fixtures may use mercury containing light bulbs.

7.7 OZONE DEPLETING SUBSTANCES

At the time of the onsite building review, roof mounted HVAC units (potentially containing ODS refrigerant) were noted. These HVAC units are not likely to be disturbed during the proposed renovations. However, if these units are to be moved or disconnected during the renovation, a certified refrigeration technician should remove the refrigerant or secure it to prevent accidental releases of ODS to the environment.

7.8 RADIOACTIVE MATERIALS

At the time of the onsite building review, no smoke detectors or other radioactive materials were noted in the renovation zone.

7.9 CRYSTALLINE SILICA

It is anticipated that Crystalline Silica is present in the concrete floor, stucco on exterior wall, corrugated cement panel and foundation works of the building.

7.10 FLAMMABLE AND EXPLOSIVE MATERIALS

At the time of the onsite building review, WSP did not observe any flammable or explosive materials within the renovation zone.

7.11 UREA FORMALDEHYDE FOAM INSULATION

At the time of the onsite building review, WSP did not observe indicators (e.g., patched injection holes or foam extrusions) of UFFI in the renovation zone. However there is a possibility that UFFI insulation may have been used to insulate the building envelop in the 1970s. WSP should be contacted to sample for UFFI if any exterior walls are opened up and foam insulation is encountered.

8 RECOMMENDATIONS

- Follow safe work procedures when cutting or grinding concrete, cementitious mortar, and/or other items that are assumed to contain crystalline silica.
- The caulking around doors was found to be asbestos containing and the corrugated cement panels present on the exterior walls of the building were assumed to be asbestos containing. We recommend that during renovations, caulking material around the windows/doors and the exterior walls be considered asbestos containing. The WorkSafeBC publication "Safe Work Practices for Handling Asbestos" and the Occupational Health and Safety (OHS) Guideline G6.8 describes acceptable practices.
- A risk assessment for any assumed and identified/confirmed asbestos-containing materials must be performed prior to initiation of renovation work to determine the exposure risk to workers and other persons as per OHS Guideline G20.112.
- At the time of renovations, any encountered suspicious material be treated as asbestos containing and must be removed using safe work practices, unless the material is tested in an accredited laboratory and confirmed as non-asbestos containing.
- Proper procedures and documentation such as safe work practices, an exposure control plan, risk assessments and/or other controls must be developed for all workers if lead-containing paint with a lead content of 0.06% or more is to be removed from the surfaces or if otherwise disturbed. Any other paint coatings encountered during renovation activities, which have not been already tested, should be considered lead containing until sampling can demonstrate otherwise.
- If mould materials or animal wastes (rodent droppings) are found during renovation, safe work procedures should be followed when removing mould-contaminated materials and animal waste.
- Any compact fluorescents, halogen bulbs, sodium bulbs and mercury containing light bulbs removed from the building exteriors should be recycled when removed from service. The Light Recycle website provides a list of recycling facilities on their website, at http://www.lightrecycle.ca/.
- If the renovation area needs to go beyond the current Survey area, WSP should to be contacted to identify any additional potentially hazardous materials.
- At the time of onsite building review, UFFI was not noted in the renovation zone. However there is a possibility that UFFI insulation may have been used to insulate the building envelop in the 1970s. Although, it is unlikely that the exterior walls will be opened up for the proposed renovations, WSP should be contacted to sample for UFFI if any exterior walls are opened up and foam insulation is encountered.
- The roof mount HVAC units should be degassed by a certified/ licensed contractor as required by British Columbia's Ozone Depleting Substances Regulation, if considered for removal or replacement during renovations
- Retain a copy of this report and provide it to any contractors who may be undertaking Renovation work in the Survey area as required by Section 20.112 of the WorkSafe BC regulations.

9 CLOSURE

No hazardous materials survey can wholly eliminate uncertainty regarding the potential for recognized hazardous materials conditions at the site. Performance of a standardized hazardous material survey protocol is intended to reduce, but not eliminate uncertainty regarding the potential for recognized hazardous materials at the site, given reasonable limits of time and cost.

This report has been prepared by WSP exclusively for Canada Mortgage and Housing Corporation and is intended to provide a survey of the potential for the presence of hazardous materials in the Waterfront Theatre building located at Granville Island in Vancouver, BC.

The conclusions made in this report reflect WSP's best judgment in light of the information available at the time of preparation. No other warranty, expressed or implied, is made. 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. WSP accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions based on this report. The standard limitations of this report are specified in Appendix E.

Yours sincerely,

WSP CANADA INC.

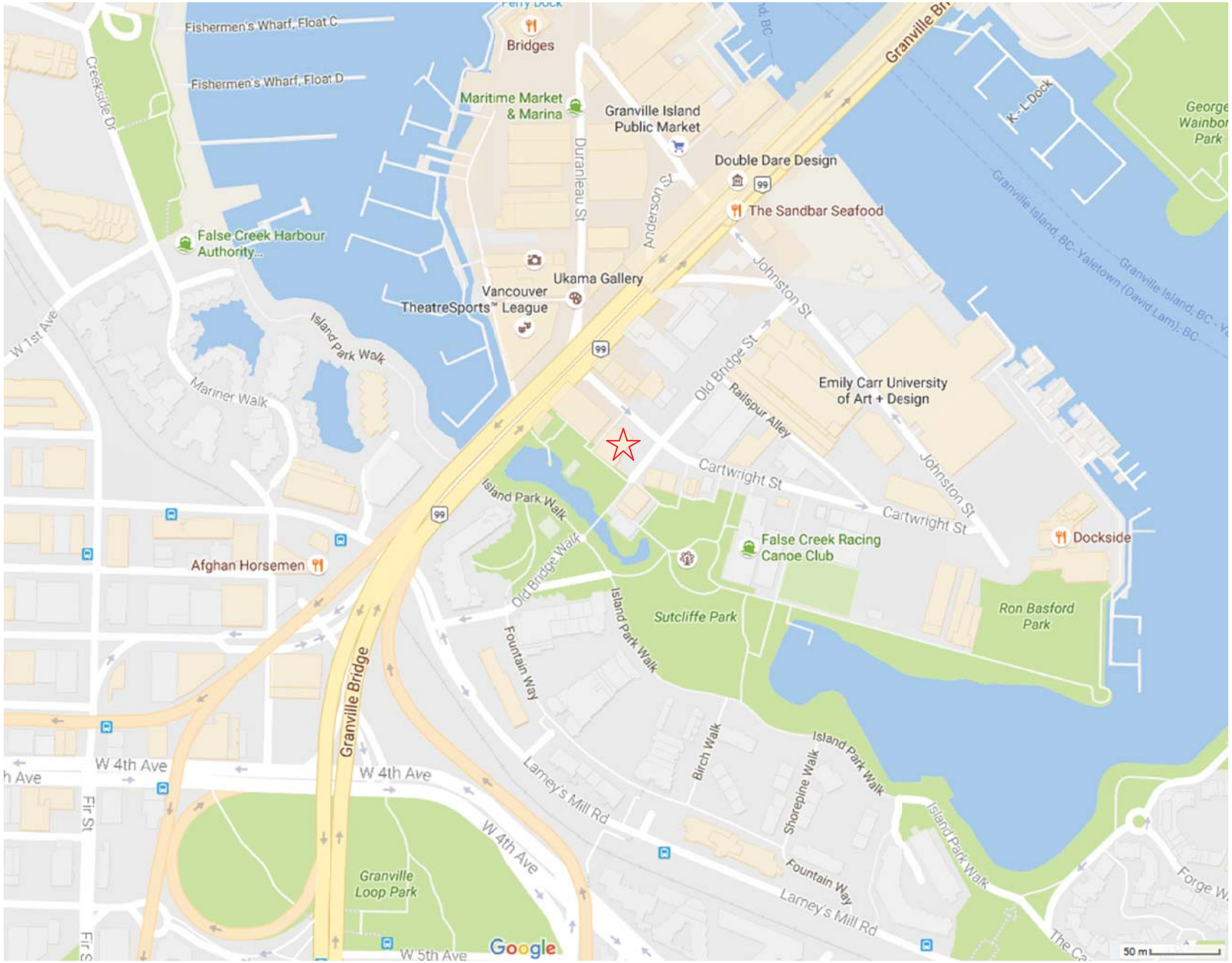
Arvind Chowdharri, P.Eng.
Environmental Engineer

Anthony Dickinson, M.A.Sc., P.Eng.
Senior Environmental Engineer

Appendix A	Site Plan
Appendix B	Site Photographs
Appendix C	Chain-of-Custodies and Laboratory Reports
Appendix D	Regulatory Framework
Appendix E	Standard Limitations

Appendix A

FIGURES: SITE LOCATION AND SITE PLAN



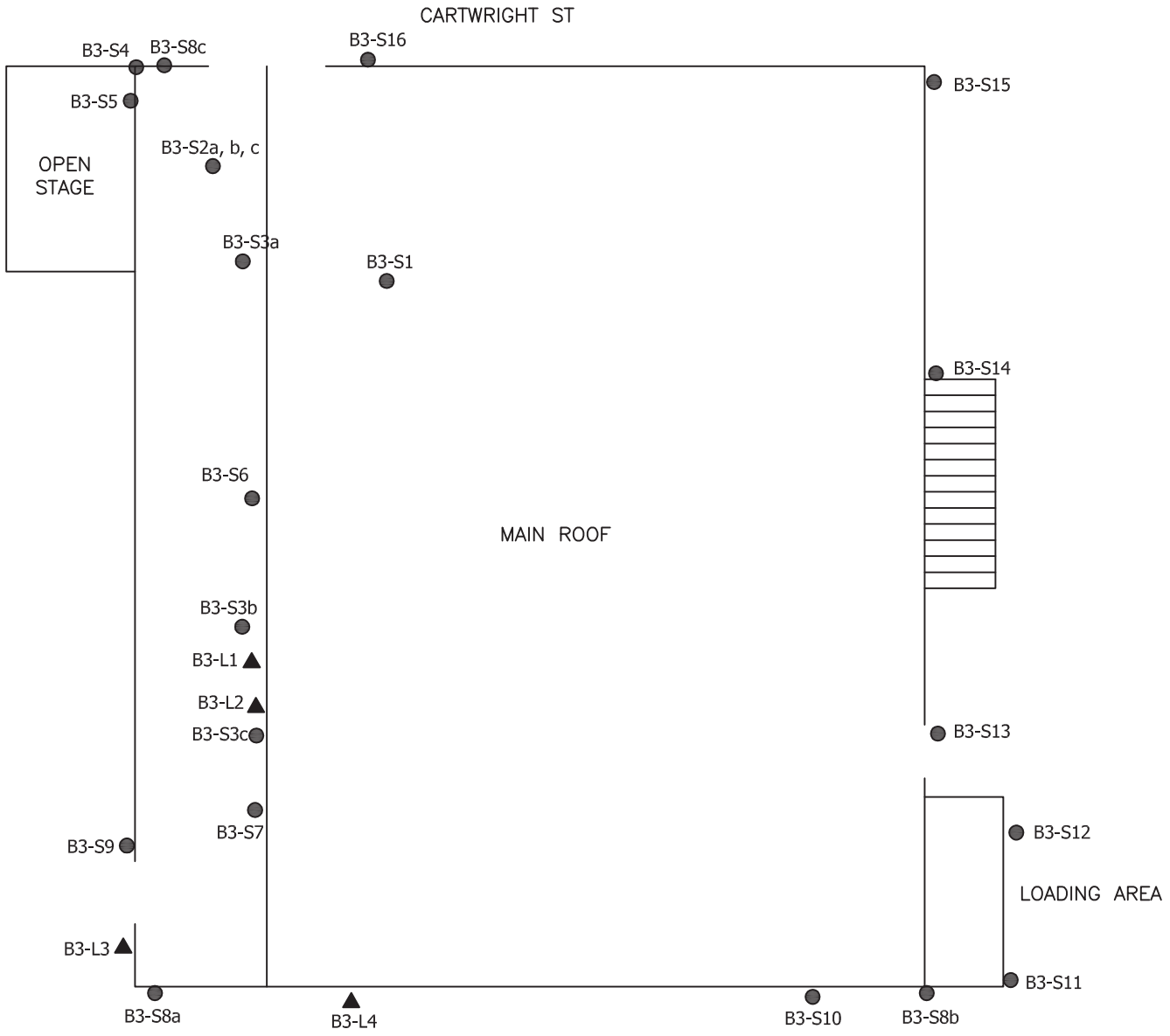
LEGEND

☆ – SUBJECT SITE

WSP CANADA INC.
100 - 20339 96 AVENUE, LANGLEY, BC V1M 0E4
PHONE: 604 533-2992 - FAX: 604 533-0768 - WWW.WSPGROUP.COM

TITLE:	Site Location Map
PROJECT:	Pre-Renovations Hazardous Materials Survey Waterfront Theatre, Granville Island, Vancouver, BC
CLIENT:	Canada Mortgage and Housing Corporation

DES.	DR. JL
CH. AC	SCALE AS SHOWN
APP.	DATE AUG 2016
FILE NO. 151-63666-00 (P30, SP30D)	
DWG. NO. 1	



LEGEND

● – BUILDING MATERIALS SAMPLE (ASBESTOS)

▲ – PAINT SAMPLE (LEAD)

WSP CANADA INC.
100 - 20339 96 AVENUE, LANGLEY, BC V1M 0E4
PHONE: 604 533-2992 - FAX: 604 533-0768 - WWW.WSPGROUP.COM

TITLE: Sample Locations

PROJECT: Pre-Renovations Hazardous Materials Survey
Waterfront Theatre, Granville Island, Vancouver, BC

CLIENT: Canada Mortgage and Housing Corporation

DES.	DR. JL
CH. AC	SCALE NTS
APP.	DATE AUG 2016
FILE NO. 151-63666-00 (P30, SP30D)	
DWG. NO. 2	

Appendix B

SITE PHOTOGRAPHS

Photo 1: View of the Waterfront Theatre building from Cartwright Street.

Photo 2: View of the theatre roof (west side). The caulking material present at the walls is found to be asbestos containing (0.25% Chrysotile).

Photo 3: Sample B3-L4 of white paint present at the wooden panels (Roof). The paint contains more than 0.06% lead.

Photo 4: View of west portion of the building. Sample B3-L5 of black on yellow paint present at the steel railings. The paint contains more than 0.06% lead.

Photo 5: View of the rear portion of the building. The corrugated cement panels present on the exterior walls were assumed to be asbestos containing. The white paint contains more than 0.06% lead.

Photo 6: Sample B3-S15 of caulking material present at the exterior wall (northeast portion) was found to be asbestos containing.

Appendix C

COC'S & LABORATORY REPORTS

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Chain of Custody

–Bulk Asbestos –

Contact Information

Client Company: WSP Canada Inc
Office Address: #100 - 20339 96th Ave
City, State, Zip: Langley, BC V1M 0E4
Fax Number: 604-533-0768
Email Address: Arvind.Chowdharri@wspgroup.com

Project Number: 151-63666-00 [P30 SP30D]
Project Name: Pre Renovations HMS - Waterfront Theatre
Primary Contact: ARVIND CHOWDHARRI
Office Phone: 604-533-2992
Cell Phone: 604-368-4289

PLM Instructions:

- ☑ PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993
- ☐ PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982
- ☐ PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010
- ☐ TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009

E-MAILED 8/11

- ☐ PLM: Point Counting
  - ☐ PC: via ELAP 198.1
  - ☐ PC: 400 Points
  - ☐ PC: 800 Points *
  - ☐ PC: 1600 Points *
- ☐ PLM: Instructions for Multi-Layered Samples
  - ☐ Analyze and Report All Separable Layers per EPA 600
  - ☐ Report Composite for Drywall Systems per NESHAP
  - ☐ Report All Layers and Composite Where Applicable
  - ☐ Only Analyze and Report Specifically Noted Layer
- ☐ PLM: Analyze Until Positive (Positive Stop)
  - ☐ AUP: by Homogenous Area as Noted
  - ☐ AUP: by Material Type as Noted
- ☐ PLM: NOB via 198.6
  - ☐ PLM: Friable via EPA 600 2.3
  - ☐ If <1% by PLM, to TEM via 198.4 *
  - ☐ If <1% by PLM, Hold for Instructions
- ☐ PLM: Non-Building Material*,** (Dust, Wipe, Tape)
  - ☐ Soil or Vermiculite Analysis*
  - ☐ CARB 435

Special Instructions: B3 - Waterfront Theatre

** Additional charge and turnaround may be required* *** Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory*

Turnaround Time

Preliminary Results Requested Date: _____ (Specific date / time)

☐ Verbal ☑ Email ☐ Fax 22

☐ 10 Day ☐ 5 Day ☑ 3 Day ☐ 2 Day ☐ 1 Day* ☐ 12 Hour** ☐ 6 Hour** ☐ RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

Chain of Custody

Relinquished (Name/Organization):	ARVIND C. for WSP Canada Inc.	Date:	5-Aug-16	Time:	RECEIVED
Received (Name / iATL):		Date:		Time:	
Sample Login (Name / iATL):		Date:	8/9/16	Time:	
Analysis(Name(s) / iATL):		Date:	8/10/2016	Time:	AUG - 8 2016
QA/QC Review (Name / iATL):		Date:	8-11-16	Time:	
Archived / Released: _____	QA/QC InterLAB Use: _____	Date:		Time:	

iATL
INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Sample Log

–Bulk Asbestos –

Client: WSP Canada Inc Project: 151-63666-00 [P30, SP30D]

Sampling Date/Time: 2-4 Aug - 2016

Bulk Asbestos Sample Log			
Client Sample #	iATL #	Location/Description	Notes
B3-S1	6001662	Black Mastic, Roof Access, Roof	
B3-S2a	6001663	Duct Mastic, Roof, Grey	Stop positive
B3-S2b	6001664	" " "	"
B3-S2c	6001665	" " "	"
B3-S3a	6001666	Mastic/Sealant, Exterior wall, Metal Grey	Stop positive
B3-S3b	6001667	" " "	"
B3-S3c	6001668	" " "	"
B3-S4	6001669	Black Mastic, Safety Railing Roof	
B3-S5	6001670	White Mastic, Safety Railing, Roof	
B3-S6	6001671	Mastic/Sealant, Drainage Pipes Roof, Grey	
B3-S7	6001672	Black mastic, Roof Drainage pipes	
B3-S8a	6001673	Stucco, Exteriors, SW Corner	Stop positive
B3-S8b	6001674	" " SE Corner	
B3-S8c	6001675	" " NW Corner	
B3-S9	6001676	Mastic, Exteriors SW Door, Grey	
B3-S10	6001677	Mastic, South door, Grey	

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Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Sample Log

–Bulk Asbestos –

Client: WSP Canada Inc. Project: 151-63666-00 [P30, SP30D]

Sampling Date/Time: 2-4 Aug - 2016

Bulk Asbestos Sample Log			
Client Sample #	**iATL #**	**Location/Description**	**Notes**
B3-S11	6001678	Mastic on wall, Exteriors ~~East~~ South wall, Grey	
B3-S12	6001679	Mastic around loading door Exteriors Grey	
B3-S13	6001680	Sealant / Mastic around East door exteriors, Whitish	
B3-S14	6001681	Mastic around door, Exteriors 2nd level	
B3-S15	6001682	Mastic, NE corner, Grey	East wall, Exteriors
B3-S16	6001683	Mastic / Sealant, Exterior wall + ground surface, North wall, Grey.	

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516760 - PLM
Project: Pre Renovations HMS-Waterfront Theatre
Project No.: 151-63666-00 (P30,SP30D)

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6001662 **Client No.:** B3-S1	**Description:** Black Mastic **Facility:**	**Location:** Roof Access
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001663 **Client No.:** B3-S2a	**Description:** Grey Mastic **Facility:**	**Location:** Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001664 **Client No.:** B3-S2b	**Description:** Grey Mastic **Facility:**	**Location:** Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001665 **Client No.:** B3-S2c	**Description:** Grey Mastic **Facility:**	**Location:** Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001666 **Client No.:** B3-S3a	**Description:** Off-White Mastic **Facility:**	**Location:** Exterior Wall
Percent Asbestos: ***PC 0.25*** *Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 99.75
Lab No.: 6001667 **Client No.:** B3-S3b	**Description:** Off-White Mastic **Facility:**	**Location:** Exterior Wall
Percent Asbestos: ***PC 0.25*** *Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 99.75

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

Date Received: 8/8/2016
Date Analyzed: 08/10/2016
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516760 - PLM
Project: Pre Renovations HMS-Waterfront Theatre
Project No.: 151-63666-00 (P30,SP30D)

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6001668 **Client No.:** B3-S3c	**Description:** Grey Mastic **Facility:**	**Location:** Exterior Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001669 **Client No.:** B3-S4	**Description:** Black Mastic **Facility:**	**Location:** Safety Railing Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001670 **Client No.:** B3-S5	**Description:** White Mastic **Facility:**	**Location:** Safety Railing Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001671 **Client No.:** B3-S6	**Description:** Grey Mastic **Facility:**	**Location:** Drainage Pipes Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001672 **Client No.:** B3-S7	**Description:** Black Mastic **Facility:**	**Location:** Drainage Pipes Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001673 **Client No.:** B3-S8a	**Description:** Grey Plaster **Facility:**	**Location:** Exteriors SW Corner
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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

Date Received: 8/8/2016
Date Analyzed: 08/10/2016
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516760 - PLM
Project: Pre Renovations HMS-Waterfront Theatre
Project No.: 151-63666-00 (P30,SP30D)

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6001673(L2) **Description:** Grey Covering Material **Location:** Exteriors SW Corner
Client No.: B3-S8a **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 6001674 **Description:** Grey Plaster **Location:** Exteriors SE Corner
Client No.: B3-S8b **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 6001674(L2) **Description:** Grey Covering Material **Location:** Exteriors SE Corner
Client No.: B3-S8b **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 6001675 **Description:** Grey Plaster **Location:** Exteriors NW Corner
Client No.: B3-S8c **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 6001675(L2) **Description:** Grey Covering Material **Location:** Exteriors NW Corner
Client No.: B3-S8c **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 6001676 **Description:** Grey Mastic **Location:** Exteriors SW Door
Client No.: B3-S9 **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

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

Date Received: 8/8/2016
Date Analyzed: 08/10/2016
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516760 - PLM
Project: Pre Renovations HMS-Waterfront Theatre
Project No.: 151-63666-00 (P30,SP30D)

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6001677 **Client No.:** B3-S10	**Description:** Grey Mastic **Facility:**	**Location:** South Door
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001678 **Client No.:** B3-S11	**Description:** Grey Mastic **Facility:**	**Location:** Exteriors South Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001679 **Client No.:** B3-S12	**Description:** Grey Mastic **Facility:**	**Location:** Around Loading Door Exteriors
Percent Asbestos: ***PC 0.25*** *Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 99.75
Lab No.: 6001680 **Client No.:** B3-S13	**Description:** Clear Mastic **Facility:**	**Location:** Around East Door Exteriors
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001681 **Client No.:** B3-S14	**Description:** Grey Mastic **Facility:**	**Location:** Around Door Exteriors 2nd Level
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6001682 **Client No.:** B3-S15	**Description:** Grey/Orange Mastic **Facility:**	**Location:** NE Corner East Wall Exteriors
Percent Asbestos: ***PC 1.2*** *Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.8

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

Date Received: 8/8/2016
Date Analyzed: 08/10/2016
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516760 - PLM
Project: Pre Renovations HMS-Waterfront Theatre
Project No.: 151-63666-00 (P30,SP30D)

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6001683
Client No.: B3-S16

Description: Olive Mastic
Facility:

Location: Exterior Wall + Ground Surface North Wall

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6001683(L2)
Client No.: B3-S16

Description: Tan Cementitious
Facility:

Location: Exterior Wall + Ground Surface North Wall

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

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

Date Received: 8/8/2016
Date Analyzed: 08/10/2016
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
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CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516760 - PLM
Project: Pre Renovations HMS-Waterfront Theatre
Project No.: 151-63666-00 (P30,SP30D)

Appendix to Analytical Report

Customer Contact: Arvind Chowdharri
Analysis: US EPA 600, R93-116

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

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Shirley Clark
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

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

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

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

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

Information Pertinent to this Report:

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

Certifications:

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

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

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

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

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

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

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CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/10/2016
Report No.: 516760 - PLM
Project: Pre Renovations HMS-Waterfront Theatre
Project No.: 151-63666-00 (P30,SP30D)

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

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

Disclaimers / Qualifiers:

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

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

Recommendations for Vermiculite Analysis:

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

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

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

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

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

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

iATL
INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Chain of Custody

– Environmental Lead –

Contact Information

Client Company:	WSP Canada Inc.	**Project Number:**	151-63666-00 [P30 SP30D]
Office Address:	#100 - 20339 96th Ave	**Project Name:**	Pre Renovations H.M.S. – Waterfront Theatre
City, State, Zip:	Langley, BC V1M 0E4	**Primary Contact:**	ARVIND CHOWDHARRI
Fax Number:	604-533-0768	**Office Phone:**	604-533-2992
Email Address:	Arvind.Chowdharri@wspgroup.com	**Cell Phone:**	604-368-4289

iATL is accredited by the National Lead Laboratory Accreditation Program (NLLAP) to perform analytical testing of environmental samples for lead (Pb). The accreditation is through AIHA-LAP, LLC and several other nationally recognized state programs.

Matrix/Method:

- ☑ Paint by AAS: ASTM D3335-85a, 2009
- ☐ Wipe/Dust by AAS: SW 846: 3050B: 700B, 2010
- ☐ Air by AAS: NIOSH 7082, 1994
- ☐ Soil by AAS: EPA SW 846 (Soil)
- ☐ Water by AAS-GF: ASTM D3559-03D, USEPA 40CFR 141.11B, 2010
- ☐ Other Metals (Cd, Zn, Cr) by AAS
- ☐ Toxicity Characteristic Leaching Procedure (TCLP) by AAS: USEPA 1311
- ☐ Other _____

E-MAILED 8-11-16 AD

Special Instructions:

B3- Waterfront Theatre

Turnaround Time

Preliminary Results Requested Date: _____ (Specific date / time) ☐ Verbal ☑ Email ☐ Fax

☐ 10 Day ☐ 5 Day ☑ 3 Day ☐ 2 Day ☐ 1 Day* ☐ 12 Hour** ☐ 6 Hour** ☐ RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

Chain of Custody

Relinquished (Name/Organization):	ARVIND C. for WSP Canada Inc.	Date:	5-Aug-16	Time:	
Received (Name / iATL):		Date:		Time:	
Sample Login (Name / iATL):		Date:	8/8/16	Time:	AUG 8 2016
Analysis(Name(s) / iATL):	8/11/16 ML	Date:		Time:	
QA/QC Review (Name / iATL):		Date:	8/11/16	Time:	
Archived / Released: _____	QA/QC InterLAB Use: _____	Date:		Time:	

RECEIVED AUG 8 2016 AIL - B

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Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Sample Log

–Environmental Lead –

Client: WSP Canada Inc. Project: 151-63666-00 [P30, SP 30D]

Sampling Date/Time: 3-4/5 Aug 2016

Client Sample #	iATL #	Location/ Description	Flow Rate	Start / End	Sampling time (min)	Area (ft2) Volume (L)	Results ( )
B3-L1	6001427	Black paint, Flashing Roof					
B3-L2	6001428	White paint, Roof, wooden Panels					
B3-L3	6001429	Grey paint, Exteriors					
B3-L4	6001430	White paint, Exteriors					
B3-L5	6001431	Black paint on yellow, steel Railings.					
B3-L6	6001432	Black Paint, metal flashing, exteriors.					

* = *Insufficient Sample Provided to Perform QC Reanalysis (<200mg)*
** = *Insufficient Sample Provided to Analyze (<50mg)* ***= *Matrix / Substrate Interference Possible*
FB = Method Requires the submittal of blank(s). ML = Multi Layered Sample. May result in inconsistent results.
These **preliminary results** are issued by iATL to expedite procedures by clients based upon the above data. iATL assumes that all of the sampling methods and data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificate of Analysis will follow these preliminary results. The signed COA is to be considered the official results. All EPA, HUD, and NJDEP conditions apply.

IATL International Asbestos Testing Laboratories

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Telephone: 856-231-9449 Fax: 856-231-9818
INFO@IATL.COM

DAILY QUALITY CONTROL DATA

LEAD SAMPLE ANALYSIS

(DATE: 08 / 11 / 16)

Standard	Total Lead (mg)	Percent Recovery **
Reagent Blank	0.000	< LOQ
Blank Spike	0.500	99
Lab Control Std	1.350	96
Matrix Spike - LBP *	0.37	94
Matrix Spike - Wipe *	0.32	98
Matrix Spike - Soil *	0.343	109
Matrix spike - Air *	0.050	94
2.5 ppm Standard	0.25	103
10.0 ppm Standard	1.0	101
40.0 ppm Standard	4.0	101

AIHA-LAP, LLC No. 100188 **NYSDOH-ELAP No. 11021**

Analysis Method: ASTM D3335-85A
NIOSH 7082
EPA SW846 3050B 7000B

Comments: IATL assumes that all sampling complies with accepted methods.
All client supplied sampling data is assumed to be correct when calculating results.
Detection limit based upon 0.2 mg/L reporting limit and sample size.
* NIST Traceable.
** 80-120% acceptable limits.

Analyzed By: R. Chad Shaffer
Date: 8/11/16

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

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Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/11/2016
Report No.: 516786 - Lead Paint
Project: Pre Renovations HMS-Waterfront Theatre
Project No.: 151-63666-00 (P30, SP30D)

LEAD PAINT SAMPLE ANALYSIS SUMMARY

Lab No.: 6001427 **Description:** Black **Result (% by Weight):** Void
Client No.: B3-L1 **Location:** Roof, Flashing **Result (ppm):** Void
Comments: **

Lab No.: 6001428 **Description:** White **Result (% by Weight):** 4.4
Client No.: B3-L2 **Location:** Roof, Wooden Panels **Result (ppm):** 44000
Comments:

Lab No.: 6001429 **Description:** Grey **Result (% by Weight):** 0.0072
Client No.: B3-L3 **Location:** Exteriors **Result (ppm):** 72
Comments:

Lab No.: 6001430 **Description:** White **Result (% by Weight):** 0.63
Client No.: B3-L4 **Location:** Exteriors **Result (ppm):** 6300
Comments:

Lab No.: 6001431 **Description:** Black **Result (% by Weight):** 5.2
Client No.: B3-L5 **Location:** On Yellow, Steel Railings **Result (ppm):** 52000
Comments:

Lab No.: 6001432 **Description:** Black **Result (% by Weight):** 0.063
Client No.: B3-L6 **Location:** Metal Flashing, Exteriors **Result (ppm):** 630
Comments: *

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 8/8/2016
Date Analyzed: 08/11/2016
Signature:
Analyst: Chad Shaffer

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/11/2016
Report No.: 516786 - Lead Paint
Project: Pre Renovations HMS-Waterfront Theatre
Project No.: 151-63666-00 (P30, SP30D)

Appendix to Analytical Report:

Customer Contact: Arvind Chowdharri
Analysis: ASTM D3335-85a

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

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Shirley Clark
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Paint
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

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

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

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

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

Information Pertinent to this Report:

Analysis by ASTM D3335-85a by AAS

Certification:
- National Lead Laboratory Program (NLLAP): AIHA-LAP, LLC No. 100188
- NYSDOH-ELAP No. 11021

Regulatory limit is 0.5% lead by weight (EPA/HUD guidelines). Recommend multiple sampling for all samples less than regulatory limit for confirmation.

All results are based on the samples as received at the lab. iATL assumes that appropriate sampling methods have been used and that the data upon which these results are based have been accurately supplied by the client.

Method Detection Limit (MDL) per EPA Method 40CFR Part 136 Apendix B.

Reporting Limit (RL) based upon Lowest Standard Determined (LSD) in accordance with AIHA-ELLAP policies.

LSD=0.2 ppm MDL=0.005% by weight. RL= 0.010% by weight (based upon 100 mg sampled).

* Insufficient sample provided to perform QC reanalysis (<200 mg)

** Not enough sample provided to analyze (<50 mg)

*** Matrix / substrate interference possible.

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: WSP Canada Inc. -967
Unit 100-20339 96th Ave
Langley BC V1MOE4

Client: WSP967

Report Date: 8/11/2016
Report No.: 516786 - Lead Paint
Project: Pre Renovations HMS-Waterfront Theatre
Project No.: 151-63666-00 (P30, SP30D)

Disclaimers / Qualifiers:

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

* NOTE: Multiple samples received in container. Composite analysis requested per EPA/HUD guidelines not covered by NLLAP/AIHA accreditation.

Appendix D

REGULATORY FRAMEWORK

REGULATORY FRAMEWORK

1. Occupational Health and Safety Regulation (Including amendments up to B.C. Reg. 195/2015),
2. Safe Work Practices for Handling Asbestos, WorkSafe BC, (Publication Date January 15, 2013).
3. Hazardous Waste Regulation, BC Ministry Of Environment. (Including amendments up to B.C. Reg. 63/2009, April 1, 2009).
4. Ozone Depleting Substances and other Halocarbons Regulation. (Including amendments up to B.C. Reg. 317/2012, November 9, 2012).
5. Environmental Management Act (As Current to June 22, 2016).
6. PCB Regulations, SOR / 2008-273, Canadian Environmental Protection Act.
7. Lead-Containing Paint and Coatings, Preventing Exposure in the Construction Industry, WorkSafe BC, June 2011.
8. Federal Register, 40 CFR Part 745 Lead; Identification of Dangerous Levels of Lead; Final Rule, Environmental Protection Agency, January 5, 2001
9. Transportation of Dangerous Goods Regulations SOR / 2015-100, Transportation of Dangerous Goods Act.
10. Consumer Products Safety Act, SOR/2014-79.

Appendix E

STANDARD LIMITATIONS

TERMS OF REFERENCE FOR HAZARDOUS MATERIALS AND OCCUPATIONAL HEALTH AND SAFETY REPORTS ISSUED BY WSP CANADA INC.

1. STANDARD OF CARE

WSP Canada Inc. ("WSP") prepared and issued this report (the "Report") for its client (the "Client") in accordance with generally-accepted consulting practices for the hazardous materials and occupational health and safety disciplines. No other warranty, expressed or implied, is made. Unless specifically stated in the Report, the Report does not address environmental issues.

The terms of reference for hazardous materials and occupational health and safety reports issued by WSP (the "Terms of Reference") contained in the present document provide additional information and caution related to standard of care and the use of the Report. The Client should read and familiarize itself with these Terms of Reference.

2. COMPLETENESS OF THE REPORT

All documents, records, drawings, correspondence, data, files and deliverables, whether hard copy, electronic or otherwise, generated as part of the services for the Client are inherent components of the Report and, collectively, form the instruments of professional services (the "Instruments of Professional Services"). The Report is of a summary nature and is not intended to stand alone without reference to the instructions given to WSP by the Client, the communications between WSP and the Client, and to any other reports, writings, proposals or documents prepared by WSP for the Client relative to the specific site described in the Report, all of which constitute the Report.

TO PROPERLY UNDERSTAND THE INFORMATION, OBSERVATIONS, FINDINGS, SUGGESTIONS, RECOMMENDATIONS AND OPINIONS CONTAINED IN THE REPORT, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. WSP CANNOT BE RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT AND ITS VARIOUS COMPONENTS.

3. BASIS OF THE REPORT

WSP prepared the Report for the Client for the specific objectives and purpose that the Client described to WSP. The applicability and reliability of any of the information, observations, findings, suggestions, recommendations and opinions contained in the Report are only valid to the extent that there was no material alteration to or variation from any of the said descriptions provided by the Client to WSP unless the Client specifically requested WSP to review and revise the Report in light of such alteration or variation.

4. USE OF THE REPORT

The information, observations, findings, suggestions, recommendations and opinions contained in the Report, or any component forming the Report, are for the sole use and benefit of the Client and the team of consultants selected by the Client for the specific project that the Report was provided. NO OTHER PARTY MAY USE OR RELY UPON THE REPORT OR ANY PORTION OR COMPONENT WITHOUT THE WRITTEN CONSENT OF WSP. WSP will consent to any reasonable request by the Client to approve the use of this Report by other parties designated by the Client as the "Approved Users". As a condition for the consent of WSP to approve the use of the Report by an Approved User, the Client must provide a copy of these Terms of Reference to that Approved User and the Client must obtain written confirmation from that Approved User that the Approved User will comply with these Terms of Reference, such written confirmation to be provided separately by each Approved User prior to beginning use of the Report. The Client will provide WSP with a copy of the written confirmation from an Approved User when it becomes available to the Client, and in any case, within two weeks of the Client receiving such written confirmation.

The Report and all its components remain the copyright property of WSP and WSP authorizes only the Client and the Approved Users to make copies of the Report, but only in such quantities as are reasonably necessary for the use of the Report by the Client and the Approved Users. The Client and the Approved Users may not give, lend, sell or otherwise disseminate or make the Report, or any portion thereof, available to any party without the written permission of WSP. Any use which a third party makes of the Report, or any portion of the Report, is the sole responsibility of such third parties. WSP accepts no responsibility for damages suffered by any third party resulting from the use of the Report. The Client and the Approved Users acknowledge and agree to indemnify and hold harmless WSP, its officers, directors, employees, agents, representatives or sub-consultants, or any or all of them, against any claim of any nature whatsoever brought against WSP by any third parties, whether in contract or in tort, arising or related to the use of contents of the Report.

TERMS OF REFERENCE FOR HAZARDOUS MATERIALS AND OCCUPATIONAL HEALTH AND SAFETY REPORTS ISSUED BY WSP CANADA INC. (continued)

5. INTERPRETATION OF THE REPORT

a. **Hidden Conditions**: The Client acknowledges that subsurface and concealed conditions may vary from those encountered or reviewed. WSP can only comment on the conditions observed on the date(s) the Survey is performed. The work is limited to those areas of concern identified by the Client and/or outlined in our proposal. Other areas of concern may exist but were not investigated within the scope of this Survey.

b. **Reliance on information**: The evaluation and conclusions contained in the Report have been prepared on the basis of conditions in evidence at the time of site investigation and field review and on the basis of information provided to WSP. WSP has relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, WSP cannot accept responsibility for any deficiency, misstatement or inaccuracy contained in the report as a result of misstatements, omissions, misrepresentations or fraudulent acts of persons providing information.

c. **Additional Involvement by WSP**: To avoid misunderstandings, WSP should be retained to assist other professionals to explain relevant hazardous materials and occupational health and safety findings and to review the hazardous materials and occupational health and safety aspects of the plans, drawings and specifications of other professionals relative to the services provided by WSP. To ensure compliance and consistency with the applicable hazardous materials and occupational health and safety codes, legislation, regulations, guidelines and generally-accepted practices, WSP should also be retained to provide field review services during the performance of any related work. Where applicable, it is understood that such field review services must meet or exceed the minimum necessary requirements to ascertain that the work being carried out is in general conformity with the recommendations made by WSP. Any reduction from the level of services recommended by WSP will result in WSP providing qualified opinions regarding adequacy of the work.

6. ALTERNATE REPORT FORMAT

When WSP submits both electronic and hard copy versions of the Instruments of Professional Services, the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding upon WSP. The hard copy versions submitted by WSP shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancy, the hard copy versions shall govern over the electronic versions; furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed and sealed versions of the Instruments of Professional Services maintained or retained, or both, by WSP shall be deemed to be the overall originals for the Project.

The Client agrees that the electronic file and hard copy versions of Instruments of Professional Services shall not, under any circumstances, no matter who owns or uses them, be altered by any party except WSP. The Client warrants that the Instruments of Professional Services will be used only and exactly as submitted by WSP.

The Client recognizes and agrees that WSP prepared and submitted electronic files using specific software or hardware systems, or both. WSP makes no representation about the compatibility of these files with the current or future software and hardware systems of the Client, the Approved Users or any other party. The Client further agrees that WSP is under no obligation, unless otherwise expressly specified, to provide the Client, the Approved Users and any other party, or any or all of them, with specific software and hardware systems that are compatible with any electronic submitted by WSP. The Client further agrees that should the Client, an Approved User or a third party require WSP to provide specific software or hardware systems, or both, compatible with the electronic files prepared and submitted by WSP, for any reason whatsoever included but not restricted to an order from a court, then the Client will pay WSP for all reasonable costs related to the provision of the specific software or hardware systems, or both. The Client further agrees to indemnify and hold harmless WSP, its officers, directors, employees, agents, representative or sub-consultant, or any or all of them, against any claim or any nature whatsoever brought against WSP, whether in contract or in tort, arising or related to the provision or use or any specific software or hardware provided by WSP.