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April 8, 2016
File: PE3724-LET.02R

John Howard Society of Ottawa
c/o PBC Development and Construction Management
485 Bank Street, Suite 205
Ottawa, Ontario
K2P 1Z2

Attention: **Mr. Paul Bouzanis**

Subject: **Designated Substance Survey**
55 and 59 Carruthers Avenue
Ottawa, Ontario

Dear Mr. Bouzanis,

Further to your request and authorization, Paterson Group (Paterson) conducted a Designated Substance Survey (DSS) of the vacant buildings located at 55 and 59 Carruthers Avenue in the City of Ottawa, Ontario. This letter report summarizes our findings and results of the designated substance survey.

1.0 BACKGROUND

The subject site is situated on the east side of Carruthers Avenue, south of Burnside Avenue in the City of Ottawa, Ontario. Two (2) buildings occupy the subject property. The first is a two (2) storey residential dwelling (59 Carruthers Avenue) and the second is a single storey commercial building, formerly an automotive garage, with a mezzanine (55 Carruthers Avenue). Both buildings were vacant at the time of the assessment.

The purpose of this investigation was to identify designated substances in the subject buildings prior to large scale demolition from the exterior.

2.0 SITE INSPECTION AND OBSERVATIONS

During the course of the site visit, a visual inspection for sources or materials containing the following designated substances: acrylonitrile, arsenic, asbestos, benzene, coke oven emissions, ethylene oxide, isocyanates, lead, mercury, silica, vinyl chloride, and the following substances: ozone depleting substances (ODSs) and polychlorinated biphenyls (PCBs) was carried out.

Building materials including buried services, floor levelling compounds, caulkings and sealants, which have historically contained asbestos, were not included in the survey since they are generally inaccessible, used in a random fashion and have a low risk of asbestos fibre release.

2.1 Acrylonitrile

Acrylonitrile is prescribed as a designated substance under Ontario Regulation (O.Reg.) 490/09 of the Occupational Health and Safety Act. It is a volatile, flammable liquid that is used to make many chemicals such as plastics, rubber and synthetic fibres. Acrylonitrile may be present in stable form in surface coatings (eg. paints), building material adhesives and plastics. Common adhesives observed in the residence include applications for vinyl floor tiles and mouldings. The above noted products are not considered to pose a concern provided they are not subjected to extreme heat, such as a torch. Exposure to acrylonitrile is unlikely and not suspected on the subject site.

2.2 Arsenic

Arsenic is prescribed as a designated substance under O.Reg. 490/09 of the Occupational Health and Safety Act. Arsenic has many industrial uses such as hardening of copper and lead alloys and in older lead based paints. Similar to acrylonitrile, arsenic may also be present in stable form in building material adhesives and some metal alloys. Based on the limited quantity of potentially arsenic containing materials within the subject buildings, it is not expected that the arsenic concentration in the air will exceed its maximum allowable Time Weighted Average Exposure Value (TWAEV).

2.3 Asbestos

Asbestos is prescribed as a designated substance under O.Reg. 490/09 of the Occupational Health and Safety Act. Asbestos-containing materials (ACMs) are defined under O. Reg. 278/05 of the Occupational Health and Safety Act as having a concentration of 0.5% or more by dry weight of fibrous asbestos (i.e. chrysotile, amosite, crocidolite and/or other amphiboles). Asbestos was commonly used in residential and commercial construction between 1930 and 1980.

A total of seventeen (17) bulk samples of potential asbestos containing materials were obtained from the building at 59 Carruthers Avenue and three (3) bulk samples were obtained from the building at 55 Carruthers Avenue. All samples were submitted to Paracel Laboratories in Ottawa, Ontario for analysis. The potential asbestos containing materials were analyzed to determine the presence, type and content of asbestos, as shown on the following tables. The sample locations can also be found in Tables 1 and 2. The laboratory certificates of analysis are appended to this letter.

59 Carruthers Avenue

Table 1 - Summary of Asbestos Testing
59 Carruthers Avenue - Residential Dwelling

Sample No.	Description	Location	Fibrous Asbestos Content	Other Materials
DWJC1	Drywall Joint Compound	1st floor, living room, north wall	None	100% Non-Fibres
DWJC2		1st floor, living room, south wall	None	100% Non-Fibres
DWJC3		2nd floor, hall wall	**1% Chrysotile**	99% Non-Fibres
DWJC4		2nd floor, closet wall	**1% Chrysotile**	99% Non-Fibres
DWJC5		1st floor, closet wall	None	100% Non-Fibres
STIP1	Ceiling Stipple	1st floor, living room ceiling	None	100% Non-Fibres
STIP2		1st floor, living room ceiling	None	100% Non-Fibres
STIP3		1st floor, living room ceiling	None	100% Non-Fibres
VFT1	Vinyl Floor Tile, 0.3 m x 0.3 m beige	1st floor, living room (below carpet)	**3.63% Chrysotile**	96.37% Non-fibres
VFT2		1st floor, living room (below carpet)	Not Analyzed.	
VFT3		1st floor, living room (below carpet)		

Notes: **Bold** Results - Asbestos containing material as defined under O. Reg 278/05 as having a concentration of 0.5% or more by dry weight fibrous asbestos.

Table 1 - Summary of Asbestos Testing - Continued
59 Carruthers Avenue - Residential Dwelling

Sample No.	Description	Location	Fibrous Asbestos Content	Other Materials
VFT4	Vinyl Floor Tile 0.3 m x 0.3 m grey/turquoise	Kitchen	None	100% Non-Fibres
VFT5		Kitchen	None	100% Non-Fibres
VFT6		Kitchen	None	100% Non-Fibres
STIC1	Stick-on ceiling tiles 0.3 m x 0.3 m	Kitchen	None	95% Cellulose 5% Non-Fibres
STIC2		Kitchen	None	95% Cellulose 5% Non-Fibres
STIC3		Kitchen	None	95% Cellulose 5% Non-Fibres
TRANS1	Transite siding, undulated with blue stripes	Exterior, north wall	**10% Chrysotile**	90% Non-Fibres
TRANS2		Exterior, north wall	Not Analyzed.	
TRANS3		Exterior, north wall		

Notes: **Bold** Results - Asbestos containing material as defined under O. Reg 278/05 as having a concentration of 0.5% or more by dry weight fibrous asbestos.

Drywall Joint Compound

The majority of the walls and ceilings in the dwelling were finished with drywall. Five (5) samples of the drywall joint compound were collected from the dwelling and submitted for analysis. Based on analytical test results, two (2) samples were found to contain **1% chrysotile asbestos**. The drywall joint compound throughout the building is considered to be an asbestos containing material.

Ceiling Stipple

Ceiling stipple was observed in the family room of the dwelling. Three (3) samples of the stipple were collected and submitted for analysis. The ceiling stipple was not found to contain asbestos.

Vinyl Floor Tiles

Two (2) styles of vinyl floor tiles were observed in the building. Beige tiles (0.3 m by 0.3 m) with a spotted pattern were observed in the family room, below the existing carpet. A grey/turquoise tile (0.3 m by 0.3 m) was observed in the kitchen.

Three (3) samples were collected of each type and submitted for analysis. Based on analytical test results, the vinyl floor tiles located in the family room were found to contain **3.63% chrysotile asbestos** and are considered to be an asbestos containing material. The vinyl floor tiles located in the kitchen were not found to contain asbestos.

Stick-on Ceiling Tiles

Stick-on ceiling tiles were observed in the kitchen. Three (3) samples of the white tiles, measuring approximately 0.3 m by 0.3 m, were collected and submitted for analysis. Based on analytical test results, the stick-on ceiling tiles were not found to contain asbestos.

Transite Siding

Transite siding was observed on the north wall of the building and to a lesser extent on the front face of the building, beneath newer siding materials. The transite boards were a beige colour, with blue stripes and textured with a slight undulation. Three (3) samples of the transite siding were collected and submitted for analysis. Based on analytical test results, the transite siding was found to contain **10% chrysotile asbestos** and is considered to be an asbestos containing material.

Insulation

Fibreglass insulation was observed in certain walls within the building, and cellulose-based insulation was noted in the attic. These are not considered to be asbestos containing materials.

55 Carruthers Avenue

Table 2 - Summary of Asbestos Testing
55 Carruthers Avenue - Garage

Sample No.	Description	Location	Fibrous Asbestos Content	Other Materials
DWJC6	Drywall Joint Compound	Rear building addition	None	100% Non-Fibres
DWJC7		Rear building addition	None	100% Non-Fibres
DWJC8		Rear building addition	None	100% Non-Fibres

Notes: **Bold** Results - Asbestos containing material as defined under O. Reg 278/05 as having a concentration of 0.5% or more by dry weight fibrous asbestos.

Drywall Joint Compound

Certain walls within the building were finished with un-painted drywall. These include walls in the rear addition of the building, as well as walls of the mezzanine. Based on the colour of the drywall, it is suspected that both areas were finished at the same time. Samples could not be collected from the mezzanine walls due to safety concerns relating to the stability of the floor structure. Three (3) samples of the drywall joint compound were collected from the rear addition. Asbestos was not detected in any of the samples. The drywall joint compound is not considered to be an asbestos containing material.

Insulation

Certain walls in the building were observed to be insulated with fibreglass insulation. This insulation is not considered to be asbestos containing.

2.4 Benzene

Benzene is prescribed as a designated substance under O.Reg. 490/09 of the Occupational Health and Safety Act. Benzene is used in the manufacturing of many products including plastics, rubbers, resins and synthetic fibres. It is also used as a solvent in printing and paints as well as in petroleum products such as gasoline and diesel. Benzene may be present in older paints, sealants and roofing materials, some of which are present in the building.

Benzene is not considered to be a concern, since it typically vaporizes rapidly from most products shortly after manufacturing or application, however, the above noted materials should not be subjected to extreme heat without proper worker respiratory protection.

2.5 Coke Oven Emissions

Coke oven emissions are prescribed as a designated substance under O.Reg. 490/09 of the Occupational Health and Safety Act. Coke Oven emissions are not typically found outside the metal extraction industry. No sources of coke oven emissions are suspected or were observed with respect to the subject buildings.

2.6 Ethylene Oxide

Ethylene oxide is prescribed as a designated substance under Ontario Regulation 490/09 of the Occupational Health and Safety Act. Ethylene oxide is used in large volumes as a chemical intermediate in the manufacturing of many industrial products including textiles, detergents, foam, antifreeze, solvents and adhesives.

Based on the limited quantity of potential ethylene oxide containing materials within the subject buildings, ethylene oxide is not considered to pose a concern.

2.7 Isocyanates

Isocyanates are prescribed as a designated substance under O.Reg. 490/09 of the Occupational Health and Safety Act. Isocyanates are the raw materials from which all polyurethane products are made. They are used widely in the manufacturing of foams, plastics, adhesives, synthetic fibres and coatings such as paints and varnishes, some of which are present in the subject building. Over time, isocyanates will volatize out of these materials but will only be present in trace amounts and are not expected to reach hazardous air concentrations. As a result, isocyanates are not considered to pose a concern.

2.8 Lead

Lead is prescribed as a designated substance under O.Reg. 490/09 of the Occupational Health and Safety Act. Lead may be present in older paints, plastics, lead caulking in bell joints for cast iron piping systems, lead solder in copper piping systems, electrical equipment and ceramics. Painted surfaces and copper piping were observed in the building at 59 Carruthers Avenue during the site visit. No significant painted surfaces were noted at the building at 55 Carruthers. One (1) representative paint sample was obtained as a possible lead containing material. The sample was submitted to Paracel for lead content analysis. The potential lead containing materials were analyzed to determine the presence and content of lead, as shown on the following table. The sample location can also be found in Table 3. The laboratory certificates of analysis are appended to this letter.

Table 3 - Lead Content Determination Results

Sample/Location	Colour	Lead-Containing Definable Limit (µg/g)	Lead Content (µg/g)
P1	Off-white	90	< 20

Notes: **Bold** Results - Results exceeding the lead-containing definable limit

Lead was not identified in the off-white paint sample collected from 59 Carruthers Avenue.

2.9 Mercury

Mercury is prescribed as a designated substance under O.Reg. 490/09 of the Occupational Health and Safety Act.

Mercury may be present in thermostats, barometers and hydrometers along with other laboratory measuring devices. It may also be present in many types of lights including fluorescent tubes and compact fluorescent bulbs (CFBs).

Potential sources of mercury include fluorescent light tubes in fixtures observed at 55 Carruthers Avenue. No potential sources of mercury were observed at 59 Carruthers Avenue. Any mercury containing fluorescent light tubes must be disposed of according to Ontario Regulation 347 as amended by O. Reg. 558, if they are being decommissioned.

2.10 Vinyl Chloride

Vinyl chloride is prescribed as a designated substance under O.Reg. 490/09 of the Occupational Health and Safety Act. Vinyl chloride is the parent compound of polyvinyl chloride (PVC) which is used in many consumer and industrial plastic products.
It is also used extensively in the glass, rubber and paper industries. Vinyl chloride may be present, in stable form, in pipes, plastics, vinyls and interior finishes such as paints and varnishes throughout the building. The health hazard associated with vinyl chloride comes primarily from the inhalation of fumes. In most applications vinyl chloride is considered to be stable as long as it is not subjected to extreme heat. As a result, vinyl chloride is not expected to be a concern as long as materials are not subjected to extreme heat.

2.11 Silica

Silica is prescribed as a designated substance under O.Reg. 490/09 of the Occupational Health and Safety Act. Silica or silicon dioxide is the basic component of sand, quartz and granite rock. Silica is expected to be present in ceramic tile, concrete and parging. Typical procedures including wetting materials prior to, and during, any demolition activities are required to control dust.

2.12 Ozone Depleting Substances (ODS')

No potential sources of ODS' were observed in the subject buildings.

2.13 Polychlorinated Biphenyls (PCBs)

Several fluorescent light fixtures were observed in the building at 55 Carruthers Avenue. Historically, fluorescent light ballasts have contained PCBs. The ballasts of several fixtures in the building were inspected, and none were found to contain PCBs, as printed on the ballasts.

3.0 SURVEY SUMMARY AND RECOMMENDATIONS

Based on our survey, two (2) of the analysed building materials were determined to be asbestos containing. The possible presence of limited quantities of acrylonitrile, arsenic, benzene, ethylene oxide, isocyanates, lead and silica in the aforementioned building materials do not pose a concern, provided precautionary measures are followed during future renovation works.

Mercury

Mercury is present in all fluorescent light tubes with the "Hg" indication printed on the tube itself, as well as in compact fluorescent bulbs. If these items are being decommissioned, they should be removed and disposed of according to O.Reg. 347/558.

PCBs

All fluorescent light fixtures should be inspected prior to disposal to ensure that the ballasts clearly indicate that they do not contain PCBs.

Asbestos

Based on observations made during the testing program, combined with analytical test results, the following ACMs were identified in 59 Carruthers Avenue:

- **All drywall joint compound;**
- **Beige vinyl floor tiles, with spotted pattern, located beneath carpet in family room;**
- **Exterior transite siding, beige with blue stripes, undulated.**

The aforementioned ACMs were observed to be in good condition and, as a result, no immediate abatement work is required. Prior to large scale demolition of the buildings, the removal of these materials throughout the buildings must be done in accordance with the procedures outlined in Ontario Regulation 278/05. The ACMs should be handled/removed by a contractor specialized in this type of work. A full copy of Ontario Regulation 278/05 made under the Occupational Health and Safety Act can be found at http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_050278_e.htm.

A limited amount of wall and ceiling cavities were inspected at the time of the survey. Although no suspected asbestos containing materials were identified during this cursory inspection, it is possible that potentially asbestos containing materials are present elsewhere in these areas.

If any suspect materials are encountered during demolition, they should be analysed for asbestos prior to their disturbance.

Lead

Lead may be present in the solder used in the copper plumbing system. This does not pose a concern to demolition work provided it is not heated or pulverized. During demolition activities, precautions must be taken to protect workers. Further information can be obtained from the document entitled "Guideline - Lead on Construction Projects" (April 2011), prepared by the Occupational Health and Safety Branch of the Ontario Ministry of Labour.

Silica

Silica is expected to be present in various building materials, including the concrete, brick. When potential silica containing materials (as identified in this report) are to be disturbed, precautions should be taken to minimize dust creation (wetting surfaces) and protect workers, such as providing appropriate dust masks. Further information can be obtained from the document entitled "Guideline - Silica on Construction Projects" (April 2011), prepared by the Occupational Health and Safety Branch of the Ontario Ministry of Labour.

4.0 STATEMENT OF LIMITATIONS

A designated substance survey was completed at 55 and 59 Carruthers Avenue, in the City of Ottawa, Ontario. The results of the survey are based on our visual observations made at the time of the site visit. Should any conditions be encountered at the subject site that differ from our findings, we request that we be notified immediately in order to allow for a reassessment.

This report was prepared for the sole use of the John Howard Society of Ottawa and PBC Development and Construction Management. Permission and notification from the above noted parties and this firm will be required to release this report to any other party.

We trust that this submission will satisfy your present requirements. If you have any questions regarding this report, please contact our office.

Paterson Group Inc.

Adrian Menyhart, B.Eng.

Mark S. D'Arcy, P.Eng.

Report Distribution:

- ❑ PBC Development and Construction Management (2 hard copies)
- ❑ Paterson Group Inc. (1 copy)

Attachments:

- ❑ Laboratory Certificates of Analysis

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Adrian Menyhart

Client PO: 19434
Project: PE3724
Custody: 13657-58

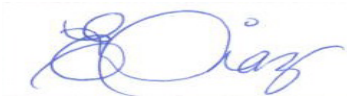
Report Date: 25-Feb-2016
Order Date: 19-Feb-2016

Order #: 1608230

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

Paracel ID	Client ID
1608230-01	DWJC1
1608230-02	DWJC2
1608230-03	DWJC3
1608230-04	DWJC4
1608230-05	DWJC5
1608230-06	DWJC6
1608230-07	DWJC7
1608230-08	DWJC8
1608230-09	STIP1
1608230-10	STIP2
1608230-11	STIP3
1608230-12	VFT1
1608230-13	VFT2
1608230-14	VFT3
1608230-15	VFT4
1608230-16	VFT5
1608230-17	VFT6
1608230-18	STIC1
1608230-19	STIC2
1608230-20	STIC3

Approved By:



Emma Diaz
Senior Analyst

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

Paracel I.D.	Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1608230-01	19-Feb-16	sample homogenized	Grey	Drywall Joint Compound	No	Client ID: DWJC1	
						Non-Fibers	100
1608230-02	19-Feb-16	sample homogenized	Grey	Drywall Joint Compound	No	Client ID: DWJC2	
						Non-Fibers	100
1608230-03	19-Feb-16	sample homogenized	Beige	Drywall Joint Compound	**Yes**	Client ID: DWJC3	
						Chrysotile	1
						Non-Fibers	99
1608230-04	19-Feb-16	sample homogenized	Beige	Drywall Joint Compound	**Yes**	Client ID: DWJC4	
						Chrysotile	1
						Non-Fibers	99
1608230-05	19-Feb-16	sample homogenized	Grey	Drywall Joint Compound	No	Client ID: DWJC5	
						Non-Fibers	100
1608230-06	19-Feb-16	sample homogenized	White	Drywall Joint Compound	No	Client ID: DWJC6	
						Non-Fibers	100
1608230-07	19-Feb-16	sample homogenized	White	Drywall Joint Compound	No	Client ID: DWJC7	
						Non-Fibers	100
1608230-08	19-Feb-16	sample homogenized	White	Drywall Joint Compound	No	Client ID: DWJC8	
						Non-Fibers	100
1608230-09	19-Feb-16	sample homogenized	White	Stipple	No	Client ID: STIP1	
						Non-Fibers	100
1608230-10	19-Feb-16	sample homogenized	White	Stipple	No	Client ID: STIP2	
						Non-Fibers	100
1608230-11	19-Feb-16	sample homogenized	White	Stipple	No	Client ID: STIP3	
						Non-Fibers	100
1608230-12	19-Feb-16	sample homogenized	Beige/Black	Floor Tile/Mastic	**Yes**	Client ID: VFT1	[ASLYR, AS-PRE]
						Chrysotile	3.63
						Non-Fibers	96.37
1608230-13	19-Feb-16					Client ID: VFT2	[ASLYR]
						not analyzed	
1608230-14	19-Feb-16					Client ID: VFT3	[ASLYR]
						not analyzed	
1608230-15	19-Feb-16	sample homogenized	Black	Vinyl Sheet Flooring	No	Client ID: VFT4	[AS-PRE]
						Non-Fibers	100
1608230-16	19-Feb-16	sample homogenized	Black	Vinyl Sheet Flooring	No	Client ID: VFT5	[AS-PRE]
						Non-Fibers	100
1608230-17	19-Feb-16	sample homogenized	Black	Vinyl Sheet Flooring	No	Client ID: VFT6	[AS-PRE]
						Non-Fibers	100

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

Paracel I.D.	Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1608230-18	19-Feb-16	sample homogenized	White/Brown	Ceiling Tile	No	Client ID: STIC1 [AS-PRE]	
						Cellulose	95
						Non-Fibers	5
1608230-19	19-Feb-16	sample homogenized	White/Brown	Ceiling Tile	No	Client ID: STIC2 [AS-PRE]	
						Cellulose	95
						Non-Fibers	5
1608230-20	19-Feb-16	sample homogenized	White/Brown	Ceiling Tile	No	Client ID: STIC3 [AS-PRE]	
						Cellulose	95
						Non-Fibers	5

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

Analysis Summary Table

Analysis	Method Reference/Description	Lab Location	NVLAP Lab Code *	Analysis Date
Asbestos, PLM Visual Estimation	by EPA 600/R-93/116	Ottawa West Lab	200812-0	25-Feb-16

** Reference to the NVLAP term does not permit the user of this report to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.*

Report Notes

ASLYR	Layers were noted for this sample, however, the entire sample was homogenized per client request.
AS-PRE	Due to the difficult nature of the bulk sample (interfering fibers/binders), additional NOB preparation was required prior to analysis

Work Order Revisions / Comments

None

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Client Name: PATERSON GROUP	Project Reference: PE3724	TAT: [~~ ~~] Regular [ ] 3 Day
Contact Name: ADRIAN MENYHART	Quote #:	[ ] 2 Day [ ] 1 Day
Address: 154 COLONNADE RD. S	PO #: 19434	[ ] Same Day
Telephone: 613-226-7381	Email Address: amenyhart@patersongroup.ca	Date Required:

ASBESTOS ANALYSIS

Matrix: [ ] Air [~~ ~~] Other Regulatory Guideline: _____

Required Analyses: [ ] PCM [~~ ~~] PLM [ ] PLM 400PC [ ] PLM 1000PC [ ] Chatfield [ ] TEM

Paracel Order Number: 1608230

	Sample ID	Matrix Description	Sampling Date	Air Volume (L)	Positive Stop? (Y/N)	Is the Sample Layered? (Y/N)	If layered, Describe Layer(s) to be Analyzed Separately* or Homogenize all **
1	DWJC1	Drywall Joint Compound	FEB 19 2016		N	N	
2	DWJC2	"	"		"	"	
3	DWJC3	"	"		"	"	
4	DWJC4	"	"		"	"	
5	DWJC5	"	"		"	"	
6	DWJC6	"	"		"	"	
7	DWJC7	"	"		"	"	
8	DWJC8	"	"		"	"	
9	STIP1	Ceiling Stipple	"		"	"	
10	STIP2	"	"		"	"	
11	STIP3	"	"		"	"	
12	VFT1	Vinyl Floor Tile	"		Y	"	
13	VFT2	"	"		Y	"	
14	VFT3	"	"		Y	"	
15							

* Each layer is charged as a separate analysis ** Homogenize = Sample is combined to a uniform mixture

Comments:

Method of Delivery: Paracel Courier

Relinquished By (Sign):	Received at Depot:	Received at Lab:	Verified By:
Relinquished By (Print): ADRIAN MENYHART			
Date/Time: FEB 19 2016	Date/Time: 19/02/16 12:15 PM	Date/Time: Feb 19/16 1:00	Date/Time: Feb 19/16 1:25

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№ 13657

Page 2 of 2

Client Name: PATERSON GROUP
Contact Name: ADRIAN MENYHART
Address: 154 COLONNADE RD. S.
Telephone: 613 - 226 - 7381

Project Reference: PE3724
Quote #:
PO #: 19434
Email Address: amenyhart@patersongroup.ca

TAT: [ ] ~~Regular~~ [ ] 3 Day [ ] 2 Day [ ] 1 Day [ ] Same Day
Date Required:

ASBESTOS ANALYSIS

Matrix: [ ] Air [ ] ~~Other~~ Regulatory Guideline:

Required Analyses: [ ]PCM [ ] ~~PLM~~ [ ]PLM 400PC [ ]PLM 1000PC [ ]Chatfield [ ]TEM

Paracel Order Number: 1608230

	Sample ID	Matrix Description	Sampling Date	Air Volume (L)	Positive Stop? (Y/N)	Is the Sample Layered? (Y/N)	If layered, Describe Layer(s) to be Analyzed Separately* or Homogenize all **
1	~~VFT3~~ VFT4	Vinyl Floor Tile	FEB 19/16		Y	N	
2	VFT5	"	"		Y	N	
3	VFT6	"	"		Y	N	
4	STIC1	Stick on Ceiling Tile	"		Y	N	
5	STIC2	"	"		Y	N	
6	STIC3	"	"		Y	N	
7							
8							
9							
10							
11							
12							
13							
14							
15							

* Each layer is charged as a separate analysis ** Homogenize = Sample is combined to a uniform mixture

Comments:

Method of Delivery: Paracel Courier

Relinquished By (Sign):	Received at Depot:	Received at Lab:	Verified By:
Relinquished By (Print): ADRIAN MENYHART			
Date/Time: FEB 19 2016	Date/Time: 19/02/16 12:15 PM	Date/Time: Feb 19/16 1:00	Date/Time: Feb 19/16 1:25

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Adrian Menyhart

Client PO: 19518
Project: PE3724
Custody: 13661

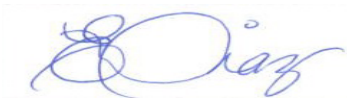
Report Date: 8-Apr-2016
Order Date: 6-Apr-2016

Order #: 1615284

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

Paracel ID	Client ID
1615284-01	TRANS1
1615284-02	TRANS2
1615284-03	TRANS3

Approved By:



Emma Diaz
Senior Analyst

PARACEL LABORATORIES LTD.

Order #: 1615284

Certificate of Analysis

Client: **Paterson Group Consulting Engineers**

Client PO: 19518

Report Date: 08-Apr-2016

Order Date:6-Apr-2016

Project Description: PE3724

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

Paracel I.D.	*Sample Date*	*Layers Analyzed*	*Colour*	*Description*	*Asbestos Detected:*	*Material Identification*	*% Content*
1615284-01	06-Apr-16	sample homogenized	Grey	Transite	Yes	Client ID: TRANS1	
						Chrysotile	10
						Non-Fibers	90
1615284-02	06-Apr-16					Client ID: TRANS2	
						not analyzed	
1615284-03	06-Apr-16					Client ID: TRANS3	
						not analyzed	

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

Analysis Summary Table

Analysis	Method Reference/Description	Lab Location	NVLAP Lab Code *	Analysis Date
Asbestos, PLM Visual Estimation	by EPA 600/R-93/116	Ottawa West Lab	200812-0	7-Apr-16

** Reference to the NVLAP term does not permit the user of this report to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.*

Work Order Revisions / Comments

None

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www.paracellabs.com

Chain of Custody
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№ 13661

Page 1 of 1

Client Name: PATERSON GROUP	Project Reference: PE3724	TAT: [ ] Regular [ ] 3 Day
Contact Name: ADRIAN MENYHART	Quote #:	[ ] ~~1~~ Day [ ] 1 Day
Address: 154 COLONNADE RD. S.	PO #: 19518	[ ] Same Day
Telephone: 613-226-7381	Email Address: amenyhart@patersongroup.ca	Date Required:

ASBESTOS ANALYSIS

Matrix: [ ] Air [~~X~~] Other Regulatory Guideline: _____ Required Analyses: [ ]PCM [~~X~~]PLM [ ]PLM 400PC [ ]PLM 1000PC [ ]Chatfield [ ]TEM

Paracel Order Number: 1615284

	Sample ID	Matrix Description	Sampling Date	Air Volume (L)	Positive Stop? (Y/N)	Is the Sample Layered? (Y/N)	If layered, Describe Layer(s) to be Analyzed Separately* or Homogenize all **
1	TRANS1	TRANSITE BOARD	APR 6 2016		Y	N	
2	TRANS 2	"	"		Y	N	
3	TRANS3	"	"		Y	N.	
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

* Each layer is charged as a separate analysis ** Homogenize = Sample is combined to a uniform mixture

Comments:

Method of Delivery: Paracel Courier

Relinquished By (Sign):	Received at Depot:	Received at Lab:	Verified By:
Relinquished By (Print): ADRIAN MENYHART			
Date/Time: APRIL 6 2016	Date/Time: 06/04/16 3:35 PM	Date/Time: Apr 6/16 4:10	Date/Time: Apr 6/16 4:24

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Adrian Menyhart

Client PO: 19434
Project: PE3724
Custody: 107535

Report Date: 25-Feb-2016
Order Date: 19-Feb-2016

Order #: 1608227

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

Paracel ID	Client ID
1608227-01	P1

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Metals, ICP-OES	based on MOE E3470, ICP-OES	24-Feb-16	24-Feb-16

Sample Data Revisions

None

Work Order Revisions/Comments:

None

Other Report Notes:

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

Sample Results

Lead

Matrix: Paint
Sample Date: 19-Feb-16

Paracel ID	Client ID	Units	MDL	Result
1608227-01	P1	ug/g	20	<20

Laboratory Internal QA/QC

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Matrix Blank									
Lead	**ND**	**20**	**ug/g**						
Matrix Duplicate									
Lead	**577**	**20**	**ug/g**	**537**			**7.2**	**30**	
Matrix Spike									
Lead	**517**		**ug/L**	**269**	**99.3**	**70-130**			

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Chain of Custody
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№ 107535

Page 1 of 1

Client Name: PATERSON GROUP	Project Reference: 903724	TAT: [X] Regular [ ] 3 Day
Contact Name: ADRIAN MENYHART	Quote #	[ ] 2 Day [ ] 1 Day
Address: 154 COLONNADE RD S.	PO # 19434	Date Required:
Telephone: 613-226-7381	Email Address: amenyhart@patersongroup.ca	

Criteria: [ ] O. Reg. 153/04 (As Amended) Table __ [ ] RSC Filing [ ] O. Reg. 558/00 [ ] PWQO [ ] CCME [ ] SUB (Storm) [ ] SUB (Sanitary) Municipality: _____ [ ] Other: _____

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Required Analyses

Paracel Order Number: 1608227

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	LEAD
1	P1	P		1	FEB 19 16									✓
2														
3														
4														
5														
6														
7														
8														
9														
10														

Comments:

Method of Delivery: Paracel

Relinquished By (Sign):	Received by Driver/Depot: T. JEROME	Received at Lab:	Verified By:
Relinquished By (Print): ADRIAN MENYHART	Date/Time: 19/02/16 12:15	Date/Time: Feb 19/16 3:35	Date/Time: Feb 19/16 3:42
Date/Time: FEB 19 16	Temperature: _____ °C PM	Temperature: _____ °C	pH Verified [X] By: N/A