patersongroup

Consulting Engineers

154 Colonnade Road South
Ottawa, Ontario
Canada, K2E 7J5
Tel: (613) 226-7381
Fax: (613) 226-6344

Geotechnical Engineering
Environmental Engineering
Hydrogeology
Geological Engineering
Materials Testing
Building Science
Archaeological Services

www.patersongroup.ca

November 19, 2015
File: PE2373-LET.01

Richcraft Group of Companies
2280 St. Laurent Blvd. Unit 201
Ottawa, Ontario
K1G 4K1

Attention: **Ms. Meghan Dadswell**

Subject: **Designated Substance Survey**
163 and 167 Parkdale Avenue
Ottawa, Ontario

Dear Ms. Dadswell,

Further to your request and authorization, Paterson Group (Paterson) conducted a Designated Substance Survey (DSS) of the vacant buildings located at 163 and 167 Parkdale 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 Parkdale Avenue, at the intersection of Lyndale Avenue and Parkdale Avenue in the City of Ottawa, Ontario. Two (2) buildings occupy the subject property. The first is a two (2) storey building, with a second floor apartment (163 Parkdale Avenue) and the second is a two (2) storey building a basement level (at 167 Parkdale 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 building 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 sixteen (16) bulk samples of potential asbestos containing materials were obtained from the building at 163 Parkdale Avenue and twenty five (25) bulk samples were obtained from the building at 167 Parkdale 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.

163 Parkdale Avenue

Table 1 - Summary of Asbestos Testing
163 Parkdale Avenue

Sample No.	Description	Location	Fibrous Asbestos Content	Other Materials
163-DWJC1	Drywall Joint Compound	1st floor, dining area	None	100% Non-Fibres
163-DWJC2		1st floor, upper level seating area	None	100% Non-Fibres
163-DWJC3		2nd floor, kitchen	None	100% Non-Fibres
163-DWJC4		2nd floor, hall	None	100% Non-Fibres
163-DWJC5		2nd floor, bedroom	None	100% Non-Fibres
163-DWJC6		1st floor, kitchen	None	100% Non-Fibres
163-DWJC7		1st floor, staircase	None	100% Non-Fibres
163-STIP1	Ceiling Stipple	1st floor, upper level seating area	None	100% Non-Fibres
163-STIP2		1st floor, upper level seating area	None	1% MMVF 99% Non-Fibres
163-STIP3		1st floor, upper level seating area	None	1% MMVF 99% 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.

Table 1 - Summary of Asbestos Testing - Continued
163 Parkdale Avenue

Sample No.	Description	Location	Fibrous Asbestos Content	Other Materials
163-SUSP1	Suspended ceiling tile 0.45 m x 0.45 m	1st floor, main dining area	None	95% Cellulose 5% Non-Fibres
163-SUSP2		1st floor, main dining area	None	95% Cellulose 5% Non-Fibres
163-SUSP3		1st floor, main dining area	None	95% Cellulose 5% Non-Fibres
163-VFT1	Vinyl Floor Tile, 0.2 m tile, dark blue	2nd floor, kitchen, below linoleum	**0.73% Crysotile**	99.27% Non-Fibres
163-VFT2		2nd floor, kitchen, below linoleum	Not Analyzed	
163-VFT3		2nd floor, kitchen, below linoleum		

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

Walls, and certain ceilings, throughout the building were found to be constructed with drywall. Seven (7) representative drywall joint compound samples were collected from the building and submitted for analysis. Based on analytical test results, the drywall joint compound is not considered to be an asbestos containing material.

Ceiling Stipple

The drywall ceiling in the upper dining area was observed to be finished with a stipple finish. The same finish was observed on parts of the second floor ceiling. Three (3) samples of the ceiling stipple were collected and submitted for analysis. Based on analytical test results, the ceiling stipple is not considered to be an asbestos containing material.

Suspended Ceiling Tiles

Two (2) styles of suspended ceiling tiles were observed in the building at the time of the assessment. The first were newer tiles, measuring 0.6 m by 1.2 m. These were stamped with a date indicating they were produced in 2005. As a result, these newer tiles are not considered to be asbestos containing. A second style of ceiling tile was observed above the newer ones. These tiles were 0.45 m x 0.45 m, and were light yellow in colour.

Three (3) samples of these suspended ceiling tiles were collected and submitted for analysis. Based on analytical test results, these suspended ceiling tiles are not considered to be an asbestos containing material.

Vinyl Floor Tiles

Vinyl floor tiles were encountered in the second floor kitchen of the building, below newer linoleum flooring. The tiles were 0.9 m by 0.9 m and were a dark blue colour. Three (3) samples of the vinyl floor tiles were collected and submitted for analysis. Analytical test results indicated the presence of **0.73% chrysotile asbestos**. These vinyl floor tiles are considered to be an asbestos containing material.

Insulation

A limited inspection of wall and ceiling cavities was carried out as part of the survey. Based on observations of the inspected cavities, fibreglass insulation was noted. Fibreglass insulation is not considered to be an asbestos containing material. Furthermore, no suspect asbestos containing mechanical insulation material was observed.

167 Parkdale Avenue

Table 2 - Summary of Asbestos Testing
167 Parkdale Avenue

Sample No.	Description	Location	Fibrous Asbestos Content	Other Materials
167-PL1	Fine white plaster (over grey parging)	1st floor, hall wall	None	100% Non-Fibres
167-PL2		1st floor, dining room ceiling	None	100% Non-Fibres
167-PL3		2nd floor, family room wall	None	100% Non-Fibres
167-PL4		2nd floor, north bedroom ceiling	None	100% Non-Fibres
167-PL5		Basement, dining room	None	100% Non-Fibres
167-PL6		Basement, family room	None	100% Non-Fibres
167-PL7		Basement, bedroom	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.

Table 2 - Summary of Asbestos Testing - Continued
167 Parkdale Avenue

Sample No.	Description	Location	Fibrous Asbestos Content	Other Materials
167-PRG1	Coarse grey parging, with long white fibres	1st floor, hall wall	None	99% Non-Fibres 1% Other fibres
167-PRG2		1st floor, dining room ceiling	None	99% Non-Fibres 1% Other fibres
167-PRG3		2nd floor, family room wall	None	99% Non-Fibres 1% Other fibres
167-PRG4		2nd floor, north bedroom ceiling	None	99% Non-Fibres 1% Other fibres
167-PRG5		Basement, dining room	None	99% Non-Fibres 1% Other fibres
167-PRG6		Basement, family room	None	99% Non-Fibres 1% Other fibres
167-PRG7		Basement, bedroom	None	99% Non-Fibres 1% Other fibres
167-PRG8	Coarse grey parging	Basement, furnace room ceiling	None	99% Non-Fibres 1% Other fibres
167-PRG9		Basement, furnace room ceiling	< 0.5% Chrysotile	100% Non-Fibres
167-PRG10		Basement, furnace room wall	None	100% Non-Fibres
167-VFT1	Vinyl floor tiles, 0.2 x 0.2 m, turquoise	Basement, electrical room	**7.81% Chrysotile**	92.19% Non-Fibres
167-VFT2		Basement, electrical room	Not Analysed	
167-VFT3		Basement, electrical room		
167-STUC1	Exterior stucco	Exterior - north	**1% Chrysotile**	99% Non-Fibres
167-STUC2		Exterior - north	**1% Chrysotile**	99% Non-Fibres
167-STUC3		Exterior - east	**1% Chrysotile**	99% Non-Fibres
167-STUC4		Exterior - west	**1% Chrysotile**	99% Non-Fibres
167-STUC5		Exterior - south	**1% Chrysotile**	99% 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.

Plaster and Parging

Walls and ceilings throughout the building were constructed using plaster and parging. A fine white plaster (finish coat) was applied to a coarse grey parging base coat. This base coat was observed to contain light coloured fibrous strands. The base coat itself was applied to gypsum or fibre boards. Seven (7) sets of samples (one plaster and one parging) were collected from various locations throughout the building. Based on analytical test results, the plaster and parging walls and ceilings within the building are not considered to be asbestos containing materials.

Three (3) additional parging samples were collected from the furnace room located in the basement of the building. This parging appeared to be different than the parging noted in walls and ceilings, and did not appear to contain the fibrous strands. Based on analytical test results, the parging applied to walls and ceilings of the furnace room is not considered to be an asbestos containing material.

Vinyl Floor Tiles

Vinyl floor tiles were observed in the electrical room, located in the basement of the building. The tiles measured 0.2 m x 0.2 m, and were turquoise in colour. Three (3) samples of these vinyl floor tiles were collected and submitted for analysis. Based on analytical test results, these vinyl floor tiles were found to contain **7.81% chrysotile asbestos** and are considered to be an asbestos containing material.

Exterior Stucco

The majority of the exterior of the building was finished with stucco, consisting of a coarse aggregate applied to a tan substrate. Five (5) samples of the stucco were collected from around the building and submitted for analysis. Based on analytical test results, the exterior stucco was found to contain **1% chrysotile asbestos** and is considered to be an asbestos containing material.

Insulation

A limited inspection of wall and ceiling cavities was carried out as part of the survey. No signs of potentially asbestos containing walls/ceiling or mechanical insulation were observed.

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 during the site visit. Five (5) representative paint samples were obtained as possible lead containing materials. The samples were 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 locations 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)
163-P1 / 163 Parkdale, 2nd floor	Off-white	90	< 20
163-P2 / 163 Parkdale, 1st floor	Yellow	90	< 20
167-P1 / 167 Parkdale, 2nd floor apt. hall	Beige	90	< 20
167-P2 / 167 Parkdale, 1st floor apt. hall	Off-white	90	**2690**
167-P3 / 167 Parkdale, basement hall	Off-white	90	**1090**

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

Lead was not identified above the laboratory detection limit in the paint samples collected from 163 Parkdale Avenue. These paint samples are not considered to be lead-containing. The off-white paint observed in 167 Parkdale is considered to be lead-containing.

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 were mercury thermostats (observed in 163 Parkdale Avenue) fluorescent light tubes and CFBs. Any mercury containing fluorescent light tubes, CFBs and thermostats 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 concrete, brick, stucco, parging and ceramic tiles. Typical procedures including wetting materials prior to, and during, any renovation or demolition activities are required to control dust.

2.12 Ozone Depleting Substances (ODS')

Fire extinguishers were observed in the buildings. Fire extinguishers are considered to be potential sources of ODS' and should be serviced and decommissioned by contractors trained to do so.

2.13 Polychlorinated Biphenyls (PCBs)

No potential sources of PCBs were observed during the site visit. Fluorescent light ballasts (which have historically contained PCBs) in the building appeared to be relatively new, and are not suspected to contain PCBs.

3.0 SURVEY SUMMARY AND RECOMMENDATIONS

Based on our survey, three (3) 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 may be present within thermostats, fluorescent light tubes, as indicated by an "Hg" symbol 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.

Ozone Depleting Substances (ODS)

Fire extinguishers are potential sources for ODS' and were observed in the buildings. Any maintenance or decommissioning of ODS containing equipment should by done by a certified technician.

Asbestos

Based on observations made during the testing program, combined with analytical test results, the following ACM was identified:

- **Dark blue vinyl floor tiles, 0.9 m x 0.9 m, 2nd floor kitchen at 163 Parkdale Avenue (beneath linoleum);**
- **Turquoise vinyl floor tiles, 0.9 m x 0.9 m, basement electrical room at 167 Parkdale Avenue;**
- **Exterior stucco, 167 Parkdale Avenue.**

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 posible 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. Lead was also detected above the lead-containing definable limit in the off-white paints observed throughout the building at 167 Parkdale Avenue. During demolition activities, precautions must be taken to protect workers in the event that workers will be present inside the building at 167 Parkdale Avenue. 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, stucco, parging and ceramic tile. 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.

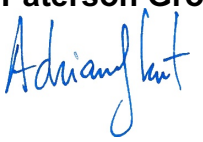
4.0 STATEMENT OF LIMITATIONS

A designated substance survey was completed at 163 and 167 Parkdale 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 Richcraft Group of Companies. Permission and notification from the Richcraft Group of Companies 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:

- ❑ Richcraft Group of Companies (2 hard copies)
- ❑ Paterson Group Inc. (1 copy)

Attachments:

- ❑ Laboratory Certificates of Analysis

PARACEL LABORATORIES LTD.
TRUSTED. RESPONSIVE. RELIABLE.
OTTAWA • KINGSTON • NIAGARA • MISSISSAUGA • SARNIA

Head Office
300-2319 St. Laurent Blvd.
Ottawa, Ontario K1G 4J8
p: 1-800-749-1947
e: paracel@paracellabs.com
www.paracellabs.com

Certificate of Analysis

Paterson Group Consulting Engineers

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

Phone: (613) 226-7381
Fax: (613) 226-6344

Client PO: 19018
Project: PE2373
Custody: 10672, 10674, 10279

Report Date: 17-Nov-2015
Order Date: 11-Nov-2015

Order #: 1546242

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

Paracel ID	Client ID
1546242-01	163-DWJC1
1546242-02	163-DWJC2
1546242-03	163-DWJC3
1546242-04	163-DWJC4
1546242-05	163-DWJC5
1546242-06	163-DWJC6
1546242-07	163-DWJC7
1546242-08	163-STIP1
1546242-09	163-STIP2
1546242-10	163-STIP3
1546242-11	163-SUSP1
1546242-12	163-SUSP2
1546242-13	163-SUSP3
1546242-14	163-VFT1
1546242-15	163-VFT2
1546242-16	163-VFT3
1546242-17	167-PL1
1546242-18	167-PL2
1546242-19	167-PL3
1546242-20	167-PL4
1546242-21	167-PL5
1546242-22	167-PL6
1546242-23	167-PL7
1546242-24	167-PRG1
1546242-25	167-PRG1
1546242-26	167-PRG2
1546242-27	167-PRG3
1546242-28	167-PRG4
1546242-29	167-PRG5
1546242-30	167-PRG6
1546242-31	167-PRG7
1546242-32	167-PRG8
1546242-33	167-PRG9
1546242-34	167-PRG10
1546242-35	167-VFT1
1546242-36	167-VFT2
1546242-38	167-STUC1
1546242-39	167-STUC2
1546242-40	167-STUC3
1546242-41	167-STUC4
1546242-42	167-STUC5

Approved By:

Emma Diaz For Heather S.H. McGregor, BSc
Laboratory Director - Microbiology

PARACEL LABORATORIES LTD.

Client: Paterson Group Consulting Engineers
154 Colonnade Road South
Nepean, ON K2E 7J5

Attn: Adrian Menyhart
Tel: (613) 226-7381
Fax: (613) 226-6344

Project: PE2373
Paracel Report No.: 1546242

Received Date: 11-Nov-15
Report Date: 17-Nov-15

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

Paracel I.D.	Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1546242-01	11-Nov-15	sample homogenized	Grey	Drywall Joint Compound	No	Client ID: 163-DWJC1	
						Non-Fibers	100
1546242-02	11-Nov-15	sample homogenized	Grey	Drywall Joint Compound	No	Client ID: 163-DWJC2	
						Non-Fibers	100
1546242-03	11-Nov-15	sample homogenized	Grey	Drywall Joint Compound	No	Client ID: 163-DWJC3	
						Non-Fibers	100
1546242-04	11-Nov-15	sample homogenized	Grey	Drywall Joint Compound	No	Client ID: 163-DWJC4	
						Non-Fibers	100
1546242-05	11-Nov-15	sample homogenized	Grey	Drywall Joint Compound	No	Client ID: 163-DWJC5	
						Non-Fibers	100
1546242-06	11-Nov-15	sample homogenized	Grey	Drywall Joint Compound	No	Client ID: 163-DWJC6	
						Non-Fibers	100
1546242-07	11-Nov-15	sample homogenized	Grey	Drywall Joint Compound	No	Client ID: 163-DWJC7	
						Non-Fibers	100
1546242-08	11-Nov-15	sample homogenized	White	Stipple	No	Client ID: 163-STIP1 [AS-PRE]	
						Non-Fibers	100
1546242-09	11-Nov-15	sample homogenized	White	Stipple	No	Client ID: 163-STIP2 [AS-PRE]	
						MMVF	1
						Non-Fibers	99
1546242-10	11-Nov-15	sample homogenized	White	Stipple	No	Client ID: 163-STIP3 [AS-PRE]	
						MMVF	1
						Non-Fibers	99
1546242-11	11-Nov-15	sample homogenized	Brown/Beige	Ceiling Tile	No	Client ID: 163-SUSP1 [AS-PRE]	
						Cellulose	95
						Non-Fibers	5
1546242-12	11-Nov-15	sample homogenized	Brown/Beige	Ceiling Tile	No	Client ID: 163-SUSP2 [AS-PRE]	
						Cellulose	95
						Non-Fibers	5
1546242-13	11-Nov-15	sample homogenized	Brown/Beige	Ceiling Tile	No	Client ID: 163-SUSP3 [AS-PRE]	
						Cellulose	95
						Non-Fibers	5

PARACEL LABORATORIES LTD.

Client: Paterson Group Consulting Engineers
154 Colonnade Road South
Nepean, ON K2E 7J5

Attn: Adrian Menyhart
Tel: (613) 226-7381
Fax: (613) 226-6344

Project: PE2373
Paracel Report No.: 1546242

Received Date: 11-Nov-15
Report Date: 17-Nov-15

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

Paracel I.D.	Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1546242-14	11-Nov-15	sample homogenized	Beige	Vinyl Floor Tile	Yes	Client ID: 163-VFT1 [AS-PRE]	
						Chrysotile	0.73
						Non-Fibers	99.27
1546242-15	11-Nov-15					Client ID: 163-VFT2	
						not analyzed	
1546242-16	11-Nov-15					Client ID: 163-VFT3	
						not analyzed	
1546242-17	11-Nov-15	sample homogenized	White	Plaster	No	Client ID: 167-PL1 [AS-PRE]	
						Non-Fibers	100
1546242-18	11-Nov-15	sample homogenized	White	Plaster	No	Client ID: 167-PL2	
						Non-Fibers	100
1546242-19	11-Nov-15	sample homogenized	White	Plaster	No	Client ID: 167-PL3	
						Non-Fibers	100
1546242-20	11-Nov-15	sample homogenized	White	Plaster	No	Client ID: 167-PL4	
						Non-Fibers	100
1546242-21	11-Nov-15	sample homogenized	White	Plaster	No	Client ID: 167-PL5	
						Non-Fibers	100
1546242-22	11-Nov-15	sample homogenized	White	Plaster	No	Client ID: 167-PL6	
						Non-Fibers	100
1546242-23	11-Nov-15	sample homogenized	White	Plaster	No	Client ID: 167-PL7	
						Non-Fibers	100
1546242-24	11-Nov-15					Client ID: 167-PRG1	
					[Z-01]	not analyzed	
1546242-25	11-Nov-15	sample homogenized	Grey	Parging Cement	No	Client ID: 167-PRG1	
						Non-Fibers	99
						Other fibers	1
1546242-26	11-Nov-15	sample homogenized	Grey	Parging Cement	No	Client ID: 167-PRG2	
						Non-Fibers	99
						Other fibers	1

PARACEL LABORATORIES LTD.

Client: Paterson Group Consulting Engineers
154 Colonnade Road South
Nepean, ON K2E 7J5

Attn: Adrian Menyhart
Tel: (613) 226-7381
Fax: (613) 226-6344

Project: PE2373
Paracel Report No.: 1546242

Received Date: 11-Nov-15
Report Date: 17-Nov-15

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

Paracel I.D.	Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1546242-27	11-Nov-15	sample homogenized	Grey	Parging Cement	No	Client ID: 167-PRG3	
						Non-Fibers	99
						Other fibers	1
1546242-28	11-Nov-15	sample homogenized	Grey	Parging Cement	No	Client ID: 167-PRG4	
						Non-Fibers	99
						Other fibers	1
1546242-29	11-Nov-15	sample homogenized	Grey	Parging Cement	No	Client ID: 167-PRG5	
						Non-Fibers	99
						Other fibers	1
1546242-30	11-Nov-15	sample homogenized	Grey	Parging Cement	No	Client ID: 167-PRG6	
						Non-Fibers	99
						Other fibers	1
1546242-31	11-Nov-15	sample homogenized	Grey	Parging Cement	No	Client ID: 167-PRG7	
						Non-Fibers	99
						Other fibers	1
1546242-32	11-Nov-15	sample homogenized	Grey	Parging Cement	No	Client ID: 167-PRG8	
						Non-Fibers	99
						Other fibers	1
1546242-33	11-Nov-15	sample homogenized	Grey	Parging Cement	Yes	Client ID: 167-PRG9 [AS-PT]	
					[ASTrc]	Chrysotile	<MDL
						Non-Fibers	100
1546242-34	11-Nov-15	sample homogenized	Grey	Parging Cement	No	Client ID: 167-PRG10	
						Non-Fibers	100
1546242-35	11-Nov-15	sample homogenized	Grey	Vinyl Floor Tile	Yes	Client ID: 167-VFT1 [AS-PRE]	
						Chrysotile	7.81
						Non-Fibers	92.19
1546242-36	11-Nov-15					Client ID: 167-VFT2	
						not analyzed	
1546242-38	11-Nov-15	sample homogenized	Grey	Stucco	Yes	Client ID: 167-STUC1	
						Chrysotile	1
						Non-Fibers	99

PARACEL LABORATORIES LTD.

Client: Paterson Group Consulting Engineers
154 Colonnade Road South
Nepean, ON K2E 7J5

Attn: Adrian Menyhart
Tel: (613) 226-7381
Fax: (613) 226-6344

Project: PE2373
Paracel Report No.: 1546242

Received Date: 11-Nov-15
Report Date: 17-Nov-15

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

Paracel I.D.	Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1546242-39	11-Nov-15	sample homogenized	Grey	Stucco	Yes	Client ID: 167-STUC2	
						Chrysotile	1
						Non-Fibers	99
1546242-40	11-Nov-15	sample homogenized	Grey	Stucco	Yes	Client ID: 167-STUC3	
						Chrysotile	1
						Non-Fibers	99
1546242-41	11-Nov-15	sample homogenized	Grey	Stucco	Yes	Client ID: 167-STUC4	
						Chrysotile	1
						Non-Fibers	99
1546242-42	11-Nov-15	sample homogenized	Grey	Stucco	Yes	Client ID: 167-STUC5	
						Chrysotile	1
						Non-Fibers	99

MMVF: Man Made Vitreous Fibers: Fiberglass, Mineral Wool, Rockwool, Glasswool
Analytes in bold indicate asbestos content which may include:
Actinolite, Amosite, Anthophyllite, Chrysotile, Crocidolite and/or Tremolite.

Analysis Summary Table

Analysis	Method Reference/Description	Lab Location	NVLAP Lab Code *	Analysis Date
Asbestos, PLM Visual Estimation	by EPA 600/R-93/116	Mississauga	200863-0	16-Nov-15

** 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

AS-PRE	Due to the difficult nature of the bulk sample (interfering fibers/binders), additional NOB preparation was required prior to analysis
AS-PT	Asbestos quantitation by PLM Point Count method.
ASTrc	Trace asbestos was observed below the noted detection limit but could not be accurately quantified.
Z-01	Cancelled

Work Order Revisions / Comments

None

PARACEL LABORATORIES LTD.

TRUSTED .
RESPONSIVE .
RELIABLE .

Head Office
300-2319 St. Laurent Blvd.
Ottawa, Ontario K1G 4J8
p: 1-800-749-1947
e: paracel@paracellabs.com
www.paracellabs.com

Chain of Custody
(Lab Use Only)
№ 10672

Page 1 of 3

Client Name: PATERSON GROUP	Project Reference: PE2373	TAT: [X] Regular	[ ] 3 Day
Contact Name: ADRIAN MENYHART	Quote #:	[ ] 2 Day	[ ] 1 Day
Address: 154 COLONNADE RD. S.	PO #: 19018	[ ] 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: 1546242

	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	163-DWJC1	Drywall Joint Compound	NOV 11 2015		N	N	
2	163-DWJC2	"	"	"	"	"	
3	163-DWJC3	"	"	"	"	"	
4	163-DWJC4	"	"	"	"	"	
5	163-DWJC5	"	"	"	"	"	
6	163-DWJC6	"	"	"	"	"	
7	163-DWJC7	"	"	"	"	"	
8	163-STIP1	STIPPLE	"	"	"	"	
9	163-STIP2	"	"	"	"	"	
10	163-STIP3	"	"	"	"	"	
11	163-SUSP1	SUSPENDED CEILING TILE	"	"	Y	"	
12	163-SUSP2	"	"	"	Y	"	
13	163-SUSP3	"	"	"	Y	"	
14	163-VFT1	VINYL FLOOR TILE	"	"	Y	"	
15	163-VFT2	"	"	"	Y	"	

w/163-VFT3

* 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: 11/11/15 3:25 PM	Date/Time: Nov 11/15 4:30	Date/Time: 17-NOV-15 14:55
Date/Time: NOV 11 2015			

PARACEL LABORATORIES LTD.

TRUSTED . RESPONSIVE . RELIABLE .

Head Office
300-2319 St. Laurent Blvd.
Ottawa, Ontario K1G 4J8
p: 1-800-749-1947
e: paracel@paracellabs.com
www.paracellabs.com

Chain of Custody
(Lab Use Only)
№ 10674

Client Name: PATERSON GROUP	Project Reference: PE2373
Contact Name: ADRIAN MENYHART	Quote #:
Address:	PO #: 19018
Telephone:	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: 1546242

	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	163-VFT3		NOV 11 2015		Y (W/ 163-VFT1 & VFT2)		
2	167-PL1	PLASTER			N	Y	PL# : White Plaster
3	167-PL2						PRG# : Grey Parging
4	167-PL3						
5	167-PL4						
6	167-PL5						
7	167-PL6						
8	167-PL7						
9	167-PRG1	PARGING					
10	167-PRG2						
11	167-PRG3						
12	167-PRG4						
13	167-PRG5						
14	167-PRG6						
15	167-PRG7						

* 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: T. Louise	Received at Lab: Laura Cull	Verified By:
Relinquished By (Print): ADRIAN MENYHART			
Date/Time: NOV 11 2015	Date/Time: 11/11/15 3:25 PM	Date/Time: Nov 11/15 4:30	Date/Time: 17-NOV-15 14:55

PARACEL LABORATORIES LTD. | TRUSTED . RESPONSIVE . RELIABLE .

OTTAWA ◉ KINGSTON ◉ NIAGARA ◉ MISSISSAUGA ◉ SARNIA

Head Office
300-2319 St. Laurent Blvd.
Ottawa, Ontario K1G 4J8
p: 1-800-749-1947
e: paracel@paracellabs.com
www.paracel@paracellabs.com

Chain of Custody
(Lab Use Only)
Nº 10279

Client Name: PATERSON GROUP	Project Reference: PE2373
Contact Name: ADRIAN MENYHART	Quote #:
Address: 154 COLONNADE RD. S.	PO #: 19018
Telephone: [illegible]	Email Address: amenyhart@patersongroup.ca

TAT: [~~X~~] Regular [ ] 3 Day [ ] 2 Day [ ] 1 Day [ ] Same Day

Date required: _____

ASBESTOS ANALYSIS

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

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

Paracel Order Number: 1546242

	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	167-PRG8	Parging	Nov 11 2015		N	N	
2	167-PRG9	"	"		"	"	
3	167-PRG10	"	"		"	"	
4	~~167-PRG1~~ 167-VFT1	~~ENGLGUM~~ VINYL FLOOR TILE			Y	N	
5	~~167-PRG2~~ 167-VFT2	"			Y	"	
6	~~167-PRG3~~ 167-VFT3	"			Y	"	
7	167-STUC1	EXTERIOR STUCCO			N	N	
8	167-STUC2	"			"	"	
9	167-STUC3	"			"	"	
10	167-STUC4	"			"	"	
11	167-STUC5	"			"	"	
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: NOV 11 2015	Date/Time: 11/11/15 3:25 PM	Date/Time: NOV 11/15 4:30	Date/Time: 17-NOV-15 14:55

PARACEL LABORATORIES LTD.
TRUSTED. RESPONSIVE. RELIABLE.

300 - 2319 St. Laurent Blvd
Ottawa, ON, K1G 4J8
1-800-749-1947
www.paracellabs.com

Certificate of Analysis

Paterson Group Consulting Engineers
154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Adrian Menyhart

Client PO: 19018
Project: PE2373
Custody: 106264

Report Date: 12-Nov-2015
Order Date: 11-Nov-2015

Order #: 1546237

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

Paracel ID	Client ID
1546237-01	163-P1
1546237-02	163-P2
1546237-03	167-P1
1546237-04	167-P2
1546237-05	167-P3

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	12-Nov-15	12-Nov-15

Sample and QC Qualifiers Notes

1- QR-04 : Duplicate results exceeds RPD limits due to non-homogeneous matrix.

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: 11-Nov-15

Paracel ID	Client ID	Units	MDL	Result
1546237-01	163-P1	ug/g	20	<20
1546237-02	163-P2	ug/g	20	<20
1546237-03	167-P1	ug/g	20	<20
1546237-04	167-P2	ug/g	20	2690
1546237-05	167-P3	ug/g	20	1090

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	2280	20	ug/g	981			79.7	30	QR-04
Matrix Spike									
Lead	745		ug/L	491	102	70-130			

PARACEL LABORATORIES LTD.

TRUSTED . RESPONSIVE . RELIABLE .

Head Office
300-2319 St. Laurent Blvd.
Ottawa, Ontario K1G 4J8
p: 1-800-749-1947
e: paracel@paracellabs.com
www.paracellabs.com

Chain of Custody
(Lab Use Only)
№ 106264

Page 1 of 1

Client Name: PATERSON GROUP	Project Reference: PE2373	TAT: [~~ ~~] Regular [ ] 3 Day [ ] 2 Day [ ] 1 Day
Contact Name: ADRIAN MENYHART	Quote #	
Address: 154 COLONNADE RD S.	PO # 19018	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: 1546237

	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	163-P1	P		1	Nov 11 2015									1						1
2	163-P2	P		1	"									1						1
3	167-P1	P		1	"									1						1
4	167-P2	P		1	"									1						1
5	167-P3	P		1	"									1						1
6																				
7																				
8																				
9																				
10																				

Comments:

Method of Delivery: Paracel

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): ADRIAN MENYHART	Date/Time: Nov 11/15 3:25	Date/Time: NOV 11, 2015 05:37	Date/Time: NOV 11/15 5:47.
Date/Time: Nov 11 2015	Temperature: 10 °C	Temperature: _____ °C	pH Verified [ ] By: N/A