

November 15, 2016
File: PE3915-LET.01

Shepherds of Good Hope
233 Murray Street
Ottawa, Ontario
K1N 5M9

Attention: **Mr. Rob Searle**

Subject: **Designated Substance Survey
Vacant Residential Property
765 Montreal Road
Ottawa, Ontario**

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

Dear Sir,

Further to your request and authorization, Paterson Group (Paterson) conducted a Designated Substance Survey (DSS) of the vacant residential dwelling at 765 Montreal Road 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 at the northeast corner of the Montreal Road and Lang's Road intersection, in the City of Ottawa, Ontario. The building is suspected to have been constructed prior to 1958, with additions and renovations completed since then.

The purpose of this investigation was to identify designated substances in the subject building prior to its demolition using heavy equipment 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, caulking 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.

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.

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 building, it is not expected that the arsenic concentration in the air will exceed its maximum allowable Time Weighted Average Exposure Value (TWAEV).

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 subject building during the sampling event and 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 in Table 1. The sample locations can also be found in Table 1. The laboratory certificates of analysis are appended to this letter.

| Table 1 - Summary of Asbestos Testing | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------------|--------------------------|-------------------|
| 765 Montreal Road | | | | |
| Residential Dwelling | | | | |
| Sample No. | Description | Location | Fibrous Asbestos Content | Other Materials |
| PL1 | White Finishing Plaster | Front Entrance, Main Floor | None | 100% Non-Fibres |
| PL2 | | Basement Stairwell | None | 100% Non-Fibres |
| PL3 | | Living Room, Main Floor | None | 100% Non-Fibres |
| PL4 | | Front Room, Main Floor | None | 100% Non-Fibres |
| PL5 | | Basement Bulkhead | None | 100% Non-Fibres |
| PL6 | | Hallway, Main Floor | None | 100% Non-Fibres |
| PL7 | | Kitchen, Main Floor | None | 100% Non-Fibres |
| PRG1 | Grey Base coat parging | Front Entrance, Main Floor | None | 100% Non-Fibres |
| PRG2 | | Basement Stairwell | None | 100% Non-Fibres |
| PRG3 | | Living Room, Main Floor | None | 100% Non-Fibres |
| PRG4 | | Front Room, Main Floor | None | 100% Non-Fibres |
| PRG5 | | Basement Bulkhead | None | 100% Non-Fibres |
| PRG6 | | Hallway, Main Floor | None | 100% Non-Fibres |
| PRG7 | | Kitchen, Main Floor | None | 100% Non-Fibres |
| VFT1 | Vinyl Floor Tile | Kitchen, Main Floor | 0.71% Chrysotile | 99.29% Non-Fibres |
| VFT2 | | Kitchen, Main Floor | Positive Stop Analysis | |
| VFT3 | | Kitchen, Main Floor | | |
| Notes: | | | | |
| <div><input type="checkbox"/> 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.</div> <div><input type="checkbox"/> MMVF: Man made vitreous fibres</div> | | | | |

Plaster

Plaster walls and ceiling were observed throughout the building on the main floor. Seven (7) samples of the white finishing plaster were collected and submitted for analysis. Based on the analytical test results, the white finishing plaster is not considered to be an asbestos containing material.

Parging

A grey base coat of parging was present beneath the white plaster finish on the walls and ceiling. Seven (7) samples of the coarse grey base coat parging were collected and submitted for analysis. Based on the analytical test results, the coarse grey base coat parging is not considered to be an asbestos containing material.

Vinyl Floor Tiles

Vinyl floor tiles were observed in the kitchen of the building. The vinyl floor tiles were grey and approximately 0.2m x 0.2m in size. Based on the analytical test results, the grey 0.2m x 0.2m vinyl floor tiles in the building contain **0.71% Chrysotile Asbestos. The vinyl floor tiles are considered to be asbestos containing.**

Insulation

Insulation encountered within wall cavities of the building was observed to be fibreglass. No signs of potential asbestos containing insulation was identified. No access to the attic was observed during the site visit.

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 may be 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.

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 building.

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 building, ethylene oxide is not considered to pose a concern.

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 volatilize 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.

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.

One (1) 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 2. The laboratory certificate of analysis is appended to this letter.

| Table 2 - Lead Content Determination Results | | | | |
|-------------------------------------------------------------------------------------|-------------|--------|----------------------------------------|---------------------|
| Sample/Location | Description | Colour | Lead-Containing Definable Limit (µg/g) | Lead Content (µg/g) |
| P1 – Main Wall and Ceiling | Paint | White | 90 | <20 |
| Notes: Bold Results - Results exceeding the lead-containing definable limit. | | | | |

The paint sample collected from the interior of the subject building did not exceed the Lead-containing definable limit, and is not considered to be lead based.

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 older lead based paints and many types of lights including fluorescent tubes and compact fluorescent bulbs (CFBs).

Potential sources of mercury were encountered in several CFB's. Any mercury containing equipment must be disposed of according to Ontario Regulation 347 as amended by O. Reg. 558, if it is being decommissioned.

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.

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 and cement parging. Typical procedures including wetting materials prior to, and during, any demolition activities are required to control dust.

Ozone Depleting Substances (ODSs)

A refrigerator was observed in the building, and is considered a potential source of ODSs. Prior to the demolition the refrigerator should be removed by a certified contractor. No other potential ozone depleting substances were observed in the subject building.

Polychlorinated Biphenyls (PCBs)

No potential sources of PCBs were observed during the site visit.

3.0 SURVEY SUMMARY AND RECOMMENDATIONS

Based on our survey, one (1) of the building materials analysed 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 demolition works.

Ozone Depleting Substances

A refrigerator was observed in the building, and is considered the only potential source of ODSs in the building. Prior to the demolition of the building the refrigerator should be removed. If it is to be decommissioned, this work should be done by a certified contractor

Asbestos

Based on the observations made during the site visit, combined with the analytical test results, the following ACM was identified in the subject building:

❑ Grey 0.2m x 0.2m vinyl floor tiles in the kitchen.

All ACMs must be removed prior to the demolition. A limited inspection of wall and ceiling cavities was included as part of this survey. No potential asbestos containing insulation was observed in the wall cavities. No access to the attic was identified during the site visit. If any insulation materials are encountered in the wall and ceiling cavities that were not observed during this assessment, we request that we be notified.

Mercury

Potential sources of mercury were encountered in several CFB's. Any mercury containing equipment must be disposed of according to Ontario Regulation 347 as amended by O. Reg. 558, if it is being decommissioned.

Silica

Silica is expected to be present in various building materials, including concrete and cement parging. 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 for 765 Montreal Road 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 Shepherds of Good Hope. Permission and notification from Shepherds of Good Hope 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.



Michael Beaudoin, P.Eng.



Mark S. D'Arcy, P.Eng.

Report Distribution:

- ☐ Shepherds of Good Hope (2 hard copies)
- ☐ Paterson Group Inc. (1 copy)

Attachments:

- ☐ Laboratory Certificates of Analysis

Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Mike Beaudoin

Client PO: 21151
Project: PE3915
Custody: 13627

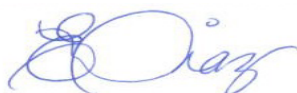
Report Date: 14-Nov-2016
Order Date: 8-Nov-2016

Order #: 1646123

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

| Paracel ID | Client ID |
|------------|-----------------|
| 1646123-01 | PL1 (White PL) |
| 1646123-02 | PL2 (White PL) |
| 1646123-03 | PL3 (White PL) |
| 1646123-04 | PL4 (White PL) |
| 1646123-05 | PL5 (White PL) |
| 1646123-06 | PL6 (White PL) |
| 1646123-07 | PL7 (White PL) |
| 1646123-08 | PRG1 (Grey PRG) |
| 1646123-09 | PRG2 (Grey PRG) |
| 1646123-10 | PRG3 (Grey PRG) |
| 1646123-11 | PRG4 (Grey PRG) |
| 1646123-12 | PRG5 (Grey PRG) |
| 1646123-13 | PRG6 (Grey PRG) |
| 1646123-14 | PRG7 (Grey PRG) |
| 1646123-15 | VFT1 |
| 1646123-16 | VFT2 |
| 1646123-17 | VFT3 |

Approved By:



Emma Diaz
Senior Analyst

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 21151

Report Date: 14-Nov-2016

Order Date: 8-Nov-2016

Project Description: PE3915

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

| <i>Paracel I.D.</i> | <i>Sample Date</i> | <i>Layers Analyzed</i> | <i>Colour</i> | <i>Description</i> | <i>Asbestos Detected:</i> | <i>Material Identification</i> | <i>% Content</i> |
|---------------------|--------------------|------------------------|---------------|--------------------|---------------------------|----------------------------------------------------|---------------------------|
| 1646123-01 | 08-Nov-16 | sample homogenized | White | Plaster | No | Client ID: PL1 (White PL) Non-Fibers | 100 |
| 1646123-02 | 08-Nov-16 | sample homogenized | White | Plaster | No | Client ID: PL2 (White PL) Non-Fibers | 100 |
| 1646123-03 | 08-Nov-16 | sample homogenized | White | Plaster | No | Client ID: PL3 (White PL) Non-Fibers | 100 |
| 1646123-04 | 08-Nov-16 | sample homogenized | White | Plaster | No | Client ID: PL4 (White PL) Non-Fibers | 100 |
| 1646123-05 | 08-Nov-16 | sample homogenized | White | Plaster | No | Client ID: PL5 (White PL) Non-Fibers | 100 |
| 1646123-06 | 08-Nov-16 | sample homogenized | White | Plaster | No | Client ID: PL6 (White PL) Non-Fibers | 100 |
| 1646123-07 | 08-Nov-16 | sample homogenized | White | Plaster | No | Client ID: PL7 (White PL) Non-Fibers | 100 |
| 1646123-08 | 08-Nov-16 | sample homogenized | Grey | Vermicrete | No | Client ID: PRG1 (Grey PRG) Non-Fibers | 100 |
| 1646123-09 | 08-Nov-16 | sample homogenized | Grey | Vermicrete | No | Client ID: PRG2 (Grey PRG) Non-Fibers | 100 |
| 1646123-10 | 08-Nov-16 | sample homogenized | Grey | Vermicrete | No | Client ID: PRG3 (Grey PRG) Non-Fibers | 100 |
| 1646123-11 | 08-Nov-16 | sample homogenized | Grey | Vermicrete | No | Client ID: PRG4 (Grey PRG) Non-Fibers | 100 |
| 1646123-12 | 08-Nov-16 | sample homogenized | Grey | Vermicrete | No | Client ID: PRG5 (Grey PRG) Non-Fibers | 100 |
| 1646123-13 | 08-Nov-16 | sample homogenized | Grey | Vermicrete | No | Client ID: PRG6 (Grey PRG) Non-Fibers | 100 |
| 1646123-14 | 08-Nov-16 | sample homogenized | Grey | Vermicrete | No | Client ID: PRG7 (Grey PRG) Non-Fibers | 100 |
| 1646123-15 | 08-Nov-16 | sample homogenized | Grey | Floor Tile | Yes | Client ID: VFT1 Chrysotile Non-Fibers | [AS-PRE] 0.71 99.29 |
| 1646123-16 | 08-Nov-16 | | | | | Client ID: VFT2 not analyzed | |
| 1646123-17 | 08-Nov-16 | | | | | Client ID: VFT3 not analyzed | |

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 21151

Report Date: 14-Nov-2016

Order Date: 8-Nov-2016

Project Description: PE3915

**** 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 | 2 - Ottawa West Lab | 200812-0 | 14-Nov-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.*

Qualifier Notes

Sample Qualifiers :

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

Work Order Revisions / Comments

None

| | | |
|------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Client Name: <u>Peterson Group</u> | Project Reference: <u>PE3915</u> | TAT: <input checked="" type="checkbox"/> Regular [] 3 Day [] 2 Day [] 1 Day [] Same Day Date Required: _____ |
| Contact Name: <u>MIKE BEAUDOIN</u> | Quote #: | |
| Address: <u>154 Colonnade Rd</u> | PO #: <u>21151</u> | |
| Telephone: <u>613-226-7301</u> | Email Address: <u>mbeaudoin@petersongroup.ca</u> | |

ASBESTOS ANALYSIS

| | | | | | | |
|---------------------------------------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------|----------------|----------------------|------------------------------|-------------------------------------------------------------------------------|
| Matrix: [] Air <input checked="" type="checkbox"/> Other Regulatory Guideline: _____ | | Required Analyses: [] PCM <input checked="" type="checkbox"/> PLM [] PLM 400PC [] PLM 1000PC [] Chatfield [] TEM | | | | |
| Paracel Order Number: <u>1646123</u> | | 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 ** |
| Sample ID | Matrix Description | | | | | |
| 1 PL1 | white wall plaster | Nov 2/16 | | Y | Y | PL#1/PR#1 same bag |
| 2 PL2 | | | | | N | |
| 3 PL3 | | | | | Y | please analyse white plaster as "PL" and grey pinging as "PR" |
| 4 PL4 | | | grey | | Y | |
| 5 PL5 | | | | | Y | |
| 6 PL6 | | | | | Y | |
| 7 PL7 | | | | | Y | |
| 8 PR61 | grey pinging | | | Y | Y | |
| 9 PR62 | | | | | N | |
| 10 PR63 | | | | | Y | |
| 11 PR64 | | | grey | | Y | |
| 12 PR65 | | | | | Y | |
| 13 PR66 | | | | | Y | |
| 14 PR67 | | | | | Y | |
| 15 | | | | | | |

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

| | | | | | |
|-----------------------------------------------|------------------------------------|-------------------------------------|-----------------------------------|------------------------------------|--|
| Comments: | | | | Method of Delivery: <u>Paracel</u> | |
| Relinquished By (Sign): <u>Mike Beaudoin</u> | Received at Depot: <u>15 KAWSE</u> | Received at Lab: <u>[Signature]</u> | Verified By: <u>[Signature]</u> | | |
| Relinquished By (Print): <u>MIKE BEAUDOIN</u> | Date/Time: <u>08/11/16 1:30 PM</u> | Date/Time: <u>11/08/16 2:10pm</u> | Date/Time: <u>11/08/16 2:11pm</u> | | |

| | |
|------------------------------------|--------------------------------------------------|
| Client Name: <u>Peterson Group</u> | Project Reference: <u>PE3915</u> |
| Contact Name: <u>MIKE BEAUDOIN</u> | Quote #: |
| Address: <u>154 Colonnade</u> | PO #: <u>21151</u> |
| Telephone: <u>613-226-7381</u> | Email Address: <u>mbeaudoin@petersongroup.ca</u> |

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: <u>1646123</u> | | | | | | | | | |
|--------------------------------------|------|--------------------|--|---------------|----------------|----------------------|------------------------------|-------------------------------------------------------------------------------|--|
| 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 | VFT1 | Vinyl Floor Tile | | 11/08/16 | | Y | N | | |
| 2 | VFT2 | ↓ | | ↓ | | ↓ | ↓ | | |
| 3 | VFT3 | | | | | | | | |
| 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: <u>Paracel</u> | |
| Relinquished By (Sign): <u>[Signature]</u> | Received at Depot: <u>A. J. J. J.</u> | Received at Lab: <u>[Signature]</u> | Verified By: <u>[Signature]</u> | | |
| Relinquished By (Print): <u>MIKE BEAUDOIN</u> | | | | | |
| Date/Time: <u>NOV 8/16</u> | Date/Time: <u>08/11/16 1:30 PM</u> | Date/Time: <u>11/08/16 2:10 PM</u> | Date/Time: <u>11/08/16 2:11 PM</u> | | |

Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Mike Beaudoin

Client PO: 21151
Project: PE3915
Custody: 109322

Report Date: 11-Nov-2016
Order Date: 8-Nov-2016

Order #: 1646157

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

Paracel ID Client ID
1646157-01 P1

Approved By:



Dale Robertson, BSc
Laboratory Director

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

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 21151

Report Date: 11-Nov-2016

Order Date: 8-Nov-2016

Project Description: PE3915

Analysis Summary Table

| Analysis | Method Reference/Description | Extraction Date | Analysis Date |
|-----------------|------------------------------|-----------------|---------------|
| Metals, ICP-OES | based on MOE E3470, ICP-OES | 10-Nov-16 | 10-Nov-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.

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 21151

Report Date: 11-Nov-2016
Order Date: 8-Nov-2016
Project Description: PE3915

Sample Results

| Lead | | | | Matrix: Paint | |
|------------|-----------|-------|-----|------------------------|--|
| | | | | Sample Date: 08-Nov-16 | |
| Paracel ID | Client ID | Units | MDL | Result | |
| 1646157-01 | 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 | ND | 20 | ug/g | ND | | | 0.0 | 30 | |
| Matrix Spike | | | | | | | | | |
| Lead | 211 | | ug/L | ND | 84.4 | 70-130 | | | |



Chain of Custody (Env) - Rev 0.7 Feb. 2016