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23 August 2022

Mr John Sabbouh  
Richard Crookes Constructions  
Level 3, 4 Broadcast Way  
Artarmon NSW 2064

**RE: WASTE CLASSIFICATION OF IN-SITU FILL SOIL CONTAINING ASBESTOS CEMENT SHEET DEBRIS IN THE FORMER TENNIS COURT / NEW WELLNESS CENTRE AREA AT ST JOHN OF GOD RICHMOND HOSPITAL, 177 GROSE VALE ROAD, NORTH RICHMOND NSW**

Dear Sir,

**INTRODUCTION**

This letter report presents the findings of a waste classification assessment conducted on in-situ fill soil that is to be excavated for off-site disposal from within the former tennis court was located within the St John of God Richmond Hospital at 177 Grose Vale Road, North Richmond NSW (the site). A new wellness centre is to be constructed in this area of the site.

Following completion of the demolition of the two former tennis courts and removal of the road base subgrade material, a test pit investigation was undertaken to ascertain the depth of fill soil across this area. This investigation found the fill soil to extend to depths ranging between 0.3 metre and 1.2 metres. The deeper area of the fill soil contains a large quantity of rubbish that includes broken glass, steel, vehicle wheel rims, building debris and pieces of asbestos cement sheet debris.

The fill soil across this area cannot be retained on site and is to be excavated for off-site disposal. Soil sampling from the in-situ fill soil to allow for the soil to be classified for off-site disposal was undertaken on Thursday 18 August 2022.

**SITE IDENTIFICATION DETAILS**

Site address: 177 Grose Vale Road, North Richmond NSW

Le Identification: Lot 12 DP1134453 and Lot 11 DP11134453

LGA: Hawkesbury City Council

Zoning: RU1 Primary Production, W1 Natural Waterways

**SITE OBSERVATIONS AND SOIL SAMPLING**

Fieldwork was undertaken on Thursday 18 August 2022 and comprised an inspection of the fills oil that had been excavated from approximately 12 locations across the former tennis court area.



Page 2 of 5  
23 August 2022

During the site inspection six soil samples were collected from the excavated fill soil for laboratory analysis to ascertain the levels of potential chemical contaminants to enable this waste classification report to be prepared to allow for the fill soil to be disposed of to a suitably licenced landfill site. An aerial photograph showing the approximate soil sample locations is attached.

The fill soil comprises mostly red to orange / brown coloured sandy clay in which there are broken glass, steel, vehicle wheel rims, building debris and pieces of asbestos cement sheet debris. See attached photographs.

Three soil samples were also collected from the fill soil for analysis to determine the presence and weight for weight concentration of asbestos as asbestos containing material (ACM) (non-friable asbestos) and asbestos fines (AF) / fibrous asbestos (FA) (friable asbestos).

The in-situ fill soil in the excavation area has no noticeable odour or discoloration from oil or chemical contamination.

Six soil sample were collected during the site inspection on 18 August 2022 for laboratory analysis to determine the waste classification of the in-situ fill soil containing asbestos cement sheet debris that is to be loaded out from the site for off-site disposal at a NSW EPA licenced landfill site.

The proposed excavation for the new swimming pool in the Wellness Centre covers an area of 30m x 45m to a depth of approximately 1m giving a maximum volume of soil to be removed of 1350 cubic metres.

## **ANALYTICAL REGIME**

The soil samples collected on 18 August 2022 were placed into clean laboratory supplied sample jars fitted with Teflon lined lids that were each marked with the date, sample number and project number. The sample jars were filled with soil with no airspace remaining.

The sampled soil was collected using disposable surgical-type gloves. No tools requiring cleaning prior to or following sample collection were used for the sample collection.

Following collection, the samples were delivered to Envirolab Services NATA accredited laboratory at Chatswood NSW on 18 August 2022 for waste classification analysis for the following suite of common contaminants including:

- 8 priority heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
- Polycyclic Aromatic Hydrocarbons (PAH);
- Total Recoverable Hydrocarbons (TRH);
- Monocyclic Aromatic Hydrocarbons (Benzene, Toluene, Ethyl benzene and Xylene: BTEX);
- Organochlorine pesticides (OCP) and
- Polychlorinated Biphenyls (PCB).

Three soil samples were collected for laboratory analysis to determine the presence of friable / non-friable asbestos in the fill soil. One sample of asbestos cement sheet debris was also collected for laboratory analysis to confirm the presence of asbestos in this material.

## **ASSESSMENT CRITERIA**

With regard to the in-situ fill soil at the site which is to be excavated for disposal at a licenced landfill facility, waste classification assessment was conducted with reference to the NSW Environment Protection Authority (NSW EPA) Waste Classification Guidelines (November 2014). According to these guidelines, waste material is to be assessed by the following six step process, viz.

### Steps Description

1. Is the waste Special Waste? – Yes, the soil contains asbestos cement sheet debris.
2. Is the waste Liquid Waste? - No, the sampled material comprises mostly sand fill soil with some building debris inclusions.
3. Has the waste been pre-classified? - No, the soil is not pre-classified as per the NSW EPA 2014 waste guideline.
4. Is the waste Hazardous Waste? – No, the waste soil does not comprise hazardous waste.
5. Chemical Assessment in accordance with the specified total and or leachable contaminant concentration thresholds? – Yes, see attached summary table of laboratory results.
6. Is the waste putrescible? – No putrescible waste was sighted on or in the sandy clay fill soil located in the wellness centre construction area at the site that is to be excavated for off-site disposal and which is the subject of this waste classification report.

In particular, with regard to Step 6, wastes that are generally not classified as putrescible include soils, timber, garden trimmings, agricultural, forestry and crop materials, and natural fibrous organic and vegetative materials (NSW EPA, 2014).



Page 4 of 5  
23 August 2022

## **SUMMARY OF RESULTS AND WASTE CLASSIFICATION**

The analytical results for the soil samples are presented in the attached table (Table 1). The NATA endorsed laboratory reports are attached to this letter report.

**The contaminant levels within the in-situ fill soil in the Wellness Centre construction area within the St John of God Richmond Hospital site at 177 Grose Vale Road, North Richmond NSW were found to be below the maximum guideline levels for classification as general solid waste (non-putrescible) based on the contaminant threshold (CT1) with the exception of lead in samples 1 and 5.**

**The level of lead in samples 1 and 5 is above the CT1 maximum concentration for general solid waste classification without leachate analysis.**

**Leachate analysis of these samples was carried out and based on the specific contaminant concentration (SCC) and the leachate (TCLP) results, the level of lead in these two samples is classifiable as general solid waste (GSW) (non-putrescible) (SCC1 and TCLP1).**

**One of the soil samples analysed for the presence / absence of friable / non-friable asbestos was found to contain a small amount of chrysotile asbestos as asbestos fines / fibrous asbestos which is classifiable as friable asbestos.**

**The piece of asbestos cement sheet debris was also analysed and found to contain chrysotile asbestos.**

**As this soil contains friable asbestos material and fragments of asbestos cement sheet debris, this soil must only be disposed of at a landfill facility licenced by the NSW EPA to accept soils classified as general solid waste – special waste asbestos.**

It is recommended that the receiving NSW EPA landfill site should check the incoming materials and ensure that the waste received matches the material description provided in this letter report.

### **Important Note:**

PCA's assessment is necessarily based on the result of limited site investigation and sample testing. Neither PCA, nor any other reputable consultant, can provide unqualified warranties nor does PCA assume any liability for site conditions not observed, or accessible during the time of the investigations.



Page 5 of 5  
23 August 2022

Despite all reasonable care and diligence, the materials encountered and concentrations of contaminants measured may not be representative of conditions between the locations sampled and investigated.

In addition, site characteristics may change at any time in response to variations in natural conditions, chemical reactions and other events, e.g. groundwater movement and or spillages of contaminating substances. These changes may occur subsequent to PCA's investigations and assessment.

This report and associated documentation and the information herein have been prepared solely for the use of Richard Crookes Constructions, their excavation and transport contractors as well as interested parties at the time and is valid (for the purposes of transport of material) for a period of one month only from the date of issue.

Any other reliance assumed by third parties on this report shall be at such parties' own risk. Any ensuing liability resulting from use of the report by third parties cannot be transferred to PCA.

Please note that Part 5.6, Section 143 of the Protection of the Environment Operations (POEO) Act 1997 states that it is an offence for waste to be transported to a place that cannot lawfully be used as a facility to accept that waste. It is the duty of the owner and transporter of the waste to ensure that the waste is disposed of appropriately. PCA accept no liability for the unlawful disposal of waste materials from any site. PCA accepts no responsibility for the material tracking, loading, management, transport or disposal of waste from the site. Before disposal of the material to a licensed landfill is undertaken, the waste producer is required to obtain consent from the landfill.

If you require any further information, please contact the undersigned on 0437 251 358.

Yours faithfully

**P. CLIFTON & ASSOCIATES PTY LTD**

Philip Clifton  
Principal

Attachments:  
Aerial Photograph  
Photographs  
Laboratory Report and Chain of Custody Documentation



**AERIAL PHOTOGRAPH**

23 August 2022



**Aerial photograph of the former tennis court area at 177 Grose Vale Road, North Richmond NSW showing the waste classification soil sample locations that were collected on 18 August 2022.**



## PHOTOGRAPHS



23 August 2022



**Sandy clay fill soil in former tennis court area containing metal, glass and pieces of asbestos cement sheet debris. Arrow indicates asbestos cement sheet debris**



**Sandy clay fill soil in former tennis court area containing metal, glass and pieces of asbestos cement sheet debris. Arrows indicates asbestos cement sheet debris**



**LABORATORY REPORT AND CHAIN OF CUSTODY DOCUMENTATION**





Envirolab Services Pty Ltd

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## CERTIFICATE OF ANALYSIS 303477

### Client Details

<b>Client</b>	P Clifton & Assoc
<b>Attention</b>	Phil Clifton
<b>Address</b>	PO Box 447, Pymble Business Ctre, NSW, 2073

### Sample Details

<b>Your Reference</b>	<b>North Richmond</b>
<b>Number of Samples</b>	9 Soil, 1 Material
<b>Date samples received</b>	18/08/2022
<b>Date completed instructions received</b>	18/08/2022

### Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

**Please refer to the last page of this report for any comments relating to the results.**

### Report Details

**Date results requested by** 19/08/2022

**Date of Issue** 19/08/2022

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with \***

#### Asbestos Approved By

Analysed by Asbestos Approved Analyst: Lucy Zhu

Authorised by Asbestos Approved Signatory: Matt Mansfield

#### Results Approved By

Hannah Nguyen, Metals Supervisor

Josh Williams, Organics and LC Supervisor

Kyle Gavrilu, Senior Chemist

Liam Timmins, Organic Instruments Team Leader

Lucy Zhu, Asbestos Supervisor

Matt Mansfield, QHSE manager

#### Authorised By

Nancy Zhang, Laboratory Manager

Client Reference: North Richmond

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		303477-1	303477-2	303477-3	303477-4	303477-5
Your Reference	UNITS	1 TP1	2 TP2	3 TP3	4 TP4	5 TP5
Depth		SP	SP	SP	SP	SP
Date Sampled		18/08/2022	18/08/2022	18/08/2022	18/08/2022	18/08/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/08/2022	18/08/2022	18/08/2022	18/08/2022	18/08/2022
Date analysed	-	19/08/2022	19/08/2022	19/08/2022	19/08/2022	19/08/2022
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	<25	<25	<25	<25	<25
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	<25	<25	<25	<25	<25
vTPH C <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	103	100	99	104	103

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		303477-6
Your Reference	UNITS	6 TP6
Depth		SP
Date Sampled		18/08/2022
Type of sample		Soil
Date extracted	-	18/08/2022
Date analysed	-	19/08/2022
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	<25
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	<25
vTPH C <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	103

Client Reference: North Richmond

svTRH (C10-C40) in Soil						
Our Reference		303477-1	303477-2	303477-3	303477-4	303477-5
Your Reference	UNITS	1 TP1	2 TP2	3 TP3	4 TP4	5 TP5
Depth		SP	SP	SP	SP	SP
Date Sampled		18/08/2022	18/08/2022	18/08/2022	18/08/2022	18/08/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/08/2022	18/08/2022	18/08/2022	18/08/2022	18/08/2022
Date analysed	-	18/08/2022	18/08/2022	18/08/2022	18/08/2022	18/08/2022
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50	<50	<50	<50
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100	<100	<100	<100
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50	<50	<50	<50	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100	<100	<100	<100	<100
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	71	73	73	72	72

svTRH (C10-C40) in Soil		
Our Reference		303477-6
Your Reference	UNITS	6 TP6
Depth		SP
Date Sampled		18/08/2022
Type of sample		Soil
Date extracted	-	18/08/2022
Date analysed	-	18/08/2022
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	<100
Total +ve TRH (C10-C36)	mg/kg	<50
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	74

Client Reference: North Richmond

PAHs in Soil						
Our Reference		303477-1	303477-2	303477-3	303477-4	303477-5
Your Reference	UNITS	1 TP1	2 TP2	3 TP3	4 TP4	5 TP5
Depth		SP	SP	SP	SP	SP
Date Sampled		18/08/2022	18/08/2022	18/08/2022	18/08/2022	18/08/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/08/2022	18/08/2022	18/08/2022	18/08/2022	18/08/2022
Date analysed	-	19/08/2022	19/08/2022	19/08/2022	19/08/2022	19/08/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	70	72	71	73	71

PAHs in Soil		
Our Reference		303477-6
Your Reference	UNITS	6 TP6
Depth		SP
Date Sampled		18/08/2022
Type of sample		Soil
Date extracted	-	18/08/2022
Date analysed	-	19/08/2022
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Total +ve PAH's	mg/kg	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	73

Client Reference: North Richmond

Organochlorine Pesticides in soil						
Our Reference		303477-1	303477-2	303477-3	303477-4	303477-5
Your Reference	UNITS	1 TP1	2 TP2	3 TP3	4 TP4	5 TP5
Depth		SP	SP	SP	SP	SP
Date Sampled		18/08/2022	18/08/2022	18/08/2022	18/08/2022	18/08/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/08/2022	18/08/2022	18/08/2022	18/08/2022	18/08/2022
Date analysed	-	19/08/2022	19/08/2022	19/08/2022	19/08/2022	19/08/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	83	80	81	83	82



Organochlorine Pesticides in soil		
Our Reference		303477-6
Your Reference	UNITS	6 TP6
Depth		SP
Date Sampled		18/08/2022
Type of sample		Soil
Date extracted	-	18/08/2022
Date analysed	-	19/08/2022
alpha-BHC	mg/kg	<0.1
HCB	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1
Surrogate TCMX	%	83

Client Reference: North Richmond

PCBs in Soil						
Our Reference		303477-1	303477-2	303477-3	303477-4	303477-5
Your Reference	UNITS	1 TP1	2 TP2	3 TP3	4 TP4	5 TP5
Depth		SP	SP	SP	SP	SP
Date Sampled		18/08/2022	18/08/2022	18/08/2022	18/08/2022	18/08/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/08/2022	18/08/2022	18/08/2022	18/08/2022	18/08/2022
Date analysed	-	19/08/2022	19/08/2022	19/08/2022	19/08/2022	19/08/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	83	80	81	83	82

PCBs in Soil		
Our Reference		303477-6
Your Reference	UNITS	6 TP6
Depth		SP
Date Sampled		18/08/2022
Type of sample		Soil
Date extracted	-	18/08/2022
Date analysed	-	19/08/2022
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate TCMX	%	83

Client Reference: North Richmond

Acid Extractable metals in soil						
Our Reference		303477-1	303477-2	303477-3	303477-4	303477-5
Your Reference	UNITS	1 TP1	2 TP2	3 TP3	4 TP4	5 TP5
Depth		SP	SP	SP	SP	SP
Date Sampled		18/08/2022	18/08/2022	18/08/2022	18/08/2022	18/08/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/08/2022	19/08/2022	19/08/2022	19/08/2022	19/08/2022
Date analysed	-	19/08/2022	19/08/2022	19/08/2022	19/08/2022	19/08/2022
Arsenic	mg/kg	10	11	11	<4	18
Cadmium	mg/kg	2	<0.4	<0.4	<0.4	2
Chromium	mg/kg	21	21	12	5	22
Copper	mg/kg	2,100	33	44	19	140
Lead	mg/kg	120	48	47	9	200
Mercury	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	16	11	8	4	16
Zinc	mg/kg	350	78	550	19	1,200

Acid Extractable metals in soil			
Our Reference		303477-6	303477-11
Your Reference	UNITS	6 TP6	1 TP1 - [TRIPLICATE]
Depth		SP	SP
Date Sampled		18/08/2022	18/08/2022
Type of sample		Soil	Soil
Date prepared	-	19/08/2022	19/08/2022
Date analysed	-	19/08/2022	19/08/2022
Arsenic	mg/kg	11	8
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	18	19
Copper	mg/kg	39	250
Lead	mg/kg	65	73
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	8	15
Zinc	mg/kg	120	260

**Client Reference: North Richmond**

<b>Moisture</b>						
Our Reference		303477-1	303477-2	303477-3	303477-4	303477-5
Your Reference	UNITS	1 TP1	2 TP2	3 TP3	4 TP4	5 TP5
Depth		SP	SP	SP	SP	SP
Date Sampled		18/08/2022	18/08/2022	18/08/2022	18/08/2022	18/08/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	18/08/2022	18/08/2022	18/08/2022	18/08/2022	18/08/2022
Date analysed	-	19/08/2022	19/08/2022	19/08/2022	19/08/2022	19/08/2022
Moisture	%	8.2	12	11	12	6.0

<b>Moisture</b>		
Our Reference		303477-6
Your Reference	UNITS	6 TP6
Depth		SP
Date Sampled		18/08/2022
Type of sample		Soil
Date prepared	-	18/08/2022
Date analysed	-	19/08/2022
Moisture	%	18

Client Reference: North Richmond

Asbestos ID - soils NEPM - ASB-001				
Our Reference		303477-7	303477-8	303477-9
Your Reference	UNITS	7 TP1	8 TP3	9 TP5
Depth		SP	SP	SP
Date Sampled		18/08/2022	18/08/2022	18/08/2022
Type of sample		Soil	Soil	Soil
Date analysed	-	18/08/2022	18/08/2022	18/08/2022
Sample mass tested	g	658.71	643	516.24
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos#1	g/kg	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	Chrysotile	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	-	-	-
FA and AF Estimation*	g	0.0432	-	-
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	0.0066	<0.001	<0.001

Client Reference: North Richmond

Asbestos ID - materials		
Our Reference		303477-10
Your Reference	UNITS	10 Fibro
Depth		SP
Date Sampled		18/08/2022
Type of sample		Material
Date analysed	-	19/0/22
Mass / Dimension of Sample	-	55x50x7mm
Sample Description	-	Beige fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected
Trace Analysis	-	[NT]

**Client Reference: North Richmond**

Method ID	Methodology Summary
<b>ASB-001</b>	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
<b>ASB-001</b>	<p>Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004.</p> <p>Results reported denoted with * are outside our scope of NATA accreditation.</p> <p><b>NOTE #1</b> Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM &gt;7mm, &lt;7mm and FA/AF)</p> <p><b>NOTE #2</b> The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres.</p> <p>Estimation = Estimated asbestos weight</p> <p>Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.</p>
<b>Inorg-008</b>	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
<b>Metals-020</b>	Determination of various metals by ICP-AES.
<b>Metals-021</b>	Determination of Mercury by Cold Vapour AAS.
<b>Org-020</b>	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
<b>Org-020</b>	<p>Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.</p> <p>F2 = (&gt;C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.</p> <p>Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (&gt;C10-C40).</p>
<b>Org-021</b>	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.

**Client Reference: North Richmond**

Method ID	Methodology Summary
<b>Org-021</b>	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.
<b>Org-022/025</b>	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
<b>Org-022/025</b>	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS.
	Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
<b>Org-022/025</b>	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
<b>Org-023</b>	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
<b>Org-023</b>	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
<b>Org-023</b>	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.



Client Reference: North Richmond

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			18/08/2022	[NT]	[NT]	[NT]	[NT]	18/08/2022	[NT]
Date analysed	-			19/08/2022	[NT]	[NT]	[NT]	[NT]	19/08/2022	[NT]
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	109	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	114	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]	[NT]	[NT]	[NT]	106	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	109	[NT]
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	106	[NT]	[NT]	[NT]	[NT]	108	[NT]

Client Reference: North Richmond

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			18/08/2022	[NT]	[NT]	[NT]	[NT]	18/08/2022	[NT]
Date analysed	-			18/08/2022	[NT]	[NT]	[NT]	[NT]	18/08/2022	[NT]
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	106	[NT]
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	106	[NT]
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	78	[NT]	[NT]	[NT]	[NT]	98	[NT]

Client Reference: North Richmond

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			18/08/2022	[NT]	[NT]	[NT]	[NT]	18/08/2022	[NT]
Date analysed	-			19/08/2022	[NT]	[NT]	[NT]	[NT]	19/08/2022	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	85	[NT]
Fluorene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	98	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	84	[NT]	[NT]	[NT]	[NT]	84	[NT]

Client Reference: North Richmond

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			18/08/2022	[NT]	[NT]	[NT]	[NT]	18/08/2022	[NT]
Date analysed	-			19/08/2022	[NT]	[NT]	[NT]	[NT]	19/08/2022	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	84	[NT]
HCB	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	89	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Endrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	70	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	89	[NT]	[NT]	[NT]	[NT]	93	[NT]

Client Reference: North Richmond

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			18/08/2022	[NT]	[NT]	[NT]	[NT]	18/08/2022	[NT]
Date analysed	-			19/08/2022	[NT]	[NT]	[NT]	[NT]	19/08/2022	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	71	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-021	89	[NT]	[NT]	[NT]	[NT]	93	[NT]

**Client Reference: North Richmond**

QUALITY CONTROL: Acid Extractable metals in soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	303477-2
Date prepared	-			19/08/2022	1	19/08/2022	19/08/2022		19/08/2022	19/08/2022
Date analysed	-			19/08/2022	1	19/08/2022	19/08/2022		19/08/2022	19/08/2022
Arsenic	mg/kg	4	Metals-020	<4	1	10	10	0	101	77
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	2	<0.4	133	98	74
Chromium	mg/kg	1	Metals-020	<1	1	21	20	5	96	80
Copper	mg/kg	1	Metals-020	<1	1	2100	980	73	95	103
Lead	mg/kg	1	Metals-020	<1	1	120	170	34	97	#
Mercury	mg/kg	0.1	Metals-021	<0.1	1	0.1	<0.1	0	102	98
Nickel	mg/kg	1	Metals-020	<1	1	16	19	17	98	78
Zinc	mg/kg	1	Metals-020	<1	1	350	260	30	100	#

**Result Definitions**

<b>NT</b>	Not tested
<b>NA</b>	Test not required
<b>INS</b>	Insufficient sample for this test
<b>PQL</b>	Practical Quantitation Limit
<b>&lt;</b>	Less than
<b>&gt;</b>	Greater than
<b>RPD</b>	Relative Percent Difference
<b>LCS</b>	Laboratory Control Sample
<b>NS</b>	Not specified
<b>NEPM</b>	National Environmental Protection Measure
<b>NR</b>	Not Reported

## Quality Control Definitions

<b>Blank</b>	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
<b>Duplicate</b>	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
<b>Matrix Spike</b>	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
<b>LCS (Laboratory Control Sample)</b>	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
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Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
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Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.



## Report Comments

### Asbestos-ID in soil: NEPM

This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

### Factual description of asbestos identified in the soil samples: NEPM

Sample 303477-7; Chrysotile asbestos identified in 0.0540g of fibrous matted material

### Acid Extractable Metals in Soil:

- The laboratory RPD acceptance criteria has been exceeded for 303477-1 for Cu. Therefore a triplicate result has been issued as laboratory sample number 303477-11.

- # Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.



# CHAIN OF CUSTODY FORM - Client

## ENVIROLAB GROUP

National phone number 1300 424 344

**Sydney Lab - Envirolab Services**  
12 Ashley St, Chatswood, NSW 2067  
☎ 02 9910 6200 | ✉ sydney@envirolab.com.au

**Perth Lab - MPL Laboratories**  
16-18 Hayden Crt, Myaree, WA 6154  
☎ 08 9317 2505 | ✉ lab@mpl.com.au

**Melbourne Lab - Envirolab Services**  
25 Research Drive, Croydon South, VIC 3136  
☎ 03 9763 2500 | ✉ melbourne@envirolab.com.au

**Adelaide Office - Envirolab Services**  
7a The Parade, Norwood, SA 5067  
☎ 08 7087 6800 | ✉ adelaide@envirolab.com.au

**Brisbane Office - Envirolab Services**  
20a, 10-20 Depot St, Banyo, QLD 4014  
☎ 07 3266 9532 | ✉ brisbane@envirolab.com.au

**Darwin Office - Envirolab Services**  
Unit 20/119 Reichardt Road, Winnellie, NT 0820  
☎ 08 8967 1201 | ✉ darwin@envirolab.com.au

[Copyright and Confidential]

Company:	P Clifton & Assoc		Client Project Name/Number/Site, etc (ie report title):	North Richmond	
Contact Person:			PO No. (if applicable):		
Project Mgr:			Envirolab Quote No.:		
Sampler:			Date results required:	<input type="checkbox"/> Standard <input type="checkbox"/> Same Day <input checked="" type="checkbox"/> 1 day <input type="checkbox"/> 2 day <input type="checkbox"/> 3 day	
Address:			Note: Inform lab in advance if urgent turnaround is required - surcharges apply		
Phone:		Mob:	Additional report format:	<input type="checkbox"/> Esdat <input type="checkbox"/> Equis	
Email Results to:	phil@pca.com		Lab Comments:		
Email Invoice to:					

Sample Information					Tests Required								Comments	
Envirolab Sample ID (Lab use only)	Client Sample ID or Information	Depth	Date Sampled	Type of Sample	Combo	MEPM	Asbestos							Provide as much information about the sample as you can
1	1 TP1	SP	18/8	Soil	✓									
2	2 TP2	✓	✓	✓	✓									
3	3 TP3	✓	✓	✓	✓									
4	4 TP4	✓	✓	✓	✓									
5	5 TP5	✓	✓	✓	✓									
6	6 TP6	✓	✓	✓	✓									
7	7 TP1	✓	✓	✓			✓							
8	8 TP3	✓	✓	✓			✓							
9	9 TP5	✓	✓	✓			✓							
10	10 Fibro	✓	✓	Fibro										

Please tick the box if observed settled sediment present in water samples is to be included in the extraction and/or analysis

Relinquished by (Company):	P Clifton & Assoc	Received by (Company):	EL 5 510	Lab Use Only	
Print Name:	Phil Clifton	Print Name:	Christine	Job number:	503477
Date & Time:	18-8-22 18:18	Date & Time:	18/08/22 18:15	Temperature:	14°C
Signature:	[Signature]	Signature:	[Signature]	TAT Req - SAME day	(1) 2   3   4   STD
				Cooling:	Ice / Ice pack / None
				Security seal:	Intact / Broken / None



Envirolab Services Pty Ltd

ABN 37 112 535 645

12 Ashley St Chatswood NSW 2067

ph 02 9910 6200 fax 02 9910 6201

customerservice@envirolab.com.au

www.envirolab.com.au

## SAMPLE RECEIPT ADVICE

### Client Details

<b>Client</b>	P Clifton & Assoc
<b>Attention</b>	Phil Clifton

### Sample Login Details

<b>Your reference</b>	North Richmond
<b>Envirolab Reference</b>	303477
<b>Date Sample Received</b>	18/08/2022
<b>Date Instructions Received</b>	18/08/2022
<b>Date Results Expected to be Reported</b>	19/08/2022

### Sample Condition

<b>Samples received in appropriate condition for analysis</b>	Yes
<b>No. of Samples Provided</b>	9 Soil, 1 Material
<b>Turnaround Time Requested</b>	1 day
<b>Temperature on Receipt (°C)</b>	14
<b>Cooling Method</b>	None
<b>Sampling Date Provided</b>	YES

### Comments

Nil

Please direct any queries to:

#### Aileen Hie

Phone: 02 9910 6200

Fax: 02 9910 6201

Email: ahie@envirolab.com.au

#### Jacinta Hurst

Phone: 02 9910 6200

Fax: 02 9910 6201

Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:



Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	PCBs in Soil	Acid Extractable metals in soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials
1 TP1-SP	✓	✓	✓	✓	✓	✓		
2 TP2-SP	✓	✓	✓	✓	✓	✓		
3 TP3-SP	✓	✓	✓	✓	✓	✓		
4 TP4-SP	✓	✓	✓	✓	✓	✓		
5 TP5-SP	✓	✓	✓	✓	✓	✓		
6 TP6-SP	✓	✓	✓	✓	✓	✓		
7 TP1-SP							✓	
8 TP3-SP							✓	
9 TP5-SP							✓	
10 Fibro-SP								✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

### Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.



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customerservice@envirolab.com.au

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## **CERTIFICATE OF ANALYSIS 303477-A**

### **Client Details**

<b>Client</b>	P Clifton & Assoc
<b>Attention</b>	Phil Clifton
<b>Address</b>	PO Box 447, Pymble Business Ctre, NSW, 2073

### **Sample Details**

<b>Your Reference</b>	<b><u>North Richmond</u></b>
<b>Number of Samples</b>	additional analysis
<b>Date samples received</b>	18/08/2022
<b>Date completed instructions received</b>	22/08/2022

### **Analysis Details**

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

### **Report Details**

**Date results requested by** 23/08/2022

**Date of Issue** 23/08/2022

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with \***

#### **Results Approved By**

Loren Bardwell, Development Chemist

#### **Authorised By**

Nancy Zhang, Laboratory Manager

Client Reference: North Richmond

Metals from Leaching Fluid pH 2.9 or 5			
Our Reference		303477-A-1	303477-A-5
Your Reference	UNITS	1 TP1	5 TP5
Depth		SP	SP
Date Sampled		18/08/2022	18/08/2022
Type of sample		Soil	Soil
Date extracted	-	23/08/2022	23/08/2022
Date analysed	-	23/08/2022	23/08/2022
pH of soil for fluid# determ.	pH units	5.9	8.2
pH of soil TCLP (after HCl)	pH units	1.7	1.7
Extraction fluid used		1	1
pH of final Leachate	pH units	4.9	5.0
Lead	mg/L	<0.03	<0.03

## Client Reference: North Richmond

Method ID	Methodology Summary
<b>Inorg-004</b>	<p>Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439 and USEPA 1311.</p> <p>Please note that the mass used may be scaled down from default based on sample mass available.</p> <p>Samples are stored at 2-6oC before and after leachate preparation.</p>
<b>Metals-020</b>	<p>Determination of various metals by ICP-AES following buffer determination as per USEPA 1311 and hence AS 4439.3. Extraction Fluid 1 refers to the pH 5.0 buffer and Extraction Fluid 2 is the pH 2.9 buffer.</p>

**Client Reference: North Richmond**

QUALITY CONTROL: Metals from Leaching Fluid pH 2.9 or 5					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			23/08/2022	[NT]	[NT]	[NT]	[NT]	23/08/2022	[NT]
Date analysed	-			23/08/2022	[NT]	[NT]	[NT]	[NT]	23/08/2022	[NT]
Lead	mg/L	0.03	Metals-020	<0.03	[NT]	[NT]	[NT]	[NT]	103	[NT]



## Result Definitions

<b>NT</b>	Not tested
<b>NA</b>	Test not required
<b>INS</b>	Insufficient sample for this test
<b>PQL</b>	Practical Quantitation Limit
<b>&lt;</b>	Less than
<b>&gt;</b>	Greater than
<b>RPD</b>	Relative Percent Difference
<b>LCS</b>	Laboratory Control Sample
<b>NS</b>	Not specified
<b>NEPM</b>	National Environmental Protection Measure
<b>NR</b>	Not Reported

## Quality Control Definitions

<b>Blank</b>	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
<b>Duplicate</b>	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
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Ming To

**From:** Nancy Zhang  
**Sent:** Monday, 22 August 2022 9:49 AM  
**To:** Ming To  
**Cc:** Samplereceipt  
**Subject:** FW: Results for Registration 303477 North Richmond  
**Attachments:** 303477-[R00].pdf

Ref: 303477-A

TAT: 1 day.

Due: 23/08/2022  
MT.

**Categories:** Additional

A job, please.

**From:** philclifton@pclifton.com <philclifton@pclifton.com>  
**Sent:** Monday, 22 August 2022 4:12 AM  
**To:** Nancy Zhang <NZhang@envirolab.com.au>  
**Subject:** RE: Results for Registration 303477 North Richmond

**CAUTION:** This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Nancy

1.5

Can you carry our TCLP on samples 1 and 5 for lead please. Can I have the results ASAP please.

Thanks

Phil Clifton

Principal



P. CLIFTON & ASSOCIATES PTY LTD

Suite 4.06, 200 Central Coast Highway, Erina NSW 2250

PO Box 457, Turrumurra NSW 2074

M 0437 251 358

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## SUMMARY TABLE OF ANALYTICAL RESULTS



Table 1 – Summary of Analytical Results 23 August 2022

Richard Crookes Constructions – Wellness Centre Excavation Area at St John of God Richmond Hospital, North Richmond NSW

Sampled Thursday 18 August 2022

Analyte	Sample 1 TP1 Stockpile 303477-1		Sample 2 TP2 Stockpile 303477-2	Sample 3 TP3 Stockpile 303477-3	Sample 4 TP4 Stockpile 302639-4	Sample 5 TP 5 Stockpile 303477-5		Sample 6 TP6 Stockpile 303477-6	NSW EPA Waste Classification General Solid Waste Threshold Levels			NSW EPA Waste Classification
	Total concentration (mg/kg)	TCLP Concentration (mg/L)	Total concentration (mg/kg)	Total Concentration (mg/kg)	Total concentration (mg/kg)	Total concentration (mg/kg)	TCLP Concentration (mg/L)	Total concentration (mg/kg)	CT1 concentration (mg/kg)	SCC1 concentration (mg/kg)	TCLP1 concentration (mg/L)	
Sample depth	Stockpile 0.1m		Stockpile 0.1m	Stockpile 0.1m	Stockpile 0.1m	Stockpile 0.1m		Stockpile 0.1m	-	-	-	-
Arsenic	10	-	11	11	<4	18		11	100	500	5	General solid waste
Cadmium	2	-	<0.4	<0.4	<0.4	2		<0.4	20	100	1	General solid waste
Chromium	21	-	21	12	5	22		18	100	1900	5	General solid waste
Copper	2,100	-	33	44	19	140		39	-	-	-	General solid waste
Lead	120	<0.03	48	47	9	200	<0.03	65	100	1500	5	General solid waste
Mercury	0.1	-	<0.1	<0.1	<0.1	<0.1		<0.1	4	50	0.2	General solid waste
Nickel	16	-	11	8	4	16	-	8	40	1050	2	General solid waste
Zinc	350	-	78	550	19	1,200		120	-	-	-	General solid waste
Benzene	<0.2	-	<0.2	<0.2	<0.2	<0.2		<0.2	10	18	0.5	General solid waste
Toluene	<0.5	-	<0.5	<0.5	<0.5	<0.5		<0.5	288	1080	14.4	General solid waste
Ethyl Benzene	<1.0	-	<1.0	<1.0	<1.0	<1.0		<1.0	600	1080	30	General solid waste
Total Xylenes	<1.0	-	<1.0	<1.0	<1.0	<1.0		<1.0	1000	1800	50	General solid waste
TPH C6-9	<25	-	<25	<25	<25	<25		<25	650	650	N/A	General solid waste
TPH C10-40	<100	-	<100	<100	<100	<100		<100	10000	10000	N/A	General solid waste
Total PAH	<0.2	-	<0.2	<0.2	<0.2	<0.2		<0.2	200	200	N/A	General solid waste
Benzo(a)pyrene	<0.05	-	<0.05	<0.05	<0.05	<0.05		<0.05	0.8	10	0.04	General solid waste
OCP (Pesticides)	<0.1	-	<0.1	<0.1	<0.1	<0.1		<0.1	<50	<50	N/A	General solid waste
PCB	<0.1	-	<0.1	<0.1	<0.1	<0.1		<0.1	<50	<50	N/A	General solid waste
Asbestos in soil	Visible ACM present	-	Visible ACM present	Visible ACM present	Visible ACM present	Visible ACM present	Visible ACM present	Visible ACM present	-	-	-	Special waste asbestos