Douglas Partners Pty Ltd
ABN 75 053 980 117
www.douglaspartners.com.au
18 Waler Crescent
Smeaton Grange NSW 2567
Phone (02) 4647 0075

Pacific National (NSW) Pty Ltd
c/- Urbanco Group Limited
PO Box 546
PYRMONT NSW 2009

Project 94525.06
1 July 2020
R.001.Rev0
GAR

Attention: Guy Evans

Email: guy.evans@urbangroup.com.au

Supplementary Contamination Investigation - Railway Corridor
Proposed St Marys Intermodal Freight Terminal
Lot 2, Forrester Road, St Marys, NSW

1. Introduction

Douglas Partners Pty Ltd (DP) was commissioned by Pacific National (PN), care of Urbanco Group Pty Limited, to complete a Supplementary Contamination Investigation (SCI) for the area proposed the refurbishment works within the railway corridor at the proposed St Marys Intermodal Freight Terminal, Lot 2, Forrester Road, St Mary's (hereinafter referred to as 'the site', as shown on Drawing 1, Attachment A).

The SCI is required to:

- Complete further contamination investigation of the northern half of the railway corridor; and
- To summarise the contamination status of the site, including a review of previous investigations completed across the site.

PN require the SCI to be submitted to Council as part of the development application (DA) process for the site.

DP has determined the site boundary as detailed on Drawing C-500 provided by Urbanco by email dated 1 June 2020.

2. Scope of Works

The scope of work for this SCI was as follows:

- Review of previous environmental reports relating to the site and immediate surrounds;
- Visual inspection of the site to assess the potential for contamination, particularly remnant surficial material or asbestos-containing materials (ACM) fragments within the northern half of the railway corridor;
- Creation of a photographic record;
- Collection of six surface soil samples along the length of the northern half of the railway corridor;

- Dispatch of samples to national association of testing authorities (NATA) accredited laboratories (DP Macarthur Laboratory and Envirolab Services Pty Ltd) for quantitative analysis for asbestos;
- Interpretation of asbestos results with reference to current NSW EPA endorsed guidelines; and
- Preparation of this report.

3. Site Description

The site is located in the suburb of St Marys within the local government area of Penrith City Council ("Council") and is the railway corridor identified as Part Lot 196 in D.P. 31932 and Part Lot 2031 D.P.815293 The approximate site area is 9.94 ha.

The broader wider site (ie: land owned by Pacific National) is identified as Lots 2 and 3 in D.P. 876781, Lot 196 in D.P. 31912, Lot 2 in D.P. 734445 and Lot 2031 in D.P. 815293.

The location and boundary of the site (and the broader site) are shown on Drawing 1, Attachment A.

4. Review of Background Reports

DP previously prepared the following relevant reports which incorporate the site and the immediate surrounds:

- DP (March, 2019a) *Preliminary Site Contamination Investigation, Proposed St Mary's Freight Hub, 2 Forrester Road, St Mary's NSW*. Project 94525.00.R.001.Rev0 (DP, 2019a);
- DP (March, 2019b) *Supplementary Contamination Investigation, Proposed St Mary's Freight Hub, 2 Forrester Road, St Mary's NSW*. Project 94525.02.R.001.Rev1 (DP, 2019b);
- DP (March, 2019c) *Remediation Action Plan, Proposed St Mary's Freight Hub, 2 Forrester Road, St Mary's NSW*. Project 94525.03.R.001.Rev1 (DP, 2019c); and
- DP (August, 2019d) *Stockpile SP3 and Railway Corridor Investigation, Proposed St Mary's Freight Hub, 2 Forrester Road, St Mary's NSW*. Project 94525.05.R.001.Rev0 (DP, 2019d).

The following summarises the findings of the above contamination investigations relevant to the site and surrounds. The boundaries of the former investigations are shown on Drawing 2, Attachment A.

DP (2019a) was a preliminary site investigation for contamination (PSI) of the wider site, including the subject site, which included a site history review, walkover inspection, limited soil sampling, installation of groundwater wells and groundwater sampling. DP (2019a) identified the following individual areas of environmental concern (AEC) within the wider PSI site:

- PAEC 1: Former building and stockpile footprints - A fragment of ACM was identified in one former stockpile footprint area in the far northern portion of the wider site - PAEC1 is not located within the subject site.
- PAEC 3: Current Stockpiles - Multiple soil stockpiles were identified within the site. A limited visual assessment of the stockpiles was undertaken as part of the PSI - The PAEC3 stockpiles are not located on the subject site.
- PAEC 4: Soil surrounding timber power poles - Five timber power poles were identified within the wider site. PAEC 4 power poles are not located within the subject site.

- PAEC 5: Surficial ACM - Surficial ACM was identified in one area of the site associated with a former stockpile footprint (PAEC 1) which is not located within the subject site. One fragment of ACM was also identified in the northern portion of the subject site (railway corridor). The location of the fragment of ACM (ACM2) is shown on Drawing 2, Attachment A. DP also considered that there was a potential for surficial ACM to also be present within the rail corridor associated with abandoned train brake pads - The railway corridor is located within the subject site.
- PAEC 6: Fuel and chemical leaks and spills - There is a potential that any fuel and chemical leaks and spills of fuel from vehicles (and stored chemicals within the former structures) have a potential to contaminate soil at the site. A limited visual assessment of PAEC 6 was undertaken as part of the PSI assessment - all former vehicle storage areas and sheds are not located within the subject site.
- PAEC 9: The majority of the site was owned by James Hardie and Coy Pty Limited between 1969 and 1984. Many James Hardie sites are associated with manufacture and disposal of asbestos waste. Review of historic aerial photography during the period of Jamie Hardie ownership does not indicate evidence of the manufacture of asbestos (i.e. development of industrial type buildings) or filling with asbestos waste (i.e. no extensive areas of disturbance) at the site.

DP (2019a) recommended that further investigation be completed of the subject site due to the fragment of ACM (ACM2) identified in the northern portion of the site and the potential for ACM associated with train brake pads.

Subsequent to the completion of DP (2019a), DP contacted the EPA in regard to its investigations of James Hardie asbestos legacy sites. DP understands that the EPA obtained information from Hardie Industries regarding up to 47 sites which were used to dispose of bulk asbestos waste and the EPA determined that 27 of the sites required inspections and assessment for asbestos contamination. Information provided on the EPA web site does not indicate that any of the sites are located within the Penrith City Council LGA.

DP (2019b) was completed to further assess the PAEC identified during DP (2019a) and included the collection of three surface soil samples (RC1 to RC3 as shown on Drawing 2) in the vicinity of the southern portion of the subject site (PAEC 5 – Southern portion of the railway corridor) for laboratory analysis of asbestos.

The laboratory results of the three soil samples collected in the DP (2019b), within the subject site, did not identify asbestos in any of the samples submitted for analysis.

DP (2019b) also included the following scope of works completed outside of the subject site:

- Excavation of test pits and collection of soil samples from former building/stockpile foot prints (PAEC1), current soil stockpiles (PAEC3) and to investigate the potential for fuel and chemical leaks and spills (PAEC 6);
- Collection of surface soil samples from the vicinity of the base of five timber power poles (PAEC 4); and
- Laboratory analysis of selected soil samples for the identified contaminants of potential concern (CoPC) associated with each PAEC.

DP (2019b) identified ACM impact to fill in the far northern portion of the wider site (PAEC 1) at concentrations that requires remediation for the site to be rendered compatible with the proposed commercial/industrial redevelopment. PAEC1 is not located within the subject site boundary and therefore not considered to present a human health or environmental risk to the subject site.

DP (2019c) outlined the proposed methods and procedures be used to remediate contaminated soils identified by DP (2019b) including the PN preferred methodology for onsite containment of ACM impacted soil (PAEC1) within a dedicated containment cell and onsite management of soil impacted with metals and PAHs at levels exceeding EILs/ESLs.

DP (2019d) included further investigation of the following environmental issues:

- The southern half of the railway corridor (southern half of the subject site); and
- A large stockpile of soil (SP3 located offsite) likely created from historical topsoil stripping works.

The scope of works completed for DP (2019d) including the following for the subject site:

- Site walkover on a 2 m grid along the southern half of the railway corridor, under supervision of a licenced track protection officer, for the visual assessment of ACM on the site surface; and
- Collection of an additional six surface (0.0 - 0.1 m bgl) soil samples (RC101 to RC106) along the length of the railway corridor for laboratory analysis of ACM and asbestos fines and fibrous asbestos (AF/FA). The railway corridor sample locations from this investigation and the SCI (RC1 to RC3) are presented on Drawing 2.

The laboratory results of the six soil samples collected in the DP (2019d) within the subject site did not identify asbestos in any of the samples submitted for analysis.

DP (2019d) concluded that no further investigations or remediation works are warranted for the southern half of the railway corridor.

5. Additional Investigation and Sampling of the Northern Half of the site

5.1 Rationale and Methodology

Given the PSI recommendations for further investigation additional sampling was deemed required to be completed in the northern half of the railway corridor to assess the potential for ACM fragments on sites surface and ACM associated with train brakes.

The field work for the investigation was undertaken by DP licenced asbestos assessor, Grant Russell (Licence #LA001202) at the site on 24 June 2020. Photographic plates from the field work are presented in Attachment B.

The following works were completed for the further investigation of the northern half of the site:

- Site walkover on a 2 m grid along the northern portion of the railway corridor for the visual assessment of asbestos on the site surface;;
- Collection of an additional six surface (0.0 - 0.1 m bgl) soil samples (RC201 to RC206) along the length of the northern portion of the railway corridor for the laboratory analysis of asbestos (one of the primary CoPC associated with railway corridors). One sample (RC201) was collected in the immediate vicinity of the ACM fragment identified in DP (2019a). The railway corridor sample locations from this investigation, the SCI (RC1 to RC3) and previous Railway Investigation (DP, 2019d) are presented on Drawing 3;

- To assess the potential for wide broad scale contamination from other possible sources (fuel, chemical spills and fill) three of the samples (RC202, RC204 and RC206) were additionally analysed for other commonly encountered CoPC including:
  - Total recoverable hydrocarbons (TRH);
  - Benzene, toluene, ethylbenzene and xylenes (BTEX);
  - Polycyclic aromatic hydrocarbons (PAHs);
  - Organochlorine pesticides (OCPs);
  - Organophosphate pesticides (OPPs); and
  - Polychlorinated biphenyls (PCBs).

5.2 Field Sampling and Laboratory Procedure

Sampling data were recorded to comply with routine chain-of-custody requirements and DP's standard operating procedures. The general sampling, handling, transport and tracking procedures are detailed below:

- Sample locations were pre-determined using GIS prior to field work and were located in the field using a handheld Garmin GPS;
- A hand-held shovel was used to assist in the collection of surface soil samples within the railway corridor. Samples were collected taking care to not include soil that was directly in contact with the shovel;
- Disposable nitrile gloves were also used to collect all samples. Gloves were replaced prior to the collection of each sample in order to prevent cross-contamination;
- Transfer of samples into laboratory-prepared glass jars, completely filled to ensure the headspace within the sample jar was minimised, and capping immediately to minimise loss of volatiles;
- 500 ml bag samples were also collected at the railway corridor sampling locations for asbestos analysis;
- Sample containers were labelled with individual and unique identification details, including project number, sample ID, depth and date of sampling; and
- Samples designated for analysis were dispatched to a NATA accredited laboratory Envirolab Services at Chatswood NSW for analysis.

6. Site Assessment Criteria

The Site Assessment Criteria (SAC) applied in this investigation have been informed by the proposed land use (i.e. commercial/industrial) which was adopted in the previous investigations. Analytical results were assessed (as a Tier 1 assessment) against the investigation and screening levels as per Schedule B1, National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended 2013 (NEPC, 2013).

Given the site's proposed land use and location within a commercial/industrial land use setting, the investigation and screening levels adopted are consistent with a generic commercial/industrial land use scenario. The following SAC relevant to asbestos are summarised in Table 1.

Table 1: SAC

Contaminant of Concern		RAC	Rationale
Asbestos	Bonded ACM	No visible ACM on surface and 0.05% (w / w)	For bonded asbestos, no visible asbestos at the surface (to a depth of 0.1 m) has been adopted to provide maximum protection at the exposure point, and due to aesthetic issues. HSL D for Asbestos Contamination in soil, percentage weight by weight (% w/w).
	Fibrous asbestos (FA) and asbestos fines (AF)	0.001 % (w / w)	

The SAC applied for the other CoPC have been adopted from the SAC applied in DP (2019b).

7. Results

7.1 Field Work Observations

Surface soil encountered at soil sample locations within the railway corridor generally comprised clayey sand with trace gravels. No obvious ACM or building waste commonly indicative of ACM was evident during the site walkover of the railway corridor.

7.2 Laboratory Analytical Results

The sample identification, sample depths and analytical results for the soil samples collected from the northern portion of the railway corridor are summarised in Tables C1 and C2 in Attachment C, together with the adopted SAC. The laboratory certificates of analysis are also attached in Attachment D.

Asbestos was not detected above the laboratory limit of reporting in any of the samples submitted for analysis.

Other CoPC were not detected at concentrations above the adopted commercial/industrial criteria or levels typically associated with background ranges in all samples analysed.

8. Discussion and Conclusions

The PSI (DP, 2019a) identified one small fragment of ACM in the northern portion of the site. The fragment of ACM however, is considered to be representative of an anomalous isolated occurrence and not indicative of widespread impact within the railway corridor site given that:

- The subsequent site walkovers completed within the railway corridor have not identified any additional ACM fragments on the site surface; and

- The results of the previous and current investigations have not identified asbestos, or any other CoPC, at concentrations exceeding the adopted SAC (commercial/industrial land use) in all soil samples collected from the railway corridor.

From a contamination perspective, based on the findings of this and previous environmental investigations, it is concluded that no further investigations or remediation works are warranted for the railway corridor including the northern half of the site.

Notwithstanding the above, the potential remains for isolated pockets of contamination to be present in the railway corridor. To appropriately manage unexpected potential contamination issues encountered during development works, DP recommends the implementation of the contingency for Unexpected Finds as described in Section 8.4 of the RAP (ref.94525.03.R.001.Rev1). Additionally, any materials requiring off-site disposal must be classified, managed and disposed in accordance with the *Protection of the Environment Operations Act 1997*. This may require further chemical and asbestos testing of the soil.

9. References

1. DP (March, 2019a) *Preliminary Site Contamination Investigation, Proposed St Mary's Freight Hub, 2 Forrester Road, St Mary's NSW*. Project 94525.00.R.001.Rev0 (DP, 2019a).
2. DP (March, 2019b) *Supplementary Contamination Investigation, Proposed St Mary's Freight Hub, 2 Forrester Road, St Mary's NSW*. Project 94525.02.R.001.Rev1 (DP, 2019b).
3. DP (March, 2019c) Remediation Action Plan, Proposed St Mary's Freight Hub, 2 Forrester Road, St Mary's NSW. Project 94525.03.R.001.Rev1 (DP, 2019c).
4. DP (August, 2019d) Stockpile SP3 and Railway Corridor Investigation, Proposed St Mary's Freight Hub, 2 Forrester Road, St Mary's NSW. Project 94525.05.R.001.Rev0 (DP, 2019d).
5. National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended 2013 (NEPC, 2013)

10. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for this project at Lot 2 Forrester Road, St Marys in accordance with DP's proposal MAC200170.P.001.Rev0 dated 4 June 2020 and acceptance received from Mr Guy Evans on behalf of Pacific National dated 15 June 2020. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Pacific National for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the Comments section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the environmental components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Please contact the undersigned if you have any questions on this matter.

Yours faithfully
Douglas Partners Pty Ltd

Grant Russell
Senior Environmental Scientist

Reviewed by

Glyn Eade
Associate

Attachment A: Drawings 1 to 3
Attachment B: Photographic Plates
Attachment C: Tables C1 and C2: Soil Laboratory Results Summary
Attachment D: NATA Laboratory Certificates of Analysis and Chain-of-Custody documentation
Attachment E: About this Report

Attachment A

Drawings 1 to 3

Site Locality

Legend

Site Boundary - Proposed Railway Corridor Refurbishment Boundary

Wider Site (PSI) Boundary

100 0 100 200 300 400 m

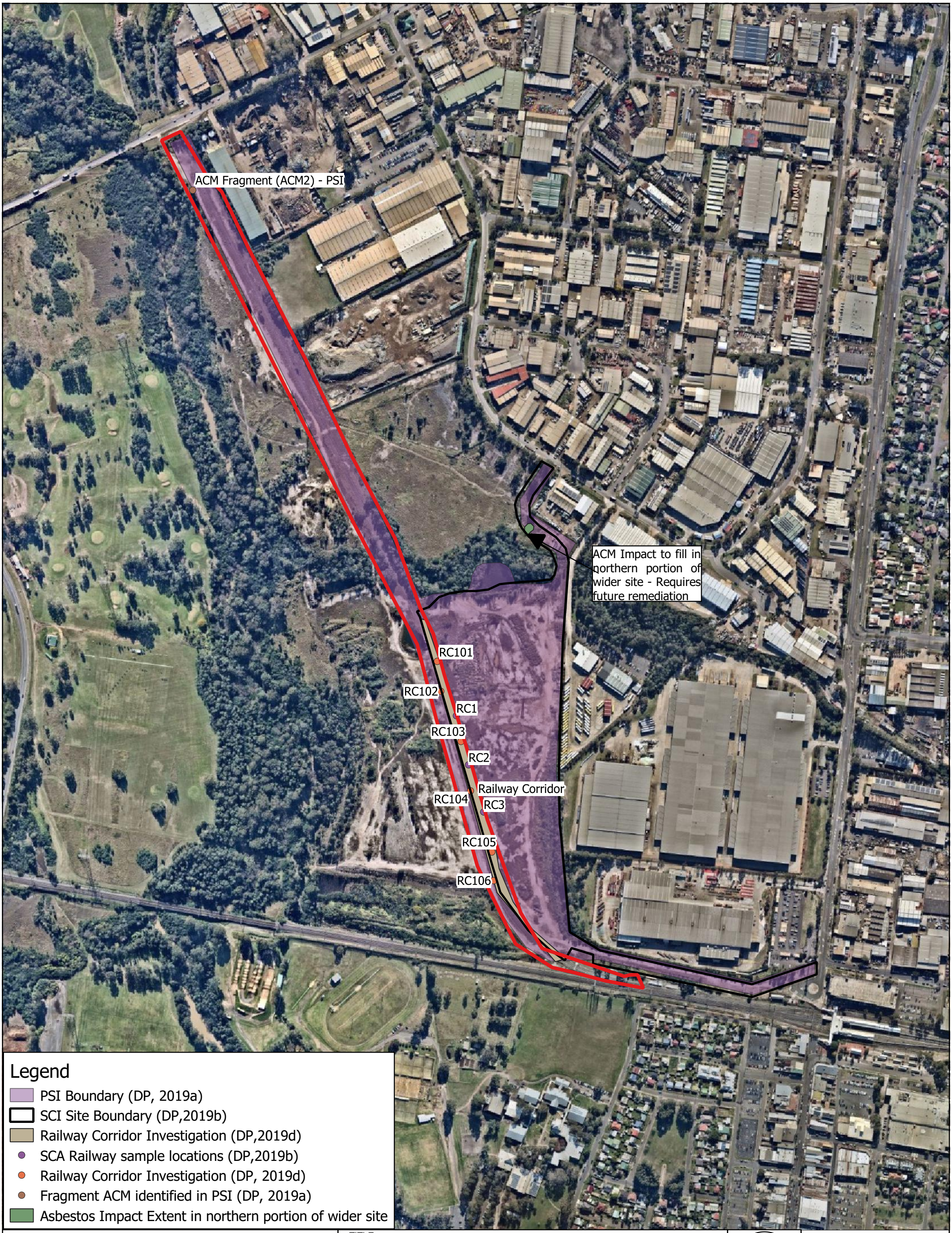
Douglas Partners
Geotechnics | Environment | Groundwater

TITLE: **Site Location Map**
Supplementary Contamination Investigation
Lot 2 Forrester Road, St Marys NSW

N
MGA

OFFICE: Macarthur
DRAWN BY: GAR
DATE: 30.06.2020

CLIENT: Pacific National (NSW) Pty Ltd
PROJ. #: 94525.06
DRAWING No: 1
REVISION: 0
SCALE: As Shown



Legend

- PSI Boundary (DP, 2019a)
- SCI Site Boundary (DP,2019b)
- Railway Corridor Investigation (DP,2019d)
- SCA Railway sample locations (DP,2019b)
- Railway Corridor Investigation (DP, 2019d)
- Fragment ACM identified in PSI (DP, 2019a)
- Asbestos Impact Extent in northern portion of wider site

Douglas Partners
Geotechnics / Environment / Groundwater

TITLE: **Previous Investigation Boundaries and Sample locations**
Supllementary Contamination Investigation - Railway Corridor

N
MGA

OFFICE: Macarthur
DRAWN BY: GAR
DATE: 30.06.2020

CLIENT: Pacific National (NSW) Pty Ltd
PROJ. #: 94525.06
DRAWING No: 2
REVISION: 0
SCALE: As Shown

ACM Fragment (ACM2) - PSI
RC201
RC202
RC203
RC204
RC205
RC206
RC101
RC102
RC1
RC103
RC2
RC104
RC3
RC105
RC106

Legend

- Site Boundary
- Northern portion of Railway Corridor Sample Locations
- Railway Corridor Investigation (DP, 2019d)
- SCA Railway sample locations (DP, 2019b)

0 75 150 m

Douglas Partners
Geotechnics | Environment | Groundwater

TITLE: **Supplementary Contamination Investigation**
Railway Corridor Sample Locations
Lot 2 Forrester Road, St Marys NSW

N
MGA

OFFICE: Macarthur
DRAWN BY: GAR
DATE: 30.06.2020

CLIENT: Pcaific National (NSW) Pty Ltd
PROJ. #: 94525.05
DRAWING No: 3
REVISION: 0
SCALE: As Shown

Attachment B

Photographic Plates

Photo 1 - Northern portion of the railway corridor

Photo 2 - Land immediately ajacent to railway lines in northern portion of site

Douglas Partners Geotechnics / Environment / Groundwater	Site Photographs	PROJECT:	94525.06
	Proposed St Marys Intermodal Freight Terminal	PLATE No:	1
	Lot 2, Forrester Road, St Marys NSW	REV:	A
	CLIENT: Pacific National (NSW) Pty Ltd	DATE:	July 2020

Photo 3 - Area in vicinity of previously identified ACM fragment

Photo 4 - Central northern portion of railway corridor

Douglas Partners Geotechnics / Environment / Groundwater	Site Photographs	PROJECT:	94525.06
	Proposed St Marys Intermodal Freight Terminal	PLATE No:	2
	Lot 2, Forrester Road, St Marys NSW	REV:	A
	CLIENT: Pacific National (NSW) Pty Ltd	DATE:	July 2020

Photo 5 - Sample location RC201

Photo 6 - Sample location RC202

Douglas Partners Geotechnics / Environment / Groundwater	Site Photographs	PROJECT:	94525.06
	Proposed St Marys Intermodal Freight Terminal	PLATE No:	3
	Lot 2, Forrester Road, St Marys NSW	REV:	A
	CLIENT: Pacific National (NSW) Pty Ltd	DATE:	July 2020

Photo 7 - Sample location RC203

Photo 8 - Sample location RC204

Douglas Partners Geotechnics / Environment / Groundwater	Site Photographs	PROJECT:	94525.06
	Proposed St Marys Intermodal Freight Terminal	PLATE No:	4
	Lot 2, Forrester Road, St Marys NSW	REV:	A
	CLIENT: Pacific National (NSW) Pty Ltd	DATE:	July 2020

Photo 9 - Sample location RC205

Photo 10 - central portion of railway corridor

Douglas Partners Geotechnics / Environment / Groundwater	Site Photographs	PROJECT:	j8
	Proposed St Marys Intermodal Freight Terminal	PLATE No:	5
	Lot 2, Forrester Road, St Marys NSW	REV:	A
	CLIENT: Pacific National (NSW) Pty Ltd	DATE:	July 2020

Attachment C

Tables C1 and C2: Soil Laboratory Results Summary

Table C1: Summary of Laboratory Results – Metals, TRH, BTEX, PAH

			Metals								TRH						BTEX				PAH			
			Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene [b]	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ	Total PAHs
		PQL	4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	0.2	0.5	1	1	1	0.05	0.5	0.05
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
RC201	0.0 - 0.1 m	24/06/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
			3000 160	900 NC	3600 670	#### 300	1500 1800	730 NC	6000 300	#### 730	NC NC	NC NC	260 215	NL 170	NC 1700	NC 3300	3 75	NL 135	NL 165	230 180	NL 370	NC 1.4	40 NC	4000 NC
RC202	0.0 - 0.1 m	24/06/2020	<4	<0.4	9	22	30	<0.1	12	130	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
			3000 160	900 NC	3600 670	#### 300	1500 1800	730 NC	6000 300	#### 730	NC NC	NC NC	260 215	NL 170	NC 1700	NC 3300	3 75	NL 135	NL 165	230 180	NL 370	NC 1.4	40 NC	4000 NC
RC203	0.0 - 0.1 m	24/06/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
			3000 160	900 NC	3600 670	#### 300	1500 1800	730 NC	6000 300	#### 730	NC NC	NC NC	260 215	NL 170	NC 1700	NC 3300	3 75	NL 135	NL 165	230 180	NL 370	NC 1.4	40 NC	4000 NC
RC204	0.0 - 0.1 m	24/06/2020	<4	<0.4	8	7	10	<0.1	7	42	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
			3000 160	900 NC	3600 670	#### 300	1500 1800	730 NC	6000 300	#### 730	NC NC	NC NC	260 215	NL 170	NC 1700	NC 3300	3 75	NL 135	NL 165	230 180	NL 370	NC 1.4	40 NC	4000 NC
RC205	0.0 - 0.1 m	24/06/2020	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
			3000 160	900 NC	3600 670	#### 300	1500 1800	730 NC	6000 300	#### 730	NC NC	NC NC	260 215	NL 170	NC 1700	NC 3300	3 75	NL 135	NL 165	230 180	NL 370	NC 1.4	40 NC	4000 NC
RC206	0.0 - 0.1 m	24/06/2020	<4	<0.4	9	30	16	<0.1	7	87	<25	<50	<25	<50	120	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05
			3000 160	900 NC	3600 670	#### 300	1500 1800	730 NC	6000 300	#### 730	NC NC	NC NC	260 215	NL 170	NC 1700	NC 3300	3 75	NL 135	NL 165	230 180	NL 370	NC 1.4	40 NC	4000 NC

Lab result
HIL/HSL value EIL/ESL value

HIL/HSL exceedance EIL/ESL exceedance HIL/HSL and EIL/ESL exceedance ML exceedance ML and HIL/HSL or EIL/ESL exceedance

Indicates that asbestos has been detected by the lab below the PQL, refer to the lab report **Blue** = DC exceedance

Bold = Lab detections NT = Not tested NL = Non limiting NC = No criteria NA = Not applicable NAD = No asbestos detected

Notes:

HIL/HSL/DC	NEPC, Schedule B1 - HIL D (undefined), HSL D (undefined), DC HSL D (undefined)
EIL/ESL	NEPC, Schedule B1 - EIL C/Ind (undefined), ESL C/Ind (undefined)
ML	NEPC, Schedule B1 - ML C/Ind (undefined)
a	QA/QC replicate of sample listed directly below the primary sample
b	reported naphthalene laboratory result obtained from BTEXN suite
c	criteria applies to DDT only

Table C2: Summary of Laboratory Results – OCP, OPP, PCB, Asbestos

			OCP											OPP	PCB	Asbestos						
			DDT+DDE+DDD c	DDD	DDE	DDT	Aldrin & Dieldrin	Total Chlordane	Total Endosulfan	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	Chlorpyriphos	Total PCB	Asbestos ID in soil >0.1g/kg	Trace Analysis	Asbestos ID in soil <0.1g/kg	ACM >7mm Estimation	FA and AF Estimation	FA and AF Estimation	Asbestos (500 ml)
		PQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1						<0.001	0.001
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-	-	-	g	g	%(w/w)	-
RC201	0.0 - 0.1 m	24/06/2020	NT 3600 640	NT NC NC	NT NC NC	NT NC 640	NT 45 NC	NT 530 NC	NT 2000 NC	NT 100 NC	NT 50 NC	NT 80 NC	NT 2500 NC	NT 2000 NC	NT 7 NC	NAD	NAD	NAD	NT	NT	NAD	NAD
RC202	0.0 - 0.1 m	24/06/2020	<0.1 3600 640	<0.1 NC NC	<0.1 NC NC	<0.1 NC 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	<0.1 2000 NC	<0.1 7 NC	NAD	NAD	NAD	NT	NT	NAD	NAD
RC203	0.0 - 0.1 m	24/06/2020	NT 3600 640	NT NC NC	NT NC NC	NT NC 640	NT 45 NC	NT 530 NC	NT 2000 NC	NT 100 NC	NT 50 NC	NT 80 NC	NT 2500 NC	NT 2000 NC	NT 7 NC	NAD	NAD	NAD	NT	NT	NAD	NAD
RC204	0.0 - 0.1 m	24/06/2020	<0.1 3600 640	<0.1 NC NC	<0.1 NC NC	<0.1 NC 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	<0.1 2000 NC	<0.1 7 NC	NAD	NAD	NAD	NT	NT	NAD	NAD
RC205	0.0 - 0.1 m	24/06/2020	NT 3600 640	NT NC NC	NT NC NC	NT NC 640	NT 45 NC	NT 530 NC	NT 2000 NC	NT 100 NC	NT 50 NC	NT 80 NC	NT 2500 NC	NT 2000 NC	NT 7 NC	NAD	NAD	NAD	NT	NT	NAD	NAD
RC206	0.0 - 0.1 m	24/06/2020	<0.1 3600 640	<0.1 NC NC	<0.1 NC NC	<0.1 NC 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	<0.1 2000 NC	<0.1 7 NC	NAD	NAD	NAD	NT	NT	NAD	NAD

Lab result

HIL/HSL value EIL/ESL value

HIL/HSL exceedance EIL/ESL exceedance HIL/HSL and EIL/ESL exceedance ML exceedance ML and HIL/HSL or EIL/ESL exceedance

Indicates that asbestos has been detected by the lab below the PQL, refer to the lab report **Blue** = DC exceedance

Bold = Lab detections NT = Not tested NL = Non limiting NC = No criteria NA = Not applicable NAD = No asbestos detected

Notes:

HIL/HSL/DC	NEPC, Schedule B1 - HIL D (undefined), HSL D (undefined), DC HSL D (undefined)
EIL/ESL	NEPC, Schedule B1 - EIL C/Ind (undefined), ESL C/Ind (undefined)
ML	NEPC, Schedule B1 - ML C/Ind (undefined)
a	QA/QC replicate of sample listed directly below the primary sample
b	reported naphthalene laboratory result obtained from BTEXN suite
c	criteria applies to DDT only

Attachment D

NATA Laboratory Certificates of Analysis and Chain-of-Custody documentation

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

CERTIFICATE OF ANALYSIS 245653

Client Details

Client	Douglas Partners Pty Ltd
Attention	Grant Russell
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**94525.06, St Mary's**
Number of Samples	6 Soil
Date samples received	25/06/2020
Date completed instructions received	25/06/2020

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	29/06/2020
Date of Issue	29/06/2020

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 Identifier: Lucy Zhu
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Dragana Tomas, Senior Chemist
Jaimie Loa-Kum-Cheung, Metals Supervisor
Lucy Zhu, Asbestos Supervisor

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil				
Our Reference		245653-2	245653-4	245653-6
Your Reference	UNITS	RC202	RC204	RC206
Date Sampled		24/06/2020	24/06/2020	24/06/2020
Type of sample		Soil	Soil	Soil
Date extracted	-	29/06/2020	29/06/2020	29/06/2020
Date analysed	-	29/06/2020	29/06/2020	29/06/2020
TRH C_6 - C_9	mg/kg	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	105	108	118

svTRH (C10-C40) in Soil				
Our Reference		245653-2	245653-4	245653-6
Your Reference	UNITS	RC202	RC204	RC206
Date Sampled		24/06/2020	24/06/2020	24/06/2020
Type of sample		Soil	Soil	Soil
Date extracted	-	29/06/2020	29/06/2020	29/06/2020
Date analysed	-	29/06/2020	29/06/2020	29/06/2020
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	120
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	120
Surrogate o-Terphenyl	%	99	90	96

PAHs in Soil				
Our Reference	UNITS	245653-2	245653-4	245653-6
Your Reference		RC202	RC204	RC206
Date Sampled		24/06/2020	24/06/2020	24/06/2020
Type of sample		Soil	Soil	Soil
Date extracted	-	29/06/2020	29/06/2020	29/06/2020
Date analysed	-	29/06/2020	29/06/2020	29/06/2020
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	99	111	99

Organochlorine Pesticides in soil				
Our Reference	UNITS	245653-2	245653-4	245653-6
Your Reference		RC202	RC204	RC206
Date Sampled		24/06/2020	24/06/2020	24/06/2020
Type of sample		Soil	Soil	Soil
Date extracted	-	29/06/2020	29/06/2020	29/06/2020
Date analysed	-	29/06/2020	29/06/2020	29/06/2020
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	100	117	103

Organophosphorus Pesticides in Soil				
Our Reference	UNITS	245653-2	245653-4	245653-6
Your Reference		RC202	RC204	RC206
Date Sampled		24/06/2020	24/06/2020	24/06/2020
Type of sample		Soil	Soil	Soil
Date extracted	-	29/06/2020	29/06/2020	29/06/2020
Date analysed	-	29/06/2020	29/06/2020	29/06/2020
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	100	117	103

PCBs in Soil				
Our Reference	UNITS	245653-2	245653-4	245653-6
Your Reference		RC202	RC204	RC206
Date Sampled		24/06/2020	24/06/2020	24/06/2020
Type of sample		Soil	Soil	Soil
Date extracted	-	29/06/2020	29/06/2020	29/06/2020
Date analysed	-	29/06/2020	29/06/2020	29/06/2020
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	100	117	103

Acid Extractable metals in soil				
Our Reference	UNITS	245653-2	245653-4	245653-6
Your Reference		RC202	RC204	RC206
Date Sampled		24/06/2020	24/06/2020	24/06/2020
Type of sample		Soil	Soil	Soil
Date prepared	-	29/06/2020	29/06/2020	29/06/2020
Date analysed	-	29/06/2020	29/06/2020	29/06/2020
Arsenic	mg/kg	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	9	8	9
Copper	mg/kg	22	7	30
Lead	mg/kg	30	10	16
Mercury	mg/kg	<0.1	<0.1	<0.1
Nickel	mg/kg	12	7	7
Zinc	mg/kg	130	42	87

Moisture				
Our Reference		245653-2	245653-4	245653-6
Your Reference	UNITS	RC202	RC204	RC206
Date Sampled		24/06/2020	24/06/2020	24/06/2020
Type of sample		Soil	Soil	Soil
Date prepared	-	29/06/2020	29/06/2020	29/06/2020
Date analysed	-	29/06/2020	29/06/2020	29/06/2020
Moisture	%	27	10	14

Asbestos ID - soils NEPM						
Our Reference		245653-1	245653-2	245653-3	245653-4	245653-5
Your Reference	UNITS	RC201	RC202	RC203	RC204	RC205
Date Sampled		24/06/2020	24/06/2020	24/06/2020	24/06/2020	24/06/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	26/06/2020	26/06/2020	26/06/2020	26/06/2020	26/06/2020
Sample mass tested	g	481.46	493.31	740.44	617.24	708.33
Sample Description	-	Brown coarse-grained soil & debris	Brown coarse-grained soil & rocks	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 Synthetic mineral 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	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	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM		
Our Reference		245653-6
Your Reference	UNITS	RC206
Date Sampled		24/06/2020
Type of sample		Soil
Date analysed	-	26/06/2020
Sample mass tested	g	618.25
Sample Description	-	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
Trace Analysis	-	No asbestos detected
Total Asbestos#1	g/kg	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected
ACM >7mm Estimation*	g	–
FA and AF Estimation*	g	–
FA and AF Estimation*#2	%(w/w)	<0.001

Method ID	Methodology Summary
ASB-001	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.
ASB-001	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. Results reported denoted with * are outside our scope of NATA accreditation. **NOTE** #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) **NOTE** #2 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. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	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.
Org-020	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. 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 (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.

Method ID	Methodology Summary
Org-021	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.
Org-022	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	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.
Org-022/025	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.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	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.
Org-023	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.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date extracted	-			29/06/2020	[NT]	[NT]	[NT]	[NT]	29/06/2020	[NT]
Date analysed	-			29/06/2020	[NT]	[NT]	[NT]	[NT]	29/06/2020	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	80	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	80	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	83	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]	[NT]	[NT]	[NT]	75	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	75	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	84	[NT]
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	70	[NT]
naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	119	[NT]	[NT]	[NT]	[NT]	106	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date extracted	-			29/06/2020	[NT]	[NT]	[NT]	[NT]	29/06/2020	[NT]
Date analysed	-			29/06/2020	[NT]	[NT]	[NT]	[NT]	29/06/2020	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	104	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	92	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	104	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	92	[NT]
Surrogate o-Terphenyl	%		Org-020	94	[NT]	[NT]	[NT]	[NT]	117	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			29/06/2020	[NT]	[NT]	[NT]	[NT]	29/06/2020	[NT]
Date analysed	-			29/06/2020	[NT]	[NT]	[NT]	[NT]	29/06/2020	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	106	[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]	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	110	[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]	106	[NT]
Pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	106	[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]	76	[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]	104	[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	103	[NT]	[NT]	[NT]	[NT]	101	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			29/06/2020	[NT]	[NT]	[NT]	[NT]	29/06/2020	[NT]
Date analysed	-			29/06/2020	[NT]	[NT]	[NT]	[NT]	29/06/2020	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	86	[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]	90	[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]	78	[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]	98	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	94	[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]	98	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Endrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	86	[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]	90	[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]	90	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	99	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			29/06/2020	[NT]	[NT]	[NT]	[NT]	29/06/2020	[NT]
Date analysed	-			29/06/2020	[NT]	[NT]	[NT]	[NT]	29/06/2020	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Malathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	99	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			29/06/2020	[NT]	[NT]	[NT]	[NT]	29/06/2020	[NT]
Date analysed	-			29/06/2020	[NT]	[NT]	[NT]	[NT]	29/06/2020	[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]	72	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-021	99	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			29/06/2020	[NT]	[NT]	[NT]	[NT]	29/06/2020	[NT]
Date analysed	-			29/06/2020	[NT]	[NT]	[NT]	[NT]	29/06/2020	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	105	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	104	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]

Result Definitions

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

Quality Control Definitions

Blank	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.
Duplicate	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.
Matrix Spike	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.
LCS (Laboratory Control Sample)	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.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

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.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

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.

Note: All samples analysed as received. However, 245653-2 is below the minimum 500mL sample volume as per National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013.

Douglas Partners
Geotechnics | Environment | Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	94525.06	**Suburb:**	St Marys	**To:**	Envirolab Services
Project Name:	St Mary's	**Order Number**			
Project Manager:	Grant Russell	**Sampler:**	GAR	**Attn:**	Aileen Hie
Emails:	Grant.Russell@douglaspartners.com.au			**Phone:**	9910 6200
Date Required:	Same day ☐ 24 hours ☐ 48 hours ☑ 72 hours ☐ Standard ☐			**Email:**	
Prior Storage:	☐ Esky ☐ Fridge ☐ Shelved	Do samples contain 'potential' HBM?	Yes ☐ No ☐ (If YES, then handle, transport and store in accordance with FPM HAZID)		

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes									Notes/preservation
										Asbestos 500 ml			Hold	
RC201	1	24/06/20	S	P						X				
RC202	2	24/06/20	S	P						X				
RC203	3	24/06/20	S	P						X				
RC204	4	24/06/20	S	P						X				
RC205	5	24/06/20	S	P						X				
RC206	6	24/06/20	S	P						X				
PQL (S) mg/kg													**ANZECC PQLs req'd for all water analytes** ☐	

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 245653
Date Received: 25.06.2020
Time Received: 15:40
Received by: TC
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

PQL = practical quantitation limit. If none given, default to Laboratory Method Detection Limit

Metals to Analyse: 8HM unless specified here:

Lab Report/Reference No: 245653

Total number of samples in container:

Relinquished by: GAR

Transported to laboratory by:

Send Results to: Douglas Partners Pty Ltd

Address

Phone: **Fax:**

Signed: GAR

Received by: ES T. Connaller

Date & Time: 25.06.2020, 15:40

Attachment E

About this Report

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.