CSH consulting
Occupational Hygiene, Drone & Asbestos services

Detailed Site Investigation Report

44 Middle Arm Road, Middle Arm

Reference No:	DSI2023-219
Report Date:	26 April 2023
Prepared by:	CSH Consulting Pty Ltd

Contents

Revision	Details	Date	Amended By
00	DRAFT	26 April 2023	Julia Noonan
01	Final after client review	7 June 2023	Julia Noonan

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1. Executive Summary

CSH Consulting Pty Ltd was engaged by IPG Invest Projects to complete a Detailed Site Investigation (DSI) for the property at 44 Middle Arm Rd, Middle Arm. The site is shown in Figure 1. The DSI followed on from the previous Preliminary Site Investigation completed by CSH Consulting Pty Ltd (Preliminary Site Investigation, Reference No PSI2022-218, 23/09/2022).

Sampling of the soil was carried out on 24 March 2023 to assess the soils in the areas identified as areas of concern due to presence of indicators that potentially contaminating activities has occurred and to assess if further investigation for assessment/remediation of these areas is required.

The analysis results were compared to Health investigation levels (HIL), HIL A (residential), set by *NEPM*; Specific contaminant concentration (SCC) and toxicity characteristics leaching procedure (TCLP) test values in *NSW EPA Waste Classification Guidelines Part 1: Classifying waste*; and the chemical concentrations stipulated in the *NSW EPA Excavated natural material order*. Based on the analysis report, all values reported are below the relevant criteria from the documents above.

On the day sampling was carried out, further detailed visual inspections of each of the PEACs, along with discussions with the owner, to assess the areas of concern, the extent of potential contaminants listed in the PSI and the risk of these contaminants. A summary of the visit and discussions and analysis results can be found in Table 1.

An onsite investigation was carried out for each of the PAECs identified in the Preliminary Site Investigation (PSI) report, along with discussions with current owner and development personnel to assess the areas of concern and the extent of the potential contaminants listed in the PSI and the risk of these contaminants.

By reviewing the PSI, analysis results, findings from site visit and information provided by the owner and developers, the extent of potential contamination on this site has been reduced to 2 locations:

- PAEC01 – House and garage
- PAEC06 – sheds

A remediation action plan in section 10 is to be used to manage the site during demolition and removal of contaminated waste.

Based on the investigative site inspection conducted in March 2023, and in conjunction with the PSI report, the other areas show that the potential for contamination and the risk to human and environmental health is low.

Overall, the sampling, management of the demolition of the house, garage and sheds are detailed in the remedial action plan. The remaining areas of concern have been re-assessed for their risk to human and environmental health and have indicated that the risk is low.

2. Introduction

CSH Consulting Pty Ltd were engaged by IPG Invest Projects to complete a detailed site investigation (DSI) for the property at 44 Middle Arm Rd, Middle Arm. The site is shown in Figure 1.

Figure 1: Site Location

This report was prepared to support the rezoning application which will enable the property to be subdivided. The application is to have the property rezoned to allow the development of multiple dwellings and access roads on property.

The objective of this report is to provide more detailed and definitive information on issues raised in the PSI and if there is a requirement to remediate the locations prior to work being carried out.

3. Scope of works

The report reviews the sampling requirements suggested in the Preliminary Site Investigation and the requirements assessed onsite during onsite visit on sampling day.

Provide recommendations as to any further investigation or remedial works required to render the site suitable for the proposed redevelopment.

4. Site Information

4.1. Property details

The site address covered by this report is 44 Middle Arm Rd, Middle Arm, NSW (Lot 2 DP 569505).

4.2. Location and General Description

The property is located approximately 5 km to the North of Goulburn. The boundary of the site has is a regular rectangular shape that covers an area of approximately 12 hectares, approximately 580 m long and approximately 200 m wide (See figure 1). There is a residential building consisting of a house and carport located towards the central part of the Eastern portion of the site. There is one shed situated next to the house and livestock holding pen and a shed to the South of the residential building along the southern boundary of the property. The

Moomba – Sydney Gas pipeline runs through the North Western corner of the property running in a North East – South West direction.

4.3. Local Government Area

The property is located within the Goulburn Mulwaree Council Local Government Area (LGA) and falls under the Local Aboriginal Council of Pejar. The property is zoned as RU6: Transition.

4.4. Catchment Area

The site is located within the Warragamba Local catchment area (accessed 31/08/2022). It is the largest catchment of the outer catchment of the Greater Sydney Drinking Water catchment.

5. Site History Review and Previous Preliminary Site Investigation Report Review

As part of the Preliminary Site Investigation (PSI) report conducted by CSH Consulting Pty Ltd, areas of environmental concern (AEC) for potentially contaminated sites were identified using various means. Onsite field inspections were carried out in September 2022 with locations and observations being recorded. With review of the historical photos, survey from the owners and observations from onsite, the areas of concern were generated and are listed Table 3 and shown in Figure 3, extracted from the PSI report and presented below.

Site History Review

A review of the historical activities conducted on the site was carried out in order to determine if there were any records of contamination that occurred on site to identify any locations as areas of environmental concern (AEC). Some of the key points are outlined below.

- The Department of Lands Title records does not indicate potential contaminating activities but indicates the gas pipe easement and right of carriageway along the Southern boundary.
- A survey was given to the property owners at the time in 2022, there was no indication from the owners responses of any contamination activities
- Review of historical aerial photos indicate the installation of a gas pipeline runs through the property and the presence of residential buildings since 1974.

Table 3: Potential areas of Environmental Concern (PAEC) identified during investigation of site		
PAEC No	**Area descriptor**	**Potential contaminants**
PAEC01	Residential house	Asbestos; SMF; lead (paint) and polychlorinated biphenyls (PCBs)
PAEC02	Under concrete cricket pitch	Metals; total recoverable hydrocarbons (TRH); benzene, toluene, ethylbenzene, xylene (BTEX); polycyclic aromatic hydrocarbons (PAHs); PCB; Organochlorine pesticides (OCP); phenols and asbestos
PAEC03	Holding pen at rear of house	TRH; BTEX; PAH; OCP and other herbicides
PAEC04	Rubble in North East corner of yard	Asbestos and lead (paint)
PAEC05	Chemical containers behind shed next to fireplace to the South of the house and shed North West to house	TRH; BTEX; PAH; OCP and other herbicides
PAEC06	Internal sections of sheds to the South and North West of the house	TRH; BTEX; PAH; OCP; asbestos; lead (paint) and other herbicides
PAEC07	Area where dam was filled in, East of the house	Metals; TRH; BTEX; PAH; PCB; OCP; phenols and asbestos
PAEC08	Septic tank to the North of the House	Metals; TRH; BTEX; PAH; PCB; OCP; phenols and asbestos

Figure 3: Approximate locations of potential areas of environmental concern (PAEC).

6. Site Condition and surrounding environment

The PSI report looked at various aspects of the property from onsite inspections and information from other sources to understand the landscape.

According to the PSI report, the property contains Monastry Hill Soil Landscape and low risk of acid sulphate soils.

The site is mostly level with an elevation of approximately 660 m from the Western border along Middle Arm Rd towards the centre of the property. The property has a ridgeline at the Eastern corner of the property that reaches an elevation of approximately 680 m. The average slope across the property is 3.9% with a maximum slope of 13%.

Most of the site has been cleared of all native vegetation and is covered predominantly by pasture grass suitable for grazing cattle. There are trees scattered around the Eastern section of the property around the house, dam and the Eastern boundary. There is also a hedge line of trees along the driveway to the South of the property.

The property has one residential building with a carport and shed to the side of the house. There is a shed located to the North of the property and larger shed to the South of the property close to the Southern boundary line. Near this shed is a livestock holding pen with a sheep dip.

There are two dams located on the site – one is located central North West of the site and another located approximately 80 m South West of the house. There are several minor intermittent drainage lines across the property leading to the two dams.

Lake Sooley is located approximately 5.5 km to the West of the property and Wollondilly River is approximately 2 km South of the property.

The PSI report conducted a search for water bores present in or around the property and found there are no bores located on the property and 13 bores within 1 km of the site.

7. Sampling and analysis quality plan and sampling methodology

Sampling of the soil was carried out on 24 March 2023 to assess the soils in the areas identified as areas of concern due to presence of indicators that potentially contaminating activities has occurred and to assess if further investigation for assessment/remediation of these areas is required.

One sample from locations PEAC03: Holding pen (219/DSI/1), wall of dam (219/DSI/2), PEAC07: filled in dam East of house (219/DSI/3 and PAEC02: cricket pitch (219/DSI/4) were taken by digging a hole at the surface level (see figure 2 for sampling locations). Soils were collected using a stainless steel shovel cleaned after every sample, and contained in virgin high strength plastic sample bags, 250 mL virgin glass jar with Teflon sealed screw caps and virgin asbestos sample bags. All samples were labelled at the time they were taken. Samples were immediately stored in cooled storage bins prior to being delivered to the environmental laboratory under strict Chain-of-Custody conditions.

Figure 2: sample locations

8. Results

The analysis results were compared to Health investigation levels (HIL), HIL A (residential), set by *NEPM*; Specific contaminant concentration (SCC) and toxicity characteristics leaching procedure (TCLP) test values in *NSW EPA Waste Classification Guidelines Part 1: Classifying waste*; and the chemical concentrations stipulated in the *NSW EPA Excavated natural material order*.

Based on the analysis report No 319626 by Envirolab, all values reported are below the relevant criteria from the documents above. A summary of results in comparison to the assessment/investigation criteria can be found in Appendix A. The Analysis results for Report No 319626 can be found in Appendix B.

On the day sampling was carried out, further detailed visual inspections of each of the PEACs, along with discussions with the owner, to assess the areas of concern, the extent of potential contaminants listed in the PSI and the risk of these contaminants. A summary of the visit and discussions and analysis results can be found in table 1 below.

Table 1: Area of concern assessment		
PAEC No	**Findings**	**Further requirements**
PAEC01	The house and garages will continue to be occupied and will be demolished prior to works commencing on site.	A pre-demolition hazardous materials survey, including sampling, to be carried out and the remedial action plan in section 10 to be followed for the safe demolition and removal of any contaminants is to be followed.
PAEC02	Analysis results of soil in this area was below all investigation levels (Sample No 219/DSI/4). There is no concern for chemical or asbestos contamination based on these results.	See remedial action plan in section 10
PAEC03	Analysis results of soil in this area was below all investigation levels (219/DSI/1). There is no concern for chemical or asbestos contamination based on these results.	See remedial action plan in section 10
PAEC04	Rubble in North East corner of yard The rubble contained bricks and cement. There was no evidence of fibre cement sheeting or hazardous materials that would cause harm to human health or the environment	The fill can be removed as GSW. See remedial action plan in section 10.
PAEC05	It was advised by the owner that the containers were used to hold water.	The container can be removed as GSW. No further testing is required.
PAEC06	The shed will continue to be used as the house continues to be occupied and will be demolished prior to works commencing on site.	See remedial action plan in section 10
PAEC07	Analysis results of soil in this area was below all investigation levels (219/DSI/3). There is no concern for chemical or asbestos contamination based on these results.	See remedial action plan in section 10
PAEC08	The septic tank is still in use as the house will continue to be occupied and will be demolished prior to works commencing on site.	See remedial action plan in section 10

9. Conclusions and recommendations

By reviewing the Preliminary Site Investigation (PSI) report, analysis results, findings from site visit and information provided by the owner and developers, the extent of potential contamination on this site has been reduced to 2 locations:

- PAEC01 – House and garage
- PAEC06 – sheds

A remediation action plan in section 10 is to be used to manage the site during demolition and removal of contaminated waste.

Based on the investigative site inspection conducted in March 2023, and in conjunction with the PSI report, the other areas show that the potential for contamination and the risk to human and environmental health is low.

Overall, the sampling, management of the demolition of the house, garage and sheds are detailed in the remedial action plan. The remaining areas of concern have been re-assessed for their risk to human and environmental health and have indicated that the risk is low.

10. Remedial Action Plan

10.1 Pre demolition assessment

Based on the desktop and site investigations conducted, the potential contaminants are assumed to be present. A pre demolition survey should be carried out on the house, garages and soils around sheds to assess the extent of contamination, if any, in order verify the remediation plan and classification of waste for disposal.

The sheds and concrete should be demolished prior to sampling the soils in order to encompass the soil beneath the concrete. The house and garage should be sampled and analysed prior to demolition. The number of samples and the analysis required is shown in table 3. Table 4 should indicates the remediation of contaminants should they be found to be present based on the analysis results.

Table 2: Pre demolition sampling and assessment

PAEC No	Sampling requirements	Analysis
PAEC01 House and garage	1. Up to 4 samples of suspected asbestos containing materials (kitchen, bathroom, laundry, eaves) 1 sample of insulation 2. Up to 4 paint samples	1. Asbestos and SMF 2. Lead in paint
PAEC06 Sheds	Up to 2 soil samples for chemical analysis and 1 soil sample for asbestos per shed	TRH; BTEX; PAH; OCP; Glyphosate and other herbicides, and asbestos

Table 4: Remediation plan for potential contaminants

PAEC No	Potential contaminant	Remediation plan
PAEC01 House and garage	1. Asbestos and SMF 2. Lead paint 3. PCBs	1. Remove prior to demolition under controlled asbestos conditions following the relevant Safe Work NSW Code of Practice. Clearance Certificate to be issued as required. 2. Demolition to be carried out under controlled conditions to minimise dust. 3. Fluorescent tubing to be removed prior to demolition
PAEC06 sheds	TRH; BTEX; PAH; OCP; Glyphosate and other herbicides, and asbestos	Sampling and analysis of this area to be conducted after demolition of sheds and removal concrete slabs and a clearance and classification certificate issued as required.

10.2 Post analysis and demolition

The septic tank (PAEC08), including 1 m of soil around the tank, is to be removed as GSW.

Asbestos and SMF to be disposed of as Special Waste, asbestos waste. Clearance Certificate to be issued on completion of removal.

Clearance and Classification certificates to be issued for soil samples as required.

Any classified materials will be disposed of at facilities licenced to receive this product. Tipping receipts will be retained.

During demolition and levelling of site, an unexpected finds protocol should be implemented.

11. References

CSH Consulting (2022), Preliminary *Site Investigation Report,* prepared for IPG Invest Projects (Ref: PSI2022-219, dated 7 October 2022).

NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measure 1999, as amended in 2013, National Environment Protection Council.

NSW EPA, Contaminated Land Guidelines, Consultants Reporting on Contaminated Land, April 2020.

NSW EPA, *The excavated natural material order 2014,* Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation, 2014.

NSW EPA Waste Classification guidelines, Part 1 Classifying Waste, 2014.

12. Limitations

This investigation consisted of a visual survey of the site. The damaged section of the house could be fully surveyed.

Any person acting or relying on this report, in whole or in part, does so subject to the limitations expressed in this report and at their own risk.

All work is conducted in a conscientious and professional manner, with due diligence and appropriate care. However due to the disproportionate cost of potential damages or liability relative to the cost of our services, CSH Consulting Pty Ltd cannot offer any guarantee that all hazards have been identified. Liability to the client or any other party resulting from the performance or non-performance of the service, whether under contract law, tort law or otherwise, is limited by law.

CSH Consulting Pty Ltd reports are not to be reproduced or reviewed except in full. All reports are prepared for a particular client's objective, and therefore should not be used by any third party as a basis for future decision-making.

The Executive Summary must not be read in isolation, but should be read in conjunction with all sections of this report.

13. Appendix A – Analysis results summary

RESULTS SUMMARY vs NEPM

Laboratory Analysis against NEPM 1999											
Table 1A(1)	Health investigation levels for soil contaminants						Sample Reference	319626-1	319626-2	319626-3	319626-4
							Sample Name	219/DSI/1	219/DSI/2	219/DSI/3	219/DSI/4
							Date Sampled	24/03/2023	24/03/2023	24/03/2023	24/03/2023
							sample Matrix	Brown coarse-grained soil and rocks	Brown coarse-grained soil and rocks	Brown coarse-grained soil and rocks	Brown coarse-grained soil and rocks
Group	**Chemical**	**Residential A**	**Dataset mean**	**Dataset median**	**Dataset standard deviation**	**95% UCL**	**Dataset maximum**	surface	Surface	Surface	surface
Metals	Arsenic	100	4.50	4.50	0.58	0.92	5	5	5	<4	<4
	Cadmium	20	<0.4	<0.4	0	0	<0.4	<0.4	<0.4	<0.4	<0.4
	Chromium	100	44.50	44.50	8.81	14.02	52	52	52	39	35
	Copper	6000	10.25	10.00	2.06	3.28	13	13	10	10	8
	Lead	300	20.75	20.50	3.5	5.57	25	25	19	22	17
	Mercury	40	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
	Nickel	400	6.00	6.50	1.41	2.25	7	7	7	6	4
	Zinc	7400	45.50	43.50	34.45	54.82	88	55	7	88	32
PAHs	Benzo(a)anthracene	0.1	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene	1	<0.05	<0.05	0	0	<0.05	<0.05	<0.05	<0.05	<0.05
	Benzo(b,j+k)fluoranthene	0.1	<0.2	<0.2	0	0	<0.2	<0.2	<0.2	<0.2	<0.2
	Benzo(g,h,i)perylene	0.01	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
	Chrysene	0.01	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
	Dibenzo(a,h)anthracene	1	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
	Indeno(1,2,3-c,d)pyrene	0.1	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene TEQ calc(PQL)	3	<0.5	<0.5	0	0	<0.5	<0.5	<0.5	<0.5	<0.5
	Total +ve PAHs[7]	300	<0.05	<0.05	0	0	<0.05	<0.05	<0.05	<0.05	<0.05
Organochlorine Pesticides	Aldrin	6	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
	Dieldrin	6	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
	Endosulfan I	270	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
	Endosulfan II		<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
	Endosulfan Sulphate		<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
	Endrin	10	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
	Apha-chlordane	50	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
	gamma-chlordane		<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
	HCB	10	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
	Heptachlor	6	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
	Methoxychlor	300	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
	Total +ve DDT+DDD+DDE	240	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
organophosphorus Pesticides	Chlorpyriphos	160	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
PCBs	Total +ve PCBs(1016-1260)	1	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1
	Asbestos							NAD, OF	NAD, OF	NAD, OF	NAD, OF

RESULTS SUMMARY vs EPA Excavated Natural Material (ENM) Order

Analyte	EPA ENM 2014 Table 1 Column 2: Maximum average concentration for characterisation	EPA ENM 2014 Table 1 Column 3: Absolute maximum concentration	Envirolab Analysis Report 319626: Average reported concentration	Envirolab Analysis Report 319626: maximum reported concentration
Units in mg/kg unless indicated				
Mercury	0.5	1	<0.1	<0.1
Cadmium	0.5	1	<0.4	<0.4
Lead	50	100	20.75	25
Arsenic	20	40	4.50	5
Chromium (Total)	75	150	44.50	52
Copper	100	200	10.25	13
Nickel	30	60	6.00	7
Zinc	150	300	45.50	88
Electrical conductivity	1.5 dS/m	3 dS/m	0.89	1.89
pH*	5 to 9	4.5 to 10	6.70	6.9
Total PAHs	20	40	<0.05	<0.05
Benzo(a)pyrene	0.5	1	<0.05	<0.05
Benzene	N/A	0.5	<0.2	<0.2
Toluene	N/A	65	<0.5	<0.5
Ethyl benzene	N/A	25	<1	<1
Xylene	N/A	15	<1	<1
TRH C10 – C36	250	500	72.5	140
Rubber, plastic, bitumen (% by mass)	0.05%	0.1%	<0.05	<0.05
paper, cloth, paint & wood (% by mass)	0.05%	0.1%	<0.05	<0.05
Asbestos	-	NAD, OF	NAD, OF	NAD, OF

* note: the ranges given for pH are for minimum and maximum acceptable values

	319626-1 219/DSI/1	319626-2 219/DSI/2	319626-3 219/DSI/3	319626-4 219/DSI/4
Depth	surface	surface	surface	surface
	<0.1	<0.1	<0.1	<0.1
	<0.4	<0.4	<0.4	<0.4
	25	19	22.00	17
	5	5	<4	<4
	52	52	39.00	35
	13	10	10.00	8
	7	7	6.00	4
	55	7	88.00	32
µS/cm	270	50	88.00	100
pH units	6.9	6.6	6.70	6.6
	<0.05	<0.05	<0.05	<0.05
	<0.05	<0.05	<0.05	<0.05
	<0.2	<0.2	<0.2	<0.2
	<0.5	<0.5	<0.5	<0.5
	<1	<1	<1	<1
	<1	<1	<1	<1
	140	<50	<50	<50
%	<0.05	<0.05	<0.05	<0.05
%	<0.05	<0.05	<0.05	<0.05
	NAD, OF	NAD, OF	NAD, OF	NAD, OF

RESULTS SUMMARY vs EPA Waste Classification

Laboratory Analysis against EPA Waste Classification				Sample Reference			319626-1	319626-2	319626-3	319626-4
				Sample Name			219/DSI/1	219/DSI/2	219/DSI/3	219/DSI/4
				Date Sampled			24/03/2023	24/03/2023	24/03/2023	24/03/2023
				sample Matrix			Brown coarse-grained soil and rocks	Brown coarse-grained soil and rocks	Brown coarse-grained soil and rocks	Brown coarse-grained soil and rocks
Group	**Chemical**	**General Solid Waste CT1 (mg/kg)**	**Restricted solid waste CT2 (mg/kg)**	**Dataset Average**	**Standard deviation**	**95% UCL**	surface	Surface	Surface	surface
TRH/BTEX	C_6-C_9	650	2600	<25	0	0	<25	<25	<25	<25
	Total +ve TRH (>C_{10}-C_{40})	10000	40000	80	60	95.47	170	<50	<50	<50
	Benzene	10	40	<0.2	0	0	<0.2	<0.2	<0.2	<0.2
	Toluene	288	1152	<0.5	0	0	<0.5	<0.5	<0.5	<0.5
	Ethylbenze	600	2400	<1	0	0	<1	<1	<1	<1
	Total +ve Xylenes	1000	400	<1	0	0	<1	<1	<1	<1
PAHs	Benzo(a)pyrene	0.8	3.2	<0.05	0	0	<0.05	<0.05	<0.05	<0.05
	Total +ve PAHs[7]	200	800	<0.05	0	0	<0.05	<0.05	<0.05	<0.05
Organochlorine Pesticides	Aldrin	<50	<50	<0.1	0	0	<0.1	<0.1	<0.1	<0.1
	alpha-BHC	<50	<50	<0.1	0	0	<0.1	<0.1	<0.1	<0.1
	beta-BHC	<50	<50	<0.1	0	0	<0.1	<0.1	<0.1	<0.1
	delta-BHC	<50	<50	<0.1	0	0	<0.1	<0.1	<0.1	<0.1
	Dieldrin	<50	<50	<0.1	0	0	<0.1	<0.1	<0.1	<0.1
	Endosulfan I	60	240	<0.1	0	0	<0.1	<0.1	<0.1	<0.1
	Endosulfan II			<0.1	0	0	<0.1	<0.1	<0.1	<0.1
	Endosulfan Sulphate			<0.1	0	0	<0.1	<0.1	<0.1	<0.1
	Endrin	<50	<50	<0.1	0	0	<0.1	<0.1	<0.1	<0.1
	Endrin Aldehyde	<50	<50	<0.1	0	0	<0.1	<0.1	<0.1	<0.1
	gamma-BHC	<50	<50	<0.1	0	0	<0.1	<0.1	<0.1	<0.1
	Apha-chlordane			<0.1	0	0	<0.1	<0.1	<0.1	<0.1
	gamma-chlordane			<0.1	0	0	<0.1	<0.1	<0.1	<0.1
	HCB			<0.1	0	0	<0.1	<0.1	<0.1	<0.1
	Heptachlor	<50	<50	<0.1	0	0	<0.1	<0.1	<0.1	<0.1
	Heptachlor Epoxide	<50	<50	<0.1	0	0	<0.1	<0.1	<0.1	<0.1
	Methoxychlor			<0.1	0	0	<0.1	<0.1	<0.1	<0.1
	Total +ve DDT+DDD+DDE	<50	<50	<0.1	0	0	<0.1	<0.1	<0.1	<0.1
PCBs	Total +ve PCBs(1016-1260)	<50	<50	<0.1	0	0	<0.1	<0.1	<0.1	<0.1
Metals	Arsenic	100	400	4.50	0.58	0.92	5	5	<4	<4
	Cadmium	20	80	<0.4	0	0	<0.4	<0.4	<0.4	<0.4
	Chromium	100	400	44.50	8.81	14.02	52	52	39	35
	Copper			10.25	2.06	3.28	13	10	10	8
	Lead	100	400	20.75	3.5	5.57	25	19	22	17
	Mercury	4	16	<0.1	0	0	<0.1	<0.1	<0.1	<0.1
	Nickel	40	160	6.00	1.41	2.25	7	7	6	4
	Zinc			45.50	34.45	54.82	55	7	88	32

RESULTS SUMMARY vs EPA Waste Classification TCLP

TCLP Analysis against EPA Waste Classification

									Sample Reference	319626-1		319626-2	
									Sample Name	219/DSI/1		219/DSI/2	
									Date Sampled	24/03/2023		24/03/2023	
									sample Matrix	Brown coarse-grained soil and rocks		Brown coarse-grained soil and rocks	
Group	**Chemical**	**General Solid Waste** **Leachable conc. TCLP (mg/L)**	**Specific Contaminant Conc. SCC1 (mg/kg)**	TCLP Concentration **Dataset Average**	**Standard deviation**	**95% UCL**	Specific Contaminant conc. **Dataset Average**	**Standard deviation**	**95% UCL**	surface TCLP	reported specific contamination concentration	surface TCLP	reported specific contamination concentration
	Total +ve PAHs[7]	N/A	200	NIL (+)VE	NIL (+)VE	NIL (+)VE	<0.05	0	<0.05	NIL (+)VE	<0.05	NIL (+)VE	<0.05
Metals	Arsenic	5	500	<0.05	0	<0.05	4.5			<0.05	5	<0.05	5
	Cadmium	1	100	<0.01	0	<0.01	<0.4	0	<0.4	<0.01	<0.4	<0.01	<0.4
	Chromium	5	1900	0.01	0	0.01	35.60			0.01	52	<0.01	52
	Lead	5	1500	0.03	0.00	0.03	20.75			<0.03	25	<0.03	19
	Mercury	0.2	50	<0.0005	0.00	<0.0005	<0.1	0	<0.1	<0.0005	<0.1	<0.0005	<0.1
	Nickel	2	1050	<0.02	0.0000	<0.02	7.00			<0.02	7	<0.02	7

319626-3		319626-4	
219/DSI/3		219/DSI/4	
24/03/2023		24/03/2023	
Brown coarse-grained soil and rocks		Brown coarse-grained soil and rocks	
surface		surface	
TCLP	reported specific contamination concentration	TCLP	reported specific contamination concentration
NIL (+)VE	<0.05	NIL (+)VE	<0.05
<0.05	<4	<0.05	<4
<0.01	<0.4	<0.01	<0.4
<0.01	39	<0.01	35
<0.03	22	<0.03	17
<0.0005	<0.1	<0.0005	<0.1
<0.02	6	<0.02	4

14. Appendix B – Envirolab Report

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CERTIFICATE OF ANALYSIS 319626

Client Details

Client	CSH Consulting Pty Ltd
Attention	Kevin King
Address	3 Pass Ave, Thirroul, NSW, 2515

Sample Details

Your Reference	**219**
Number of Samples	5 Soil
Date samples received	28/03/2023
Date completed instructions received	28/03/2023

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	04/04/2023
Date of Issue	03/04/2023

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Asbestos Approved By
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Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Kyle Gavrily, Senior Chemist
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Lucy Zhu, Asbestos Supervisor

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil					
Our Reference		319626-1	319626-2	319626-3	319626-4
Your Reference	UNITS	219/DSI/1	219/DSI/2	219/DSI/3	219/DSI/4
Depth		surface	surface	surface	surface
Date Sampled		24/03/2023	24/03/2023	24/03/2023	24/03/2023
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	29/03/2023	29/03/2023	29/03/2023	29/03/2023
Date analysed	-	30/03/2023	30/03/2023	30/03/2023	30/03/2023
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	111	102	98	93

svTRH (C10-C40) in Soil					
Our Reference		319626-1	319626-2	319626-3	319626-4
Your Reference	UNITS	219/DSI/1	219/DSI/2	219/DSI/3	219/DSI/4
Depth		surface	surface	surface	surface
Date Sampled		24/03/2023	24/03/2023	24/03/2023	24/03/2023
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	29/03/2023	29/03/2023	29/03/2023	29/03/2023
Date analysed	-	29/03/2023	29/03/2023	29/03/2023	29/03/2023
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	140	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	140	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	170	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	170	<50	<50	<50
Surrogate o-Terphenyl	%	94	93	91	79

PAHs in Soil					
Our Reference		319626-1	319626-2	319626-3	319626-4
Your Reference	UNITS	219/DSI/1	219/DSI/2	219/DSI/3	219/DSI/4
Depth		surface	surface	surface	surface
Date Sampled		24/03/2023	24/03/2023	24/03/2023	24/03/2023
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	29/03/2023	29/03/2023	29/03/2023	29/03/2023
Date analysed	-	30/03/2023	30/03/2023	30/03/2023	30/03/2023
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<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
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	132	128	130	116

Organochlorine Pesticides in soil					
Our Reference		319626-1	319626-2	319626-3	319626-4
Your Reference	UNITS	219/DSI/1	219/DSI/2	219/DSI/3	219/DSI/4
Depth		surface	surface	surface	surface
Date Sampled		24/03/2023	24/03/2023	24/03/2023	24/03/2023
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	29/03/2023	29/03/2023	29/03/2023	29/03/2023
Date analysed	-	30/03/2023	30/03/2023	30/03/2023	30/03/2023
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	110	108	110	96

Organophosphorus Pesticides in Soil					
Our Reference		319626-1	319626-2	319626-3	319626-4
Your Reference	UNITS	219/DSI/1	219/DSI/2	219/DSI/3	219/DSI/4
Depth		surface	surface	surface	surface
Date Sampled		24/03/2023	24/03/2023	24/03/2023	24/03/2023
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	29/03/2023	29/03/2023	29/03/2023	29/03/2023
Date analysed	-	30/03/2023	30/03/2023	30/03/2023	30/03/2023
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	110	108	110	96

PCBs in Soil					
Our Reference		319626-1	319626-2	319626-3	319626-4
Your Reference	UNITS	219/DSI/1	219/DSI/2	219/DSI/3	219/DSI/4
Depth		surface	surface	surface	surface
Date Sampled		24/03/2023	24/03/2023	24/03/2023	24/03/2023
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	29/03/2023	29/03/2023	29/03/2023	29/03/2023
Date analysed	-	30/03/2023	30/03/2023	30/03/2023	30/03/2023
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	110	108	110	96

Acid Extractable metals in soil					
Our Reference		319626-1	319626-2	319626-3	319626-4
Your Reference	UNITS	219/DSI/1	219/DSI/2	219/DSI/3	219/DSI/4
Depth		surface	surface	surface	surface
Date Sampled		24/03/2023	24/03/2023	24/03/2023	24/03/2023
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	29/03/2023	29/03/2023	29/03/2023	29/03/2023
Date analysed	-	29/03/2023	29/03/2023	29/03/2023	29/03/2023
Arsenic	mg/kg	5	5	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	52	52	39	35
Copper	mg/kg	13	10	10	8
Lead	mg/kg	25	19	22	17
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	7	7	6	4
Zinc	mg/kg	55	7	88	32

Moisture					
Our Reference		319626-1	319626-2	319626-3	319626-4
Your Reference	UNITS	219/DSI/1	219/DSI/2	219/DSI/3	219/DSI/4
Depth		surface	surface	surface	surface
Date Sampled		24/03/2023	24/03/2023	24/03/2023	24/03/2023
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	29/03/2023	29/03/2023	29/03/2023	29/03/2023
Date analysed	-	30/03/2023	30/03/2023	30/03/2023	30/03/2023
Moisture	%	18	11	9.7	14

Asbestos ID - soils					
Our Reference	UNITS	319626-1	319626-2	319626-3	319626-4
Your Reference		219/DSI/1	219/DSI/2	219/DSI/3	219/DSI/4
Depth		surface	surface	surface	surface
Date Sampled		24/03/2023	24/03/2023	24/03/2023	24/03/2023
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	30/03/2023	30/03/2023	30/03/2023	30/03/2023
Sample mass tested	g	Approx. 15g	Approx. 20g	Approx. 35g	Approx. 30g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	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

Metals from Leaching Fluid pH 2.9 or 5					
Our Reference	UNITS	319626-1	319626-2	319626-3	319626-4
Your Reference		219/DSI/1	219/DSI/2	219/DSI/3	219/DSI/4
Depth		surface	surface	surface	surface
Date Sampled		24/03/2023	24/03/2023	24/03/2023	24/03/2023
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	03/04/2023	03/04/2023	03/04/2023	03/04/2023
Date analysed	-	03/04/2023	03/04/2023	03/04/2023	03/04/2023
pH of soil for fluid# determ.	pH units	6.4	5.8	5.2	7.7
pH of soil TCLP (after HCl)	pH units	1.7	1.7	1.7	1.7
Extraction fluid used		1	1	1	1
pH of final Leachate	pH units	4.9	4.9	4.9	4.9
Arsenic	mg/L	<0.05	<0.05	<0.05	<0.05
Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01
Chromium	mg/L	0.01	<0.01	<0.01	<0.01
Lead	mg/L	<0.03	<0.03	<0.03	<0.03
Mercury	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Nickel	mg/L	<0.02	<0.02	<0.02	<0.02

PAHs in TCLP (USEPA 1311)					
Our Reference		319626-1	319626-2	319626-3	319626-4
Your Reference	UNITS	219/DSI/1	219/DSI/2	219/DSI/3	219/DSI/4
Depth		surface	surface	surface	surface
Date Sampled		24/03/2023	24/03/2023	24/03/2023	24/03/2023
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	31/03/2023	31/03/2023	31/03/2023	31/03/2023
Date analysed	-	01/04/2023	01/04/2023	01/04/2023	01/04/2023
Naphthalene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Acenaphthylene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Acenaphthene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Fluorene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Phenanthrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Fluoranthene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Pyrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Benzo(a)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Chrysene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Benzo(bjk)fluoranthene in TCLP	mg/L	<0.002	<0.002	<0.002	<0.002
Benzo(a)pyrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Dibenzo(a,h)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Benzo(g,h,i)perylene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Total +ve PAH's	mg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	93	83	86	93

Misc Inorg - Soil					
Our Reference	UNITS	319626-1	319626-2	319626-3	319626-4
Your Reference		219/DSI/1	219/DSI/2	219/DSI/3	219/DSI/4
Depth		surface	surface	surface	surface
Date Sampled		24/03/2023	24/03/2023	24/03/2023	24/03/2023
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	30/03/2023	30/03/2023	30/03/2023	30/03/2023
Date analysed	-	30/03/2023	30/03/2023	30/03/2023	30/03/2023
pH 1:5 soil:water	pH Units	6.9	6.6	6.7	6.6
Electrical Conductivity 1:5 soil:water	µS/cm	270	50	88	100

Excavated natural material order					
Our Reference		319626-1	319626-2	319626-3	319626-4
Your Reference	UNITS	219/DSI/1	219/DSI/2	219/DSI/3	219/DSI/4
Depth		surface	surface	surface	surface
Date Sampled		24/03/2023	24/03/2023	24/03/2023	24/03/2023
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	30/03/2023	30/03/2023	30/03/2023	30/03/2023
Date analysed	-	30/03/2023	30/03/2023	30/03/2023	30/03/2023
Sample Mass Tested	g	4,500	3,900	3,000	3,400
Rubber, plastic, bitumen	%	<0.05	<0.05	<0.05	<0.05
paper, cloth, paint and wood	%	<0.05	<0.05	<0.05	<0.05

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.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439 and USEPA 1311. Please note that the mass used may be scaled down from default based on sample mass available. Samples are stored at 2-6oC before and after leachate preparation.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-080	This method is based on RTA T276 and as per NSW DECC Resource Recovery Exemption Guidelines. RTA T276 requires at least 6kg of sample for this test. Where foreign materials are found, more details may be available on the types and/or quantities in the Comments section of the report.
Metals-020	Determination of various metals by ICP-AES.
Metals-020	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.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-021	Determination of Mercury by Cold Vapour AAS 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.
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.

Method ID	Methodology Summary
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.
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	Leachates are extracted 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 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-3	319626-2
Date extracted	-			29/03/2023	1	29/03/2023	29/03/2023		29/03/2023	29/03/2023
Date analysed	-			30/03/2023	1	30/03/2023	30/03/2023		30/03/2023	30/03/2023
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	98	88
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	98	88
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	92	86
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	100	90
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	95	92
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	101	86
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	105	86
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	104	1	111	95	16	108	99

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	319626-2
Date extracted	-			29/03/2023	1	29/03/2023	29/03/2023		29/03/2023	29/03/2023
Date analysed	-			29/03/2023	1	29/03/2023	29/03/2023		29/03/2023	29/03/2023
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	131	128
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	133	125
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	140	<100	33	114	88
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	131	128
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	170	160	6	133	125
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	<100	<100	0	114	88
Surrogate o-Terphenyl	%		Org-020	87	1	94	94	0	101	93

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	319626-2
Date extracted	-			29/03/2023	1	29/03/2023	29/03/2023		29/03/2023	29/03/2023
Date analysed	-			30/03/2023	1	30/03/2023	30/03/2023		30/03/2023	30/03/2023
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	93	103
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	95	103
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	93	99
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	106
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	100	112
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	119
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	89	103
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	<0.05	<0.05	0	90	98
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	118	1	132	132	0	108	124

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	319626-2
Date extracted	-			29/03/2023	1	29/03/2023	29/03/2023		29/03/2023	29/03/2023
Date analysed	-			30/03/2023	1	30/03/2023	30/03/2023		30/03/2023	30/03/2023
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96	106
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	110	118
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	107	119
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	109	120
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	108	122
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	123
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	116	135
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	133	113
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	112
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	70	87
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	103	1	110	107	3	101	107

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	319626-2
Date extracted	-			29/03/2023	1	29/03/2023	29/03/2023		29/03/2023	29/03/2023
Date analysed	-			30/03/2023	1	30/03/2023	30/03/2023		30/03/2023	30/03/2023
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	135	136
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	104	114
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	140	118
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	128	134
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	106	124
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	136	126
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	125	137
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	103	1	110	107	3	101	107

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	319626-2
Date extracted	-			29/03/2023	1	29/03/2023	29/03/2023		29/03/2023	29/03/2023
Date analysed	-			30/03/2023	1	30/03/2023	30/03/2023		30/03/2023	30/03/2023
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	122	120
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	103	1	110	107	3	101	107

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	319626-2
Date prepared	-			29/03/2023	1	29/03/2023	29/03/2023		29/03/2023	29/03/2023
Date analysed	-			29/03/2023	1	29/03/2023	29/03/2023		29/03/2023	29/03/2023
Arsenic	mg/kg	4	Metals-020	<4	1	5	4	22	105	81
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	101	87
Chromium	mg/kg	1	Metals-020	<1	1	52	58	11	112	88
Copper	mg/kg	1	Metals-020	<1	1	13	12	8	113	102
Lead	mg/kg	1	Metals-020	<1	1	25	25	0	110	78
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	99	100
Nickel	mg/kg	1	Metals-020	<1	1	7	7	0	108	77
Zinc	mg/kg	1	Metals-020	<1	1	55	56	2	111	74

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	319626-2
Date extracted	-			03/04/2023	1	03/04/2023	03/04/2023		03/04/2023	03/04/2023
Date analysed	-			03/04/2023	1	03/04/2023	03/04/2023		03/04/2023	03/04/2023
Arsenic	mg/L	0.05	Metals-020	<0.05	1	<0.05	<0.05	0	112	112
Cadmium	mg/L	0.01	Metals-020	<0.01	1	<0.01	<0.01	0	90	111
Chromium	mg/L	0.01	Metals-020	<0.01	1	0.01	<0.01	0	100	126
Lead	mg/L	0.03	Metals-020	<0.03	1	<0.03	<0.03	0	97	125
Mercury	mg/L	0.0005	Metals-021	<0.0005	1	<0.0005	<0.0005	0	85	106
Nickel	mg/L	0.02	Metals-020	<0.02	1	<0.02	<0.02	0	97	123

QUALITY CONTROL: PAHs in TCLP (USEPA 1311)						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	319626-2
Date extracted	-			31/03/2023	1	31/03/2023	31/03/2023		31/03/2023	31/03/2023
Date analysed	-			01/04/2023	1	01/04/2023	01/04/2023		01/04/2023	01/04/2023
Naphthalene in TCLP	mg/L	0.001	Org-022/025	<0.001	1	<0.001	<0.001	0	62	61
Acenaphthylene in TCLP	mg/L	0.001	Org-022/025	<0.001	1	<0.001	<0.001	0	[NT]	[NT]
Acenaphthene in TCLP	mg/L	0.001	Org-022/025	<0.001	1	<0.001	<0.001	0	67	68
Fluorene in TCLP	mg/L	0.001	Org-022/025	<0.001	1	<0.001	<0.001	0	70	70
Phenanthrene in TCLP	mg/L	0.001	Org-022/025	<0.001	1	<0.001	<0.001	0	78	77
Anthracene in TCLP	mg/L	0.001	Org-022/025	<0.001	1	<0.001	<0.001	0	[NT]	[NT]
Fluoranthene in TCLP	mg/L	0.001	Org-022/025	<0.001	1	<0.001	<0.001	0	75	73
Pyrene in TCLP	mg/L	0.001	Org-022/025	<0.001	1	<0.001	<0.001	0	77	74
Benzo(a)anthracene in TCLP	mg/L	0.001	Org-022/025	<0.001	1	<0.001	<0.001	0	[NT]	[NT]
Chrysene in TCLP	mg/L	0.001	Org-022/025	<0.001	1	<0.001	<0.001	0	68	68
Benzo(bjk)fluoranthene in TCLP	mg/L	0.002	Org-022/025	<0.002	1	<0.002	<0.002	0	[NT]	[NT]
Benzo(a)pyrene in TCLP	mg/L	0.001	Org-022/025	<0.001	1	<0.001	<0.001	0	74	60
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	0.001	Org-022/025	<0.001	1	<0.001	<0.001	0	[NT]	[NT]
Dibenzo(a,h)anthracene in TCLP	mg/L	0.001	Org-022/025	<0.001	1	<0.001	<0.001	0	[NT]	[NT]
Benzo(g,h,i)perylene in TCLP	mg/L	0.001	Org-022/025	<0.001	1	<0.001	<0.001	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	77	1	93	80	15	80	86

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			30/03/2023	1	30/03/2023	30/03/2023		30/03/2023	[NT]
Date analysed	-			30/03/2023	1	30/03/2023	30/03/2023		30/03/2023	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	1	6.9	7.0	1	99	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	1	270	190	35	101	[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.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

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

RTA_ENM: A 6kg mass of sample should be supplied to comply with the RTA method.

CHAIN OF CUSTODY - Client

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Client: CSH Consulting	**Client Project Name / Number / Site etc (ie report title):** 219
Contact Person: Kevin King	
Project Mgr: Kevin King	**PO No.:**
Sampler: Kevin King	**Envirolab Quote No. :**
Address: 3 Pass Ave, Thirroul, NSW, 2515	**Date results required:** 5 DTA **Or choose:** *Note: Inform lab in advance if urgent turnaround is required - surcharges apply*
Phone: **Mob:** 0400 439787	**Additional report format: esdat / equis /**
Email: kevin@cshconsulting.com.au joshua@cshconsulting.com.au admin@cshconsulting.com.au	**Lab Comments:**

Sample information					Tests Required															Comments
Envirolab Sample ID	Client Sample ID or information	Depth	Date sampled	Type of sample	combo 13 + asb	ENM Suite														Provide as much information about the sample as you can
1	219/DSI/1	surface	24/03/2023	soil	x	x														
2	219/DSI/2	surface	24/03/2023	soil	x	x														
3	219/DSI/3	surface	24/03/2023	soil	x	x														
4	219/DSI/4	surface	24/03/2023	soil	x	x														
5	219/DSI/Rinse/1																			

☐ ***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):	**CSH Consulting P/L**	**Received by (Company):**	ES SGH
Print Name:	**Joshua King**	**Print Name:**	CM.
Date & Time	28/03/2023	**Date & Time:**	28/3 1100 AM
Signature:		**Signature:**	

Lab Use Only

Job number:	319626
Temperature:	15
Cooling: Ice / Ice pack / None	
Security seal: Intact / Broken / None	
TAT Req - SAME day / 1 / 2 / 3 / 4 / STD	