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1 August 2025

TOONGABBIE BRIDGE UPGRADE

Toongabbie, NSW

GEOTECHNICAL INVESTIGATION

Turnbull Engineering

Job No. SYD2025-0065 | Version 0

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Version Control

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Review and Update History

Revision	Date	Comments
0	1/08/2025	Prior to receipt of 1 No. 10-day soaked CBR test

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Appendices

Figures and Tables

1.0 INTRODUCTION

CMW Geosciences (CMW) is engaged by Turnbull Engineering to carry out a geotechnical investigation, waste classification and design of a bored pile wall and an L-shaped retaining wall for the proposed traffic improvement works around of Toongabbie Bridge - Toongabbie, NSW. This report includes only the geotechnical investigation (GI) and waste classification. The standalone design report will be provided separately.

1.1 Scope

The scope of GI and waste classification work and associated terms and conditions of our engagement were detailed in our services proposal letter referenced SYD2025-0065, Rev 0 dated 21 March 2025. This report includes the following scope of works:

- Report detailing the investigation methods and results.
- Description of the encountered ground conditions, including groundwater observation where relevant.
- A site plan indicating all proposed field investigation/test locations.
- Detailed borehole logs, including coordinates, soil descriptions, and colour photographs.
- Results of the laboratory testing.
- Site classification in accordance with AS2870 and options to improve the classification by the removal and replacement of material with select fill (if applicable).
- Waste classification based on laboratory testing on samples collected from borehole and pavement core locations.
- Comment on any other relevant critical geotechnical issues or risks that may affect the proposed development.

2.0 SITE DESCRIPTION

The investigation was carried out on Wentworth Avenue, Toongabbie, NSW, adjacent to a vegetated embankment and in the vicinity of a railway line. The site comprised asphalt pavement with a slight slope toward the kerb, bordered by mature trees and a guard rail. The area was accessible via Junia Avenue Service Road and was partially surrounded by parked vehicles during the investigation and residential properties. The general site condition and investigation locations are shown in Figures 1-5.

Figure 1: View looking southeast over BH01 location.

Figure 2: View looking south over BH01 location, post drilling works.

Figure 3: View looking east over BH02 location.

Figure 4: View looking east over BH02 location.

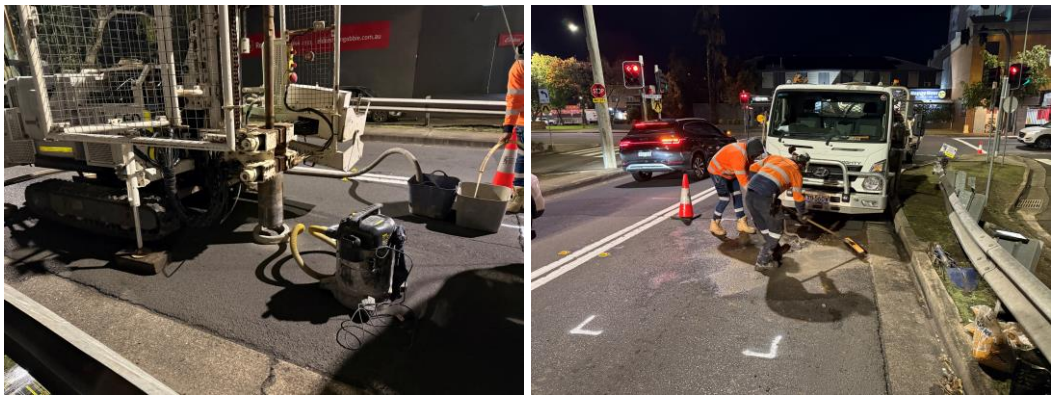

Figure 5: PC01 location

3.0 FIELDWORK

Following a Before You Dig Australia search, the field investigation was undertaken on the 7th (nightshift – pavement cores), 9-10th (dayshifts - boreholes) of July 2025. All fieldwork was carried out under fulltime presence of a CMW geotechnical engineer and in general accordance with AS1726 (2017), Geotechnical Site Investigations and standard CMW field practices.

The fieldwork activities below were carried out by CMW personnel and subcontractors / subconsultants:

- Undertake a walkover survey of the site to assess the general landform, site conditions and adjacent structures/infrastructure.
- Drill two (2) boreholes to a depth of 10m (for L-shaped wall) and 20m (for bore pile wall), using continuous flight augering and HQ coring methods. Sampling was achieved using manual collection of soil samples and SPT tests at maximum 1.5m intervals.
- Drill three (3) pavement cores with a geotechnical site investigation drilling rig to depths of 1.5m through the pavement, using a Diatube through the pavement layers and then a continuous flight auger to a depth of 1.5m. Sampling was achieved from the auger after a Dynamic Cone Penetration test had been carried out to assess the formation density/consistency profiles.
- Waste Classification sampling, testing and reporting.
- Record groundwater observations during borehole drilling, and at a short time after the completion of borehole drilling.
- Log all boreholes and pavement cores in general accordance with AS1726-2017 *Geotechnical Site Investigations*, to be completed by our on-site Geotechnical Engineer or Engineering Geologist.
- Laboratory testing (geotechnical and aggressivity) of selected soil and rock samples.

The approximate borehole locations are shown in Figure 6 and pavement coring locations are shown in Figure 7 below.

Figure 6: Approximate borehole Investigation Locations.

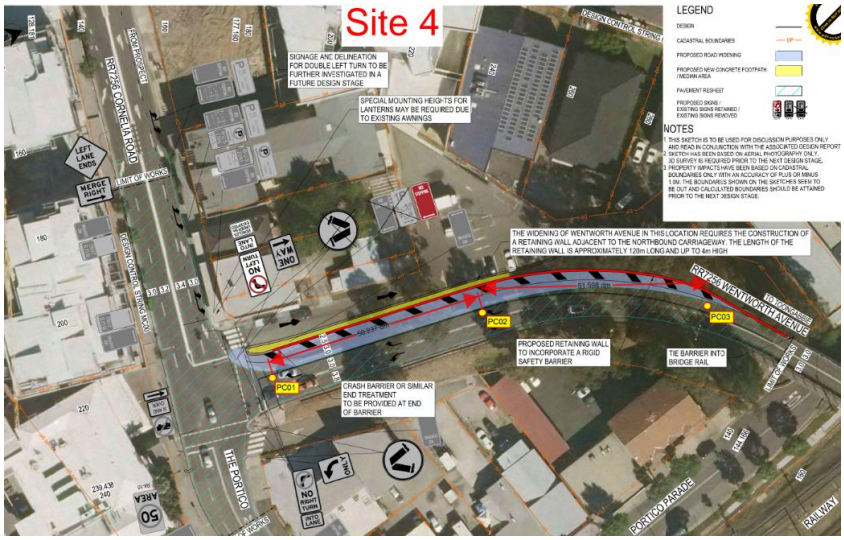

Figure 7: Approximate Pavement Coring Investigation Locations.

3.1 Borehole Investigation

The location and termination depth of the completed boreholes are summarised in Table 1. This table includes the coordinates and elevations collected during fieldwork using a hand-held GPS gear with ±5m accuracy as outlined in our proposal. The coordinate system used is GDA94. The borehole logs are provided in Appendix A.

Table 1: Summary of borehole locations and termination depths.

Borehole ID	Depth (m, bgl)	Elevation (mAHD)	Easting (m)	Northing (m)	Termination Criteria
BH01	10.0	32.0	310215	6259620	Target Depth Reached
BH02	20.0	35.0	310228	6259663	Target Depth Reached

3.2 Pavement Coring Investigations

The location and termination depth of the completed pavement cores are summarised in Table 2. This table includes the coordinates and elevations collected during fieldwork using a hand-held GPS gear with ±5m accuracy as outlined in our proposal. The coordinate system used is GDA94. The pavement core logs are provided in Appendix A.

Table 2: Summary of pavement core locations and termination depths.

Borehole ID	Depth (m, bgl)	Elevation (mAHD)	Easting (m)	Northing (m)	Termination Criteria
PC01	1.50	33.0	310217	6259564	Target Depth Reached
PC02	1.50	34.0	310221	6259605	Target Depth Reached
PC03	1.50	36.0	310242	6259655	Target Depth Reached

4.0 LABORATORY TESTING

A summary of laboratory testing quantities can be found in Table 3 below while a summary of the results is provided below in Tables 4 and 5. Laboratory test certificates are provided in Appendix B.

Table 3: Summary of geotechnical laboratory tests.

Test	Standard Reference	Quantity
Particle Size Distribution (Sieve Analysis)	AS1289 3.6.1	3
Atterberg Limits and Linear Shrinkage	AS1289 3.9.2 & 3.2.1 & 3.3.1 & 3.4.1	4
Moisture Content	AS1289.2.1.1	4
Emerson class number	AS1289 3.8.1	2
Soil Aggressivity (pH, Cl, SO4, Magnesium, EC) (T123)	AS2159:2009	4
California Bearing Ratio (CBR)	AS1289 6.1.1, & 1.1, & 5.1.1, & 2.1.1	2 (1 No. 4-day soaked, and 1 No. 10-day soaked tests)*
* The result for 4-day soaked CBR test received. The 10-day soaked CBR test is pending, and will be provided separately.		

Table 4: Summary of the soil classification laboratory testing.

BH ID	Sample Depth (m)	Sample Description	Emerson Class number	Moisture Content (%)	Atterberg Limits		Linear Shrinkage (%)	% Particle Size Distribution		
					LL (%)	PI (%)		FINES	SAND	GRAVEL
BH01	2.5-2.95	Clayey Gravel	N/A	12.4	42	18	9.5	33	28	39

BH ID	Sample Depth (m)	Sample Description	Emerson Class number	Moisture Content (%)	Atterberg Limits		Linear Shrinkage (%)	% Particle Size Distribution		
					LL (%)	PI (%)		FINES	SAND	GRAVEL
BH02	4.0-4.45	Clayey Gravel	N/A	12.7	47	22	9.5	N/A	N/A	N/A
PC01	1.0-1.5	Clay	2	14.0	34	15	7.5	89	3	8
PC02	1.0-1.5	Clay	2	12.9	40	15	9.5	71	22	7

Table 5: Summary of the California Bearing Ratio (CBR) Results.

Borehole ID	Sample Depth (m)	Sample Description	Field Moisture Content (%)	Optimum Moisture Content (%)	Maximum Dry Density (t/m^3)	CBR Value (%)	Free Swell Index (%)
PC01 (4-day soaked)	1.0 – 1.5	Clay	14.9	15.0	1.88	4.0 @ 2.5mm	1.5
PC02 (10-day soaked)	TBA	TBA	TBA	TBA	TBA	TBA	TBA*
* The result for 4-day soaked CBR test received. The 10-day soaked CBR test is pending, and will be provided separately.							

4.1 Aggressivity Testing

Aggressivity tests were carried out on samples collected from the investigation locations.

Table 6 below presents extracts of Table 6.4.2(c) of AS2159:2009 which designates the exposure classification for concrete piles in soils based on the aggressivity assessment laboratory test results.

Table 6: Exposure classification criteria for concrete piles in soil (AS2159-2009).

Exposure Conditions			Exposure Classification	
Sulfates (expressed as SO4*)		pH	Soil conditions A*	Soil conditions B**
In soil (ppm)	In groundwater (ppm)			
<5000	<1000	>5.5	Mild	Non-aggressive
5000-10000	1000-3000	4.5-5.5	Moderate	Mild
10000-20000	3000-10000	4.0-4.5	Severe	Moderate
>20000	>10000	<4.0	Very Severe	Severe
*Soil Condition A – high permeability soils (sands and gravels) that are in groundwater **Soil Condition B – low permeability soils (silts and clays) or all soils above groundwater				

Results for the chemical testing of the subsurface material indicate that the soil within the tested depths in the investigated locations have:

- pH ranging between 5.8 and 8.

- Chloride ion ranging between 91 mg/kg and 1500 mg/kg.
- Sulfates ranging between 35 ppm to 220 ppm.
- Resistivity ranging between 1200 Ω.cm and 9600 Ω. cm.

Based on the classification criteria outlined in Table 6, summary of the lab results for Exposure Classification assessment for concrete piles are presented in the Table 7 below.

Table 7: Summary of Exposure Classification Test Results for concrete.

Exposure Classification Assessment Test Results for Concrete							
Location ID	Sample Depth (mbgl)	pH	SO4 (mg/kg ≡ ppm)	Cl (mg/kg)	Resistivity (ohm.cm)	Exposure Classification	
						Soil Condition	Assessment
BH01	2.00	8	220	1300	1200	B*	Non-aggressive
BH02	3.9	7	74	1500	900	B*	Non-aggressive
PC01	1.0	5.8	35	190	4000	B*	Non-aggressive
PC02	0.30	6.4	61	91	9600	B*	Non-aggressive
*Soil Condition B – low permeability soils (silts and clays) or all soils above groundwater							

5.0 GROUND CONDITIONS

5.1 Surface Geology

A review of available geological references for the area suggests the site is underlain by Alluvial valley deposits comprising silt, clay, lithic to quartz-lithic sand and gravel, underlain by Mesozoic rocks (Sydney Basin) dominantly comprising Siltstone and Sandstone. The groundwater associated with Girraween Creek is inferred to be shallow to moderate depth. Refer to Figure 8 for the geological conditions at the site.

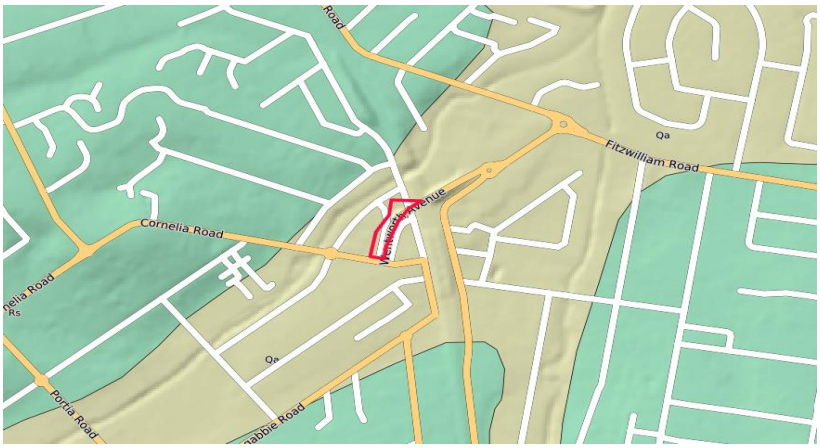

Figure 8: Anticipated geological conditions at the site (Source – MinView), with project area overlay (red outline).

5.2 Description of the Geological Units

The ground conditions encountered and inferred from the site investigation were generally consistent with the published geology for the area and can be generalised according to the following sequence of units.

Unit 1	FILL	CLAY (CL) / Sandy SILT (ML) typically low plasticity, brown.
Unit 2	ALLUVIUM	CLAY (CL/CI) / Sandy CLAY typically medium plasticity, brown-grey.
Unit 3	RESIDUAL SOIL	Clayey GRAVEL (GC) typically fine to medium grained, angular to sub-angular, dark grey.
Unit 4	BEDROCK	SILTSTONE, distinctly laminated with SANDSTONE.

5.3 Groundwater

Groundwater was encountered at borehole BH02 at 4.5m bgl. A summary of the groundwater depth (at the time of the site investigation) at each investigation location can be found in Table 8 below.

Table 8: Summary of the groundwater depth encountered.

Borehole ID	Groundwater Depth (m)
BH01	Not encountered
BH02	4.5
PC01	Not encountered
PC02	Not encountered
PC03	Not encountered

5.4 Stratigraphy

Table 9 provides a summary of the subsurface units encountered in the completed two (2) boreholes. Please refer to the investigation logs provided in Appendix A for further details.

Table 9: Summary of the ground conditions encountered.

Borehole ID	Unit 1 (m bgl)	Unit 2 (m bgl)	Unit 3 (m bgl)	Unit 4(m bgl)
BH01	0.0-0.5	0.5-2.5	2.5-5.5	5.5-10*
BH02	0.0-0.2	0.2-4.0	4.0-5.5	5.5-20*
PC01	0.3-1.5*			
PC02	0.3-1.5*			
PC03	0.3-1.5*			
* Target depth reached				

6.0 GEOTECHNICAL ASSESSMENT AND RECOMMENDATIONS

6.1 Site Classification

Australian Standard AS2870-2011 'Residential Slabs and Footings' provides guidance on classifying each site by estimating the characteristic surface movement (ys).

Based on the site investigation and laboratory test results, the site would be classified as ***"S – Slightly reactive clay sites, which may experience only slight ground movement from moisture changes"*** sites. The typical soil movement over the footprint of investigation is estimated to be between 0mm-20mm. The assessment was based on the profile observed in the boreholes based on the following parameters:

- Depth of Suction Change H_s = 1.5m for Sydney Region (Australian Standard 2870, 2011)
- Design suction change of Δu = 1.2pF (Australian Standard 2870, 2011)
- Cracked depth of 0.75m (Australian Standard 2870, 2011)

This site classification provides a guide to the level of surface movement due to seasonal moisture changes that could be expected on the site. It is to be noted that this site classification is based on material encountered in the boreholes of alluvial soils.

7.0 WASTE CLASSIFICATION

Based on our understanding of the preliminary development concept and our knowledge of the anticipated ground conditions on site, we have undertaken the below scope of services for waste classification.

The waste classification was carried out concurrently with the geotechnical investigation with standalone reporting for the investigation locations. In accordance with the technical specifications, the contamination investigation comprised of the following:

- Preliminary desktop study.
- Sampling, analysis, and quality plan. Selected soil samples were submitted to NATA accredited laboratories for analysis for assumed standard contaminants of concern.
- Preparation of a standalone waste classification report including presentation of soil results screening against relevant criteria, development of conclusions and recommendations including any remediation or contamination management requirements for the proposed development. Waste classification reporting was done by CMW consultant FYFE Pty Ltd. The results are presented in Appendix C.

8.0 CONSTRUCTION CONSIDERATIONS

8.1 Fill and Stripping and Site Preparation

It is recommended that the fill layers at borehole locations (approximately 500mm at BH01 location and 200mm at BH02 location) and softened/disturbed natural materials be stripped from the proposed footprint of the structure. The extent of unsuitable materials to be removed would need to be assessed during site earthworks.

8.2 Site Preparation/Earthworks

8.2.1 General

Earthworks construction should be undertaken in general accordance with AS3798:2007 'Guidelines on Earthworks for Commercial or Residential Developments' or a project specific specification.

Since cohesive material was encountered onsite, in case any clayey soil is exposed at formation level, the exposed surface should be ripped, moisture conditioned to be within +/-2% of optimum moisture content (OMC) and compacted with a pad foot roller of at least 10 tonne static weight to identify any soft, wet, or weak areas which may require remedial works. Such areas would need to be treated with over-excavation and replacement.

Following proof rolling, where ground levels need to be raised using engineered fill, the engineered fill should be spread and compacted in layers not exceeding 300mm in loose thickness to achieve a dry density ratio of at least 98% based on Standard Compaction (AS1289.5.1.1). The engineered fill should be tested to meet the technical and control requirements outlined in AS3798. A maximum loose layer thickness of around 300mm is envisaged, although this would need to be assessed based on the compaction methodology and materials used.

The suitability of imported materials for filling should be subject to the following criteria:

- The materials should be clean (i.e., free of contaminants, deleterious or organic material), free of inclusions of >200mm in size.
- Material with excessive moisture content should not be used without conditioning.
- The materials should satisfy the Australian Standard AS 3798-2007 Guidelines on earthworks for commercial and residential developments.
- The final surface levels of all cut and fill areas should be compacted to enable the subgrade to achieve adequate strength for the proposed working platforms.
- For fill construction, the recommended compaction targets should be the following:
  - Moisture content of ±2% of OMC (Optimal Moisture Content).
  - Minimum density ratio of 98% of the maximum dry density for working platforms.
  - The thickness of a single compacted layer should not exceed 300mm during compaction.
  - All earthworks on site should be undertaken under a Level 1 supervision as per AS3798.

9.0 CLOSURE

This report has been prepared for use by Turnbull Engineering in relation to the Toongabbie bridge upgrade project in accordance with the scope, proposed uses and limitations described in the report. Should you have further questions relating to the use of your report please do not hesitate to contact us.

Where a party other than Turnbull Engineering seeks to rely upon or otherwise use this report, the consent of CMW should be sought prior to any such use. CMW can then advise whether the report and its contents are suitable for the intended use by the other party.

USING YOUR CMW GEOTECHNICAL REPORT

Geotechnical reporting relies on interpretation of facts and collected information using experience, professional judgement, and opinion. As such it generally has a level of uncertainty attached to it, which is often far less exact than other engineering design disciplines. The notes below provide general advice on what can be reasonably expected from your report and the inherent limitations of a geotechnical report.

Preparation of your report

Your geotechnical report has been written for your use on your project. The contents of your report may not meet the needs of others who may have different objectives or requirements. The report has been prepared using generally accepted Geotechnical Engineering and Engineering Geology practices and procedures. The opinions and conclusions reached in your report are made in accordance with these accepted principles. Specific items of geotechnical or geological importance are highlighted in the report.

In producing your report, we have relied on the information which is referenced or summarised in the report. If further information becomes available or the nature of your project changes, then the findings in this report may no longer be appropriate. In such cases the report must be reviewed, and any necessary changes must be made by us.

Your geotechnical report is based on your project's requirements

Your geotechnical report has been developed based on your specific project requirements and only applies to the site in this report. Project requirements could include the type of works being undertaken; project locality, size and configuration; the location of any structures on or around the site; the presence of underground utilities; proposed design methodology; the duration or design life of the works; and construction method and/or sequencing.

The information or advice in your geotechnical report should not be applied to any other project given the intrinsic differences between different projects and site locations. Similarly geotechnical information, data and conclusions from other sites and projects may not be relevant or appropriate for your project.

Interpretation of geotechnical data

Site investigations identify subsurface conditions at discrete locations. Additional geotechnical information (e.g. literature and external data source review, laboratory testing etc) are interpreted by Geologists or Engineers to provide an opinion about a site specific ground models, their likely impact on the proposed development and recommended actions. Actual conditions may differ from those inferred to exist due to the variability of geological environments. The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. Interpretation of factual data can be influenced by design and/or construction methods. Where these methods change review of the interpretation in the report may be required.

Subsurface conditions can change

Subsurface conditions are created by natural processes and then can be altered anthropically or over time. For example, groundwater levels can vary with time or activities adjacent to your site, fill may be placed on a site, or the consistency of near surface conditions might be susceptible to seasonal changes. The report is based on conditions which existed at the time of investigation. It is important to confirm whether conditions may have changed, particularly when large periods of time have elapsed since the investigations were performed.

Interpretation and use by other design professionals

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a geotechnical report. To help avoid misinterpretations, it is important to retain the assistance of CMW to work with other project design professionals who are affected by the contents of your report. CMW staff can explain the report implications to design professionals and then review design plans and specifications to see that they have correctly incorporated the findings of this report.

Your report's recommendations require confirmation during construction

Your report is based on site conditions as revealed through selective point sampling. Engineering judgement is then applied to assess how indicative of actual conditions throughout an area the point sampling might be. Any assumptions made cannot be substantiated until construction is complete. For this reason, you should retain geotechnical services throughout the construction stage, to identify variances from previous assumption, conduct additional tests if required and recommend solutions to problems encountered on site.

A Geotechnical Engineer, who is fully familiar with the site and the background information, can assess whether the report's recommendations remain valid and whether changes should be considered as the project develops. An unfamiliar party using this report increases the risk that the report will be misinterpreted.

Environmental matters are not covered

Unless specifically discussed in your report environmental matters are not covered by a CMW Geotechnical Report. Environmental matters might include the level of contaminants present of the site covered by this report, potential uses or treatment of contaminated materials or the disposal of contaminated materials. These matters can be complex and are often governed by specific legislation.

The personnel, equipment, and techniques used to perform an environmental study can differ significantly from those used in this report. For that reason, our report does not provide environmental recommendations. Unanticipated subsurface environmental problems can have large consequences for your site. If you have not obtained your own environmental information about the project site, ask your CMW contact about how to find environmental risk-management guidance.

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APPENDIX A
Borehole Logs

BOREHOLE LOG - BH01

Client: Turnbull Engineering
Project: Toongabbie bridge upgrade geotechnical services
Location: Toongabbie, NSW
Project ID: SYD2025-0065
Date: 10/07/2025

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Logged by: CW
Checked by: AB

Position: E.310215m N.6259620m
Elevation: 32 m

Hole Diameter: 96mm
Angle from horizontal: 90°

Plant: Massenza MI3
Contractor: Stratacore Drilling

Drilling Method	Groundwater	Coring TCR	Coring SCR	Coring RQD	RL (m)	Depth (m)	Geological Unit	Graphic Log	Rock/Soil Description	Density/ Consistency	Moisture Condition	Rock Strength Classification (VL L M H VH EH; UCS (MPa) / Correlated UCS (Is50))	Cementation/ Weathering	Defect Spacing (mm) (<20, 20-40, 40-100, 100-300, 300-1000, >1000)	Samples, test results and additional Data
AD/T					32.0				ASPHALT						0.10-0.50m: FILL
					32.0				CL: CLAY: FILL: low plasticity; dark brown; with sand, fine grained, angular to sub-angular.						0.10-0.15m:ES
					31.5				CL: Sandy CLAY: low plasticity; brown; sand, fine grained, angular to sub-angular; stiff.						0.40-0.50m:ES 0.50-2.50m: ALLUVIUM 0.50m:PP=400kPa 0.5m:SPT: (5,7,8) N=15 0.90-1.00m:ES
					31.0	1			CI: CLAY: medium plasticity; pale grey mottled brown; with fine grained sand; very stiff.	VSt	<PL				1.00m:PP=450kPa 1.0m:SPT: (5,7,9) N=16
						2									2.00-2.10m:ES
					29.5				GC: Clayey GRAVEL: fine to medium grained; angular to sub-angular; grey mottled brown; Clay is medium plasticity; with sand, fine grained, angular to sub-angular; trace XW siltstone fragments.	D to VD					2.50-4.20m: RESIDUAL 2.50m:PP=300kPa 2.5m:SPT: (6,8,7) N=15
						3									3.00-3.10m:ES
						4					M				3.90-4.00m:ES 4.0m:SPT: (8,12/130mm) N=R
					27.8				XW SILTSTONE: recovered as Clayey GRAVEL: fine to medium grained; angular; dark grey; Clay is low plasticity; with sand, fine grained, angular to sub-angular	VD					4.20-5.50m: EXTREMELY WEATHERED MATERIAL
						5									
HQ3		100	100	75	26.5				SILTSTONE: dark grey, distinctly laminated (0°).				HW		5.50-10.00m: SILTSTONE 5.50m: SPT Refusal 5.72-5.90m:C 5.73-5.77m:C
					26.0	6			SILTSTONE: laminated, distinctly bedded (0-5°); dark grey ; interbedded with SANDSTONE, pale grey, thinly bedded (2-5mm thick)						5.92m:PT, 0°, CN 6.31-6.33m:JT, 70°, CN 6.49m:PT, 0°, CO, (clay) 6.52-6.66m:C 6.53-6.57m:C
						7									7.37m:PT, 0°, CO, (clay) 7.56m:PT, 0°, CO, (clay)
						8							MW to SW		7.89-8.00m:C 7.90-7.94m:C 8.06-8.08m:JT, 70°, CN 8.10-8.13m:JT, 65°, CN 8.34-8.38m:JT, 45°, CN 8.38-8.43m:JT, 40°, CN 8.60-8.64m:JT, 45°, CN
		100	100	88	23.0	9			SILTSTONE: laminated, distinctly bedded (0-5°); dark grey ; interbedded with SANDSTONE, pale grey, thinly bedded (2-10mm thick)						8.79-8.88m:C 8.80-8.84m:C 9.27-9.34m:JT, 35°, CN 9.46-9.58m:C 9.47-9.51m:C
						10			Borehole terminated at 10.00 m						

Termination reason: Target depth reached

Remarks: Pocket Penetrometer Equipment Ref.: PP04

PHOTOGRAPH SHEET - BH01

Client: Turnbull Engineering
Project: Toongabbie bridge upgrade geotechnical services
Location: Toongabbie, NSW
Project ID: SYD2025-0065
Date: 10/07/2025

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BOREHOLE LOG - BH02

Client: Turnbull Engineering
Project: Toongabbie bridge upgrade geotechnical services
Location: Toongabbie, NSW
Project ID: SYD2025-0065
Date: 09/07/2025

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1:50 Sheet 1 of 2

Logged by: CW
Checked by: AB

Position: E.310228m N.6259663m
Elevation: 35 m

Hole Diameter: 96mm
Angle from horizontal: 90°

Plant: Massenza MI3
Contractor: Stratacore Drilling

Drilling Method	Groundwater	Coring TCR	Coring SCR	Coring RQD	RL (m)	Depth (m)	Geological Unit	Graphic Log	Rock/Soil Description	Density/ Consistency	Moisture Condition	Rock Strength Classification (VL L M H VH EH; UCS (MPa) / Correlated UCS (Is50))	Cementation/ Weathering	Defect Spacing (mm) (<20, 20-40, 40-100, 100-300, 300-1000, >1000)	Samples, test results and additional Data
AD/T					35.0				ML: Sandy SILT: FILL: low plasticity; dark brown; sand, fine grained, angular to sub-angular; Rootlets present						0.00-0.20m: FILL
					34.8				CI: CLAY: medium plasticity; dark grey-brown; with fine grained sand	St to VSt	<PL				0.10-0.15m:ES 0.20-4.00m: ALLUVIUM 0.40-0.50m:ES 0.50m:PP=150kPa 0.5m:SPT: (3,3,4) N=7
						1									0.90-1.00m:ES 1.00m:PP=400kPa 1.0m:SPT: (4,6,8) N=14
					33.0	2			CH: CLAY: high plasticity; dark grey-brown; with sand, fine grained, angular to sub-angular						2.50m:PP=200kPa 2.5m:SPT: (3,3,4) N=7
					32.0	3			CL: Sandy CLAY: low plasticity; brown; sand, fine grained, angular to sub-angular	St	≈PL				
					31.0	4			GC: Clayey GRAVEL: fine to medium grained; angular to sub-angular; grey mottled brown; Clay is medium plasticity; with sand, fine grained, angular to sub-angular; trace XW siltstone fragments.	MD to D	M to W				3.90-4.00m:ES 4.00-5.00m: RESIDUAL 4.00m:PP=250kPa 4.0m:SPT: (3,3,6) N=9
					30.0	5			XW Material: recovered as Clayey GRAVEL: fine to medium grained; angular; dark grey; Clay is low plasticity; with sand, fine grained, angular to sub-angular	VD	W				5.00-5.50m: EXTREMELY WEATHERED MATERIAL
HQ3		100	58	28	29.5				SILTSTONE: dark grey, distinctly laminated (0°).				HW MW to SW		5.50-20.00m: SILTSTONE 5.50m: SPT Refusal 5.5m:SPT: (2/20mm) N=R 5.57-5.70m:SZ 5.74-5.77m:SZ 5.75m:C 5.76m:C 5.88m:PT, 0°, CN 5.92m:PT, 0°, CN 5.93m:PT, 0°, CN
						6									6.82m:C 6.83m:PT, 0°, CN 6.83m:C
		100	100	76	27.6	7			SILTSTONE: distinctly laminated (0-5°); dark grey ; interbedded with SANDSTONE, pale grey, thinly bedded (2-10mm thick)				SW		7.39m:C 7.40m:C 7.52m:PT, 0°, CN
						8									8.87m:C 8.88m:C
						9									9.68m:PT, 0°, CN 9.73m:C 9.74m:PT, 0°, CN 9.74m:C
						10									

Termination reason: Target depth reached

Remarks: Pocket Penetrometer Equipment Ref.: PP04

BOREHOLE LOG - BH02

Client: Turnbull Engineering
Project: Toongabbie bridge upgrade geotechnical services
Location: Toongabbie, NSW
Project ID: SYD2025-0065
Date: 09/07/2025

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1:50 Sheet 2 of 2

Logged by: CW
Checked by: AB

Position: E.310228m N.6259663m
Elevation: 35 m

Hole Diameter: 96mm
Angle from horizontal: 90°

Plant: Massenza MI3
Contractor: Stratacore Drilling

Drilling Method	Groundwater	Coring TCR	Coring SCR	Coring RQD	RL (m)	Depth (m)	Geological Unit	Graphic Log	Rock/Soil Description	Density/ Consistency	Moisture Condition	Rock Strength Classification (VL L M H VH EH; UCS (MPa) / Correlated UCS (Is50))	Cementation/ Weathering	Defect Spacing (mm) (<20, 20-40, 40-100, 100-300, 300-1000, >1000)	Samples, test results and additional Data
HQ3		100	100	90	24.1	11			SILTSTONE: distinctly laminated (0-5°); dark grey ; interbedded with SANDSTONE, pale grey, thinly bedded (2-10mm thick)						10.60m:PT, 0°, CN 10.77m:C 10.78m:C
									SILTSTONE: distinctly laminated (5-10°); dark grey ; interbedded with SANDSTONE, pale grey, thinly bedded (2-10mm thick)						11.22-11.24m:PT, 5°, CN, 2X 11.54m:PT, 5°, CN 11.63m:PT, 5°, CN 11.88-11.90m:JT, 75°, CN 11.88m:C 11.89m:C 12.34-12.36m:JT, 80°, CN
		100	100	71		12									12.70m:C 12.71m:C 12.74m:PT, 0°, CN 13.10m:C 13.11m:C 13.90-14.24m:JT, 20°, CN
						13									14.23m:C 14.24m:C
					20.4	14			SILTSTONE: dark grey, distinctly laminated (0°)				SW		15.17m:C 15.18m:C 15.34m:PT, 0°, CN 16.03-16.19m:JT, 25°, CN
		100	100	71		15									16.43m:C 16.44m:C
						16									17.31m:C 17.32m:C
						17									18.05m:C 18.06m:C 18.08m:PT, 0°, CN 18.36m:PT, 1°, CN
		100	100	63		18									19.04m:PT, 1°, CN 19.19m:PT, 0°, CN, (epidote)
						19									19.59m:C 19.60m:C 19.71-20.00m:JT, CN, Sub-vertical
						20			Borehole terminated at 20.00 m						

Termination reason: Target depth reached

Remarks: Pocket Penetrometer Equipment Ref.: PP04

PHOTOGRAPH SHEET - BH02

Client: Turnbull Engineering
Project: Toongabbie bridge upgrade geotechnical services
Location: Toongabbie, NSW
Project ID: SYD2025-0065
Date: 09/07/2025

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PHOTOGRAPH SHEET - BH02

Client: Turnbull Engineering
Project: Toongabbie bridge upgrade geotechnical services
Location: Toongabbie, NSW
Project ID: SYD2025-0065
Date: 09/07/2025

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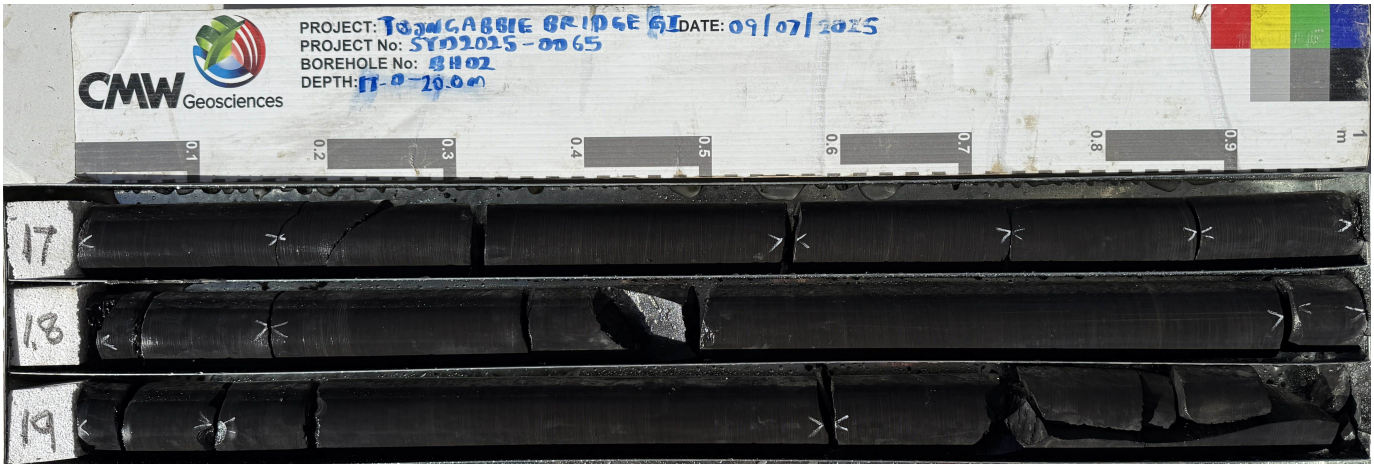

BOREHOLE LOG - PC01

Client: Turnbull Engineering
Project: Toongabbie bridge upgrade geotechnical services
Location: Toongabbie, NSW
Project ID: SYD2025-0065
Date: 07/07/2025

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1:20 Sheet 1 of 1

Logged by: CW Position: E.310217m N.6259564m Hole Diameter: 200mm
Checked by: AB Elevation: 33 m Angle from horizontal: 90° Contractor: Stratacore Drilling

Well	Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description: Soil Type, Plasticity or Particle Characteristics, Colour, Secondary and Minor Components	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & other observations
							ASPHALT AND STABILIZED SUB-BASE				
		0.3	ES	32.70			SM: FILL: Silty SAND: fine to medium grained, angular to sub-angular; pale yellow; silt, low plasticity; with gravel, medium to coarse grained, angular to sub-angular	M	MD		0.30-1.50m: Fill
				32.60			CL: FILL: Sandy CLAY: low plasticity; grey mottled brown; sand, fine to medium grained, angular to sub-angular; with gravel, fine to medium grained, angular to sub-angular; with extremely weathered siltstone fragments, fine to coarse grained, angular			7	
		0.5	ES							7	
										9	
										10	
		1.0	ES		1			<PL	VSt	10	
		1.0-1.5	BLK							10	
										9	
										9	
										10	
										10	
				31.50			Borehole terminated at 1.50 m				
					2						
					3						
					4						

DCP/PSP Equipment Ref.: | In Situ Vane Ref.: | Pocket Penetrometer Equipment Ref.:

Termination Reason: Target depth reached

Remarks:

This report must be read in conjunction with accompanying notes and abbreviations.

PHOTOGRAPH SHEET - PC01

Client: Turnbull Engineering
Project: Toongabbie bridge upgrade geotechnical services
Location: Toongabbie, NSW
Project ID: SYD2025-0065
Date: 07/07/2025

BOREHOLE LOG - PC02

Client: Turnbull Engineering
Project: Toongabbie bridge upgrade geotechnical services
Location: Toongabbie, NSW
Project ID: SYD2025-0065
Date: 07/07/2025

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1:20 Sheet 1 of 1

Logged by: CW Position: E.310221m N.6259605m Hole Diameter: 200mm
Checked by: AB Elevation: 34 m Angle from horizontal: 90° Contractor: Stratacore Drilling

Well	Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description (Soil Type, Plasticity or Particle Characteristics, Colour, Secondary and Minor Components)	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & other observations
							ASPHALT and STABILIZED SUB-BASE				
		0.3	ES	33.70			SM: FILL: Silty SAND: fine to medium grained, angular to sub-angular; grey-brown; silt, low plasticity; with gravel, medium to coarse grained, angular to sub-angular	M	MD	8	0.30-1.50m: Fill
		0.5	ES	33.55			CI: FILL: CLAY: medium plasticity; grey-brown; with sand, fine grained, angular to sub-angular; trace gravel, fine to medium grained, angular to sub-angular; with extremely weathered siltstone fragments, fine to coarse grained, angular			8 8 10 8 8	
		1.0 1.0-1.5	ES BLK		1			<PL	VSt	7 8 9 9 9 9	
				32.50			Borehole terminated at 1.50 m				
					2						
					3						
					4						

5 10 15

DCP/PSP Equipment Ref.: In Situ Vane Ref.: Pocket Penetrometer Equipment Ref.:

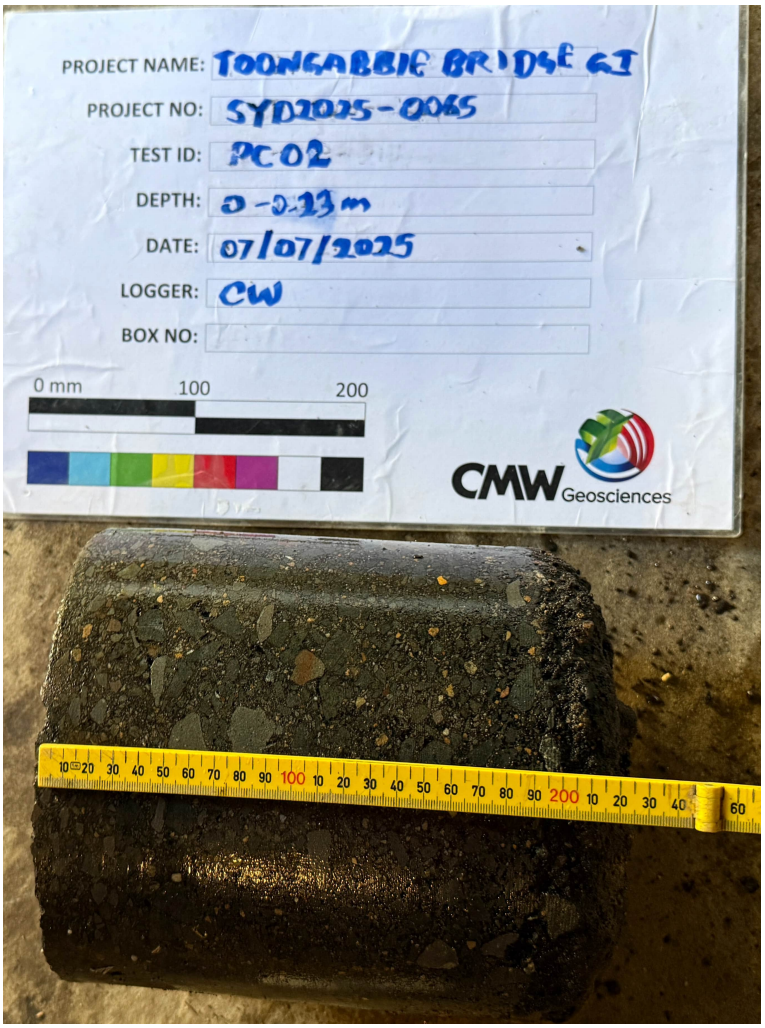
Termination Reason: Target depth reached

Remarks:

This report must be read in conjunction with accompanying notes and abbreviations.

PHOTOGRAPH SHEET - PC02

Client: Turnbull Engineering
Project: Toongabbie bridge upgrade geotechnical services
Location: Toongabbie, NSW
Project ID: SYD2025-0065
Date: 07/07/2025



BOREHOLE LOG - PC03

Client: Turnbull Engineering
Project: Toongabbie bridge upgrade geotechnical services
Location: Toongabbie, NSW
Project ID: SYD2025-0065
Date: 07/07/2025

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1:20 Sheet 1 of 1

Logged by: CW Position: E.310242m N.6259655m Hole Diameter: 200mm
Checked by: AB Elevation: 36 m Angle from horizontal: 90° Contractor: Stratacore Drilling

Well	Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description (Soil Type, Plasticity or Particle Characteristics, Colour, Secondary and Minor Components)	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & other observations
							ASPHALT				
		0.3	ES	35.70			SM: FILL: Silty SAND: fine to medium grained, angular to sub-angular; grey-brown; silt, low plasticity; with gravel, medium to coarse grained, angular to sub-angular; with ballast rock	M	MD		0.30-1.50m: Fill
		0.5	ES	35.40			CL: FILL: CLAY: Low plasticity; grey-brown; with sand, fine grained, angular to sub-angular; trace gravel, fine to medium grained, angular to sub-angular; with extremely weathered siltstone, fine to coarse grained, angular			8	
										8	
										7	
										8	
										9	
		1.0	ES		1			<PL	VSt	8	
		1.0-1.5	BLK							9	
										9	
										10	
										8	
				34.50			Borehole terminated at 1.50 m				
					2						
					3						
					4						

DCP/PSP Equipment Ref.: | In Situ Vane Ref.: | Pocket Penetrometer Equipment Ref.:

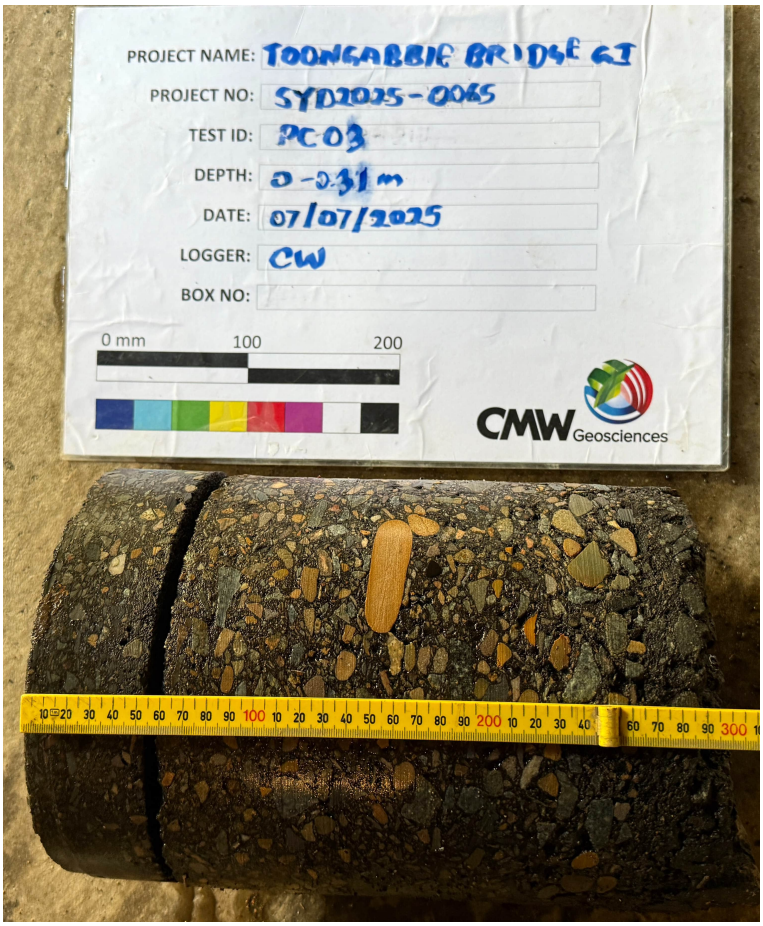
Termination Reason: Target depth reached

Remarks:

This report must be read in conjunction with accompanying notes and abbreviations.

PHOTOGRAPH SHEET - PC03

Client: Turnbull Engineering
Project: Toongabbie bridge upgrade geotechnical services
Location: Toongabbie, NSW
Project ID: SYD2025-0065
Date: 07/07/2025



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APPENDIX B
Laboratory Data

Construction Sciences
a kiwa company

Construction Sciences Pty Ltd
ABN: 74 128 806 735

Address:
Unit 1, 140 Industrial Road
Oak Flats NSW 2529

Laboratory: **Wollongong Laboratory**
Phone: 02 9854 1700
Fax: 02 4257 4463
Email: wollongong@constructionsciences.net

MOISTURE CONTENT REPORT

Client:	CMW Geosciences	Report Number:	10848/R/25-4444-1
Client Address:	140 Industrial Rd, Oak Flats	Project Number:	10848/P/1445
Project:	Sydney Material Testing	Lot Number:	Various
Location:	Wollongong	Internal Test Request:	10848/T/25-2676
Supplied To:	CMW Geosciences	Client Reference/s:	SYD2025-0065
Area Description:		Report Date / Page:	25/07/2025 Page 1 of 1

Test Procedures:	AS1289.2.1.1, AS1289.1.1

Sample Number	10848/S/25-13742	10848/S/25-13743	10848/S/25-13744	10848/S/25-13745
ID / Client ID	-	-	-	-
Lot Number	PC01	PC02	BH01	BH02
Date / Time Sampled	14/07/2025	14/07/2025	14/07/2025	14/07/2025
Sampling Method	Tested As Received	Tested As Received	Tested As Received	Tested As Received
Sampled By	Client Sampled	Client Sampled	Client Sampled	Client Sampled
Tested By	Ryan Abela	Ryan Abela	Ryan Abela	Ryan Abela
Date Tested	18/07/2025	18/07/2025	18/07/2025	18/07/2025
Material Source	Insitu	Insitu	Insitu	Insitu
Material Type	-	-	-	-
Test Pit No:	PC01	PC02	BH01	BH02
Depth	1.0-1.5m	1.0-1.5m	2.5-2.95m	4.0-4.45m
Moisture Content (%)	**14.9**	**12.9**	**12.4**	**12.7**

Sample Number				
ID / Client ID				
Lot Number				
Date / Time Sampled				
Sampling Method				
Sampled By				
Tested By				
Date Tested				
Material Source				
Material Type				
Test Pit No:				
Depth				
Moisture Content (%)				

Remarks	Results apply to the sample/s as received.,

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Accreditation Number: 1986
Corporate Site Number: 10848

Approved Signatory: Joseph Bakewell
Form ID: W20Rep Rev 3

Construction Sciences
a kiwa company

Construction Sciences Pty Ltd
ABN: 74 128 806 735

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Unit 1, 140 Industrial Road
Oak Flats NSW 2529

Laboratory: **Wollongong Laboratory**
Phone: 02 9854 1700
Fax: 02 4257 4463
Email: wollongong@constructionsciences.net

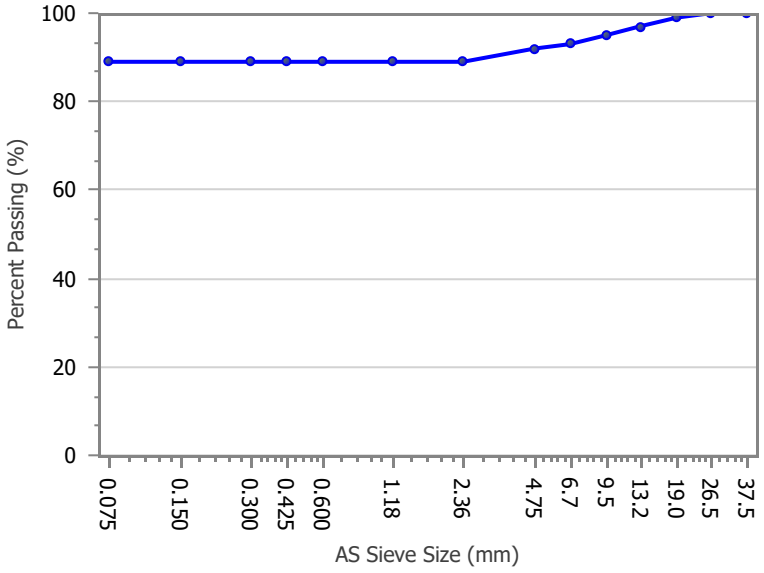
QUALITY OF MATERIALS REPORT

Client:	CMW Geosciences	Report Number:	10848/R/25-4449-1
Client Address:	140 Industrial Rd, Oak Flats	Project Number:	10848/P/1445
Project:	Sydney Material Testing	Lot Number:	PC01
Location:	Wollongong	Internal Test Request:	10848/T/25-2676
Supplied To:	CMW Geosciences	Client Reference/s:	SYD2025-0065
Area Description:		Report Date / Page:	26/07/2025 Page 1 of 3

Test Procedures	AS1289.3.6.1, AS1289.1.1, AS1289.3.1.2, AS1289.3.2.1, AS1289.3.4.1, AS1289.2.1.1, AS 1289.3.3.1		
Sample Number	10848/S/25-13742	Test Pit No:	PC01
Sampling Method	Tested As Received	Depth	1.0-1.5m
Date Sampled	14/07/2025		
Sampled By	Client Sampled		
Date Tested	21/07/2025	Material Source	Insitu
Drying Methods	PSD: / ATT:Oven Dried	Material Type	-
Atterberg Preparation	Dry Sieved	Material Description	CL Clay, low plasticity, trace of gravel

AS Sieve (mm)	Specification Minimum (%)	**Percent Passing (%)**	Specification Maximum (%)
37.5		**100**	
26.5		**100**	
19.0		**99**	
13.2		**97**	
9.5		**95**	
6.7		**93**	
4.75		**92**	
2.36		**89**	
1.18		**89**	
0.600		**89**	
0.425		**89**	
0.300		**89**	
0.150		**89**	
0.075		**89**	

PARTICLE SIZE DISTRIBUTION GRAPH



Test Result	Specification Minimum (%)	**Result**	Specification Maximum (%)
Liquid Limit (%)		**34**	
Plastic Limit (%)		**15**	
Plastic Index (%)		**19**	
Linear Shrinkage (%)		**7.5**	
Shrinkage Observations	nil		

Test Result	Specification Minimum (%)	**Result**	Specification Maximum (%)
0.075/0.425 Fines Ratio		**1.00**	
PI x 0.425 Ratio (%)		**1690.9**	
LS x 0.425 Ratio (%)		**667.5**	
Particle Size Dist. Moisture Content (%)		14.9	

Remarks	Results apply to the sample/s as received.,

Accredited for compliance with ISO/IEC 17025 – Testing

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Accreditation Number: 1986
Corporate Site Number: 10848

Approved Signatory: Joseph Bakewell
Form ID: W85MCRep Rev 2

Construction Sciences
a kiwa company

Construction Sciences Pty Ltd
ABN: 74 128 806 735

Address:
Unit 1, 140 Industrial Road
Oak Flats NSW 2529

Laboratory: **Wollongong Laboratory**
Phone: 02 9854 1700
Fax: 02 4257 4463
Email: wollongong@constructionsciences.net

QUALITY OF MATERIALS REPORT

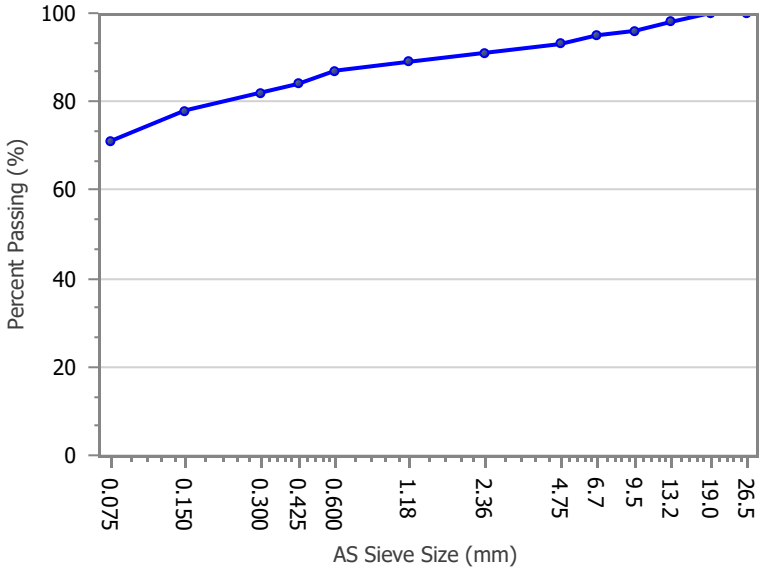
Client:	CMW Geosciences	Report Number:	10848/R/25-4449-1
Client Address:	140 Industrial Rd, Oak Flats	Project Number:	10848/P/1445
Project:	Sydney Material Testing	Lot Number:	PC02
Location:	Wollongong	Internal Test Request:	10848/T/25-2676
Supplied To:	CMW Geosciences	Client Reference/s:	SYD2025-0065
Area Description:		Report Date / Page:	26/07/2025 Page 2 of 3

Test Procedures	AS1289.3.6.1, AS1289.1.1, AS1289.3.1.2, AS1289.3.2.1, AS1289.3.4.1, AS1289.2.1.1, AS 1289.3.3.1

Sample Number	10848/S/25-13743	Test Pit No:	PC02
Sampling Method	Tested As Received	Depth	1.0-1.5m
Date Sampled	14/07/2025		
Sampled By	Client Sampled		
Date Tested	22/07/2025	Material Source	Insitu
Drying Methods	PSD: / ATT:Oven Dried	Material Type	-
Atterberg Preparation	Dry Sieved	Material Description	CI Clay, medium plasticity, with sand, trace of grave

AS Sieve (mm)	Specification Minimum (%)	**Percent Passing (%)**	Specification Maximum (%)
26.5		**100**	
19.0		**100**	
13.2		**98**	
9.5		**96**	
6.7		**95**	
4.75		**93**	
2.36		**91**	
1.18		**89**	
0.600		**87**	
0.425		**84**	
0.300		**82**	
0.150		**78**	
0.075		**71**	

PARTICLE SIZE DISTRIBUTION GRAPH



Test Result	Specification Minimum (%)	**Result**	Specification Maximum (%)
Liquid Limit (%)		**40**	
Plastic Limit (%)		**15**	
Plastic Index (%)		**25**	
Linear Shrinkage (%)		**9.5**	
Shrinkage Observations	Nil		

Test Result	Specification Minimum (%)	**Result**	Specification Maximum (%)
0.075/0.425 Fines Ratio		**0.85**	
PI x 0.425 Ratio (%)		**2102.6**	
LS x 0.425 Ratio (%)		**799.0**	
Particle Size Dist. Moisture Content (%)		12.9	

Remarks	Results apply to the sample/s as received.,

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Accreditation Number: 1986
Corporate Site Number: 10848

Approved Signatory: Joseph Bakewell
Form ID: W85MCRep Rev 2

Construction Sciences
a kiwa company

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ABN: 74 128 806 735

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Laboratory: **Wollongong Laboratory**
Phone: 02 9854 1700
Fax: 02 4257 4463
Email: wollongong@constructionsciences.net

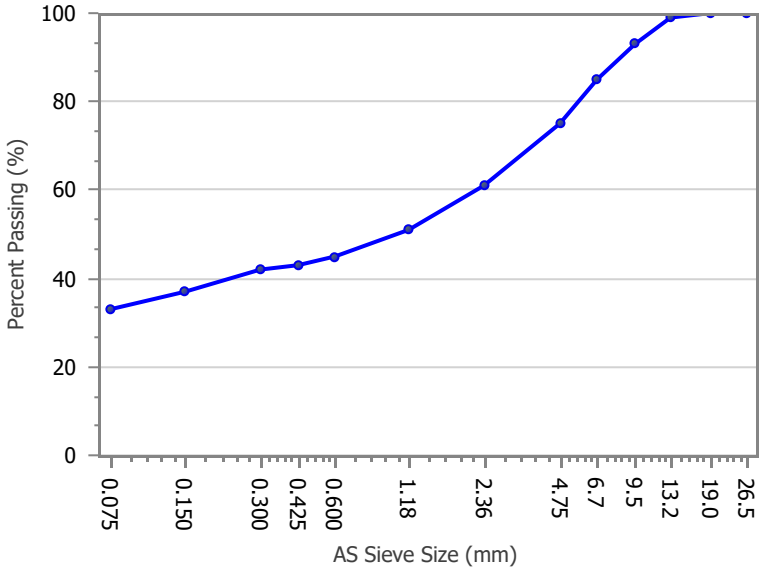
QUALITY OF MATERIALS REPORT

Client:	CMW Geosciences	Report Number:	10848/R/25-4449-1
Client Address:	140 Industrial Rd, Oak Flats	Project Number:	10848/P/1445
Project:	Sydney Material Testing	Lot Number:	BH01
Location:	Wollongong	Internal Test Request:	10848/T/25-2676
Supplied To:	CMW Geosciences	Client Reference/s:	SYD2025-0065
Area Description:		Report Date / Page:	26/07/2025 Page 3 of 3

Test Procedures	AS1289.3.6.1, AS1289.1.1, AS1289.3.1.2, AS1289.3.2.1, AS1289.3.4.1, AS1289.2.1.1, AS 1289.3.3.1		
Sample Number	10848/S/25-13744	Borehole	BH01
Sampling Method	Tested As Received	Depth	2.5-2.95m
Date Sampled	14/07/2025		
Sampled By	Client Sampled		
Date Tested	23/07/2025	Material Source	Insitu
Drying Methods	PSD: / ATT:Oven Dried	Material Type	-
Atterberg Preparation	Dry Sieved	Material Description	GC Clayey Gravel, medium plasticity, with sand

AS Sieve (mm)	Specification Minimum (%)	**Percent Passing (%)**	Specification Maximum (%)
26.5		**100**	
19.0		**100**	
13.2		**99**	
9.5		**93**	
6.7		**85**	
4.75		**75**	
2.36		**61**	
1.18		**51**	
0.600		**45**	
0.425		**43**	
0.300		**42**	
0.150		**37**	
0.075		**33**	

PARTICLE SIZE DISTRIBUTION GRAPH



Test Result	Specification Minimum (%)	**Result**	Specification Maximum (%)
Liquid Limit (%)		**42**	
Plastic Limit (%)		**18**	
Plastic Index (%)		**24**	
Linear Shrinkage (%)		**9.5**	
Shrinkage Observations	Nil		

Test Result	Specification Minimum (%)	**Result**	Specification Maximum (%)
0.075/0.425 Fines Ratio		**0.76**	
PI x 0.425 Ratio (%)		**1039.2**	
LS x 0.425 Ratio (%)		**411.4**	
Particle Size Dist. Moisture Content (%)		12.4	

Remarks	Results apply to the sample/s as received.,

Accredited for compliance with ISO/IEC 17025 – Testing

NATA

Accreditation Number: 1986
Corporate Site Number: 10848

Approved Signatory: Joseph Bakewell
Form ID: W85MCRep Rev 2

Construction Sciences
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Phone: 02 9854 1700
Fax: 02 4257 4463
Email: wollongong@constructionsciences.net

ATTERBERG LIMITS REPORT

Client:	CMW Geosciences	Report Number:	10848/R/25-4450-1
Client Address:	140 Industrial Rd, Oak Flats	Project Number:	10848/P/1445
Project:	Sydney Material Testing	Lot Number:	BH02
Location:	Wollongong	Internal Test Request:	10848/T/25-2676
Supplied To:	CMW Geosciences	Client Reference/s:	SYD2025-0065
Area Description:		Report Date / Page:	26/07/2025 Page 1 of 1

Test Procedures:	AS1289.3.1.2, AS 1289.3.3.1, AS1289.3.2.1, AS1289.3.4.1, AS1289.2.1.1		
Sample Number	10848/S/25-13745	Sample Location	
Sampling Method	Tested As Received	Borehole	BH02
Date Sampled	14/07/2025	Depth	4.0-4.45m
Sampled By	Client Sampled		
Date Tested	24/07/2025		
Drying / Prep Method	Oven Dried / Dry Sieved	Material Source	Insitu
LL Water Type	Other	Material Type	-
LL Device Type	Cassagrande	Specification	-
Client Reference	-	Prep Mat > 53mm (%)	-
Material Description	CLAY		

Atterberg Limit	Specification Minimum	Test Result	Specification Maximum
Liquid Limit (%)		**47**	
Plastic Limit (%)		**22**	
Plasticity Index (%)		**25**	
Linear Shrinkage (%)		**9.5**	
Linear Shrinkage Mould Length / Defects:	Mould Length: 249.8mm / Nil		

Remarks: Results apply to the sample/s as received.,

Accredited for compliance with ISO/IEC 17025 – Testing

NATA

Accreditation Number: 1986
Corporate Site Number: 10848

Approved Signatory: Joseph Bakewell
Form ID: W11bRep Rev 2

Construction Sciences
a kiwa company

Construction Sciences Pty Ltd
ABN: 74 128 806 735

Address:
Unit 1, 140 Industrial Road
Oak Flats NSW 2529

Laboratory: **Wollongong Laboratory**
Phone: 02 9854 1700
Fax: 02 4257 4463
Email: wollongong@constructionsciences.net

EMERSON CLASS NUMBER REPORT

Client:	CMW Geosciences	Report Number:	10848/R/25-4535-1
Client Address:	140 Industrial Rd, Oak Flats	Project Number:	10848/P/1445
Project:	Sydney Material Testing	Lot Number:	Various
Location:	Wollongong	Internal Test Request:	10848/T/25-2676
Supplied To:	CMW Geosciences	Client Reference/s:	SYD2025-0065
Area Description:		Report Date / Page:	30/07/2025 Page 1 of 1

Test Procedures:	AS1289.3.8.1

Sample Number	10848/S/25-13742	10848/S/25-13743		
ID / Client ID	-	-		
Lot Number	PC01	PC02		
Date / Time Sampled	14/07/2025	14/07/2025		
Date Tested	24/07/2025	24/07/2025		
Material Source	Insitu	Insitu		
Material Type	-	-		
Sampling Method	Tested As Received	Tested As Received		
Prep Material > 53mm (%)	0	0		
Water Type	Distilled	Distilled		
Water Temperature (°C)	22	22		
Test Pit No:	PC01	PC02		
Depth	1.0-1.5m	1.0-1.5m		
Soil Description	CL Clay, low plasticity, trace of gravel	CI Clay, medium plasticity, with sand, trace of gravel		
Emerson Class Description	Slakes Some dispersion.	Slakes Some dispersion.		
Emerson Class Number	**2**	**2**		

Remarks	Results apply to the sample/s as received.,

Accredited for compliance with ISO/IEC 17025 – Testing

NATA

Accreditation Number: 1986
Corporate Site Number: 10848

Approved Signatory: Joshua Mulligan
Form ID: W22Rep Rev 3

Construction Sciences
a kiwa company

Construction Sciences Pty Ltd
ABN: 74 128 806 735

Address:
Unit 1, 140 Industrial Road
Oak Flats NSW 2529

Laboratory: **Wollongong Laboratory**
Phone: 02 9854 1700
Fax: 02 4257 4463
Email: wollongong@constructionsciences.net

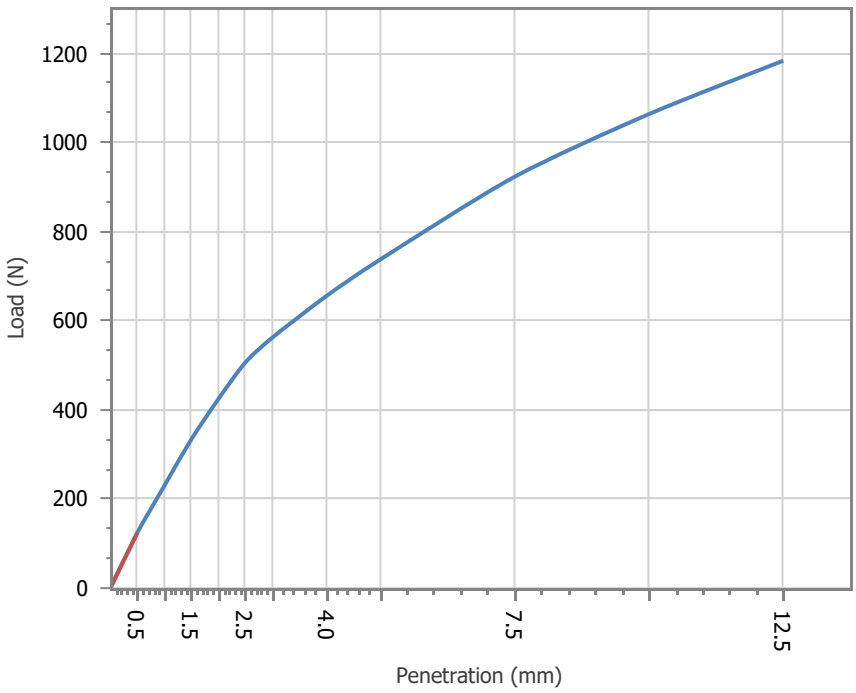
CALIFORNIA BEARING RATIO REPORT

Client:	CMW Geosciences	Report Number:	10848/R/25-4544-1
Client Address:	140 Industrial Rd, Oak Flats	Project Number:	10848/P/1445
Project:	Sydney Material Testing	Lot Number:	PC01
Location:	Wollongong	Internal Test Request:	10848/T/25-2676
Supplied To:	CMW Geosciences	Client Reference/s:	SYD2025-0065
Area Description:		Report Date / Page:	30/07/2025 Page 1 of 1

Test Procedures	AS1289.6.1.1, AS1289.1.1, AS1289.5.1.1, AS1289.2.1.1		
Sample Number	10848/S/25-13742	Test Pit No:	PC01
Sampling Method	Tested As Received	Depth	1.0-1.5m
Date Sampled	14/07/2025		
Sampled By	Client Sampled		
Date Tested	28/07/2025	Prep Material > 53mm (%)	0
Material Source	Insitu	Material Limit Start	-
Material Type	-	Material Limit End	-
Client Reference	-	Compactive Effort	Standard
Material Description	CL Clay, low plasticity, trace of gravel		

Maximum Dry Density (t/m³):	1.88
Optimum Moisture Content (%):	15.0
Field Moisture Content (%):	14.9
Sample Percent Oversize (%)	1.0
Oversize Included / Excluded	Excluded
Target Density Ratio (%):	100
Target Moisture Ratio (%):	100
Placement Dry Density (t/m³):	1.88
Placement Dry Density Ratio (%):	100.0
Placement Moisture Content (%):	14.9
Placement Moisture Ratio (%):	99.5
Test Condition / Soaking Period:	Soaked / 4 Days
CBR Surcharge (kg)	9.0
Dry Density After Soak (t/m³):	1.85
Total Curing Time (hrs)	140
Liquid Limit Method	Estimation
Moisture (top 30mm) After Soak (%)	17.4
Moisture (remainder) After Soak (%)	15.6
CBR Swell (%):	1.5
Minimum CBR Specification (%):	-
CBR Value @ 2.5mm (%):	**4.0**

CBR PENETRATION PLOT



Remarks	Results apply to the sample/s as received.,

Accredited for compliance with ISO/IEC 17025 – Testing

NATA

Accreditation Number: 1986
Corporate Site Number: 10848

Approved Signatory: Mark Bryant
Form ID: W2ASRep Rev 3

CMW Geosciences (NSW) Pty Ltd
Level 2, Suite 2.01, 10a Julius Avenue
North Ryde
NSW 2113

Attention: **Ebrahim Alaei**

Report **1245600-S**
Project name ADDITIONAL: CMW TGB BRG PCA
Project ID Job Number 82293-1
Received Date Jul 17, 2025

Client Sample ID			**PC01_1.0**	**PC02_0.3**	**BH01_2.0**	**BH02_3.9**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S25-JI0047174**	**S25-JI0047175**	**S25-JI0047176**	**S25-JI0047177**
Date Sampled			**Jul 07, 2025**	**Jul 07, 2025**	**Jul 07, 2025**	**Jul 07, 2025**
Test/Reference	LOR	Unit				
Chloride	10	mg/kg	190	91	1300	1500
Conductivity (1:5 aqueous extract at 25 °C as rec.)	10	uS/cm	250	100	810	1100
pH (1:5 Aqueous extract at 25 °C as rec.)	0.1	pH Units	5.8	6.4	8.0	7.0
Resistivity*	0.5	ohm.m	40	96	12	9.0
Sulphate (as SO4)	10	mg/kg	35	61	220	74
Alkali Metals						
Magnesium	5	mg/kg	820	450	1700	1400
Sample Properties						
% Moisture	1	%	12	8.1	15	18

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Chloride	Sydney	Jul 18, 2025	28 Days
- Method: In-house method LTM-INO-4090 Chloride by Discrete Analyser			
- Method: LTM-INO-4270 Anions by Ion Chromatography			
Conductivity (1:5 aqueous extract at 25 °C as rec.)	Sydney	Jul 18, 2025	7 Days
- Method: LTM-INO-4030 Conductivity			
pH (1:5 Aqueous extract at 25 °C as rec.)	Sydney	Jul 18, 2025	7 Days
- Method: LTM-GEN-7090 pH by ISE			
Sulphate (as SO4)	Sydney	Jul 18, 2025	28 Days
- Method: In-house method LTM-INO-4110 Sulphate by Discrete Analyser			
- Method: In-house method LTM-INO-4270 Sulphate by Ion Chromatograph			
Alkali Metals	Sydney	Jul 18, 2025	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	Jul 17, 2025	14 Days
- Method: LTM-GEN-7080 Moisture			

eurofins

web: www.eurofins.com.au
email: EnviroSales@eurofinsanz.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	+61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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Site# 2370 & 2554

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

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Penrose	Mount Wellington	Rolleston	Gate Pa
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: Fyfe Earth Partners Pty Ltd NSW
Address: Level 1, 124 South Tce
Adelaide
SA 5000

Project Name: ADDITIONAL: CMW TGB BRG PCA
Project ID: Job Number 82293-1

Order No.:
Report #: 1245600
Phone: 08 8201 9600
Fax: 08 8201 9650

Received: Jul 17, 2025 9:51 AM
Due: Jul 24, 2025
Priority: 5 Day
Contact Name: Nathan Watson

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Magnesium	Aggressivity Soil Set	Moisture Set
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	PC01_1.0	Jul 07, 2025		Soil	S25-Jl0047174	X	X	X
2	PC02_0.3	Jul 07, 2025		Soil	S25-Jl0047175	X	X	X
3	BH01_2.0	Jul 07, 2025		Soil	S25-Jl0047176	X	X	X
4	BH02_3.9	Jul 07, 2025		Soil	S25-Jl0047177	X	X	X
Test Counts						4	4	4

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Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Conductivity (1:5 aqueous extract at 25 °C as rec.)	uS/cm	< 10			10	Pass	
Method Blank							
Alkali Metals							
Magnesium	mg/kg	< 5			5	Pass	
Method Blank							
Conductivity (1:5 aqueous extract at 25 °C as rec.)	uS/cm	< 10			10	Pass	
Method Blank							
Chloride	mg/kg	< 10			10	Pass	
Sulphate (as SO4)	mg/kg	< 10			10	Pass	
LCS - % Recovery							
Conductivity (1:5 aqueous extract at 25 °C as rec.)	%	104			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Magnesium	%	102			80-120	Pass	
LCS - % Recovery							
Conductivity (1:5 aqueous extract at 25 °C as rec.)	%	97			70-130	Pass	
LCS - % Recovery							
Chloride	%	106			70-130	Pass	
Sulphate (as SO4)	%	105			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Alkali Metals				Result 1					
Magnesium	S25-Jl0044423	NCP	%	90			75-125	Pass	
Spike - % Recovery									
				Result 1					
Chloride	S25-Jl0047176	CP	%	111			70-130	Pass	
Sulphate (as SO4)	S25-Jl0047176	CP	%	115			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25 °C as rec.)	S25-Jl0044298	NCP	uS/cm	150	210	33	30%	Fail	Q15
pH (1:5 Aqueous extract at 25 °C as rec.)	S25-Jl0044298	NCP	pH Units	6.6	6.6	pass	30%	Pass	
Resistivity*	S25-Jl0044298	NCP	ohm.m	67	48	33	30%	Fail	Q02
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	S25-Jl0046955	NCP	%	25	25	<1	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Magnesium	S25-Jl0047175	CP	mg/kg	450	490	9.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	S25-Jl0047177	CP	mg/kg	1500	1500	3.0	30%	Pass	
Sulphate (as SO4)	S25-Jl0047177	CP	mg/kg	74	73	1.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
Q02	The duplicate %RPD is outside the recommended acceptance criteria. Further analysis indicates sample heterogeneity as the cause
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Adam Bateup	Analytical Services Manager
Mickael Ros	Senior Analyst-Metal
Ryan Phillips	Senior Analyst-Inorganic
Ryan Phillips	Senior Analyst-Sample Properties

Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

APPENDIX C
Waste Classification report

Level 3, 120 Edward Street
Brisbane QLD 4000

GPO Box 1272
Brisbane QLD 4001
T 61 7 3837 9000

Fyfe Pty Ltd
ABN 57 008 116 130
fyfe.com.au

82293-1

01 August 2025

Ebrahim Alaei
CMW Geosciences
Suite 1, Level 1/12 Julius Ave, North Ryde NSW 2113

Dear Ebrahim,

PRELIMINARY WASTE CLASSIFICATION – WENTWORTH AVENUE, TOONGABBIE NSW 2146

1. Introduction

Fyfe Pty Ltd (Fyfe) was engaged by CMW Geosciences (CMW) to undertake a preliminary waste classification of in-situ soils at client-nominated locations along Wentworth Avenue, Toongabbie NSW 2146 (refer Sample Point Layout Plan, Attachment A).

The assessment was undertaken in conjunction with a geotechnical investigation of the same locations undertaken by CMW.

1.1 Objective

The objective was to assess soils at the geotechnical borehole / pavement core locations to preliminarily inform waste classification in accordance with the NSW EPA *Waste Classification Guidelines Part 1: Classifying Waste* (2014).

1.2 Scope of Work

The scope of work undertaken in July 2025 included the following:

- Fyfe undertook a limited desktop review of available information relating to the site.
- CMW undertook all field work including:
  - drilling of two boreholes and three pavement cores across five locations;
  - logging of soils in general accordance with Australian Standard AS1726:2017 – *Geotechnical Site Investigations*; and
  - collection of soil samples from the boreholes and pavement cores at regular intervals. Soil was placed in appropriate laboratory supplied sample containers and stored these in an insulated chilled chest (esky).
  - Submission of soil samples to a National Association of Testing Authorities (NATA) accredited laboratory for analytical testing under standard sample preservation and chain of custody (COC) protocols.
- Fyfe undertook provision of this preliminary waste classification assessment report.

2. Site Information

A summary of site information is presented in Table 2-1 below.

Table 2-1 – Summary of Site Information

Site Address	Wentworth Avenue, Toongabbie NSW 2146
Local Government Area	Cumberland
Approximate Co-ordinates of Sample Points	BH01 - 33°47'11.93"S, 150°57'0.51"E BH02 - 33°47'10.82"S, 150°57'0.98"E PC01 - 33°47'13.78"S, 150°57'0.58"E PC02 - 33°47'12.15"S, 150°57'0.93"E PC03 - 33°47'10.77"S, 150°57'1.70"E
Site Allotment	Unallotted road parcel.
Current Site Use	Local road and grassed road verge.
Regional Geology	Alluvial valley deposits (Q_av) consisting of silt, clay, (fluvially deposited) lithic to quartz-lithic sand, gravel. Source: MinView web map – Department of Primary Industries and Regional Development (2025)
Acid Sulphate Soils (ASS)	'C4 Extremely Low Probability/Very Low Confidence' (Source: ANSIS web portal) Site elevation is approximately 30 m Australian Height Datum (AHD) (Google Earth 2025). ASS in Australia is typically at <5 m AHD (Sullivan et al., 2018). No further assessment of ASS risk is considered warranted.

3. Methodology

3.1 Field Methodology

A summary of the field investigation and sampling methodology is presented in Table 3-1 below.

Table 3-1 – Summary of Fieldwork Methodology

Activity	**Details**
Date	PC01-PC03: 7 July 2025. BH01: 10 July 2025. BH02: 9 July 2025.
Scope	A total of two boreholes and three pavement cores were drilled to a maximin depth of 10 m and 1.5 m below ground level (bgl) respectively.
Drilling Method	Drilling was undertaken by Stratecore Drilling using a Massenza MI3 geotechnical drilling rig and solid flight augers (96 mm diameter for the boreholes and 200 mm diameter for the pavement cores).
Soil Sampling	Each sample was collected directly from the auger and placed into an appropriately labelled laboratory supplied container using a fresh nitrile glove for each sample. Twenty-five (25) soil samples were collected, stored, and transported in ice-chilled chests to a NATA-accredited laboratory (Eurofins) for analysis under standard chain of custody (COC) procedures.
Soil Logging	Soils were logged with general reference to Australian Standard 1726-2017, with consideration of any potential indicators of contamination (e.g. odours, staining or waste materials).
Waste Disposal	Waste soil generated during drilling was used to backfill each of the boreholes / pavement cores.

3.2 Laboratory Analysis

Based on the current identified land use for each sample location (i.e. roadside verge or roadway) the following contaminants of potential concern (COPC) were selected for analysis:

- Total recoverable hydrocarbons (TRH).
- Benzene, toluene, ethylbenzene, xylenes, naphthalene (BTEXN).
- Polycyclic aromatic hydrocarbons (PAH).
- Organochlorine and organophosphorus pesticides (OCP/OPP).
- Metals (arsenic, cadmium, chromium, copper, nickel, lead, zinc, mercury).

Subsequent Toxicity Characteristic Leaching Procedure (TCLP) testing was undertaken on selected samples (refer to Section 6.1.3).

4. Results

4.1 Field Observations

A summary of the soil profiles encountered during the investigation is provided below.

Soil types and profiles encountered are presented in the complementary geotechnical investigation report by CMW (reference SYD2025-0065 AB).

No odours, staining, evidence of waste materials or asbestos containing materials (ACM) were observed in any of the boreholes or pavement cores.

4.1.1 Boreholes

Boreholes reportedly generally consisted of the following soil profile:

- A layer of surficial asphalt was present at BH01 only (~0.05 m thick).
- Fill material consisting of dark brown sand to a maximum 0.5 mbgl.
- Alluvial clays.

4.1.2 Pavement Cores

Pavement cores reportedly consisted of the following profile:

- Surficial asphalt.
- Stabilised subbase comprising pale-yellow (PC01) or grey-brown (PC02 and PC03) silty sand to a maximum depth of 0.6 mbgl.
- Grey-brown clay fill to 1.5 m (termination depth).

4.2 Laboratory Analytical Results

Laboratory analytical results are summarised in Table 1, Attachment B.

Laboratory certificates are included in Attachment C.

5. Quality Assurance / Quality Control (QA/QC)

Table 5-1 indicates conformance to specific QA/QC procedures – in summary, the analytical data were deemed to be of acceptable quality for the purpose of this assessment.

Table 5-1 – Data validation

QA/QC requirement	Completed	Comments	Satisfactory
Samples kept chilled	Yes	Immediately upon collection, the samples were placed into chilled insulted coolers (eskies), where they remained during transport to the analytical laboratory.	Yes
Samples delivered to laboratory within sample holding times	Yes	Samples delivered to laboratory within specified holding times.	Yes
Samples extracted/analysed within sample holding times	Mostly	All except for hydrocarbon analytes (TRH, BTEX, and PAH) which exceeded the holding time by two days. As the samples were kept chilled from sample collection to extraction, Fyfe considers there would be negligible effect on the results and the extraction time exceedance would not affect the assessment outcome.	Yes
All analyses NATA-accredited	Yes	Eurofins is NATA accredited for all the analyses performed.	Yes
Acceptable laboratory limits of reporting (LOR)	Yes	All laboratory LOR for below adopted waste classification assessment criteria.	Yes
Required number of field QC samples analysed	No	No field QC samples collected. However, as this is a preliminary assessment, field QC samples were not considered necessary. This is considered suitable for the purposes of this project.	Yes
Duplicate sample pairs reported acceptable relative percentage differences (RPDs)	NA	-	NA
Acceptable blank sample results	No	No field blanks collected. However, as this is a preliminary assessment, field QC samples were not considered necessary. This is considered suitable for the purposes of this project.	Yes
Acceptable laboratory QA/QC procedures	Yes	The laboratory QA/QC procedures are considered acceptable. Laboratory QC procedure results are in Attachment C.	Yes

6. Soil Classification

6.1 Waste classification

The NSW EPA Waste Classification Guidelines contain a six-step procedure for determining the classification of waste. A summary of the waste classification procedure is presented in Table 6.1 below.

Table 6.1: Six-step Classification Procedure

Step	Response	Rationale
1. Is the waste special waste?	No	No visual evidence of special waste, including asbestos, was encountered in the soils.
2. Is the waste liquid waste?	No	The waste comprises soil.
3. Is the waste "pre-classified"?	No	The soil is not pre-classified in accordance with NSW EPA Waste Classification Guidelines (2014).
4. Does the waste possess hazardous waste characteristics?	No	The soil is not considered a dangerous good in accordance with the *Australian Dangerous Goods* Code (2024).
5. Determining a waste's classification using chemical assessment.	Yes	Soil samples were analysed for a range of potential contaminants, as detailed in Section 3.2. Refer to section 6.1.1 for summary of chemical assessment.
6. Is the waste putrescible or non-putrescible?	No	The soil assessed does not contain material considered to be putrescible.[1]

[1]*Wastes that are generally not classified as putrescible include soils, timber, garden trimmings, agricultural, forest and crop materials, and natural fibrous organic and vegetative materials (EPA, 2014).*

6.1.1 Chemical Assessment Methodology

A summary of the criteria to chemically assess waste is presented in Table 6-1 below.

Table 6-1 – NSW Summary Criteria for Chemical Assessment to Determine Waste Classification

Waste classification	Criteria for classification by chemical assessment (any of the alternative options given)	Comments
General solid waste	1. SCC test values ≤ CT1	TCLP test not required
	2. TCLP test values ≤ TCLP1 and SCC test values ≤ SCC1	
	3. TCLP test values ≤ TCLP1 and SCC test values > SCC12	Classify as restricted solid or hazardous (as applicable) If immobilisation approval applies, classify in accordance with that approval
Restricted solid waste	1. SCC test values ≤ CT2	TCLP test not required
	2. TCLP1 < TCLP test values ≤ TCLP2 and SCC test values ≤ SCC2	
	3.TCLP test values ≤ TCLP2 and SCC1 < SCC test values ≤ SCC2	

Waste classification	Criteria for classification by chemical assessment (any of the alternative options given)	Comments
	4. TCLP1 < TCLP test values ≤ TCLP2 and SCC test values > SCC22	Classify as hazardous. If immobilisation approval applies, classify in accordance with that approval
Hazardous waste	1. TCLP test values > TCLP 2	
	2. TCLP test values ≤ TCLP2 and SCC test values > SCC2	Classify as hazardous if no immobilization approval applies

Notes:
1. SCC: Specific contaminant concentration
2. CT1: Contaminant threshold 1 (criterion)
3. CT2: Contaminant threshold 2 (criterion)
4. SCC1: Specific contaminant concentration 1 (criterion)
5. SCC2: Specific contaminant concentration 2 (criterion)
6. TCLP1: Toxicity characteristic leaching procedure 1 (criterion)
7. TCLP2: Toxicity characteristic leaching procedure 2 (criterion)

6.1.2 Initial Classification

All results exceeding CT1 are presented and assessed in Table 6-2.

Table 6-2 – Comparison of Results Against Contaminant Threshold Criteria

Sample ID	Analyte	SCC (mg/kg)	Criteria		Prelim. Classification
			CT1 (RSW) (mg/kg)	CT2 (HA) (mg/kg)	
BH01_0.1	Nickel	130	40	160	RSW
BH01_0.4	Nickel	50	40	160	RSW
BH02_0.1	Nickel	90	40	160	RSW
PC01_0.3	Benzo(a)pyrene	1.4	0.8	3.2	RSW
PC02_0.3	Benzo(a)pyrene	12	0.8	3.2	HA
PC03_0.3	Benzo(a)pyrene	26	0.8	3.2	HA
	PAH (total)	460	200	800	
PC03_0.5	Benzo(a)pyrene	13	0.8	3.2	HA
	PAH (total)	230	200	800	
PC03_1.0	Benzo(a)pyrene	1.2	0.8	3.2	RSW

PAH = Polycyclic aromatic hydrocarbons. RSW = Restricted Solid Waste. HA = Hazardous Waste.

6.1.3 TCLP Testing

Analytes exceeding CT1 criteria but within SCC2 criteria were selected for TCLP analysis.

Results were assessed against TCLP1 criteria and are presented in Table 6-3 below.

Table 6-3 – TCLP Analysis Results

Sample ID	Analyte	Laboratory Results		Criteria			Revised Classification
		SCC (mg/kg)	TCLP (mg/L)	TCLP 1 (mg/L)	SCC1 (mg/kg)	SCC2 (mg/kg)	
BH01_0.1	Nickel	130	0.09	2	1,050	4,200	GSW
BH01_0.4	Nickel	50	0.01	2	1,050	4,200	GSW
BH02_0.1	Nickel	90	0.02	2	1,050	4,200	GSW
PC01_0.3	Benzo(a)pyrene	1.4	<1	0.04	10	23	GSW
PC02_0.3	Benzo(a)pyrene	12	<1	0.04	10	23	RSW
PC03_0.3	Benzo(a)pyrene	26	-	0.04	10	23	HA
	PAH (total)	460	-	-	200	800	
PC03_0.5	Benzo(a)pyrene	13	<1	0.04	10	23	RSW
	PAH (total)	230	-	-	200	800	
PC03_1.0	Benzo(a)pyrene	1.2	<1	0.04	10	23	GSW

PAH = Polycyclic aromatic hydrocarbons. GSW = General Solid Waste. RSW = Restricted Solid Waste. HA = Hazardous Waste.

6.1.4 Preliminary Waste Classification

Based on the results of field observations, initial laboratory testing and TCLP analysis, the material at each location would be classifiable as per Table 6-4 below.

Table 6-4 – Summary of Waste Classification

Location	Depth (mbgl)	Description	Classification
BH01	0.05 - 0.5	Fill: dark brown clay with sand	GSW (non-putrescible)
	0.5 - 1.0	Brown sandy clay with sand	GSW (non-putrescible)
BH02	0.0 - 0.2	Fill: dark brown sandy silt	GSW (non-putrescible)
	0.2 - 2.0	Dark grey-brown clay	GSW (non-putrescible)
PC01	0 - 0.05	Asphalt	Not sampled/analysed
	0.05 - 0.3	Stabilised Sub-base	Not sampled/analysed
	0.3 – 0.4	Fill: pale yellow silty sand	GSW (non-putrescible)
	0.4 - 1.5	Fill: grey mottled brown sandy clay	GSW (non-putrescible)
PC02	0 - 0.05	Asphalt	Not sampled/analysed
	0.05 - 0.3	Stabilised Sub-base	Not sampled/analysed
	0.3 - 0.45	Fill: grey-brown silty sand	RSW
	0.45 - 1.5	Fill: grey-brown clay	GSW (non-putrescible)
PC03	0 - 0.05	Asphalt	Not sampled/analysed
	0.05 - 0.3	Stabilised Sub-base	Not sampled/analysed
	0.3 - 0.6	Fill: grey-brown silty sand	HA
	0.6 – 1.5	Fill: grey-brown clay	GSW (non-putrescible)

** GSW = General Solid Waste. RSW = Restricted Solid Waste. HA = Hazardous Waste.*

It is noted that material at PC02 (0.3 – 0.45 mbgl) and material at PC03 (0.3 – 0.6 mbgl) have been preliminarily classified as RSW and HA respectively. Fyfe notes that in both these cases the reason for the higher classification has been because of elevated Benzo(a)pyrene and / or total PAH concentrations. It is considered possible that the elevated concentration of these analytes could be due to pieces of bitumen (from the above subbase / asphalt layers) being collected in the sample, thereby resulting in a 'false positive' being reported. Further testing of these materials is recommended to ensure that the results reported here are repeatable.

6.2 Re-use of Soil

Soil sample results were compared to the assessment criteria in Schedule B1 of the *National Environmental Protection (Assessment of Site Contamination) Measure, 1999* (the ASC NEPM, as amended in 2013), based on the current and ongoing use of the site as a road verge or roadway (i.e., commercial / industrial land use scenario). All analytical results were below the adopted human health and ecological screening criteria (commercial / industrial).

Therefore, the areas investigated do not contain soil contamination that would pose an adverse risk to human health or the environment in a commercial / industrial land use setting, and soil excavated from these areas would be suitable for re-use on site, subject to any client specific construction requirements.

7. Conclusions and Recommendations

Based on the desktop assessment, field observations and analytical results, the following conclusions are made regarding the site soils accessed:

- Acid sulfate soils are unlikely to be present at the site.
- The soils are likely to be classifiable as per the classifications in Section 6.1.4 should they be disposed off site.
- The soils may be suitable for re-use on site, subject to satisfying client-specific construction and geotechnical requirements.

Fyfe notes the conclusions made in this report are preliminary in nature only, as the nature and extent of soil disturbance / removal works at each site has not yet been made known to Fyfe, and further sampling is recommended to inform any management decisions regarding the soils. In this regard, Fyfe recommends the separation and stockpiling of soils into layers during the excavation phase, followed by further assessment by an appropriately qualified environmental scientist to finalise the waste classifications, in accordance with NSW EPA Waste Classification Guidelines (2014).

For further information relating to this report, please contact the undersigned at nathan.watson@fyfe.com.au.

Yours sincerely,

Nathan Watson
Senior Environmental Scientist

Ivan Neralic
Principle Environmental Scientist

Attachments:

Attachment A – Sample Point Layout Plan
Attachment B – Analytical Results Summary Table
Attachment C – Laboratory Documentation

8. References

— Berkman D A (1989), 'Field Geologist's Manual, Third Edition' published by the Australian Institute of Mining and Metallurgy.

— National Transport Commission (2024), 'Australian Code for the Transport of Dangerous Goods by Road & Rail', Edition 7.9, 2024.

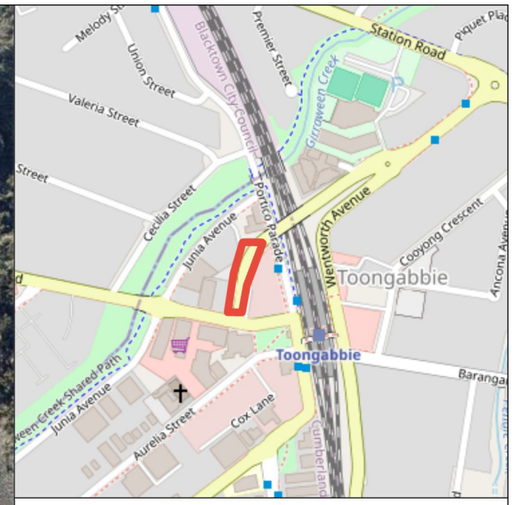
— NSW EPA (2014), 'Waste Classification Guidelines Part 1: Classifying Waste'.

— National Environmental Protection Council (NEPC) (2013), 'Schedule B(2) Guideline on Site Characterisation', National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999 (as amended in May 2013).

— Sullivan, L, Ward, N, Toppler, N and Lancaster, G (2018), National Acid Sulfate Soils Guidance: National acid sulfate soils identification and laboratory methods manual, Department of Agriculture and Water Resources, Canberra, ACT. CC BY 4.0, dated June 2018.

ATTACHMENT A
SAMPLE POINT LAYOUT PLAN

VALUE THROUGH INTEGRATION



Legend

- Approximate Investigation Area
- Borehole Locations
- Pavement Core Locations

0 10 m 20 m

Produced by **Datanest.earth**

Title: Sample Point Layout Plan		
Client: CMW Pty Ltd		Size: A3
Project: Toongabbie Bridge PCA	Drawn: NTW	Figure No.: 1
Date: 17-07-2025	Checked: SYF	
Proj No: 82293-1	Scale: 1:624	Version: Final

ATTACHMENT B
ANALYTICAL RESULTS SUMMARY TABLE

VALUE THROUGH INTEGRATION

Job Number: 82293-1
Site Location: Wentworth Avenue, Toongabbie NSW 2146

TABLE 1
Soil Analytical Results

			BTEX							TRH							TPH					Metals									
			Naphthalene (VOC)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	C6-C10 Fraction (F1)	C6-C10	>C10-C16 Fraction (F2)	>C10-C16 Fraction (F2 minus Naphthalene)	>C16-C34 Fraction (F3)	>C34-C40 Fraction (F4)	>C10-C40 Fraction (Sum)	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum)	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel		Zinc
			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	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg
EQL			0.5	0.1	0.1	0.1	0.2	0.1	0.3	20	20	50	50	100	100	100	20	20	50	50	50	2	0.4	5	5	5	0.1	5	0.01	5
Berkman D A (1989) - Background Concentrations - Fyfe																						50	1	1,000	100	200	0.03	500		300
NSW 2014 General Solid Waste CT1 (No Leaching)				10	288	600			1,000								650				10,000	100	20			100	4	40		
NSW 2014 General Solid Waste SCC1 (with leached)				18	518	1,080			1,800								650				10,000	500	100			1,500	50	1,050		
NSW 2014 General Solid Waste TCLP1 (leached)																													2	
NSW 2014 Restricted Solid Waste CT2 (No Leaching)				40	1,152	2,400			4,000								2,600				40,000	400	80			400	16	160		
NSW 2014 Restricted Solid Waste SCC2 (with leached)				72	2,073	4,320			7,200								2,600				40,000	2,000	400			6,000	200	4,200		
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand			NL [#1]	3	NL [#1]	NL [#1]			230		260		NL [#1]																	
>=0m, <1m			NL [#1]	3	NL [#1]	NL [#1]			230		260 [#2]		NL [#1]																	
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind			370																			160 [#3]								
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																						3,000 [#4]	900		240,000	1,500 [#5]	730 [#6]	6,000		400,000
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil										800 [#9]		1,000 [#9]		5,000	10,000															
Friebel and Nadebaum (2011) Direct Contact HSL, IMW.				1,100	120,000	85,000			130,000	82,000		62,000		85,000	120,000															
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil				95	135	185			95		215 [#10]	170 [#11]	170 [#12]	2,500	6,600															
>=0m, <2m				95	135	185			95		215 [#10]	170 [#11]	170 [#12]	2,500	6,600															
Field ID	**Lab Report Number**	**Date**																													
BH01_0.1	**1244056**	**07 Jul 2025**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	**50**	**50**	**8.5**	<0.4	**30**	**76**	**16**	<0.1	**130**	-	**97**
BH01_0.1	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.09**	-
BH01_0.4	**1244056**	**07 Jul 2025**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	**77**	<0.4	**14**	**24**	**13**	<0.1	**50**	-	**110**
BH01_0.4	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.01**	-
BH01_0.5	**1247652**	**07 Jul 2025**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	**180**	**120**	**300**	<20	<20	**83**	**130**	**213**	**5.9**	<0.4	**25**	**34**	**23**	<0.1	**39**	-	**45**
BH02_0.1	**1244056**	**07 Jul 2025**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	**20**	<0.4	**90**	**73**	**77**	<0.1	**92**	-	**180**
BH02_0.1	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.02**	-
BH02_0.4	**1244056**	**07 Jul 2025**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	**7.8**	<0.4	**37**	**26**	**31**	<0.1	**23**	-	**54**
PC01_0.3	**1244056**	**07 Jul 2025**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	**3.0**	<0.4	**6.9**	<5	**6.8**	<0.1	<5	-	<5
PC01_0.3	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC01_0.5	**1247652**	**07 Jul 2025**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	**5.7**	<0.4	**8.1**	**22**	**16**	<0.1	<5	-	**16**
PC02_0.3	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC02_0.3	**1247652**	**07 Jul 2025**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	**500**	**170**	**670**	<20	<20	**330**	**220**	**550**	<2	<0.4	**8.4**	**15**	**16**	<0.1	<5	-	**14**
PC02_0.5	**1244056**	**07 Jul 2025**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50	<50	**11**	<0.4	**11**	**34**	**18**	<0.1	**7.6**	-	**36**
PC03_0.3	**1244056**	**07 Jul 2025**	**1.4**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	**84**	**82.6**	**1,400**	**320**	**1,804**	<20	**30**	**1,200**	**450**	**1,680**	**4.3**	<0.4	**12**	**17**	**9.1**	<0.1	**6.3**	-	**10**
PC03_0.5	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC03_0.5	**1247652**	**07 Jul 2025**	**0.8**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	**610**	**150**	**760**	<20	<20	**460**	**200**	**660**	**5.7**	<0.4	**9.1**	**13**	**10**	<0.1	<5	-	**11**
PC03_1.0	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC03_1.0	**1247652**	**07 Jul 2025**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	**55**	<50	**55**	**5.0**	<0.4	**7.2**	**30**	**14**	<0.1	**9.5**	-	**35**
Statistics																														
Number of Detects			**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**4**	**4**	**4**	**0**	**1**	**5**	**5**	**6**	**11**	**0**	**12**	**11**	**12**	**0**	**8**	**3**	**11**
Minimum Detect			**0.8**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**84**	**82.6**	**180**	**120**	**300**	**ND**	**30**	**55**	**50**	**50**	**3**	**ND**	**6.9**	**13**	**6.8**	**ND**	**6.3**	**0.01**	**10**
Maximum Detect			**1.4**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**84**	**82.6**	**1,400**	**320**	**1,804**	**ND**	**30**	**1,200**	**450**	**1,680**	**77**	**ND**	**90**	**76**	**77**	**ND**	**130**	**0.09**	**180**

Comments

#1 Derived soil HSL exceeds soil saturation concentraiton
#2 To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.
#3 Aged values apply to arsenic contamination present in soil > 2 years. Refer Schedule B5c for < 2 years.
#4 Arsenic: HIL assumes 70% oral bioavailability. Site-specific bioavailability maybe important and should be considered where appropriate (refer Shedule B7).
#5 Lead: HILs A,B,C based on blood lead models (IEUBK & HIL D on adult lead model for where 50% bioavailability considered. Site-specific bioavailability should be considered where appropriate.
#6 Elemental mercury: HIL does not address elemental mercury. a site specific assessment should be considered if elemental mercury is present, or suspected to be present.
#7 Carcinogenic PAHs: HIL based on 8 carc. PAHs & their TEFs (rel to BaP ref Schedule 7) BaP TEQ calc by multiplying the conc of each carc. PAH in sample by its BaP TEF (ref Table 1A(1)) & summing
#8 Total PAHs: Based on sum of 16 most common reported (WHO 98). HIL application should consider presence of carcinogenic PAHs (should meet BaP TEQ HIL) & napthalene (should meet relevant HSL)
#9 Separate management limits for BTEX & naphthalene are not available hence should not be subtracted from the relevant fractions to obtain F1 & F2
#10 Moderate reliability. To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.
#11 ERRATA Updated 30 April 2014 . Naphthalene should not be subtracted.
#12 Errata 30 April 2014. Naphthalene should not be subtracted from >C
#13 Revised as per NEPC errata 6 Feb 2014

Environmental Standards

Berkman D A (1989), 'Field Geologist's Manual, Third Edition' published by the Australian Institute of Mining and Metallurgy., 1989, Berkman D A (1989) - Background Concentrations - Fyfe
NSW EPA, November 2014, NSW 2014 General Solid Waste CT1 (No Leaching)
NSW EPA, November 2014, NSW 2014 General Solid Waste SCC1 (with leached)
NSW EPA, November 2014, NSW 2014 General Solid Waste TCLP1 (leached)
NSW EPA, November 2014, NSW 2014 Restricted Solid Waste CT2 (No Leaching)
NSW EPA, November 2014, NSW 2014 Restricted Solid Waste SCC2 (with leached)
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil

Job Number: 82293-1
Site Location: Wentworth Avenue, Toongabbie NSW 2146

TABLE 1
Soil Analytical Results

	PAH																						Halogenated Benzenes
	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Half)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	Hexachlorobenzene
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/L	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
EQL	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.05
Berkman D A (1989) - Background Concentrations - Fyfe																						
NSW 2014 General Solid Waste CT1 (No Leaching)					0.8																200	
NSW 2014 General Solid Waste SCC1 (with leached)					10																200	
NSW 2014 General Solid Waste TCLP1 (leached)						40																
NSW 2014 Restricted Solid Waste CT2 (No Leaching)					3.2																800	
NSW 2014 Restricted Solid Waste SCC2 (with leached)					23																800	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand														NL [#1]								
>=0m, <1m														NL [#1]								
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind														370								
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																	40 [#2]	40 [#2]	40 [#2]	4,000 [#8]		80
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil																						
Friebel and Nadebaum (2011) Direct Contact HSL, IMW.														29,000								
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil					1.4 [#13]																	
>=0m, <2m					1.4 [#13]																	
Field ID	**Lab Report Number**	**Date**																					
BH01_0.1	**1244056**	**07 Jul 2025**	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.05
BH01_0.1	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_0.4	**1244056**	**07 Jul 2025**	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.6**	**1.2**	<0.5	<0.5	-
BH01_0.4	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_0.5	**1247652**	**07 Jul 2025**	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.6**	**1.2**	<0.5	<0.5	-
BH02_0.1	**1244056**	**07 Jul 2025**	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.05
BH02_0.1	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.4	**1244056**	**07 Jul 2025**	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.6**	**1.2**	<0.5	<0.5	-
PC01_0.3	**1244056**	**07 Jul 2025**	<0.5	<0.5	**1.0**	**1.2**	**1.4**	-	**1.1**	**0.9**	**1.2**	**1.4**	<0.5	**4.5**	<0.5	**0.9**	<0.5	**3.8**	**4.3**	**2.1**	**2.4**	**1.9**	**22**	-
PC01_0.3	**1247652**	**07 Jul 2025**	-	-	-	-	-	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC01_0.5	**1247652**	**07 Jul 2025**	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.6**	**1.2**	<0.5	<0.5	-
PC02_0.3	**1247652**	**07 Jul 2025**	-	-	-	-	-	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC02_0.3	**1247652**	**07 Jul 2025**	**1.5**	<0.5	**8.1**	**10**	**12**	-	**21**	**12**	**19**	**11**	**2.3**	**32**	**1.5**	<0.5	<0.5	**19**	**30**	**20**	**20**	**20**	**180**	-
PC02_0.5	**1244056**	**07 Jul 2025**	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	**0.7**	<0.5	<0.5	<0.5	<0.5	**0.8**	**0.6**	**1.2**	<0.5	**1.5**	-
PC03_0.3	**1244056**	**07 Jul 2025**	**8.6**	<0.5	**24**	**25**	**26**	-	**20**	**13**	**21**	**27**	**4.2**	**92**	**6.4**	**14**	**2.2**	**100**	**78**	**39**	**39**	**39**	**460**	-
PC03_0.5	**1247652**	**07 Jul 2025**	-	-	-	-	-	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC03_0.5	**1247652**	**07 Jul 2025**	**3.6**	<0.5	**13**	**12**	**13**	-	**21**	**10**	**19**	**12**	**2.3**	**42**	**3.3**	**7.5**	**1.0**	**37**	**37**	**21**	**21**	**21**	**230**	-
PC03_1.0	**1247652**	**07 Jul 2025**	-	-	-	-	-	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC03_1.0	**1247652**	**07 Jul 2025**	<0.5	<0.5	**1.3**	**1.1**	**1.2**	-	**1.1**	**0.8**	**1.0**	**1.4**	<0.5	**3.9**	<0.5	**0.6**	<0.5	**3.9**	**3.6**	**1.9**	**2.1**	**1.6**	**20**	-
Statistics																								
Number of Detects			**3**	**0**	**5**	**5**	**5**	**0**	**5**	**5**	**5**	**5**	**3**	**6**	**3**	**4**	**2**	**5**	**6**	**12**	**12**	**5**	**6**	**0**
Minimum Detect			**1.5**	**ND**	**1**	**1.1**	**1.2**	**ND**	**1.1**	**0.8**	**1**	**1.4**	**2.3**	**0.7**	**1.5**	**0.6**	**1**	**3.8**	**0.8**	**0.6**	**1.2**	**1.6**	**1.5**	**ND**
Maximum Detect			**8.6**	**ND**	**24**	**25**	**26**	**ND**	**21**	**13**	**21**	**27**	**4.2**	**92**	**6.4**	**14**	**2.2**	**100**	**78**	**39**	**39**	**39**	**460**	**ND**

Comments
#1 Derived soil HSL exceeds soil saturation concentraiton
#2 To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.
#3 Aged values apply to arsenic contamination present in soil > 2 years. Refer Schedule
#4 Arsenic: HIL assumes 70% oral bioavailability. Site-specific bioavailability maybe imp
#5 Lead: HILs A,B,C based on blood lead models (IEUBK & HIL D on adult lead model for
#6 Elemental mercury: HIL does not address elemental mercury. a site specific assessm
#7 Carcinogenic PAHs: HIL based on 8 carc. PAHs & their TEFs (rel to BaP ref Schedule 7
#8 Total PAHs: Based on sum of 16 most common reported (WHO 98). HIL application s
#9 Separate management limits for BTEX & naphthalene are not available hence should
#10 Moderate reliability. To obtain F1 subtract the sum of BTEX concentrations from th
#11 ERRATA Updated 30 April 2014 . Naphthalene should not be subtracted.
#12 Errata 30 April 2014. Naphthalene should not be subtracted from >C
#13 Revised as per NEPC errata 6 Feb 2014

Environmental Standards
Berkman D A (1989), 'Field Geologist's Manual, Third Edition' published by the Australia
NSW EPA, November 2014, NSW 2014 General Solid Waste CT1 (No Leaching)
NSW EPA, November 2014, NSW 2014 General Solid Waste SCC1 (with leached)
NSW EPA, November 2014, NSW 2014 General Solid Waste TCLP1 (leached)
NSW EPA, November 2014, NSW 2014 Restricted Solid Waste CT2 (No Leaching)
NSW EPA, November 2014, NSW 2014 Restricted Solid Waste SCC2 (with leached)
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil

Job Number: 82293-1
Site Location: Wentworth Avenue, Toongabbie NSW 2146

TABLE 1
Soil Analytical Results

			Organophosphorous Pesticides																																			
			Tolcthion	Azinophos methyl	Bolstar (Sulprofos)	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Ethoprop	Fenitrothion	Fensulfothion	Fenthion	EPN	Malathion	Merphos	Methyl parathion	Mevinphos (Phosdrin)	Monocrotophos	Naled (Dibrom)	Omethoate	Parathion	Pirimiphos-methyl	Phorate	Pyrazophos	Ronnel	Terbufos	Trichloronate	Tetrachlorvinphos
			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	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
EQL			0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Berkman D A (1989) - Background Concentrations - Fyfe																																						
NSW 2014 General Solid Waste CT1 (No Leaching)							4																															
NSW 2014 General Solid Waste SCC1 (with leached)							7.5																															
NSW 2014 General Solid Waste TCLP1 (leached)																																						
NSW 2014 Restricted Solid Waste CT2 (No Leaching)							16																															
NSW 2014 Restricted Solid Waste SCC2 (with leached)							30																															
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand >=0m, <1m																																						
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																																						
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil							2,000																															
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil																																						
Friebel and Nadebaum (2011) Direct Contact HSL, IMW.																																						
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil >=0m, <2m																																						
Field ID	**Lab Report Number**	**Date**																																				
BH01_0.1	**1244056**	**07 Jul 2025**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
BH01_0.1	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_0.4	**1244056**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_0.4	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_0.5	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.1	**1244056**	**07 Jul 2025**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
BH02_0.1	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.4	**1244056**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC01_0.3	**1244056**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC01_0.3	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC01_0.5	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC02_0.3	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC02_0.3	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC02_0.5	**1244056**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC03_0.3	**1244056**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC03_0.5	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC03_0.5	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC03_1.0	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC03_1.0	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistics																																						
Number of Detects			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Detect			**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Detect			**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**

Comments

#1 Derived soil HSL exceeds soil saturation concentraiton
#2 To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.
#3 Aged values apply to arsenic contamination present in soil > 2 years. Refer Schedule
#4 Arsenic: HIL assumes 70% oral bioavailability. Site-specific bioavailability maybe imp
#5 Lead: HILs A,B,C based on blood lead models (IEUBK & HIL D on adult lead model for
#6 Elemental mercury: HIL does not address elemental mercury. a site specific assessm
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#13 Revised as per NEPC errata 6 Feb 2014

Environmental Standards

Berkman D A (1989), 'Field Geologist's Manual, Third Edition' published by the Australia
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NSW EPA, November 2014, NSW 2014 Restricted Solid Waste CT2 (No Leaching)
NSW EPA, November 2014, NSW 2014 Restricted Solid Waste SCC2 (with leached)
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2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil

Job Number: 82293-1
Site Location: Wentworth Avenue, Toongabbie NSW 2146

TABLE 1
Soil Analytical Results

			Organochlorine Pesticides																							Leaching Preparation		Inorganics	
			Organochlorine pesticides in EPAVic	Other organochlorine pesticides EPAVic	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Toxaphene	pH (Final)	pH (Initial)	Moisture Content (dried @ 103°C)	pH (after HCL)
			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	mg/kg	mg/kg	-	-	%	-
EQL			0.1	0.1	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.5	0.1	0.1	1	0.1
Berkman D A (1989) - Background Concentrations - Fyfe																														
NSW 2014 General Solid Waste CT1 (No Leaching)																														
NSW 2014 General Solid Waste SCC1 (with leached)																														
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NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand >=0m, <1m																														
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind													640																	
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil								45		530				3,600					100				50		2,500	160				
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil																														
Friebel and Nadebaum (2011) Direct Contact HSL, IMW.																														
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil >=0m, <2m																														
Field ID	**Lab Report Number**	**Date**																												
BH01_0.1	**1244056**	**07 Jul 2025**	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	-	-	**7.7**	-
BH01_0.1	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**5.1**	**8.6**	-	**1.4**
BH01_0.4	**1244056**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**11**	-
BH01_0.4	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**5.0**	**8.5**	-	**1.5**
BH01_0.5	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**12**	-
BH02_0.1	**1244056**	**07 Jul 2025**	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	-	-	**13**	-
BH02_0.1	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**5.0**	**8.0**	-	**1.4**
BH02_0.4	**1244056**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**13**	-
PC01_0.3	**1244056**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**8.7**	-
PC01_0.3	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**5.1**	**8.7**	-	**1.3**
PC01_0.5	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**12**	-
PC02_0.3	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**5.1**	**8.2**	-	**1.3**
PC02_0.3	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**7.8**	-
PC02_0.5	**1244056**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**9.9**	-
PC03_0.3	**1244056**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**6.6**	-
PC03_0.5	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**4.9**	**5.5**	-	**1.5**
PC03_0.5	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**9.9**	-
PC03_1.0	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**5.0**	**5.2**	-	**1.5**
PC03_1.0	**1247652**	**07 Jul 2025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**10**	-
Statistics																														
Number of Detects			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**7**	**12**	**7**
Minimum Detect			**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**4.9**	**5.2**	**6.6**	**1.3**
Maximum Detect			**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**5.1**	**8.7**	**13**	**1.5**

Comments

#1 Derived soil HSL exceeds soil saturation concentraiton
#2 To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.
#3 Aged values apply to arsenic contamination present in soil > 2 years. Refer Schedule
#4 Arsenic: HIL assumes 70% oral bioavailability. Site-specific bioavailability maybe imp
#5 Lead: HILs A,B,C based on blood lead models (IEUBK & HIL D on adult lead model for
#6 Elemental mercury: HIL does not address elemental mercury. a site specific assessm
#7 Carcinogenic PAHs: HIL based on 8 carc. PAHs & their TEFs (rel to BaP ref Schedule 7
#8 Total PAHs: Based on sum of 16 most common reported (WHO 98). HIL application s
#9 Separate management limits for BTEX & naphthalene are not available hence should
#10 Moderate reliability. To obtain F1 subtract the sum of BTEX concentrations from th
#11 ERRATA Updated 30 April 2014 . Naphthalene should not be subtracted.
#12 Errata 30 April 2014. Naphthalene should not be subtracted from >C
#13 Revised as per NEPC errata 6 Feb 2014

Environmental Standards

Berkman D A (1989), 'Field Geologist's Manual, Third Edition' published by the Australia
NSW EPA, November 2014, NSW 2014 General Solid Waste CT1 (No Leaching)
NSW EPA, November 2014, NSW 2014 General Solid Waste SCC1 (with leached)
NSW EPA, November 2014, NSW 2014 General Solid Waste TCLP1 (leached)
NSW EPA, November 2014, NSW 2014 Restricted Solid Waste CT2 (No Leaching)
NSW EPA, November 2014, NSW 2014 Restricted Solid Waste SCC2 (with leached)
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil

ATTACHMENT C
LABORATORY DOCUMENTATION

VALUE THROUGH INTEGRATION

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

- ☑ **Sydney Laboratory** 179 Magowar Road Girraween NSW 2066 · 02 9900 8400 · EnviroSampleNSW@eurofins.com
- ☐ **Brisbane Laboratory** Unit 1 21 Smallwood Place Murarrie QLD 4172 · 07 3902 4600 · EnviroSampleQLD@eurofins.com
- ☐ **Perth Laboratory** 46-48 Banksia Road Welshpool WA 6106 · 08 6253 4444 · Samples@ARLgroup.com.au
- ☐ **Melbourne Laboratory** 6 Monterey Road Dandenong South VIC 3175 · 03 8564 5000 · EnviroSampleVic@eurofins.com

Company	Fyfe
Address	L3 / 120 Edward Street Brisbane QLD 4000
Contact Name	Nathan Watson
Phone №	0404 955 619
Special Directions	
Purchase Order	82293-1
Quote ID №	Fyfe Rates
Project №	Job Number 82293-1
Project Name	CMW TGB BRG PCA
Project Manager	Nathan Watson
EDD Format (ESdat, EQuIS etc)	ESdat
Facility Code	
Sampler(s)	Ebrahim Alaei
Handed over by	Ebrahim Alaei
Email for Invoice	accountspayable@fyfe.com.au
Email for Results	nathan.watson@fyfe.com.au enviro.lab@fyfe.com.au

Required Turnaround Time (TAT) Default will be 5 days if not ticked

♦Surcharge will apply

- ☐ Overnight (reporting by 9am)♦
- ☐ Same day♦
- ☐ 1 day♦
- ☐ 2 days♦
- ☐ 3 days♦
- ☑ 5 days (Standard)
- ☐ Other( )

Analyses (Where metals are requested, please specify Total or Filtered. SUITE codes must be used to attract SUITE pricing.)

Containers (Change container type & size if necessary.)

№	Client Sample ID	Sampled Date/Time (dd/mm/yy hh:mm)	Matrix (Solid (S) Water (W))	B10 - TRH, BTEXN, PAH, OCP, OPP, METALS (8)	B7- TRH, BTEXN, PAH, METALS (8)	HOLD	Jar (250ml glass)	Sample Comments / Dangerous Goods Hazard Warning
1	BH01_0.1	7/07/25	Soil	X			1	
2	BH01_0.4	14/4/25	Soil		X		1	
3	BH01_0.9	14/4/25	Soil			X	1	
4	BH01_2.0	14/4/25	Soil			X	1	
5	BH01_3.0	14/4/25	Soil			X	1	
6	BH01_3.9	15/04/25	Soil			X	1	
7	BH02_0.1	15/04/25	Soil	X			1	
8	BH02_0.4	15/04/25	Soil		X		1	
9	BH02_0.9	15/04/25	Soil			X	1	
10	BH02_3.9	15/04/25	Soil			X	1	
11	PC01_0.3	7/07/25	Soil		X		1	
12	PC01_0.5	7/07/25	Soil			X	1	
13	PC01_1.0	7/07/25	Soil			X	1	
14	PC02_0.3	7/07/25	Soil			X	1	

1244056   1/2

15	PC02_0.5	7/07/25	Soil		X															1					
16	PC02_1.0	7/07/25	Soil												X					1					
17	PC03_0.3	7/07/25	Soil		X															1					
18	PC03_0.5	7/07/25	Soil												X					1					
19	PC03_1.0	7/07/25	Soil												X					1					
	Add Rows		Total Counts	2	5										12					19					

Method of Shipment	☑ Courier (#)	☐ Hand Delivered	☐ Postal	Name	Nathan Watson	Signature		Date	11/07/2025	Time	3.45pm								
Laboratory Use Only	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Temperature								
	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date		Time		Report №								

2/2

1244958

Outlook

FW: Eurofins Test Results, Invoice - Report 1244056 : Site CMW TGB BRG PCA (Job Number 82293-1)

From Andrew Black <Andrew.Black@eurofinsanz.com>
Date Fri 7/18/2025 11:43 AM
To Sharlene Santos <Sharlene.Santos@eurofinsanz.com>
Cc Nileshni Goundar <Nileshni.Goundar@eurofinsanz.com>

Good one for you thanks Sharlene

Andrew Black
Analytical Services Manager

Eurofins | Environment Testing Australia Pty Ltd
1 / 2 Frost Drive
Mayfield West, NSW, 2304
Phone: +61 2 9900 8490
Mobile: +61 410 220 750
Email: Andrew.Black@eurofinsanz.com
Website: eurofins.com.au/environmental-testing
https://www.eurofins-estore.com.au/

Please note my work hours are 8:30am-5:30pm, anything outside of that I will get to the next day. Contact evening shift ASM for anything urgent.

From: Nathan Watson <Nathan.Watson@fyfe.com.au>
Sent: Friday, 18 July 2025 10:56 AM
To: Nileshni Goundar <Nileshni.Goundar@eurofinsanz.com>
Cc: SH_AU25_EurofinsEnviroNSW <eurofinsenvironsw@eurofinsanz.com>
Subject: RE: Eurofins Test Results, Invoice - Report 1244056 : Site CMW TGB BRG PCA (Job Number 82293-1)

Hi Nileshni,

There seems to be a mistake in the sample name of the highlighted sample in the snip below:

0831509668	BH01_0.4	BH02_0.1	BH02_0.4
Soil	Soil	Soil	Soil
S25-JI0037010	S25-JI0037011	S25-JI0037012	S25-JI0037013
Jul 07, 2025	Jul 07, 2025	Jul 07, 2025	Jul 07, 2025

Would you please be able to review and reissue?

I believe the sample should be BH01_0.1.

Best regards,

Nathan Watson | Senior Environmental Scientist
T +61 7 3837 9120 **M** +61 404 955 619

From: Nileshni Goundar <EET-ELVIS@eurofinsanz.com>
Sent: Thursday, 17 July 2025 4:21 PM
To: Nathan Watson <Nathan.Watson@fyfe.com.au>
Cc: Fyfe Laboratory Results <Enviro.Lab@fyfe.com.au>
Subject: Eurofins Test Results, Invoice - Report 1244056 : Site CMW TGB BRG PCA (Job Number 82293-1)

Please find the attached report.

Kind Regards,
Nileshni (Neena) Goundar

Assistant Analytical Services Manager
*Please note my work hours are **2pm-10pm,** anything outside of that please contact your ASM for anything urgent.*

Eurofins Environment Testing Australia Pty Ltd
179 Magowar Road
Girraween, NSW, 2145

Email: Nileshni.Goundar@eurofinsanz.com
Website: www.eurofins.com.au/environmental-testing

eurofins | Environment Testing

www.eurofins.com.au EnviroSales@eurofinsanz.com

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	+61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

Eurofins ARL Pty Ltd

ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool
WA 6106
+61 8 6253 4444
NATA# 2377
Site# 2370 & 2554

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

Auckland	Auckland (Focus)	Christchurch	Tauranga
35 O'Rorke Road	Unit C1/4 Pacific Rise	43 Detroit Drive	1277 Cameron Road
Penrose	Mount Wellington	Rolleston	Gate Pa
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name: Fyfe Earth Partners Pty Ltd NSW
Contact name: Nathan Watson
Project name: CMW TGB BRG PCA
Project ID: Job Number 82293-1
Turnaround time: 5 Day
Date/Time received Jul 11, 2025 4:02 PM
Eurofins reference 1244056

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

SEMPLES NOT RECEIVED :BH01_0.9, BH01_3.9, EXTRA SAMPLES RECEIVED: BH01_0.5, BH01_1.0m, BH01_5.0, BH02_5.0m, BH02_3.0m, BH02_2.0m

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Ursula Long on phone : or by email: Ursula.Long@eurofinsanz.com

Results will be delivered electronically via email to Nathan Watson - Nathan.Watson@fyfe.com.au.

Note: A copy of these results will also be delivered to the general Fyfe Earth Partners Pty Ltd NSW email address.

eurofins

web: www.eurofins.com.au
email: EnviroSales@eurofinsanz.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

Eurofins ARL Pty Ltd
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NATA# 2377
Site# 2370 & 2554

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

Auckland	Auckland (Focus)	Christchurch	Tauranga
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+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: Fyfe Earth Partners Pty Ltd NSW
Address: Level 1, 124 South Tce
Adelaide
SA 5000

Project Name: CMW TGB BRG PCA
Project ID: Job Number 82293-1

Order No.: 82293-1
Report #: 1244056
Phone: 08 8201 9600
Fax: 08 8201 9650

Received: Jul 11, 2025 4:02 PM
Due: Jul 18, 2025
Priority: 5 Day
Contact Name: Nathan Watson

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						HOLD*	Moisture Set	Eurofins Suite B10: BTEX/TRH/PAH/OCP/OPP/M8	Eurofins Suite B7
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	BH01_0.1	Jul 07, 2025		Soil	S25-Jl0037010		X	X	
2	BH01_0.4	Jul 07, 2025		Soil	S25-Jl0037011		X		X
3	BH02_0.1	Jul 07, 2025		Soil	S25-Jl0037012		X	X	
4	BH02_0.4	Jul 07, 2025		Soil	S25-Jl0037013		X		X
5	PC01_0.3	Jul 07, 2025		Soil	S25-Jl0037014		X		X
6	PC02_0.5	Jul 07, 2025		Soil	S25-Jl0037015		X		X
7	PC03_0.3	Jul 07, 2025		Soil	S25-Jl0037016		X		X
8	BH01_0.9	Jul 07, 2025		Soil	S25-Jl0037017	X			
9	BH01_2.0	Jul 07, 2025		Soil	S25-Jl0037018	X			
10	BH01_3.0	Jul 07, 2025		Soil	S25-Jl0037019	X			
11	BH01_3.9	Jul 07, 2025		Soil	S25-Jl0037020	X			
12	BH02_0.9	Jul 07, 2025		Soil	S25-Jl0037021	X			
13	BH02_3.9	Jul 07, 2025		Soil	S25-Jl0037022	X			
14	PC01_0.5	Jul 07, 2025		Soil	S25-Jl0037023	X			

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web: www.eurofins.com.au
email: EnviroSales@eurofinsanz.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

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VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	+61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: Fyfe Earth Partners Pty Ltd NSW
Address: Level 1, 124 South Tce
Adelaide
SA 5000

Project Name: CMW TGB BRG PCA
Project ID: Job Number 82293-1

Order No.: 82293-1
Report #: 1244056
Phone: 08 8201 9600
Fax: 08 8201 9650

Received: Jul 11, 2025 4:02 PM
Due: Jul 18, 2025
Priority: 5 Day
Contact Name: Nathan Watson

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						HOLD*	Moisture Set	Eurofins Suite B10: BTEX/TRH/PAH/OCP/OPP/M8	Eurofins Suite B7
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X
15	PC01_1.0	Jul 07, 2025		Soil	S25-Jl0037024	X			
16	PC02_0.3	Jul 07, 2025		Soil	S25-Jl0037025	X			
17	PC02_1.0	Jul 07, 2025		Soil	S25-Jl0037026	X			
18	PC03_0.5	Jul 07, 2025		Soil	S25-Jl0037027	X			
19	PC03_1.0	Jul 07, 2025		Soil	S25-Jl0037028	X			
20	BH01_0.5	Jul 07, 2025		Soil	S25-Jl0037081	X			
21	BH01_1.0m	Jul 07, 2025		Soil	S25-Jl0037082	X			
22	BH01_5.0m	Jul 07, 2025		Soil	S25-Jl0037083	X			
23	BH02-5.0m	Jul 07, 2025		Soil	S25-Jl0037084	X			
24	BH02-3.0m	Jul 07, 2025		Soil	S25-Jl0037085	X			
25	BH02_2.0m	Jul 07, 2025		Soil	S25-Jl0037086	X			
Test Counts						18	7	2	5

Fyfe Earth Partners
Level 1, 124 South Tce
Adelaide
SA 5000

NATA Accredited
Accreditation Number 1261
Site Number 18217

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Attention: **Nathan Watson**

Report **1244056-S-V2**
Project name CMW TGB BRG PCA
Project ID Job Number 82293-1
Received Date Jul 11, 2025

Client Sample ID			**BH01_0.1**	**BH01_0.4**	**BH02_0.1**	**BH02_0.4**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S25-JI0037010**	**S25-JI0037011**	**S25-JI0037012**	**S25-JI0037013**
Date Sampled			**Jul 07, 2025**	**Jul 07, 2025**	**Jul 07, 2025**	**Jul 07, 2025**
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	91	101	98	117
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)*[N01]	50	mg/kg	< 50	< 50	< 50	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			BH01_0.1	BH01_0.4	BH02_0.1	BH02_0.4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S25-JI0037010	S25-JI0037011	S25-JI0037012	S25-JI0037013
Date Sampled			Jul 07, 2025	Jul 07, 2025	Jul 07, 2025	Jul 07, 2025
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	91	129	98	97
p-Terphenyl-d14 (surr.)	1	%	91	144	88	115
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	-
a-HCH	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
b-HCH	0.05	mg/kg	< 0.05	-	< 0.05	-
d-HCH	0.05	mg/kg	< 0.05	-	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
g-HCH (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Toxaphene	0.5	mg/kg	< 0.5	-	< 0.5	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	[Q09]INT	-	70	-
Tetrachloro-m-xylene (surr.)	1	%	72	-	73	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	-	< 0.2	-
Bolstar	0.2	mg/kg	< 0.2	-	< 0.2	-
Chlorfenvinphos	0.2	mg/kg	< 0.2	-	< 0.2	-
Chlorpyrifos	0.2	mg/kg	< 0.2	-	< 0.2	-
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	-	< 0.2	-
Coumaphos	2	mg/kg	< 2	-	< 2	-
Demeton-S	0.2	mg/kg	< 0.2	-	< 0.2	-
Demeton-O	0.2	mg/kg	< 0.2	-	< 0.2	-
Diazinon	0.2	mg/kg	< 0.2	-	< 0.2	-
Dichlorvos	0.2	mg/kg	< 0.2	-	< 0.2	-
Dimethoate	0.2	mg/kg	< 0.2	-	< 0.2	-

Client Sample ID			BH01_0.1	BH01_0.4	BH02_0.1	BH02_0.4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S25-JI0037010	S25-JI0037011	S25-JI0037012	S25-JI0037013
Date Sampled			Jul 07, 2025	Jul 07, 2025	Jul 07, 2025	Jul 07, 2025
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Disulfoton	0.2	mg/kg	< 0.2	-	< 0.2	-
EPN	0.2	mg/kg	< 0.2	-	< 0.2	-
Ethion	0.2	mg/kg	< 0.2	-	< 0.2	-
Ethoprop	0.2	mg/kg	< 0.2	-	< 0.2	-
Ethyl parathion	0.2	mg/kg	< 0.2	-	< 0.2	-
Fenitrothion	0.2	mg/kg	< 0.2	-	< 0.2	-
Fensulfothion	0.2	mg/kg	< 0.2	-	< 0.2	-
Fenthion	0.2	mg/kg	< 0.2	-	< 0.2	-
Malathion	0.2	mg/kg	< 0.2	-	< 0.2	-
Merphos	0.2	mg/kg	< 0.2	-	< 0.2	-
Methyl parathion	0.2	mg/kg	< 0.2	-	< 0.2	-
Mevinphos	0.2	mg/kg	< 0.2	-	< 0.2	-
Monocrotophos	2	mg/kg	< 2	-	< 2	-
Naled	0.2	mg/kg	< 0.2	-	< 0.2	-
Omethoate	2	mg/kg	< 2	-	< 2	-
Phorate	0.2	mg/kg	< 0.2	-	< 0.2	-
Pirimiphos-methyl	0.2	mg/kg	< 0.2	-	< 0.2	-
Pyrazophos	0.2	mg/kg	< 0.2	-	< 0.2	-
Ronnel	0.2	mg/kg	< 0.2	-	< 0.2	-
Terbufos	0.2	mg/kg	< 0.2	-	< 0.2	-
Tetrachlorvinphos	0.2	mg/kg	< 0.2	-	< 0.2	-
Tokuthion	0.2	mg/kg	< 0.2	-	< 0.2	-
Trichloronate	0.2	mg/kg	< 0.2	-	< 0.2	-
Triphenylphosphate (surr.)	1	%	52	-	INT	-
Heavy Metals						
Arsenic	2	mg/kg	8.5	77	20	7.8
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	30	14	90	37
Copper	5	mg/kg	76	24	73	26
Lead	5	mg/kg	16	13	77	31
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	130	50	92	23
Zinc	5	mg/kg	97	110	180	54
Sample Properties						
% Moisture	1	%	7.7	11	13	13

Client Sample ID			PC01_0.3	PC02_0.5	PC03_0.3
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S25-JI0037014	S25-JI0037015	S25-JI0037016
Date Sampled			Jul 07, 2025	Jul 07, 2025	Jul 07, 2025
Test/Reference	LOR	Unit			
BTEX					
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	104	63	99

Client Sample ID			PC01_0.3	PC02_0.5	PC03_0.3
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S25-JI0037014	S25-JI0037015	S25-JI0037016
Date Sampled			Jul 07, 2025	Jul 07, 2025	Jul 07, 2025
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons					
TRH C6-C9	20	mg/kg	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	30
TRH C15-C28	50	mg/kg	< 50	< 50	1200
TRH C29-C36	50	mg/kg	< 50	< 50	450
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	1680
TRH C6-C10	20	mg/kg	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	84
TRH >C10-C16 less Naphthalene (F2)*[N01]	50	mg/kg	< 50	< 50	82.6
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	1.4
TRH >C16-C34	100	mg/kg	< 100	< 100	1400
TRH >C34-C40	100	mg/kg	< 100	< 100	320
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	1804
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	1.9	< 0.5	39
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	2.1	0.6	39
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	2.4	1.2	39
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	8.6
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	1.0	< 0.5	24
Benz(a)anthracene	0.5	mg/kg	1.2	< 0.5	25
Benzo(a)pyrene	0.5	mg/kg	1.4	< 0.5	26
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	1.1	< 0.5	20
Benzo(g.h.i)perylene	0.5	mg/kg	0.9	< 0.5	13
Benzo(k)fluoranthene	0.5	mg/kg	1.2	< 0.5	21
Chrysene	0.5	mg/kg	1.4	< 0.5	27
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	4.2
Fluoranthene	0.5	mg/kg	4.5	0.7	92
Fluorene	0.5	mg/kg	< 0.5	< 0.5	6.4
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	0.9	< 0.5	14
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	2.2
Phenanthrene	0.5	mg/kg	3.8	< 0.5	100
Pyrene	0.5	mg/kg	4.3	0.8	78
Total PAH*	0.5	mg/kg	22	1.5	460
2-Fluorobiphenyl (surr.)	1	%	123	98	85
p-Terphenyl-d14 (surr.)	1	%	112	104	75
Heavy Metals					
Arsenic	2	mg/kg	3.0	11	4.3
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	6.9	11	12
Copper	5	mg/kg	< 5	34	17
Lead	5	mg/kg	6.8	18	9.1
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	7.6	6.3
Zinc	5	mg/kg	< 5	36	10
Sample Properties					
% Moisture	1	%	8.7	9.9	6.6

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
BTEX	Sydney	Jul 14, 2025	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Total Recoverable Hydrocarbons	Sydney	Jul 14, 2025	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Jul 14, 2025	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jul 14, 2025	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jul 14, 2025	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	Jul 14, 2025	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Jul 14, 2025	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Organochlorine Pesticides	Sydney	Jul 14, 2025	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	Jul 14, 2025	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
% Moisture	Sydney	Jul 14, 2025	14 Days
- Method: LTM-GEN-7080 Moisture			

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Eurofins Environment Testing Australia Pty Ltd
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Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	+61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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Company Name: Fyfe Earth Partners Pty Ltd NSW
Address: Level 1, 124 South Tce
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Project Name: CMW TGB BRG PCA
Project ID: Job Number 82293-1

Order No.: 82293-1
Report #: 1244056
Phone: 08 8201 9600
Fax: 08 8201 9650

Received: Jul 11, 2025 4:02 PM
Due: Jul 18, 2025
Priority: 5 Day
Contact Name: Nathan Watson

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						HOLD*	Moisture Set	Eurofins Suite B10: BTEX/TRH/PAH/OCP/OPP/M8	Eurofins Suite B7
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	BH01_0.1	Jul 07, 2025		Soil	S25-Jl0037010		X	X	
2	BH01_0.4	Jul 07, 2025		Soil	S25-Jl0037011		X		X
3	BH02_0.1	Jul 07, 2025		Soil	S25-Jl0037012		X	X	
4	BH02_0.4	Jul 07, 2025		Soil	S25-Jl0037013		X		X
5	PC01_0.3	Jul 07, 2025		Soil	S25-Jl0037014		X		X
6	PC02_0.5	Jul 07, 2025		Soil	S25-Jl0037015		X		X
7	PC03_0.3	Jul 07, 2025		Soil	S25-Jl0037016		X		X
8	BH01_0.9	Jul 07, 2025		Soil	S25-Jl0037017	X			
9	BH01_2.0	Jul 07, 2025		Soil	S25-Jl0037018	X			
10	BH01_3.0	Jul 07, 2025		Soil	S25-Jl0037019	X			
11	BH01_3.9	Jul 07, 2025		Soil	S25-Jl0037020	X			
12	BH02_0.9	Jul 07, 2025		Soil	S25-Jl0037021	X			
13	BH02_3.9	Jul 07, 2025		Soil	S25-Jl0037022	X			
14	PC01_0.5	Jul 07, 2025		Soil	S25-Jl0037023	X			

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Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
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Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	+61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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Site# 2370 & 2554

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: Fyfe Earth Partners Pty Ltd NSW
Address: Level 1, 124 South Tce
Adelaide
SA 5000

Project Name: CMW TGB BRG PCA
Project ID: Job Number 82293-1

Order No.: 82293-1
Report #: 1244056
Phone: 08 8201 9600
Fax: 08 8201 9650

Received: Jul 11, 2025 4:02 PM
Due: Jul 18, 2025
Priority: 5 Day
Contact Name: Nathan Watson

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						HOLD*	Moisture Set	Eurofins Suite B10: BTEX/TRH/PAH/OCP/OPP/M8	Eurofins Suite B7
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X
15	PC01_1.0	Jul 07, 2025		Soil	S25-Jl0037024	X			
16	PC02_0.3	Jul 07, 2025		Soil	S25-Jl0037025	X			
17	PC02_1.0	Jul 07, 2025		Soil	S25-Jl0037026	X			
18	PC03_0.5	Jul 07, 2025		Soil	S25-Jl0037027	X			
19	PC03_1.0	Jul 07, 2025		Soil	S25-Jl0037028	X			
20	BH01_0.5	Jul 07, 2025		Soil	S25-Jl0037081	X			
21	BH01_1.0m	Jul 07, 2025		Soil	S25-Jl0037082	X			
22	BH01_5.0m	Jul 07, 2025		Soil	S25-Jl0037083	X			
23	BH02-5.0m	Jul 07, 2025		Soil	S25-Jl0037084	X			
24	BH02-3.0m	Jul 07, 2025		Soil	S25-Jl0037085	X			
25	BH02_2.0m	Jul 07, 2025		Soil	S25-Jl0037086	X			
Test Counts						18	7	2	5

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C10-C14	%	99			70-130	Pass	
TRH >C10-C16	%	99			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	97			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	101			80-120	Pass	
Cadmium	%	104			80-120	Pass	
Chromium	%	105			80-120	Pass	
Copper	%	107			80-120	Pass	
Lead	%	108			80-120	Pass	
Mercury	%	98			80-120	Pass	
Nickel	%	105			80-120	Pass	
Zinc	%	105			80-120	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	97			70-130	Pass	
Toluene	%	101			70-130	Pass	
Ethylbenzene	%	100			70-130	Pass	
m&p-Xylenes	%	97			70-130	Pass	
o-Xylene	%	100			70-130	Pass	
Xylenes - Total*	%	98			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	92			70-130	Pass	
TRH C6-C10	%	90			70-130	Pass	
Naphthalene	%	88			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	112			70-130	Pass	
Acenaphthylene	%	119			70-130	Pass	
Anthracene	%	105			70-130	Pass	
Benz(a)anthracene	%	106			70-130	Pass	
Benzo(a)pyrene	%	110			70-130	Pass	
Benzo(b&j)fluoranthene	%	118			70-130	Pass	
Benzo(g.h.i)perylene	%	111			70-130	Pass	
Benzo(k)fluoranthene	%	125			70-130	Pass	
Chrysene	%	114			70-130	Pass	
Dibenz(a.h)anthracene	%	121			70-130	Pass	
Fluoranthene	%	105			70-130	Pass	
Fluorene	%	103			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	118			70-130	Pass	
Naphthalene	%	107			70-130	Pass	
Phenanthrene	%	107			70-130	Pass	
Pyrene	%	112			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	104			70-130	Pass	
4.4'-DDD	%	90			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDE	%	104			70-130	Pass	
4.4'-DDT	%	107			70-130	Pass	
a-HCH	%	97			70-130	Pass	
Aldrin	%	96			70-130	Pass	
b-HCH	%	92			70-130	Pass	
d-HCH	%	97			70-130	Pass	
Dieldrin	%	105			70-130	Pass	
Endosulfan I	%	94			70-130	Pass	
Endosulfan II	%	93			70-130	Pass	
Endosulfan sulphate	%	105			70-130	Pass	
Endrin	%	94			70-130	Pass	
Endrin aldehyde	%	81			70-130	Pass	
Endrin ketone	%	107			70-130	Pass	
g-HCH (Lindane)	%	93			70-130	Pass	
Heptachlor	%	101			70-130	Pass	
Heptachlor epoxide	%	98			70-130	Pass	
Hexachlorobenzene	%	101			70-130	Pass	
Methoxychlor	%	97			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Dimethoate	%	106			70-130	Pass	
Ethion	%	111			70-130	Pass	
Fenitrothion	%	120			70-130	Pass	
Methyl parathion	%	115			70-130	Pass	
Mevinphos	%	110			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
BTEX				Result 1					
Benzene	S25-Jl0037458	NCP	%	85			70-130	Pass	
Toluene	S25-Jl0037458	NCP	%	86			70-130	Pass	
Ethylbenzene	S25-Jl0037458	NCP	%	87			70-130	Pass	
m&p-Xylenes	S25-Jl0037458	NCP	%	79			70-130	Pass	
o-Xylene	S25-Jl0037458	NCP	%	79			70-130	Pass	
Xylenes - Total*	S25-Jl0037458	NCP	%	79			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S25-Jl0037458	NCP	%	79			70-130	Pass	
TRH C10-C14	R25-Jl0031291	NCP	%	71			70-130	Pass	
TRH C6-C10	S25-Jl0037458	NCP	%	78			70-130	Pass	
TRH >C10-C16	R25-Jl0031291	NCP	%	71			70-130	Pass	
Naphthalene	S25-Jl0037479	NCP	%	75			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	R25-Jl0031807	NCP	%	81			70-130	Pass	
Acenaphthylene	R25-Jl0031807	NCP	%	82			70-130	Pass	
Anthracene	R25-Jl0031807	NCP	%	76			70-130	Pass	
Benz(a)anthracene	R25-Jl0031807	NCP	%	75			70-130	Pass	
Benzo(a)pyrene	R25-Jl0031807	NCP	%	77			70-130	Pass	
Benzo(b&j)fluoranthene	R25-Jl0031807	NCP	%	76			70-130	Pass	
Benzo(g.h.i)perylene	R25-Jl0031807	NCP	%	76			70-130	Pass	
Benzo(k)fluoranthene	R25-Jl0031807	NCP	%	76			70-130	Pass	
Chrysene	R25-Jl0031807	NCP	%	78			70-130	Pass	
Dibenz(a.h)anthracene	R25-Jl0031807	NCP	%	78			70-130	Pass	
Fluoranthene	R25-Jl0031807	NCP	%	78			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Fluorene	R25-JI0031807	NCP	%	80			70-130	Pass	
Indeno(1.2.3-cd)pyrene	R25-JI0031807	NCP	%	80			70-130	Pass	
Naphthalene	R25-JI0031807	NCP	%	79			70-130	Pass	
Phenanthrene	R25-JI0031807	NCP	%	78			70-130	Pass	
Pyrene	R25-JI0031807	NCP	%	80			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S25-JI0031098	NCP	%	98			70-130	Pass	
4.4'-DDD	S25-JI0031098	NCP	%	92			70-130	Pass	
4.4'-DDE	S25-JI0031098	NCP	%	92			70-130	Pass	
4.4'-DDT	S25-JI0031098	NCP	%	103			70-130	Pass	
Aldrin	S25-JI0031098	NCP	%	100			70-130	Pass	
b-HCH	S25-JI0031098	NCP	%	96			70-130	Pass	
d-HCH	N25-JI0031133	NCP	%	95			70-130	Pass	
Dieldrin	S25-JI0031098	NCP	%	102			70-130	Pass	
Endosulfan I	N25-JI0031133	NCP	%	112			70-130	Pass	
Endosulfan II	S25-JI0031098	NCP	%	107			70-130	Pass	
Endosulfan sulphate	S25-JI0031098	NCP	%	100			70-130	Pass	
Endrin	S25-JI0031098	NCP	%	92			70-130	Pass	
Endrin aldehyde	S25-JI0026049	NCP	%	91			70-130	Pass	
Endrin ketone	N25-JI0031133	NCP	%	73			70-130	Pass	
Heptachlor	N25-JI0031133	NCP	%	91			70-130	Pass	
Heptachlor epoxide	S25-JI0031098	NCP	%	101			70-130	Pass	
Hexachlorobenzene	N25-JI0031133	NCP	%	75			70-130	Pass	
Methoxychlor	S25-JI0031098	NCP	%	108			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	N25-JI0031133	NCP	%	85			70-130	Pass	
Dimethoate	N25-JI0031133	NCP	%	96			70-130	Pass	
Ethion	S25-JI0026049	NCP	%	118			70-130	Pass	
Fenitrothion	N25-JI0031133	NCP	%	84			70-130	Pass	
Methyl parathion	N25-JI0031133	NCP	%	76			70-130	Pass	
Mevinphos	S25-JI0026049	NCP	%	98			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S25-JI0037098	NCP	%	96			75-125	Pass	
Cadmium	S25-JI0037098	NCP	%	99			75-125	Pass	
Chromium	S25-JI0037098	NCP	%	96			75-125	Pass	
Copper	S25-JI0037098	NCP	%	85			75-125	Pass	
Lead	S25-JI0037098	NCP	%	101			75-125	Pass	
Mercury	S25-JI0037098	NCP	%	99			75-125	Pass	
Nickel	S25-JI0037098	NCP	%	99			75-125	Pass	
Zinc	S25-JI0037098	NCP	%	101			75-125	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
a-HCH	R25-JI0031807	NCP	%	76			70-130	Pass	
g-HCH (Lindane)	R25-JI0031807	NCP	%	73			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C10-C14	S25-JI0034574	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S25-JI0034574	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S25-JI0034574	NCP	mg/kg	92	< 50	60	30%	Fail	Q15
TRH >C10-C16	S25-JI0034574	NCP	mg/kg	< 50	< 50	<1	30%	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH >C16-C34	S25-Jl0034574	NCP	mg/kg	110	< 100	41	30%	Fail	Q15
TRH >C34-C40	S25-Jl0034574	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	W25-Jl0028018	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	W25-Jl0028018	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	W25-Jl0028018	NCP	mg/kg	0.6	0.7	24	30%	Pass	
Benz(a)anthracene	W25-Jl0028018	NCP	mg/kg	1.8	1.8	<1	30%	Pass	
Benzo(a)pyrene	W25-Jl0028018	NCP	mg/kg	1.7	1.5	2.0	30%	Pass	
Benzo(b&j)fluoranthene	W25-Jl0028018	NCP	mg/kg	1.3	1.0	26	30%	Pass	
Benzo(g.h.i)perylene	W25-Jl0028018	NCP	mg/kg	1.1	1.0	10	30%	Pass	
Benzo(k)fluoranthene	W25-Jl0028018	NCP	mg/kg	1.7	1.8	8.0	30%	Pass	
Chrysene	W25-Jl0028018	NCP	mg/kg	1.8	1.8	<1	30%	Pass	
Dibenz(a.h)anthracene	W25-Jl0028018	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	W25-Jl0028018	NCP	mg/kg	3.8	3.8	1.0	30%	Pass	
Fluorene	W25-Jl0028018	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	W25-Jl0028018	NCP	mg/kg	1.1	0.8	19	30%	Pass	
Naphthalene	W25-Jl0028018	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	W25-Jl0028018	NCP	mg/kg	2.4	3.3	33	30%	Fail	Q15
Pyrene	W25-Jl0028018	NCP	mg/kg	4.2	3.8	8.0	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S25-Jl0037536	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S25-Jl0037536	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S25-Jl0037536	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S25-Jl0037536	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	S25-Jl0030116	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S25-Jl0037536	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	S25-Jl0037536	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	S25-Jl0037536	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S25-Jl0037536	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S25-Jl0037536	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S25-Jl0037536	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S25-Jl0037536	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S25-Jl0037536	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S25-Jl0037536	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S25-Jl0037536	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	S25-Jl0030116	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S25-Jl0037536	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S25-Jl0037536	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S25-Jl0037536	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S25-Jl0037536	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	S25-Jl0037536	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	S25-Jl0037536	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Demeton-O	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	S25-Jl0037536	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	S25-Jl0037536	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	S25-Jl0037536	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S25-Jl0036880	NCP	mg/kg	19	23	19	30%	Pass	
Cadmium	S25-Jl0036880	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S25-Jl0036880	NCP	mg/kg	24	30	22	30%	Pass	
Copper	S25-Jl0036880	NCP	mg/kg	41	58	34	30%	Fail	Q15
Lead	S25-Jl0036880	NCP	mg/kg	40	39	3.0	30%	Pass	
Mercury	S25-Jl0036880	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S25-Jl0036880	NCP	mg/kg	26	35	31	30%	Fail	Q15
Zinc	S25-Jl0036880	NCP	mg/kg	96	150	43	30%	Fail	Q15
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	S25-Jl0036879	NCP	%	15	14	7.0	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S25-Jl0037015	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S25-Jl0037015	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S25-Jl0037015	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S25-Jl0037015	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S25-Jl0037015	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S25-Jl0037015	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S25-Jl0037015	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10	S25-Jl0037015	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Naphthalene	S25-Jl0037015	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S25-Jl0037016	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S25-Jl0037016	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S25-Jl0037016	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S25-Jl0037016	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S25-Jl0037016	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S25-Jl0037016	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S25-Jl0037016	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10	S25-Jl0037016	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Naphthalene	S25-Jl0037016	CP	mg/kg	1.4	3.5	85	30%	Fail	Q15

Comments

Report 1244056-S-V2 (amendment to report 1244056-S) has been issued with corrected sample ID for JI0037010, from "0831509668" to "BH01_0.1" as per COC.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Sharlene Santos	Analytical Services Manager
Mickael Ros	Senior Analyst-Metal
Raymond Siu	Senior Analyst-Volatile
Roopesh Rangarajan	Senior Analyst-Organic
Ryan Phillips	Senior Analyst-Sample Properties

Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Outlook

5 DAYS: V2: Eurofins Test Results - Report 1244056 : Site CMW TGB BRG PCA (Job Number 82293-1)

From Sharlene Santos <Sharlene.Santos@eurofinsanz.com>
Date Wed 23/07/2025 2:06 PM
To SH_AU25_Enviro_Sample_NSW <EnviroSampleNSW@eurofinsanz.com>
Cc Andrew Black <Andrew.Black@eurofinsanz.com>

Hey SR,

Can we get the following samples below logged as an additional on a 5 DAY TAT?

Kind Regards,

Sharlene Santos
Assistant Analytical Services Manager

My hours are 12pm - 8pm from Monday to Friday.
Please contact your analytical services manager (ASM) for queries outside of these hours.

Eurofins Environment Testing Australia Pty Ltd
179 Magowar Road, Girraween NSW 2145

Email: Sharlene.Santos@eurofinsanz.com
Website: www.eurofins.com.au/environmental-testing

From: Nathan Watson <Nathan.Watson@fyfe.com.au>
Sent: Wednesday, July 23, 2025 1:59 PM
To: Sharlene Santos <Sharlene.Santos@eurofinsanz.com>; Andrew Black <Andrew.Black@eurofinsanz.com>
Cc: Stewart Frater <Stewart.Frater@fyfe.com.au>; Ivan Neralic <Ivan.Neralic@fyfe.com.au>
Subject: RE: V2: Eurofins Test Results - Report 1244056 : Site CMW TGB BRG PCA (Job Number 82293-1)

Hi Sharlene / Andrew.

Would I please be able to arrange for some additional analysis from this batch as follows:

Sample ID	Lab ID	Analysis Requested
BH01_0.1	S25-JI0037010	Nickel – TCLP
BH01_0.4	S25-JI0037011	Nickel – TCLP
BH01_0.5	S25-JI0037081	B7 - TRH, BTEXN, PAH, METALS (8)
BH02_0.1	S25-JI0037012	Nickel – TCLP
PC01_0.3	S25-JI0037014	Benzo(a)pyrene – TCLP
PC01_0.5	S25-JI0037023	B7 - TRH, BTEXN, PAH, METALS (8)
PC02_0.3	S25-JI0037025	B7 - TRH, BTEXN, PAH, METALS (8) Benzo(a)pyrene – TCLP
PC03_0.5	S25-JI0037027	B7 - TRH, BTEXN, PAH, METALS (8) Benzo(a)pyrene – TCLP
PC03_1.0	S25-JI0037028	B7 - TRH, BTEXN, PAH, METALS (8) Benzo(a)pyrene – TCLP

Please use standard TAT.

If there are any issues, please let me know.

Best regards,

Nathan Watson | Senior Environmental Scientist
T +61 7 3837 9120 **M** +61 404 955 619

From: Sharlene Santos <EET-ELVIS@eurofinsanz.com>
Sent: Friday, 18 July 2025 1:36 PM
To: Nathan Watson <Nathan.Watson@fyfe.com.au>
Cc: Fyfe Laboratory Results <Enviro.Lab@fyfe.com.au>
Subject: V2: Eurofins Test Results - Report 1244056 : Site CMW TGB BRG PCA (Job Number 82293-1)

Dear Valued Client,

My apologies, please find attached V2 results with corrected sample ID to "BH01_0.1" for your project in the subject header.

Kind Regards,

Sharlene Santos
Assistant Analytical Services Manager

My hours are 12pm - 8pm from Monday to Friday.
Please contact your analytical services manager (ASM) for queries outside of these hours.

Eurofins Environment Testing Australia Pty Ltd
179 Magowar Road, Girraween NSW 2145

Email: Sharlene.Santos@eurofinsanz.com
Website: www.eurofins.com.au/environmental-testing

View our latest EnviroNotes

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www.eurofins.com.au EnviroSales@eurofinsanz.com

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	+61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

Eurofins ARL Pty Ltd

ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool
WA 6106
+61 8 6253 4444
NATA# 2377
Site# 2370 & 2554

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

Auckland	Auckland (Focus)	Christchurch	Tauranga
35 O'Rorke Road	Unit C1/4 Pacific Rise	43 Detroit Drive	1277 Cameron Road
Penrose	Mount Wellington	Rolleston	Gate Pa
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name: Fyfe Earth Partners Pty Ltd NSW
Contact name: Nathan Watson
Project name: ADDITIONAL: CMW TGB BRG PCA
Project ID: Job Number 82293-1
Turnaround time: 5 Day
Date/Time received Jul 23, 2025 1:59 PM
Eurofins reference 1247652

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Ursula Long on phone : or by email: Ursula.Long@eurofinsanz.com

Results will be delivered electronically via email to Nathan Watson - Nathan.Watson@fyfe.com.au.

Note: A copy of these results will also be delivered to the general Fyfe Earth Partners Pty Ltd NSW email address.

eurofins

web: www.eurofins.com.au
email: EnviroSales@eurofinsanz.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	+61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
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WA 6106
+61 8 6253 4444
NATA# 2377
Site# 2370 & 2554

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

Auckland	Auckland (Focus)	Christchurch	Tauranga
35 O'Rorke Road	Unit C1/4 Pacific Rise	43 Detroit Drive	1277 Cameron Road
Penrose	Mount Wellington	Rolleston	Gate Pa
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: Fyfe Earth Partners Pty Ltd NSW
Address: Level 1, 124 South Tce
Adelaide
SA 5000

Project Name: ADDITIONAL: CMW TGB BRG PCA
Project ID: Job Number 82293-1

Order No.:
Report #: 1247652
Phone: 08 8201 9600
Fax: 08 8201 9650

Received: Jul 23, 2025 1:59 PM
Due: Jul 30, 2025
Priority: 5 Day
Contact Name: Nathan Watson

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Benzo(a)pyrene	Nickel	USA Leaching Procedure	Moisture Set	Eurofins Suite B7
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	BH01_0.1	Jul 07, 2025		US Leachate	S25-Jl0061907		X	X		
2	BH01_0.4	Jul 07, 2025		US Leachate	S25-Jl0061908		X	X		
3	BH01_0.5	Jul 07, 2025		Soil	S25-Jl0061909				X	X
4	BH02_0.1	Jul 07, 2025		US Leachate	S25-Jl0061910		X	X		
5	PC01_0.3	Jul 07, 2025		US Leachate	S25-Jl0061911	X		X		
6	PC01_0.5	Jul 07, 2025		Soil	S25-Jl0061912				X	X
7	PC02_0.3	Jul 07, 2025		Soil	S25-Jl0061913				X	X
8	PC03_0.5	Jul 07, 2025		Soil	S25-Jl0061914				X	X
9	PC03_1.0	Jul 07, 2025		Soil	S25-Jl0061915				X	X
10	PC02_0.3	Jul 07, 2025		US Leachate	S25-Jl0061916	X		X		
11	PC03_0.5	Jul 07, 2025		US Leachate	S25-Jl0061917	X		X		
12	PC03_1.0	Jul 07, 2025		US Leachate	S25-Jl0061918	X		X		
Test Counts						4	3	7	5	5

Fyfe Earth Partners
Level 1, 124 South Tce
Adelaide
SA 5000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Nathan Watson**

Report **1247652-L**
Project name ADDITIONAL: CMW TGB BRG PCA
Project ID Job Number 82293-1
Received Date Jul 23, 2025

Client Sample ID			**BH01_0.1**	**BH01_0.4**	**BH02_0.1**	**PC01_0.3**
Sample Matrix			**US Leachate**	**US Leachate**	**US Leachate**	**US Leachate**
Eurofins Sample No.			**S25-JI0061907**	**S25-JI0061908**	**S25-JI0061910**	**S25-JI0061911**
Date Sampled			**Jul 07, 2025**	**Jul 07, 2025**	**Jul 07, 2025**	**Jul 07, 2025**
Test/Reference	LOR	Unit				
Heavy Metals						
Nickel	0.01	mg/L	0.09	0.01	0.02	-
USA Leaching Procedure						
Leachate Fluid[C01]		comment	1.0	1.0	1.0	1.0
pH (initial)	0.1	pH Units	8.6	8.5	8.0	8.7
pH (off)	0.1	pH Units	5.1	5.0	5.0	5.1
pH (USA HCl addition)	0.1	pH Units	1.4	1.5	1.4	1.3
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene	0.001	mg/L	-	-	-	< 0.001

Client Sample ID			**PC02_0.3**	**PC03_0.5**	**PC03_1.0**
Sample Matrix			**US Leachate**	**US Leachate**	**US Leachate**
Eurofins Sample No.			**S25-JI0061916**	**S25-JI0061917**	**S25-JI0061918**
Date Sampled			**Jul 07, 2025**	**Jul 07, 2025**	**Jul 07, 2025**
Test/Reference	LOR	Unit			
USA Leaching Procedure					
Leachate Fluid[C01]		comment	1.0	1.0	1.0
pH (initial)	0.1	pH Units	8.2	5.5	5.2
pH (off)	0.1	pH Units	5.1	4.9	5.0
pH (USA HCl addition)	0.1	pH Units	1.3	1.5	1.5
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Heavy Metals	Sydney	Jul 23, 2025	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
USA Leaching Procedure	Sydney	Jul 23, 2025	14 Days
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			
Polycyclic Aromatic Hydrocarbons	Sydney	Jul 23, 2025	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			

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Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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Company Name: Fyfe Earth Partners Pty Ltd NSW
Address: Level 1, 124 South Tce
Adelaide
SA 5000

Project Name: ADDITIONAL: CMW TGB BRG PCA
Project ID: Job Number 82293-1

Order No.:
Report #: 1247652
Phone: 08 8201 9600
Fax: 08 8201 9650

Received: Jul 23, 2025 1:59 PM
Due: Jul 30, 2025
Priority: 5 Day
Contact Name: Nathan Watson

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Benzo(a)pyrene	Nickel	USA Leaching Procedure	Moisture Set	Eurofins Suite B7
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	BH01_0.1	Jul 07, 2025		US Leachate	S25-Jl0061907		X	X		
2	BH01_0.4	Jul 07, 2025		US Leachate	S25-Jl0061908		X	X		
3	BH01_0.5	Jul 07, 2025		Soil	S25-Jl0061909				X	X
4	BH02_0.1	Jul 07, 2025		US Leachate	S25-Jl0061910		X	X		
5	PC01_0.3	Jul 07, 2025		US Leachate	S25-Jl0061911	X		X		
6	PC01_0.5	Jul 07, 2025		Soil	S25-Jl0061912				X	X
7	PC02_0.3	Jul 07, 2025		Soil	S25-Jl0061913				X	X
8	PC03_0.5	Jul 07, 2025		Soil	S25-Jl0061914				X	X
9	PC03_1.0	Jul 07, 2025		Soil	S25-Jl0061915				X	X
10	PC02_0.3	Jul 07, 2025		US Leachate	S25-Jl0061916	X		X		
11	PC03_0.5	Jul 07, 2025		US Leachate	S25-Jl0061917	X		X		
12	PC03_1.0	Jul 07, 2025		US Leachate	S25-Jl0061918	X		X		
Test Counts						4	3	7	5	5

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Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Heavy Metals							
Nickel	mg/L	< 0.01			0.01	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Heavy Metals							
Nickel	%	93			80-120	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Benzo(a)pyrene	%	90			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Nickel	S25-Jl0061910	CP	%	95			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Nickel	S25-Jl0061803	NCP	mg/L	0.01	0.01	6.0	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Benzo(a)pyrene	R25-Jl0053371	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
C01	Leachate Fluid Key: 1 - pH 5.0; 2 - pH 2.9; 3 - pH 9.2; 4 - Reagent (DI) water; 5 - Client sample, 6 - other

Authorised by:

Andrew Black	Analytical Services Manager
Maria Tian	Senior Analyst-Organic
Mickael Ros	Senior Analyst-Metal
Ryan Phillips	Senior Analyst-Sample Properties

Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Fyfe Earth Partners
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SA 5000

NATA Accredited
Accreditation Number 1261
Site Number 18217

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NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Nathan Watson**

Report **1247652-S**
Project name ADDITIONAL: CMW TGB BRG PCA
Project ID Job Number 82293-1
Received Date Jul 23, 2025

Client Sample ID			**BH01_0.5**	**PC01_0.5**	**PC02_0.3**	**PC03_0.5**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S25-JI0061909**	**S25-JI0061912**	**S25-JI0061913**	**S25-JI0061914**
Date Sampled			**Jul 07, 2025**	**Jul 07, 2025**	**Jul 07, 2025**	**Jul 07, 2025**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	83	< 50	330	460
TRH C29-C36	50	mg/kg	130	< 50	220	200
TRH C10-C36 (Total)	50	mg/kg	213	< 50	550	660
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)*[N01]	50	mg/kg	< 50	< 50	< 50	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.8
TRH >C16-C34	100	mg/kg	180	< 100	500	610
TRH >C34-C40	100	mg/kg	120	< 100	170	150
TRH >C10-C40 (total)*	100	mg/kg	300	< 100	670	760
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	INT	INT	95	139
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	20	21
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	20	21
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	20	21
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	1.5	3.6
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	8.1	13
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	10	12
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	12	13
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	21	21
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	12	10
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	19	19
Chrysene	0.5	mg/kg	< 0.5	< 0.5	11	12
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	2.3	2.3

Client Sample ID			BH01_0.5	PC01_0.5	PC02_0.3	PC03_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S25-JI0061909	S25-JI0061912	S25-JI0061913	S25-JI0061914
Date Sampled			Jul 07, 2025	Jul 07, 2025	Jul 07, 2025	Jul 07, 2025
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	32	42
Fluorene	0.5	mg/kg	< 0.5	< 0.5	1.5	3.3
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	7.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.0
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	19	37
Pyrene	0.5	mg/kg	< 0.5	< 0.5	30	37
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	180	230
2-Fluorobiphenyl (surr.)	1	%	83	111	79	61
p-Terphenyl-d14 (surr.)	1	%	79	86	69	52
Heavy Metals						
Arsenic	2	mg/kg	5.9	5.7	< 2	5.7
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	25	8.1	8.4	9.1
Copper	5	mg/kg	34	22	15	13
Lead	5	mg/kg	23	16	16	10
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	39	< 5	< 5	< 5
Zinc	5	mg/kg	45	16	14	11
Sample Properties						
% Moisture	1	%	12	12	7.8	9.9

Client Sample ID			PC03_1.0
Sample Matrix			Soil
Eurofins Sample No.			S25-JI0061915
Date Sampled			Jul 07, 2025
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	55
TRH C29-C36	50	mg/kg	< 50
TRH C10-C36 (Total)	50	mg/kg	55
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)*[N01]	50	mg/kg	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	93

Client Sample ID			PC03_1.0
Sample Matrix			**Soil**
Eurofins Sample No.			**S25-Jl0061915**
Date Sampled			**Jul 07, 2025**
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	1.6
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	1.9
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	2.1
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	1.3
Benz(a)anthracene	0.5	mg/kg	1.1
Benzo(a)pyrene	0.5	mg/kg	1.2
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	1.1
Benzo(g.h.i)perylene	0.5	mg/kg	0.8
Benzo(k)fluoranthene	0.5	mg/kg	1.0
Chrysene	0.5	mg/kg	1.4
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	3.9
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	0.6
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	3.9
Pyrene	0.5	mg/kg	3.6
Total PAH*	0.5	mg/kg	20
2-Fluorobiphenyl (surr.)	1	%	89
p-Terphenyl-d14 (surr.)	1	%	88
Heavy Metals			
Arsenic	2	mg/kg	5.0
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	7.2
Copper	5	mg/kg	30
Lead	5	mg/kg	14
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	9.5
Zinc	5	mg/kg	35
Sample Properties			
% Moisture	1	%	10

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Jul 23, 2025	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jul 23, 2025	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jul 23, 2025	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Jul 23, 2025	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	Jul 23, 2025	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Jul 23, 2025	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	Jul 23, 2025	14 Days
- Method: LTM-GEN-7080 Moisture			

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+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	+61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794 & 2780	Site# 25079

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: Fyfe Earth Partners Pty Ltd NSW
Address: Level 1, 124 South Tce
Adelaide
SA 5000

Project Name: ADDITIONAL: CMW TGB BRG PCA
Project ID: Job Number 82293-1

Order No.:
Report #: 1247652
Phone: 08 8201 9600
Fax: 08 8201 9650

Received: Jul 23, 2025 1:59 PM
Due: Jul 30, 2025
Priority: 5 Day
Contact Name: Nathan Watson

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Benzo(a)pyrene	Nickel	USA Leaching Procedure	Moisture Set	Eurofins Suite B7
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	BH01_0.1	Jul 07, 2025		US Leachate	S25-Jl0061907		X	X		
2	BH01_0.4	Jul 07, 2025		US Leachate	S25-Jl0061908		X	X		
3	BH01_0.5	Jul 07, 2025		Soil	S25-Jl0061909				X	X
4	BH02_0.1	Jul 07, 2025		US Leachate	S25-Jl0061910		X	X		
5	PC01_0.3	Jul 07, 2025		US Leachate	S25-Jl0061911	X		X		
6	PC01_0.5	Jul 07, 2025		Soil	S25-Jl0061912				X	X
7	PC02_0.3	Jul 07, 2025		Soil	S25-Jl0061913				X	X
8	PC03_0.5	Jul 07, 2025		Soil	S25-Jl0061914				X	X
9	PC03_1.0	Jul 07, 2025		Soil	S25-Jl0061915				X	X
10	PC02_0.3	Jul 07, 2025		US Leachate	S25-Jl0061916	X		X		
11	PC03_0.5	Jul 07, 2025		US Leachate	S25-Jl0061917	X		X		
12	PC03_1.0	Jul 07, 2025		US Leachate	S25-Jl0061918	X		X		
Test Counts						4	3	7	5	5

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	92			70-130	Pass	
Acenaphthylene	%	89			70-130	Pass	
Anthracene	%	92			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benz(a)anthracene	%	89			70-130	Pass	
Benzo(a)pyrene	%	92			70-130	Pass	
Benzo(b&j)fluoranthene	%	90			70-130	Pass	
Benzo(g.h.i)perylene	%	94			70-130	Pass	
Benzo(k)fluoranthene	%	99			70-130	Pass	
Chrysene	%	95			70-130	Pass	
Dibenz(a.h)anthracene	%	87			70-130	Pass	
Fluoranthene	%	94			70-130	Pass	
Fluorene	%	95			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	87			70-130	Pass	
Naphthalene	%	92			70-130	Pass	
Phenanthrene	%	89			70-130	Pass	
Pyrene	%	96			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	95			80-120	Pass	
Cadmium	%	107			80-120	Pass	
Chromium	%	100			80-120	Pass	
Copper	%	100			80-120	Pass	
Lead	%	100			80-120	Pass	
Mercury	%	102			80-120	Pass	
Nickel	%	100			80-120	Pass	
Zinc	%	99			80-120	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C10-C14	%	100			70-130	Pass	
TRH >C10-C16	%	98			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	86			70-130	Pass	
Acenaphthylene	%	81			70-130	Pass	
Anthracene	%	89			70-130	Pass	
Benz(a)anthracene	%	75			70-130	Pass	
Benzo(a)pyrene	%	83			70-130	Pass	
Benzo(b&j)fluoranthene	%	85			70-130	Pass	
Benzo(g.h.i)perylene	%	105			70-130	Pass	
Benzo(k)fluoranthene	%	82			70-130	Pass	
Chrysene	%	83			70-130	Pass	
Dibenz(a.h)anthracene	%	82			70-130	Pass	
Fluoranthene	%	83			70-130	Pass	
Fluorene	%	86			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	85			70-130	Pass	
Naphthalene	%	85			70-130	Pass	
Phenanthrene	%	80			70-130	Pass	
Pyrene	%	85			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	96			70-130	Pass	
TRH C10-C14	%	89			70-130	Pass	
TRH C6-C10	%	96			70-130	Pass	
TRH >C10-C16	%	91			70-130	Pass	
Naphthalene	%	95			70-130	Pass	
LCS - % Recovery							
BTEX							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzene	%	101			70-130	Pass	
Toluene	%	107			70-130	Pass	
Ethylbenzene	%	108			70-130	Pass	
m&p-Xylenes	%	112			70-130	Pass	
o-Xylene	%	112			70-130	Pass	
Xylenes - Total*	%	112			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	107			70-130	Pass	
Acenaphthylene	%	104			70-130	Pass	
Anthracene	%	104			70-130	Pass	
Benz(a)anthracene	%	108			70-130	Pass	
Benzo(a)pyrene	%	114			70-130	Pass	
Benzo(b&j)fluoranthene	%	118			70-130	Pass	
Benzo(g.h.i)perylene	%	121			70-130	Pass	
Benzo(k)fluoranthene	%	106			70-130	Pass	
Chrysene	%	107			70-130	Pass	
Dibenz(a.h)anthracene	%	116			70-130	Pass	
Fluoranthene	%	97			70-130	Pass	
Fluorene	%	105			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	113			70-130	Pass	
Naphthalene	%	104			70-130	Pass	
Phenanthrene	%	105			70-130	Pass	
Pyrene	%	102			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S25-Jl0074802	NCP	%	92			70-130	Pass	
TRH C10-C14	S25-Jl0064457	NCP	%	89			70-130	Pass	
TRH C6-C10	S25-Jl0074802	NCP	%	90			70-130	Pass	
TRH >C10-C16	S25-Jl0064457	NCP	%	83			70-130	Pass	
Naphthalene	S25-Jl0074802	NCP	%	73			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S25-Jl0074802	NCP	%	82			70-130	Pass	
Toluene	S25-Jl0074802	NCP	%	112			70-130	Pass	
Ethylbenzene	S25-Jl0074802	NCP	%	85			70-130	Pass	
m&p-Xylenes	S25-Jl0074802	NCP	%	84			70-130	Pass	
o-Xylene	S25-Jl0074802	NCP	%	81			70-130	Pass	
Xylenes - Total*	S25-Jl0074802	NCP	%	83			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S25-Jl0054702	NCP	%	83			70-130	Pass	
Acenaphthylene	S25-Jl0054702	NCP	%	79			70-130	Pass	
Anthracene	S25-Jl0054702	NCP	%	81			70-130	Pass	
Benz(a)anthracene	S25-Jl0054702	NCP	%	76			70-130	Pass	
Benzo(a)pyrene	S25-Jl0054702	NCP	%	89			70-130	Pass	
Benzo(b&j)fluoranthene	S25-Jl0054702	NCP	%	81			70-130	Pass	
Benzo(g.h.i)perylene	S25-Jl0054702	NCP	%	81			70-130	Pass	
Benzo(k)fluoranthene	S25-Jl0054702	NCP	%	81			70-130	Pass	
Chrysene	S25-Jl0054702	NCP	%	84			70-130	Pass	
Dibenz(a.h)anthracene	R25-Jl0047155	NCP	%	75			70-130	Pass	
Fluoranthene	S25-Jl0054702	NCP	%	86			70-130	Pass	
Fluorene	S25-Jl0054702	NCP	%	83			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Indeno(1.2.3-cd)pyrene	R25-JI0047155	NCP	%	73			70-130	Pass	
Naphthalene	S25-JI0054702	NCP	%	83			70-130	Pass	
Phenanthrene	S25-JI0054702	NCP	%	78			70-130	Pass	
Pyrene	S25-JI0054702	NCP	%	94			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S25-JI0062077	NCP	%	95			75-125	Pass	
Cadmium	S25-JI0062077	NCP	%	107			75-125	Pass	
Chromium	S25-JI0062077	NCP	%	100			75-125	Pass	
Copper	S25-JI0062077	NCP	%	75			75-125	Pass	Q08
Lead	S25-JI0062077	NCP	%	83			75-125	Pass	
Mercury	S25-JI0062077	NCP	%	105			75-125	Pass	
Nickel	S25-JI0062077	NCP	%	94			75-125	Pass	
Zinc	S25-JI0062077	NCP	%	81			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C10-C14	S25-JI0062532	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S25-JI0062532	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S25-JI0062532	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C10-C16	S25-JI0062532	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S25-JI0062532	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S25-JI0062532	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Fluoranthene	S25-JI0054711	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S25-JI0054711	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S25-JI0054711	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S25-JI0062884	NCP	mg/kg	5.1	4.8	6.0	30%	Pass	
Cadmium	S25-JI0062884	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S25-JI0062884	NCP	mg/kg	13	11	20	30%	Pass	
Copper	S25-JI0062884	NCP	mg/kg	29	120	120	30%	Fail	Q02
Lead	S25-JI0062884	NCP	mg/kg	190	180	10	30%	Pass	
Mercury	S25-JI0062884	NCP	mg/kg	0.9	1.7	65	30%	Fail	Q02
Nickel	S25-JI0062884	NCP	mg/kg	7.7	6.8	13	30%	Pass	
Zinc	S25-JI0062884	NCP	mg/kg	220	250	12	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	S25-JI0061912	CP	%	12	13	9.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S25-JI0061913	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10	S25-JI0061913	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Naphthalene	S25-JI0061913	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S25-JI0061913	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S25-JI0061913	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S25-JI0061913	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S25-JI0061913	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S25-JI0061913	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S25-JI0061913	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q02	The duplicate %RPD is outside the recommended acceptance criteria. Further analysis indicates sample heterogeneity as the cause
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.

Authorised by:

Andrew Black	Analytical Services Manager
Mickael Ros	Senior Analyst-Metal
Raymond Siu	Senior Analyst-Volatile
Roopesh Rangarajan	Senior Analyst-Organic
Ryan Phillips	Senior Analyst-Sample Properties

Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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