eiaustralia

Contamination | Remediation | Geotechnical

DEICORP PROJECTS SHOWGROUND PTY LTD

Detailed Site Investigation

Doran Drive Precinct, 2 Mandala Parade, Castle Hill NSW

E24724.E02_Rev2
9 July 2021

Document Control

Report Title:	Detailed Site Investigation; Doran Drive Precinct, 2 Mandala Parade, Castle Hill NSW
Report No:	E24724.E02_Rev2

Copies		Recipient
1	Soft Copy (PDF – Secured, issued by email)	Deicorp Projects Showground Pty Ltd Level 4, 161 Redfern Street, Redfern NSW 2016
2	Original (Saved to Digital Archives)	EI Australia Suite 6.01, 55 Miller Street, PYRMONT NSW 2009

Author	Technical Reviewer
	
Li Wei **Environmental Engineer**	**Malcolm Dale** **Senior Principal-Contaminated Land**

Revision	Details	Date	Amended By
0	Original	28 August 2020	-
1	Updated entity name and design plans	21 May 2021	LW/BA
2	Updated plans and client comments	9 July 2021	BA

Table of Contents

Schedule of Tables

Appendices

Executive Summary

Background

Deicorp Projects Showground Pty Ltd ('the client') engaged EI Australia (EI) to undertake a Detailed Site Investigation (DSI) for the property located at Doran Drive Precinct, 2 Mandala Parade, Castle Hill NSW ('the site') to allow redevelopment of the site.

It was understood that redevelopment of the site is a State Significant Development (SSD). The site (Doran Drive Precinct) is situated in the central portion of the Hills Showground Station Precinct development area, covering a total area of 7,969 m^2. At the time of this investigation the site was a vacant lot, cleared of all structures. The development includes construction of multi-storey, mixed use commercial and residential apartment buildings, overlying a common podium structure with six-levels of basement.

Objectives

The main objective of this investigation was to:

- Investigate the degree of any potential contamination by means of intrusive sampling and laboratory analysis, for relevant contaminants of concern.

A further objective, should site contamination be confirmed, was to make recommendations for the appropriate management of any contaminated soils and/or groundwater.

Key Findings

- The site was found to be a rectangular vacant block, secured by construction hoarding and security fencing. It was elevated above the surrounding land, which displayed a moderate downslope towards the southwest. The ground surface was covered by exposed fill materials, with limited vegetation present onsite. No visual evidence of gross contamination, UPSS or UST was observed on the site during the site inspection.
- A review of historical information indicated the site was used as rural residential, agricultural, vacant pastoral and public open space (playing fields) until the late 1980s. Since 2013, significant ground disturbance works (bulk earthworks and material storage) have been completed as a result of the Sydney Metro North West (SMNW) Project activities ('Metro Northwest Link'). The site was used for a holding and processing yard during that period, which included excavated water treatment basins, material/equipment storage and site sheds. During 2019, the current site configuration was established and cleared of all previous structures. The site surface was significantly filled and raised above the surrounding land.
- The site and surrounding lands were not listed on any of the EPA records reviewed.
- Soil sampling and analysis were conducted at 19 locations across the site.
  - The sub-surface layers observed comprised of fill materials (up to 4.0m depth) overlying natural clay and sandstone bedrock;
  - Laboratory results for all the soil samples collected reported concentrations below the most conservative human health and ecological based SILs;

- Laboratory results indicated that natural soils on site were non-saline. Soils were found to be slightly acidic (pH ranged from 4.6 to 6.1), with the exception of soil sample at BH3M reported pH at 9.4

- Four groundwater monitoring wells were installed on the site.
  - Standing Water Levels (SWL) were observed between 2.58 and 4.48 mBGL;
  - Groundwater was likely to flow hydraulically south-westerly towards Cattai Creek;
  - Concentrations of PAHs, BTEX, TRHs and VOCs were reported below the adopted criteria;
  - Concentrations of heavy metals were reported below the adopted freshwater criteria, with the exception of chromium, copper, lead, nickel and zinc. However, the detected concentrations are considered to be indicative of background conditions, rather than site specific impacts.
  - Therefore the identified groundwater concentrations are not considered to present a cause for human health and environmental concern.
- Based on the analytical results, the following preliminary classifications were provided (with reference to the EPA (2014) *Waste Classification Guidelines*):
  - The fill materials on the site were classified as *General Solid Waste (Non-Putrescible)*; and
  - The underlying natural soils on the site were classified as *Virgin Excavated Natural Material* (VENM).

Based on the findings of this investigation, EI conclude that the site is suitable for the proposed mixed commercial and residential development provided the recommendations detailed in **Section 11** are implemented.

1. Introduction

1.1 Background and Purpose

Deicorp Projects Showground Pty Ltd ('the client') engaged EI Australia (EI) to undertake a Detailed Site Investigation (DSI) of the land parcel located at Doran Drive Precinct, 2 Mandala Parade, Castle Hill NSW ('the site') to allow redevelopment of the site.

The site is located within the Local Government Area (LGA) of The Hills Shire Council, as shown in **Figure 1** (**Appendix A**), and covers a total area of 7,969 m^2, as shown on the survey plan attached in **Appendix C**. The site can be further identified as Lot 55 in Deposited Plan (DP) 1253217.

EI understands that redevelopment of the site is a State Significant Development (SSD). The site (Doran Drive Precinct) is situated in the central portion of the Hills Showground Station Precinct development area, with Hills Showground Metro Station to the south, Hills Showground Precinct East and Hills Showground Precinct West to the east and west, respectively. At the time of this investigation the site was a vacant rectangular block, cleared of all structures.

1.2 Proposed Development

Based on the supplied plans (**Appendix C)**, the proposed development would include construction of multi-storey, mixed use commercial and residential apartment buildings, overlying a common podium structure with six-levels of basement car park.

The basements were to be constructed to the site boundaries, with the lowest basement level (B06) will require a Finished Floor Level (FFL) of 70.20m Australian Height Datum (AHD). It is understood that a Bulk Excavation Level (BEL) of RL 69.10mAHD will be required for the lowest basement level, which includes allowance for the construction of the basement slab. To achieve the BEL, excavation depths of 19 m Below Existing Ground Level (mBGL) at the Doran Drive end of the site to 26.6 mBGL at the Andalusian Way end of the site have been estimated. Locally deeper excavations may be required for footings, services trenches, crane pads and lift overrun pits.

1.3 Regulatory Framework

The following regulatory framework and guidelines were considered during the preparation of this report:

- *Contaminated Land Management Act 1997* (the CLM Act);
- *Protection of the Environment Operations Act 1997* (the POEO Act);
- *State Environmental Planning Policy 55* (SEPP 55) - *Remediation of Land*;
- *State Environmental Planning Policy (State and Regional Development) 2011;*
- EPA (1995) *Sampling Design Guidelines*;
- EPA (2017) *Guidelines for the NSW Site Auditor Scheme*;
- EPA (2020) *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*;
- NEPC (2013) *Schedule B(2) Guideline on Site Characterisation*, in Amended National Environmental Protection (Assessment of Site Contamination) Measure 1999;
- NEPC (2013) *Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater*;

- *Sydney Regional Environmental Plan No 20—Hawkesbury-Nepean River (No 2-1997)*;
- *The Hills Local Environmental Plan 2019;* and
- *The Hills Development Control Plan (DCP) 2012*.

1.4 Project Objectives

The main objective of this investigation was therefore to:

- Investigate the degree of any potential contamination by means of intrusive sampling and laboratory analysis, for relevant contaminants of concern.

A further objective, should site contamination be confirmed, was to make recommendations for the appropriate management of any contaminated soils and/or groundwater.

1.5 Scope of Works

In order to achieve the above objectives, the following scope of works was completed:

- Preparation of a Work, Health, Safety & Environment Plan;
- A review of existing underground services on site ('Dial-before-you-dig' - DBYD) and carry out an underground search for buried services using elector-magnetic equipment;
- A review of relevant geological, hydrogeological and soil landscape maps for the project area;
- A search of groundwater bore records within close vicinity to the site;
- A review of previous environmental reports;
- A site inspection;
- Excavation of test pits and drilling of boreholes at 19 locations distributed in a triangular grid pattern across accessible areas of the site;
    - Drilling of boreholes to assess salinity at 3 locations to approximately 1m below the proposed bulk excavation (or prior refusal on bedrock);
- Installation of four groundwater monitoring wells, both up-gradient and down-gradient of the proposed development area. Groundwater monitoring wells would be constructed to standard environmental protocols to investigate potential groundwater contamination;
- Multiple level soil sampling within fill and natural soils and one round of groundwater sampling from the constructed groundwater monitoring wells;
- Laboratory analysis of selected soil and groundwater samples for relevant analytical parameters as determined from the site history survey and field observations during the investigation programme; and
- Data interpretation and reporting.

This DSI report has been prepared in accordance with the EPA (2020) to document desk study findings, the conceptual site model, data quality objectives, investigation methodologies and results. The report also provides a record of observations made during the detailed site walkover inspection, borehole and test pit logs, and a discussion of laboratory analytical results in regards to potential risks to human health, the environment and the aesthetic uses of the land.

2. Site Description

2.1 Property Identification, Location, and Physical Setting

The site identification details and associated information are presented in **Table 2-1**, while the site locality is shown in **Figure 1 (Appendix A)**.

Table 2-1 Site Identification

Attribute	Description
Street Address	Doran Drive Precinct, 2 Mandala Parade, Castle Hill NSW
Location Description	10 km north-west of Parramatta CBD, bound by De Clambe Drive to the north, Andalusian Way to the east, Mandala Parade to the south and Doran Drive to the west.
Coordinates	Northeast corner of site: GDA2020-MGA56 ▪ Easting: 313544.048; ▪ Northing: 6266325.101. (Source: http://maps.six.nsw.gov.au)
Site Area	7,969 m^2
Lot and Deposited Plan (DP)	Lot 55 in DP 1253217
State Survey Marks	Two State Survey (SS) marks are situated within close proximity to the site: ▪ SS62672N: at the roundabout of Carrington Road and Andalusian Way (approximately 63m southeast); and ▪ SS180257: on Carrington Road (approximately 83m southwest). (Source: http://maps.six.nsw.gov.au)
Local Government Authority	The Hills Shire Council
Parish	Castle Hill
County	Cumberland
Current Zoning	B2: Local Centre (*The Hills Local Environmental Plan 2019*)

2.2 Surrounding Land Use

The site is situated within the Hills Showground Station Precinct development area as described in **Table 2-2**. The sensitive receptors within close proximity of the site (approximately 250m) are also identified.

Table 2-2 Surrounding Land Uses

Direction	Land Use Description	Sensitive Receptors (& distance from site)
North	▪ Castle Hill Showground ▪ Residential properties	▪ Residential (approximately 250m north)
South	▪ Hills Showground Metro Station and associated station plaza ▪ Residential properties ▪ Carrington Preschool	▪ Residential (approximately 70m south) ▪ Preschool (approximately 110m southwest)
East	▪ Hills Showground Precinct East, which consists of the former The Hills Shire Council administration building and associated parking ▪ Residential properties	▪ Residential (approximately 200m east)
West	▪ Hills Showground Precinct West, which consists of a commuter carpark and plaza ▪ Cattai Creek ▪ Commercial properties, including warehouse, car & motorcycle repair shops and restaurants.	▪ Cattai Creek (approximately 200m west)

2.3 Regional Setting

The local topography, regional hydrogeology, geology and soil landscape information are summarised in **Table 2-3**.

Table 2-3 Regional Setting

Attribute	Description
Topography	The site displays a moderate downslope towards the southwest, with site levels varying from 98.13m AHD in the north-eastern site corner to 90.63m AHD in the south-western site corner (**Appendix C**). The batters along the site boundaries have an average 1-1.5m drop towards the surrounding roads. Regionally, the area slopes south-westerly towards Cattai Creek.
Site Drainage	Site drainage is likely to be consistent with the general slope of the site. Any run off would be expected to flow into the new constructed stormwater pits on the site, which flows into the municipal stormwater system and then into Cattai Creek approximately 130m southwest of the site.
Regional Geology	The Department of Mineral Resources *Penrith 1:100,000 Geological Series Sheet 9030* indicates the site is underlain by Hawkesbury Sandstone (*Rh*), consisting of medium to very coarse-grained quartz sandstone, minor laminated mudstone and siltstone lenses. However, the eastern end of the site is close to a boundary with Ashfield Shale (Rwa), consisting of dark-grey to black claystone-siltstone and fine sandstone-siltstone laminite. The thin Mittagong Formation may or may not be present between the Ashfield Sahel and Hawkesbury Sandstone.
Soil Landscapes	The Soil Conservation Service of NSW *Soil Landscapes of the Penrith 1:100,000 Sheet* (Bannerman SM and Hazelton PA, 1990) indicates that the eastern portion of the site overlies an erosional Glenorie (*gn*) soil landscape, characterised by undulating to rolling low hills on Wianamatta Group shales, while the western portion of the site overlies a colluvial Hawkesbury (*ha*) soil landscape, characterised by rugged, rolling to very steep hills on Hawkesbury Sandstone.

Attribute	Description
Acid Sulfate Soil Risk	With reference to the *Prospect/Parramatta River Acid Sulfate Soil Risk Map* (1:25,000 scale; Murphy, 1997) and *The Hills Local Environmental Plan 2019*, the site is not situated in an ASS classed area. As such, ASS is unlikely to be encountered during development works at the site. The contamination report previously prepared for the site (JBS&G, 2019) also concluded that no further management for the potential presence of ASS is required during future ground disturbance works.
Salinity Potential	Based on the DIPNR (2003) *Salinity Potential in Western Sydney Map 2002*, the site is situated within an area of very low to moderate salinity potential. EI conducted a salinity assessment during this investigation, as discussed in **Section 8**.
Nearest Surface Water Feature	Cattai Creek, located approximately 130m southwest of the site.
Groundwater Flow Direction	Interred to flow south-westerly towards Cattai Creek.

2.4 Groundwater Bore Records and Groundwater Use

An online search of groundwater bores registered with WaterNSW was conducted by EI on 31 July 2020 (Ref. https://realtimedata.waternsw.com.au/water.stm). There was one registered bore within a 500 m radius of the site, as summarised in **Table 2-4**. A groundwater bore location plan and detailed information are presented in **Appendix D**.

Table 2-4 Summary of Proximate Registered Groundwater Bores

Bore No.	Distance & Direction	Date Drilled	Drilled Depth (m)	SWL(m BGL) / Salinity	Bore Purpose
GW107601	150m northwest	24.10.2002	35.34	-/-	Monitoring bore

Contamination report prepared by JBS&G (2019) also identified one groundwater bore (GW100981) approximately 550m northeast from the site, which was authorized for domestic use. The water table (as indicated by standing water levels, SWL) was recorded at 8.0m BGL.

Therefore it is anticipated that groundwater is present at a shallow to moderate depth below the site.

2.5 Site Inspection

Site observations were recorded during an inspection of the site on 8 July 2020. These are summarised below. Site photographs taken during the inspection are presented in **Appendix E**.

- The site was a rectangular vacant block, secured by construction hoarding and security fencing (**Photograph 6**). It was situated at the north side of the Hills Showground Metro Station.
- The site was found to be elevated above the surrounding land, which displayed a moderate downslope towards the southwest. Constructed batters were present along the site boundaries, which elevated the site at up to approximately 1-1.5m above the surrounding roads (**Photographs 3** and **5**).
- The whole site was vacant, cleared of all structures. The ground surface was covered by exposed fill materials (**Photographs 1, 2** and **4**).
- Limited vegetation was present on the site. The vegetation did not appear stressed.

- Constructed stormwater pits were present along the site boundaries (**Photograph 5**), collecting surface runoff to the municipal stormwater system.
- No unusual odours were detected during the inspection. No visual signs of contamination (i.e. cement sheet fragments) were identified on site surfaces.
- No evidence of an underground petroleum storage system (UPSS), or an underground storage tank (UST), was observed on the site.
- Surrounding areas consisted of Castle Hill Showground to the north, Hills Showground Precinct East and Hills Showground Precinct West to the east and west, and Hills Showground Metro Station to the south. Residential properties were mainly present to the south, east and north of the site, while commercial properties were mainly to the west of the site.
- There was no NSW Fire and Rescue Station (or Training College) in the vicinity (<100m) of the site.

3. Previous Investigations

EI was provided with previous investigation reports carried out within portions of the Hills Showground Station Precinct development area, including:

- JBS&G (2009) *Phase 1 and 2 Environmental Site Assessment*;
- JBS&G (2013) *Contamination Due Diligence Advice, Former Hills Shire Depot, Carrington Road, Castle Hill, NSW*, Report Ref. 42829/54994 (Rev1), dated 26 August 2013;
- Arup (2015) *Showground Precinct Desktop Contamination Review*, dated 1 September 2015;
- Douglas Partners (2016) *Report on UST Validation Sydney Metro Northwest, Showground Station, Carrington Road, Castle Hill NSW*, Ref. 73315.03.R.001.Rev0.UST Validation, dated 6 May 2016; and
- JBS&G (2019) *Soil and Contamination Report*, Ref. 54813/125497 (Rev1), dated 29 October 2019.

The JBS&G (2009 and 2013), Arup (2015) and DP (2016) investigations referenced above were conducted at the former Hills Council Depot (now Hills Showground Precinct West and the newly constructed commuter car park to the west of the site).

The JBS&G (2019) report identified that significant ground disturbance occurred at the site (Doran Drive Precinct) as a results of Sydney Metro North West (SMNW) Project activities ('Metro Northwest Link') and concluded that further contamination assessment was required. A summary of works and key findings from this report is outlined in **Table 3-1**.

Table 3-1 Summary of Previous Investigation Works and Findings

Assessment Details	Project Tasks and Findings
Soil and Contamination Report (JBS&G, 2019)	
Objectives	▪ Collate and review available data, including previous investigations and supplement this with current information to identify areas of potential environmental concern (AECs) and associated contaminants of potential concern (COPCs) as may be present at the site; ▪ Review and document regional geological, hydrogeological, topographical and services infrastructure information to identify site media and potential contaminant transportation pathways at the site; ▪ Identify potential data gaps across the site and assess the potential for near surface contamination as a result of the SMNW works; ▪ Address the key contamination issues in the SEARs and the requirements of SEPP 55 to demonstrate the suitability of the site for development, or provide recommendations that will enable the site to be considered suitable prior to commencement of future use(s); and ▪ Develop and document a preliminary conceptual site model (CSM) of contamination to facilitate comments on potential issues that may require further consideration, including assessment, management and/or remediation to make the site suitable for its proposed uses.
Scope of Works	The site comprised of three development precincts, including the Hills Showground Precinct West, Doran Drive Precinct and Hills Showground Precinct East. The scope of works included:

Assessment Details	Project Tasks and Findings
	▪ A review of available historical site use, background information and previous investigations to identify potential areas of environmental and chemical concern; ▪ Review and collation of available regional and site specific information in relation to geology, hydrogeology, etc. including previous environmental and geotechnical site investigation data to confirm site conditions and the presence of potential AECs; ▪ Development of a site-wide CSM based on the available information specific to the site; and ▪ Preparation of a preliminary environmental site assessment report in general accordance with relevant EPA Guidelines.
Site History	Review of available site history indicated the majority of the site was historically utilised as rural residential and agricultural (orchards) land prior to being acquired by the Baulkham Hills Shire Council between the 1960s and 1970s. Until approximately 2013, the site was used for a combination of public open space (playing fields) prior to use for commercial (office spaces and performing arts centre) and industrial (use as a Council Depot) activities. The site was transferred Transport for NSW in 2013 following which the central and western portions have undergone redevelopment works associated with the construction of the SMNW Project train tunnels and station infrastructure.
Conclusions and Recommendations	▪ Prior to the commencement of the SMNW Project activities, the site comprised three main areas: the Hills Shire Council Chambers and Administration building and surrounds (Hills Showground Precinct East); the former performing arts centre and associated car parking area (central portion including Showground Station and Doran Drive Precinct); and the Council Works Depot (Hills Showground Precinct West and constructed carpark infrastructure). ▪ Historical site investigation reports available for assessment were limited to the former Council Works Depot footprint. These investigations identified the presence of small scale soil and groundwater contamination and underground fuel infrastructure (considered significant point sources of potential contamination), prior to the commencement of the SMNW Project activities. Records obtained from SafeWork NSW and validation documentation have indicated removal of the majority of the identified fuel infrastructure. Notwithstanding, in the absence of further validation documentation and/or a RAP as may have been prepared as required by Project Approval consent conditions, there remains uncertainty on the fate of previously identified asbestos impacts and the current contamination status of this portion of this site. ▪ In addition, significant ground disturbance works have been completed within the central portion of the site (Doran Drive Precinct) during the SMNW Project activities. This site portion is currently surfaced with exposed fill material. Subject to the availability of validation documentation confirming the status of ground conditions in this portion of the site, there is also a remaining data gap as to the current characterisation of this site portion given the potentially contaminating activities that have occurred within this area. ▪ Within the eastern portion of the site, occupied by the former Council Chambers and Administration building, the potential for site contamination has been identified as relatively low, being associated with historical agricultural/open space management, the historical use of hazardous building materials (asbestos and lead paint) and the potential presence of limited profile of fill material of unknown origin. However, the absence of existing characterisation data, again remains an open data gap with regard to drawing conclusions on the suitability of the site for the proposed landuses. ▪ With consideration of the above, it is considered that the site can be made suitable

Assessment Details	Project Tasks and Findings
	for the proposed land uses, subject to implementation of an appropriate staged data gap contamination assessment (that may include verification reviews of SMNW stage validation reports) and appropriate management of any small scale remaining contamination issues in accordance with NSW EPA guidance as appropriate prior to commencement of future final construction activities. ▪ Review of acid sulfate soil (ASS) conditions identified there is no appreciable risk of ASS presence within natural residual soils at the site given the formation environment, and therefore no future management for the potential presence of ASS is required during future ground disturbance works.

4. Site History and Searches

4.1 Land Titles Information / Historical Aerial Photography Review

A historical title and aerial photography review of the Hills Showground Station Precinct development area was carried out by JBS&G (2019) as summarised in **Section 3**. A summary of the information obtained from the historical aerial photographs in relation to the history of the site is presented in **Table 4-1** below.

Table 4-1 Summary of Aerial Photograph

Aerial Photograph	Site Description	Land Use
1930	The site appeared to consist of densely timbered vegetation, rural residential properties and agricultural land. Surrounding areas appeared to be used for similar rural residential / agricultural purposes, with orchard groves noted to the east, south and west of the site. The Castle Hill Showground was located to the north of the site.	Rural residential / agricultural
1950	The site was largely cleared of timbered vegetation. The majority of the site appeared to be covered by grass. Previous rural residential structures remained unchanged. Surrounding areas were also largely cleared of vegetation and orchards. A series of sheds were constructed to the west of the site.	Rural residential / vacant
1961	The site appeared to be unchanged (consistent with the 1950 image). Surrounding areas were largely unchanged, with the exception of some scattered timber and/or waste materials noted to the east of the site.	Rural residential / vacant
1970	Previous rural residential properties had been demolished. The land appeared to be largely vacant with a turfed football field constructed in the eastern portion of the site. Surrounding areas to the east was also part of the new playing field. More stockpiled timber/waste materials were noted to the east of the site. More sheds were constructed within the Castle Hill Showground (north of the site).	Vacant / part of the playing field
1986	The site was largely vacant. The playing field had been removed from the site and replaced by an oval sports track. The south-western corner of the site appeared to be used for car parking. Surrounding areas appeared to be undergoing redevelopment. Doran Drive had been constructed to the west of the site (forming the western site boundary). Beyond was the Council Depot, comprising two warehouse structures and associated car parking at grade. The Council Chambers had been constructed to the east of the site (consistent with the current structures). More residential properties were constructed to the south, east and north of the site, while commercial/industrial warehouses were constructed to the west of the site.	Vacant / car parking
1994	A large square-shaped building was constructed in the eastern portion of the site and a L-shaped building was present in the north-western site corner. The reminder of the site consisted of handstand pavements and landscaping areas. Surrounding areas were largely unchanged. The current metro station area (south of the site) appeared to be part of the car parking and landscaping area.	Commercial (performing arts centre)

Aerial Photograph	Site Description	Land Use
2002, 2009, 2012	The site appeared to be unchanged. Surrounding areas were largely unchanged.	Commercial (performing arts centre)
2014	Previous site structures had been demolished. The site appeared to be redeveloped, as associated with initial SMNW Project works. Two large warehouse buildings were constructed in the western portion and eastern corner of the site and two constructed water treatment basins were present in the central portion of the site. An above ground storage tank (AST) (potentially water/concrete batching) was constructed in the north-eastern site corner. An elongated excavation had been formed adjacent to the southern site boundary (Carrington Road), as associated with the construction of underground railway infrastructure. The Council Depot area to the west of the site appeared to be utilised as a storage compound for adjacent SMNW redevelopment activities. Two water retention ponds were noted to the southwest and northwest of the site. The Council Chambers to the east of the site appeared to be unchanged.	Construction storage yard
2015	A network of shafts was observed onsite which led to a storage yard/load out area where presumably excess spoil was being transported off-site. A series of cylindrical black plastic storage tanks and several tall sheet metal ASTs had been installed adjacent to the AST and water treatment basins, indicative of a water treatment plant. Further material/equipment storage was present within the Council Depot area.	Construction storage yard
2016	The network of shafts and the large warehouse (western portion) had been removed from the site, indicating bulk subsurface excavation of the Hills Showground Station had likely been completed. The series of plastic and sheet metal ASTs (water treatment plant) had also been removed. The single large AST and two water treatment basins remained onsite. The site appeared to be utilised as material/equipment storage yard. The shadowing in this image indicated that several ground levels occurred within the site during this period. Surrounding areas were largely unchanged, with the exception of former site structures had been demolished within the Council Depot area.	Construction storage yard
2017	A significant increase in material storage had occurred onsite, with several large stockpiles of soil observed within the central portion of the site. The former Council Depot area was also utilised as an equipment holding and storage yard.	Construction storage yard
2018	Significant materials storage activities were in progress within the site. The commuter car park to the west of the site was undergoing construction. Construction of the Hills Showground Metro Station (built form) had begun, with the placement of concrete slab panels across the majority of the open excavation.	Construction storage yard
2019	The current site configuration had been established. The streets around the site had been constructed, sealed with hardstand pavement and lined with landscaped garden beds and vegetation. The site was cleared of all structures and filled to raise the level, with constructed batters noted along the site boundaries. Several minor stockpiles of soil/waste were noted on the ground surface.	Vacant

Aerial Photograph	Site Description	Land Use
	The construction of the Showground Metro Station (south of the site) and commuter carpark (west of the site) had been completed.	

In summary, key findings related to the site indicated that the site was historically used as rural residential, agricultural, vacant pastoral and public open space (playing fields) until the late 1980s. The site was then developed into a commercial property (the former performing arts centre) between the 1990s and 2010s. Since 2013, significant ground disturbance works (bulk earthworks and material storage) have been completed as a result of the SMNW Project activities. The site was used for a holding and processing yard, which included excavated water treatment basins, material/equipment storage and site sheds (shown in **Photograph 4-1** below). During 2019, the current site configuration was established. The water treatment basins were removed and the site surface was significantly filled and raised above the surrounding land, as shown in **Photograph 4-2** below.

Photograph 4-1: Aerial photograph of the site showing previous site structures during the SMNW Project works (central portion of the development area) (dated 24/12/2014, Google Earth)

Photograph 4-2: Aerial photograph of the site showing established site configuration and levelled surface (dated 07/04/2019, Nearmap)

4.2 EPA Online Records

Searches of public registers maintained by the EPA for statutory notices and licensing agreements issued under the *Contaminated Land Management Act 1997* and *Protection of the Environment Operations Act 1997* were conducted by EI for this DSI.

4.2.1 Record of Notices Under Section 58 of CLM Act 1997

An on-line search of the contaminated land public record was conducted on 31 July 2020. The contaminated land public record is a searchable database of:

- Orders made under Part 3 of the CLM Act 1997;
- Notices available to the public under Section 58 of the CLM Act 1997;
- Approved voluntary management proposals under the CLM Act 1997 that have not been fully carried out and where the approval of the EPA has not been revoked;
- Site audit statements provided to the EPA under Section 53B of the CLM Act 1997 that relate to significantly contaminated land;
- Where practicable, copies of anything formerly required to be part of the public record; and
- Actions taken by the EPA under Section 35 or 36 of the *Environmentally Hazardous Chemicals Act 1985* (the EHC Act 1985).

The search confirmed that the site and surrounding lands within close proximity (≤250m) were not subject to any regulatory notices relevant to the above legislations.

4.2.2 List of NSW Contaminated Sites Notified to EPA

A search through the *List of NSW Contaminated Sites Notified to the EPA* under Section 60 of the CLM Act 1997 was conducted on 31 July 2020. This list is maintained by the EPA and

includes properties on which contamination has been identified, but not deemed to be impacted significantly enough to warrant regulation. The site and surrounding lands within close proximity (≤250m) had not been notified as contaminated to the EPA (i.e. were not included in the list).

4.2.3 POEO Public Register

A search of the *Protection of the Environment Operations Act 1997* public register was conducted on 31 July 2020. This public register contains records related to environmental protection licences, applications, notices, audits, pollution studies and reduction programs. The search confirmed that the site and surrounding lands within close proximity (≤250m) were not subject to any licensing agreements / notices / programs etc. relevant to this legislation.

5. Conceptual Site Model

5.1 Overview

In accordance with NEPC (2013) *Schedule B2 – Guideline on Site Characterisation* and to aid in the assessment of data collected for the site, EI developed a conceptual site model (CSM) that assessed plausible linkages between potential contamination sources, migration pathways, and receptors. The CSM provides a framework for the review of the reliability and useability of the data collected and to identify gaps in the existing site characterisation.

5.2 Subsurface Conditions

The sub-surface conditions across the site were expected to be a layer of fill, overlying natural clay and shale / sandstone bedrock. Groundwater was likely to be at a shallow to moderate depth below the site, flowing in a south-westerly direction towards Cattai Creek.

5.3 Potential Contamination Sources

On the basis of the DSI findings, potential contamination sources were as follows:

- Unknown type and concentration of contaminants within imported fill soils across the site;
- Hazardous building materials (including potential asbestos) present in the site soils as a result of historic demolitions;
- Historical pesticide use;
- Spills or leaks associated with former onsite storage of material/equipment;
- Former AST in the north-eastern site corner; and
- Former water treatment basins in the central portion of the site.

5.3.1 PFAS Assessment

EPA (2017) requires that PFAS are considered in assessing land contamination. A desktop survey of the probability for PFAS occurrence is provided in **Table 5-1**. This survey is based on guidelines from the *PFAS National Environmental Management Plan* (NEMP 2020). From this survey a decision can be made as to whether PFAS sampling of soil and groundwater is required. In this instance, the potential for PFAS to be present on-site was low and subsequently PFAS sampling / analysis of soil and water was unwarranted.

Table 5-1 PFAS Decision Tree

Preliminary Screening	Probability of Occurrence[1]
Is the past or present site activity listed in the NEMP (2020)[2] as being an activity associated with PFAS contamination. If so list activity: N/A	L
Is the past or present off-site activity up-gradient or adjacent to the site listed in the NEMP (2020)[2] as being an activity associated with PFAS contamination. If so list activity:	L
Did fire training involving the use of suppressants occur on-site between 1970 and 2010?	L
Did fire training occur up-gradient of or adjacent to the site between 1970 and 2010?[3]	L

Preliminary Screening	Probability of Occurrence[1]
Have "fuel" fires ever occurred on-site between 1970 and 2010? e.g. ignition of fuel (solvent, petrol, diesel, kero) tanks?	L
Have PFAS been used in manufacturing or stored on-site ?[4]	L
Could PFAS have been imported to the site in fill materials from a site with activity listed in NEMP (2020)?	L
Could PFAS-contaminated groundwater or run-off have migrated on to the site?	L
Is the site or adjacent sites listed in the NSW EPA PFAS Investigation Program? [5]	L
If the probability is medium or high in any of the rows, does the site analytical suite need to be optimised to include preliminary sampling and testing for PFAS in soil (incl. ASLP testing) and waters?	No

Note 1 Probability: L – low (all necessary documentation has been reviewed and there is no recorded instance or compelling rationale), M – medium/moderate (all necessary documentation has been reviewed and there is potential evidence of a recorded instance with compelling rationale); H – high (all necessary documentation has been reviewed and there is evidence of a recorded instance with compelling rationale); risk, N/A – not applicable (or "-")].
Note 2 Activities listed in Appendix B of the NEMP (2020). Further information, refer to https://www.oecd.org/env/ehs/risk-management/PFC_FINAL-Web.pdf.
Note 3 Runoff from up-gradient PFAS use may impact surface water, soil, sediment and groundwater.
Note 4 PFAS is used wide range of industrial processes and consumer products, including in the manufacture of non-stick cookware, specialised garments and textiles, Scotchguard™ and similar products (used to protect fabric, furniture, leather and carpets from oils and stains), metal plating and in some types of fire-fighting foam (https://www.nicnas.gov.au/chemical-information/factsheets/chemical-name/perfluorinated-chemicals-pfas).
Note 5 https://www.epa.nsw.gov.au/your-environment/contaminated-land/pfas-investigation-program

5.3.2 Emerging Chemicals

The EPA uses Chemical Control Orders (CCOs) as a primary legislative tool under the EHC Act 1985 to control chemicals of concern and limit their potential impact on the environment. Considerations for chemicals controlled by CCOs, and other potential emerging chemicals, are outlined in **Table 5-2**. In this instance, the potential for an emerging chemical of concern to be present on-site was low and subsequently corresponding sampling / analysis of soil and water was unwarranted.

Table 5-2 Emerging or Controlled Chemicals

Chemicals of Concern (CCO or emerging)	Decision
Were aluminium smelter wastes used or stored on site (CCO, 1986)?	No
Do dioxin contaminated wastes (CCO, 1986) have the potential to impact the site? [1]	No
Were organotin products (CCO, 1989) used or stored on site? [2]	No
Were polychlorinated biphenyls (PCBs) used or PCB wastes (CCO, 1997) stored on-site? [3]	No
Were scheduled chemical or wastes (CCO, 2004) used or stored [4]	Potential for small quantity pesticides to have been used on the land.
Are other emerging chemicals suspected? [5]	No
If Yes to any questions, has site sampling suite been optimised to include specific sampling for other chemicals of concern in soil, air and water	-

Note 1 From burning of certain chemicals, smelting or chemical manufacturing or fire on or near the site.
Note 2 From anti-fouling paints used or removed at boat and ship yards and marinas.
Note 3 From older transformer oils and electrical capacitors
Note 4 Twenty-four mostly organochlorine pesticides and industrial by-products
Note 5 Other chemicals considered as emerging e.g. 1,4 dioxane (associated with some chlorinated VOCs).

5.4 Potential Contaminants

The potential contaminants at the site resulting from the site filling and previous site use were considered to be:

- Metals (M) – arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc;
- Total Recoverable Hydrocarbons (TRH);
- Volatile Organic Compounds (VOC);
- Benzene, Toluene, Ethylbenzene and Xylenes (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAH);
- Organochlorine and Organophosphorus Pesticides (OCP/OPP);
- Polychlorinated Biphenyls (PCB); and
- Asbestos.

5.5 Potential Contamination in the Context of the Site

An assessment of the potential contamination risks for the site is outlined in **Table 5-3**.

Table 5-3 Assessment of Potential Contamination Risk

Potential Sources	Impacted Media	Contaminants of Potential Concern	Likelihood for Contamination
Importation of fill of unknown origin and quality	Soil and groundwater	Metals, TRH, BTEX, PAH, OCP, OPP, PCB and asbestos	**Moderate** Filling was observed in all locations sampled (see logs, **Appendix F**).
Hazardous building products from demolition of historic site structures	Building fabric	Metals (lead in particular), asbestos and PCB	**Low** Historic demolition of former structures have occurred onsite. However, given no visual signs of contamination (i.e. cement sheet fragments) was observed during site visit, the overall risk is considered low.
Historical pesticide use	Shallow soil	Metals (arsenic), OCP, OPP	**Low** If present, pesticides are expected to be limited to shallow soils considering the nature of their application.
Former onsite storage of material/equipment	Soils and groundwater	Metals, TRH, VOCs, BTEX, PAH	**Moderate** Impacts are likely to the soil layers and groundwater given significant materials storage activities happened onsite.
Former AST in the north-eastern site corner	Soils and groundwater	Metals, TRH, VOCs, BTEX, PAH	**Moderate** Impacts to the soil layers and groundwater are likely and considered of moderate risk.
Former water treatment basins in the central portion of the site	Soils and groundwater	Metals, TRH, VOCs, BTEX, PAH	**Moderate** Potential spills and leaks from the former water treatment basins are likely. The overall risk is considered moderate.

5.6 Potential Receptors

The following potential receptors of contamination from the site were identified as:

- Construction and maintenance workers;
- Users of the adjacent land during construction works;
- Future site users; and
- Ecological receptors in areas of exposed soil / landscaping.

5.7 Preliminary Conceptual Site Model

A summary of EI's CSM, identifying the potential contamination sources, exposure pathways and human and environmental receptors is presented in **Table 5-4**.

5.8 Data Gaps

Based on the CSM derived for the site and the qualitative assessment of risks, the degree of any contamination associated with the potential contamination sources identified in **Section 5.3** constitute current investigation data gaps. These data gaps will require further assessment by intrusive investigation to quantify possible risks to further site receptors.

Table 5-4 Preliminary Conceptual Site Model

Potential Sources	Impacted Media	Contaminants of Potential Concern	Transport mechanism	Exposure pathway	Potential receptor
▪ Fill soils of unknown origin and quality ▪ Hazardous materials from demolition of historic structures ▪ Historical pesticide use ▪ Former onsite storage of material/equipment ▪ Former AST in the north-eastern site corner ▪ Former water treatment basins in the central portion of the site	Soil	Metals, TRH, VOCs, BTEX, PAH, OCP, OPP, PCB and asbestos	Disturbance of surface and subsurface soils during site redevelopment, future site maintenance and future use of the site post redevelopment	▪ Ingestion ▪ Dermal contact ▪ Inhalation of particulates ▪ Inhalation of vapour ▪ Plant uptake	▪ Construction and maintenance workers ▪ Adjacent site users ▪ Future site users (within landscaping areas) ▪ Ecological receptors in areas of exposed soil / landscaping
			Atmospheric dispersion from soil to outdoor and indoor air spaces		
			Volatilisation of contamination from soil and diffusion to indoor air spaces		
	Groundwater	Dissolved Metals, TRH, VOCs, BTEX	Volatilisation of contamination from groundwater to indoor or outdoor air spaces (onsite and offsite)	▪ Ingestion ▪ Dermal contact ▪ Inhalation of vapours ▪ Biota uptake	▪ Construction and maintenance workers ▪ Future site users (basement users) ▪ Aquatic ecosystems
			Migration of dissolved phase impacts in groundwater		
			Potential seepage into deep basement intercepting water table (on and offsite)		

6. Methodology

6.1 Sampling, Analysis and Quality Plan (SAQP)

The SAQP ensures that the data collected as part of this DSI, and ongoing environmental works carried out at the site are representative, and provide a robust basis for site assessment decisions. This SAQP includes the following:

- Data quality objectives, including a summary of the objectives of the DSI;
- Investigation methodology including media to be sampled, details of analytes and parameters to be monitored, and a description of intended sampling points;
- Sampling methods and procedures;
- Field screening methods;
- Laboratory analysis methods;
- Sample handling, preservation and storage; and
- Analytical QA/QC.

6.2 Data Quality Objectives (DQO)

In accordance with the US EPA (2006) *Data Quality Assessment* and the EPA (2017) *Guidelines for the NSW Site Auditor Scheme*, Data Quality Objectives (DQO) were established by the EI team to determine the appropriate level of data quality needed for the specific data requirements of the project. The DQO process that was applied for this assessment is documented in **Table 6-1**.

Table 6-1 Summary of Project Data Quality Objectives

DQO Steps	Details	Comments (changes during investigation)
1. State the Problem Summarise the contamination problem that will require new environmental data, and identify the resources available to resolve the problem; develop a conceptual site model	▪ The site is to be redeveloped into multi-storey, mixed use commercial and residential apartment buildings with six-levels of basement, as outlined in **Section 1.2**. ▪ Historical information and site inspection observations identified the potential for soil and/or groundwater contamination due to various possible sources, as listed in **Section 5.2**. In light of the available historical information, a conceptual site model has been developed (**Table 5-4**) for the site. ▪ The findings of the investigation must provide supportive information on the environmental conditions of the site to determine the site's suitability for the proposed redevelopment.	-
2. Identify the Goal of the Study (Identify the decisions) Identify the decisions that need to be made on the contamination problem and the new environmental data required to make them	Based on the objectives outlined in **Section 1.4,** the following decisions are identified: ▪ Has the site been adequately characterised with sufficient and appropriate sampling coverage (vertical and lateral) to assess for the presence of potential contamination sources? ▪ Has the nature, source and extent of any onsite impacts (soil, groundwater, and/or vapour) been defined? ▪ What influence do site-specific, geologic conditions have on the fate and transport of any impacts that may be identified? ▪ Does the degree of impact coupled with the fate and transport of identified contaminants represent an unacceptable risk to identified human and/or environmental receptors on or offsite? ▪ Does the collected data provide sufficient information to allow the selection and design of an appropriate remedial strategy, assuming remedial action is necessary? If not, what are the remaining data gaps requiring closure?	Given the site area (7,969 m^2) a minimum of 19 sampling points is required (based on NSW EPA Sampling Design Guidelines).
3. Identify Information Inputs (Identify inputs to decision) Identify the information needed to support any decision and specify which inputs require new environmental measurements	Inputs to the decision making process include: ▪ Proposed development and land use; ▪ Aerial photographs and historical information; ▪ Previous investigations; ▪ Areas of concern identified during the site inspection, prior to intrusive investigations; ▪ National and NSW EPA guidelines endorsed under the NSW Contaminated Land Management Act 1997; ▪ Investigation sampling (soils and/or groundwater) and laboratory analysis for potential contaminants to verify the presence of onsite contamination and to evaluate the potential risks to sensitive receptors; and ▪ At the end of the investigation, a decision must be made regarding whether the soils and/or groundwater are suitable for the proposed development, or if additional investigation or remedial works are required to make the site suitable for the proposed use.	-

DQO Steps	Details	Comments (changes during investigation)
4. Define the Boundaries of the Study Specify the spatial and temporal aspects of the environmental media that the data must represent to support decision	▪ Lateral – the investigation will be conducted within the cadastral boundaries of the site (**Figure 2**). ▪ Vertical – Investigations will be advanced to the depth of natural soils or rock. ▪ Temporal – Results are valid on the day of data / sample collection and remain valid as long as no changes occur on site or contamination (if present) does not migrate on site or on to the site from off-site sources.	-
5. Develop the Analytic Approach (Develop a decision rule) To define the parameter of interest, specify the action level, and integrate previous DQO outputs into a single statement that describes a logical basis for choosing from alternative actions	The decision rules for the investigation were: ▪ If the concentrations of contaminants in the soil and/or groundwater data exceed the adopted criteria; then assess the need to further investigate the extent of impacts onsite. ▪ Decision criteria for QA/QC measures are defined by the Data Quality Indicators (DQI) in **Table 5-2**.	-
6. Specify Performance or Acceptance Criteria (Specify limits on decision errors) Specify the decision-maker's acceptable limits on decision errors, which are used to establish performance goals for limiting uncertainties in the data	▪ Based on the qualitative data gathered via site history review and site walkover observations, a non-statistical judgemental sampling design was selected for performing soil and groundwater sampling. The sampling will target identified as areas of environmental concern (AEC) based identified contamination sources, known contaminants of concern, and professional judgement.	-
7. Develop the Detailed Plan for Obtaining Data (Optimise the design for obtaining data) Identify the most resource-effective sampling and analysis design for general data that are expected to satisfy the DQOs	▪ Conduct 19 soil sampling locations, distributed in a triangular grid pattern across the site. ▪ One round of groundwater sampling from the constructed four groundwater monitoring wells. ▪ An upper soil profile sample will be collected at each location and tested for chemicals of concern, to assess the environmental condition of the fill layer, and for potential impacts from historical, above-ground activities. Further sampling was also performed in deeper soil layers. Samples were selected for analytical testing based on field observations (including visual and olfactory evidence). ▪ Representative groundwater samples will be collected and analysed for groundwater characterisation.	-

6.3 Data Quality Indicators

To ensure that the investigation data collected was of an acceptable quality, the investigation data set was assessed against the data quality indicators (DQI) outlined in **Table 6-2**, which related to both field and laboratory-based procedures. The assessment of data quality is discussed in **Section 7**.

Table 6-2 Data Quality Indicators

QA/QC Measure	Data Quality Indicator
Precision – A quantitative measure of the variability (or reproducibility) of data	Data precision would be assessed by reviewing the performance of blind field duplicate sample sets, through calculation of relative percentage differences (RPD). Data precision would be deemed acceptable if RPDs are found to be less than 30%. RPDs that exceed this range may be considered acceptable where: ▪ Results are less than 10 times the limits of reporting (LOR). ▪ Results are less than 20 times the LOR and the RPD is less than 50%. ▪ Heterogeneous materials or volatile compounds are encountered. ▪ In cases where RPD values were considered unacceptable, the analytical results of primary and duplicate samples were both reviewed against the adopted assessment criteria. If the review indicates the variations in data between the primary and duplicate samples would result in a different conclusion (e.g. the higher concentration is failing the assessment criteria), the need for re-sampling / validation would be considered. ▪ Duplicate samples are to be collected at a rate of 5% (1 duplicate sample per 20 samples collected).
Accuracy – A quantitative measure of the closeness of reported data to the "true" value	Data accuracy would be assessed through the analysis of: ▪ Method blanks, which are analysed for the analytes targeted in the primary samples. ▪ Matrix spike and matrix spike duplicate sample sets. ▪ Laboratory control samples. ▪ Calibration of instruments against known standards. ▪ Variation in results reported by the primary and secondary laboratories for primary and duplicate samples.
Representativeness – The confidence (expressed qualitatively) that data are representative of each medium present onsite	To ensure the data produced by the laboratory is representative of conditions encountered in the field, the laboratory would carry out the following: ▪ Collect samples that are representative of the material being sampled and biased to any suspect locations based on physical evidence. ▪ Blank samples will be run in parallel with field samples to confirm there are no unacceptable instances of laboratory artefacts. ▪ Review of relative percentage differences (RPD) values for field and laboratory duplicates to provide an indication that the samples are generally homogeneous, with no unacceptable instances of significant sample matrix heterogeneities. ▪ The appropriateness of collection methodologies, handling, storage and preservation techniques will be assessed to ensure/confirm there was minimal opportunity for sample interference or degradation (i.e. volatile loss during transport due to incorrect preservation / transport methods). ▪ Consistency between field vapour screening information and laboratory results.

QA/QC Measure	Data Quality Indicator
Completeness – A measure of the amount of useable data from a data collection activity	Analytical data sets acquired during the assessment will be evaluated as complete, upon confirmation that: ▪ Standard operating procedures for sampling protocols were adhered to. ▪ Copies of all COC documentation are presented, reviewed and found to be properly completed. ▪ It can therefore be considered whether the proportion of "useable data" generated in the data collection activities is sufficient for the purposes of the land use assessment.
Comparability – The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event	Given that a reported data set can comprise several data sets from separate sampling episodes, issues of comparability between data sets are reduced through adherence to standard operation procedure and regulator-endorsed or published guidelines and standards on each data gathering activity. Sampling was conducted by the same sampler where possible to enhance project continuity and minimise variability in sampling technique. Sampling under inclement weather conditions were avoided to minimise variability contributed by weather conditions. Samples to be collected using procedures meeting NSW EPA endorsed guidelines. In addition the data will be collected by experienced samplers and NATA-accredited laboratory methodologies will be employed in all laboratory testing programs.
Required Sampling Frequency	▪ Intra-laboratory Duplicate – 1 in 20 samples ▪ Inter-laboratory Duplicate – 1 in 20 samples ▪ Rinsate Blanks – 1 per batch where non-dedicated sampling equipment used ▪ Trip Blanks – 1 sample per batch ▪ Trip Spike – 1 sample per batch

6.4 Sampling Rationale

With reference to the CSM described in **Section 5.7**, soil and groundwater investigations were planned in accordance with the following rationale:

- Sampling of the widespread fill and underlying natural soils from 19 locations, distributed in a triangular grid pattern across the site;
- Installation of four groundwater monitoring wells in targeted locations and a single groundwater monitoring event (GME) to assess the impacts (if any) to groundwater; and
- Laboratory analysis of representative soil and groundwater samples for the identified potential contaminants.

6.5 Assessment Criteria

The assessment criteria proposed for this project are outlined in **Table 6-3**. These were selected from available published guidelines that are endorsed by national or state regulatory authorities, with due consideration of the exposure scenarios that are expected for various parts of the site, the likely exposure pathways, and the identified potential receptors.

Table 6-3 Adopted Investigation Levels for Soil and Groundwater

Environmental Media	Adopted Guidelines	Rationale
Soil	NEPM (2013) Soil HILs, EILs, HSLs, ESLs & Management Limits for TPHs DLWC (2002)	**Soil Health-based Investigation Levels (HILs)** NEPM (2013) HIL-A thresholds for residential with garden/accessible soil were applied to assess the site as the most conservative approach. **Soil Health-based Screening Levels (HSLs)** As a conservative approach, the NEPM (2013) Soil HSL-A&B thresholds for vapour intrusion at low to high density residential sites were applied to assess potential human health impacts from residual vapours resulting from petroleum, BTEX and naphthalene. <u>For asbestos:</u> ▪ No visible asbestos for surface soils. ▪ HSL-A: for bonded ACM. ▪ 0.001% w/w for friable asbestos in soil. **Ecological Investigation Levels (EILs) / Ecological Screening Levels (ESLs)** All soil samples would also be assessed against the NEPM (2013) EILs for urban residential and public open space land use as a conservative approach. EILs / ESLs only apply to the top 2 m (root zone). The derived EIL criteria presented by EI are calculated based on the average results of pH (6.1) and CEC (7.8 meq/100g). The adopted ESL criteria presented by EI are based on fine grained criteria. **Management Limits for Petroleum Hydrocarbons** Should the ESLs and HSLs be exceeded for petroleum hydrocarbons, soil samples would also assessed against the NEPM 2013 *Management Limits* for the TRH fractions F1 – F4 to assess propensity for phase-separated hydrocarbons (PSH), fire and explosive hazards & adverse effects on buried infrastructure. **Soil Salinity** Soil salinity classes were calculated from the Indicators of Urban Salinity (DLWC).
Groundwater	NEPM (2013) GILs for Fresh Waters	**Groundwater Investigation Levels (GILs) for Fresh Water** NEPM 2013 provides GILs for typical, slightly-moderately disturbed aquatic ecosystems, which are based on the ANZECC & ARMCANZ 2000 Trigger Values (TVs) for the 95% level of protection of aquatic ecosystems; however, the 99% TVs were applied for the bio-accumulative metals *cadmium* and *mercury*. The fresh water criteria were considered relevant as the Cattai Creek was the closest surface water receptor to the site.
	NEPM (2013) Groundwater HSLs for Vapour Intrusion	**Groundwater Health-Based Screening Levels (HSLs)** As a conservative approach, HSL-A&B thresholds for vapour intrusion in sand at low to high density residential sites were applied for groundwater to assess potential human health impacts from residual vapours resulting from petroleum, BTEX, and naphthalene.

For the purposes of this investigation, the adopted soil assessment criteria are referred to as the Soil Investigation Levels (SILs) and the adopted groundwater assessment criteria are referred to as Groundwater Investigation Levels (GILs). SILs/GILs are presented alongside the analytical results in the corresponding summary tables, which are discussed in **Section 8**.

6.6 Soil Investigation

The soil investigation works conducted at the site are described in **Table 6-4**. Test bore locations are illustrated in **Figure 2**.

Table 6-4 Summary of Soil Investigation Methodology

Activity/Item	Details
Fieldwork	Field works were conducted from 8 July to 22 July 2020 and comprised 19 soil sampling locations.
Investigation Method	Test bores BH1 to BH6 were drilled using a solid flight auger drilling rig, while test pits TP7 to TP19 were completed using an excavator.
Soil Logging	Collected soils were classified in the field with respect to lithological characteristics and evaluated on a qualitative basis for odour and visual signs of contamination. Soil classifications and descriptions were based on Australian Standard (AS) 1726-2017. Logs are presented in **Appendix F**.
Field Observations	A summary of field observations compiled during intrusive investigations is provided on the logs in **Appendix F**. Field observations are summarised in **Section 8.1.2**.
Soil Sampling	▪ Soil samples were collected using a dry grab method (unused, dedicated nitrile gloves) & placed into laboratory-supplied, acid-washed, solvent-rinsed glass jars. ▪ Blind field duplicates were separated from the primary samples and placed into glass jars. ▪ A small amount of sample was separated from all fill samples and placed into a zip-lock bag for asbestos analysis. ▪ A small amount of duplicate was collected from each soil samples and placed into zip-lock bag for Photo-ionisation Detector (PID) screening.
Decontamination Procedures	Nitrile sampling gloves were replaced between each sampling location. Samples were collected from a different part of the solid flight auger and the auger was cleaned from all residual soil waste between each location.
Sample Preservation	Samples were stored in a chilled chest (with frozen ice packs), whilst on-site and in transit to the laboratory. All samples were submitted and analysed within the required holding period, as documented in laboratory reports discussed in a later section.
Management of Soil Cuttings	Soil cuttings were used as backfill for completed boreholes and test pits.
Quality Control & Laboratory Analysis	A number of soil samples were submitted for analysis of previously-identified chemicals of concern by SGS Laboratories (SGS). QA/QC testing comprised intra-laboratory duplicates ('field duplicates') tested blind by SGS and an inter-laboratory field duplicate tested blind by Envirolab Services (Envirolab). All samples were transported under strict COC conditions and COC certificates and laboratory sample receipt documentation were provided to EI for confirmation purposes, as discussed in **Section 7**.
Soil Vapour Screening	Screening for potential VOCs in collected soil samples was conducted using a pre-calibrated Photoionisation Detector (PID) with a 10.6 mV ionisation lamp.

6.7 Groundwater Investigation

The groundwater investigation works conducted at the site are described in **Table 6-5**. Monitoring well locations are illustrated in **Figure 2**.

Table 6-5 Summary of Groundwater Investigation Methodology

Activity/Item	Details
Fieldwork	Groundwater monitoring wells were installed on 17, 21 & 22 July 2020. Groundwater sampling for all the monitoring wells was conducted on 29 July 2020. Additional sampling was conducted on 18 August 2020 for BH4M-a (after fulling developing the well).
Well Construction	Well construction details are summarised as follows: ▪ BH3M-a (located hydraulically down-gradient) installed to a total depth of 6.1 mBGL (screened from 3.1-6.1 mBGL). ▪ BH4M-a (located hydraulically up-gradient) installed to a total depth of 7.7 mBGL (screened from 4.7-7.7 mBGL). ▪ BH5M (located hydraulically down-gradient) installed to a total depth of 6.5 mBGL (screened from 2.5-6.5 mBGL). ▪ BH7M (located hydraulically down-gradient) installed to a total depth of 4.9 mBGL (screened from 1.9-4.9 mBGL). Well construction was in general accordance with the standards described in NUDLC (2012) and involved the following: ▪ 50 mm, Class 18 uPVC, threaded, machine-slotted screen and casing; ▪ Base and top of each well was sealed with a uPVC cap; ▪ Annular, graded sand filter was used to approximately 300 mm above top of screen interval; ▪ Granular bentonite was applied above annular filter to seal the screened interval; ▪ Cuttings backfill just below ground level; and ▪ Surface completion comprised a PVC stick-up pipe, with plastic cap.
Well Development	Well development was conducted for each well directly following installation. This involved agitation within the full length of the water column using a dedicated, HDPE, disposable bailer, followed by removal of water and accumulated sediment using a 12V, HDPE submersible bore pump (Proactive Environmental, model Super Twister). Pumping was continued until no further reduction in suspended sediment was observed (i.e. after removal of several well volumes).
Well Survey	No well survey having been completed at the site. The monitoring well locations were compared to the reduced levels (mAHD) given on the survey plan (see **Appendix C**).
Well Gauging and Groundwater Flow Direction	Monitoring wells were gauged for standing water level (SWL) prior to sampling at the commencement of the GME on 29 July 2020. Based on the water level measured at each monitoring well (**Table 8-3**), groundwater was inferred to flow south-westerly.
Well Purging and Field Testing	No volatile or organic odours were detected during any stage of well purging or sampling. The measurement of water quality parameters was conducted repeatedly during purging and the details were recorded onto field data sheets, once water quality parameters stabilised. Field measurements for Dissolved Oxygen (DO), Electrical Conductivity (EC) and pH of the purged water were also recorded during well purging. Purged water volumes removed from each well and field test results are summarised in **Table 8-3**.

Activity/Item	Details
Groundwater sampling	Groundwater was sampled using a micro-purge system (with the exception of the additional round of sampling for BH4M-a, which was sampled using a HDPE bailer for heavy metal testing only). Water was continuously measured for four parameters (Temperature, EC, Redox, DO, pH). Once three consecutive field measurements were recorded for the purged waters to within ± 10% for DO, ± 3% for EC , ± 0.2 for pH, ± 0.2° for temperature and ± 20 for redox, this was considered to indicate that representative groundwater quality had been achieved and final physio-chemical measurements were recorded. Groundwater samples were then collected from the micro-purge sampling pump discharge point.
Decontamination Procedure	▪ The micro-purge pump is decontaminated in a solution of potable water and Decon 90 and then rinsed with potable water between each location. ▪ The micro-purge system employs a disposable bladder and tubing system to further minimise potential cross contamination. ▪ All sample containers were supplied by the laboratory and were only opened once, immediately prior to sampling. ▪ Ice packs kept in an insulated chest were used to keep the samples cool; and ▪ The water level probe and sampling kit were washed in a solution of potable water and Decon 90 and then rinsed with potable water between uses.
Sample Preservation	Sample containers were supplied by the laboratory with the following preservatives: ▪ One, 1 litre amber glass, acid-washed and solvent-rinsed bottle; ▪ Two, 40ml glass vials, pre-preserved with dilute hydrochloric acid, Teflon-sealed; and ▪ One, 250mL, HDPE bottle, pre-preserved with dilute nitric acid (1 mL). Samples for metals analysis were field-filtered using 0.45 µm pore-size filters. All containers were filled with sample to the brim then capped and stored in ice-filled chests, until completion of the fieldwork and during sample transit to the laboratory.
Sample Transport	After sampling, the ice brick filled coolers were transported to SGS Australia Pty Ltd using Chain-of-Custody (COC) procedures. Inter-laboratory duplicate (ILD) samples were forwarded to Envirolab Services Pty Ltd (Envirolab) for QA/QC analysis. A Sample Receipt Advice (SRA) was provided by each laboratory to document sample condition upon receipt. Copies of SRA and COC certificates are presented in **Appendix H**.
Quality Control and Laboratory Analysis	All groundwater samples were submitted for analysis of previously-identified chemicals of concern by SGS Laboratories (SGS). QA/QC testing comprised intra-laboratory duplicates ('field duplicates') tested blind by SGS and an inter-laboratory field duplicate tested blind by Envirolab Services (Envirolab). All samples were transported under strict Chain-of-Custody (COC) conditions and COC certificates and laboratory sample receipt documentation were provided to EI for confirmation purposes.

7. Data Quality Assessment

7.1 Quality Control Process

The assessment of data quality is defined as the scientific and statistical evaluation of environmental data to determine if the data meets the objectives for the project (USEPA 2006). Data quality assessment included an evaluation of the compliance of the field sampling, field and laboratory duplicates and laboratory analytical procedures and an assessment of the accuracy and precision of these data from the laboratory quality control measurements. The findings of the data quality assessment in relation to the current investigation at the site are discussed in detail in **Appendix J**.

The QC measures generated from the field sampling and laboratory analytical program are summarised in **Table 7-1**.

Table 7-1 Quality Control Process

Data Quality	Control	Conformance [Yes, Part, No]	Report Sections
Preliminaries	Data Quality Objectives established	Yes	See DQO/DQI, Section 6.2,6.3
Field work	Suitable documentation of fieldwork observations including borehole logs, sample register, field notes	Yes	See Appendix F & G
Sampling Plan	Use of relevant and appropriate sampling plan (density, type, and location)	Yes	See sample rationale, Section 6.4
	All media sampled and duplicates collected	Part	See Appendix G and H, BH7M did not have enough water for sampling.
	Use of approved and appropriate sampling methods (soil, groundwater, air quality)	Yes	See methodology, Section 6.6 and 6.7
	Preservation and storage of samples upon collection and during transport to the laboratory	Yes	See methodology, Section 6.6 and 6.7
	Appropriate Rinsate, Field and Trip Blanks taken	Yes	See Appendix H
	Completed field and analytical laboratory sample COC procedures and documentation	Yes	See Appendix H
Laboratory	Sample holding times within acceptable limits	Yes	See laboratory QA, Appendix J.3
	Use of appropriate analytical procedures and NATA-accredited laboratories	Yes	See laboratory report, Appendix I

Data Quality	Control	Conformance [Yes, Part, No]	Report Sections
	LOR/PQL low enough to meet adopted criteria	Yes	See laboratory report, Appendix I
	Laboratory blanks	Yes	See laboratory QA, Appendix J.3
	Laboratory duplicates	Yes	See laboratory QA, Appendix J.3
	Matrix spike/matrix spike duplicates (MS/MSDs)	Yes	See laboratory QA, Appendix J.3
	Surrogates (or System Monitoring Compounds)	Yes	See laboratory QA, Appendix J.3
	Analytical results for replicated samples, including field and laboratory duplicates and inter-laboratory duplicates, expressed as Relative Percentage Difference (RPD)	Yes	See laboratory QA, Appendix J.3
	Checking for the occurrence of apparently unusual or anomalous results, e.g. laboratory results that appear to be inconsistent with field observations or measurements	Yes	See Appendices B and F
Reporting	Report reviewed by senior staff to assess project meets desired quality, EPA guidelines and project outcomes.	Yes	See document control

7.2 Quality Overview

On the basis of the field and analytical data validation procedure employed, the overall quality of the analytical data produced for the site was considered to be of an acceptable standard for interpretive use and preparation of a conceptual site model (CSM).

8. Results

8.1 Soil Investigation Results

8.1.1 Subsurface Conditions

The general site lithology encountered during the soil investigations may be described as a layer of anthropogenic filling, overlying residual clay and sandstone bedrock. More detailed description is summarised in **Table 8-1** and the logs from these works are presented in **Appendix F**.

Table 8-1 Generalised Subsurface Profile (mBGL)

Layer	Description	Average depth to top and bottom of layer (mBGL)
Fill	Silty CLAY; low plasticity, pale grey to red brown/dark brown, with sandstone, gravels and sand, no odour.	0.0-4.0
	Gravelly SAND; fine to medium grained, brown, with gravels, clay, sandstone and foreign materials (brick, metal, concrete, plastic and steel wires), no odour.	0.0-1.8
	Silty SAND; fine to medium grained, brown, with low plasticity clay and concrete fragments, no odour.	0.0-2.0
Residual	Silty CLAY; low to medium plasticity, light brown mottled orange, no odour.	1.0-1.4
	Silty CLAY; medium plasticity, pale grey, with gravels and sand, grading to extremely weathered sandstone, no odour.	0.6-4.6
	Sandy CLAY; low to medium plasticity, pale grey and orange-brown, grading to extremely weathered sandstone, no odour.	2.6-5.0+
Bedrock	SANDSTONE; fine to medium grained, pale grey and orange-brown, low to medium strength, slightly to distinctly weathered, no odour.	2.1-3.95+

+ Termination depth of test pit and borehole.

8.1.2 Field Observations and PID Results

Soil samples were obtained from the test bores and test pits at various depths ranging between 0.1 to 5.0 mBGL. All examined soil samples were evaluated on a qualitative basis for odour and visual signs of contamination (e.g. hydrocarbon odours, oil staining, petrochemical filming, asbestos fragments, ash, charcoal) and the following observations were noted:

- Hydrocarbon odour was noted in fill at test pits: TP12 (from depth at 1.7m) and TP13 (from depth at 1.8m);
- Weak odour was noted in fill and natural soils at BH2 (from depth 1.0m to 2.0m);
- Steel wires were noted in fill at test pits: TP10, TP13 and TP15;
- Concrete footing was noted at the bottom of the test pit at TP 16; and
- VOC concentrations from collected soil samples were low, ranging between 0.3 and 1.6 parts per million (ppm). VOC concentrations were field-screened using a portable Photo-ionisation Detector (PID). The PID results are shown in the logs (**Appendix F**).

8.2 Groundwater Investigation Results

8.2.1 Monitoring Well Construction

A total of four groundwater monitoring wells were installed on the site on 17, 21 &22 July 2020. Well construction details for the installed groundwater monitoring wells are summarised in **Table 8-2**.

Table 8-2 Monitoring Well Construction Details

Well ID	Well Depth (mBGL)	Well Stick up (m)	Screen Interval (mBGL)	Lithology Screened
BH3M-a	6.1	+1.0	3.1-6.1	Sandstone
BH4M-a	7.7	+0.96	4.7-7.7	Sandstone
BH5M	6.5	+0.6	2.5-6.5	Sandstone
BH7M	4.9	+1.0	1.9-4.9	Sandstone

mBGL- Metres Below Ground Level.

8.2.2 Field Observations

A groundwater monitoring event (GME) was conducted on 29 July 2020 for all the monitoring wells installed. In addition, another round of sampling for BH4M-a was conducted on 18 August to confirm the heavy metal results. Field data was recorded before sampling, as presented in **Table 8-3**. Field data sheets are attached in **Appendix G**. Samples were then evaluated on the basis of odour and visual signs of contamination, with the following observations noted:

- Groundwater in monitoring well BH3M-a and BH5M was noted to be light brown, with low to medium turbidity, while in BH4M-a, groundwater was noted to be brown, with medium to high turbidity;
- No sufficient water was in monitoring well BH7M for sampling and field observation;
- No olfactory or visual evidence of contamination was noted in the monitoring wells;
- No sheens were noted within the groundwater of any monitoring well sampled; and
- Additional round of sampling of BH4M-a recorded the groundwater in this well was noted to be light brown, with low to medium turbidity on 18 August 2020.

Table 8-3 Groundwater Field Data

Well ID	SWL (mBTOC)	SWL (mBGL)	SWL (mAHD)	DO (mg/L)	Field pH	Field EC (µS/cm)	Temp (^{o}C)	Redox (mV)
BH3M-a	3.58	2.58	88.92	0.59	5.15	2809	21.08	106.2
BH4M-a	5.44	4.48	93.02	0.91	5.24	3088	20.95	97.03
BH5M	4.64	4.04	89.96	0.80	5.29	2782	20.90	92.4
BH7M	-	-	-	-	-	-	-	-

SWL – Standing Water Levels as measured from TOC (top of well casing) prior to groundwater sampling.
BGL – Below Ground Level.
AHD – Australian Height Datum (approximate).

8.3 Laboratory Analytical Results

8.3.1 Soil Analytical Results

A summary of the laboratory results showing number of tested samples, minimum/maximum analyte concentrations for primary samples and samples found to exceed the SILs, is presented in **Table 8-4**. More detailed tabulations of results showing the tested concentrations for individual samples alongside the adopted soil criteria are presented in **Table T1** in **Appendix B**.

Completed documentation used to track soil sample movements and laboratory receipt (i.e. COC and SRA forms) are copied in **Appendix H** and all laboratory analytical reports for tested soil samples are presented in **Appendix I**.

Table 8-4 Summary of Soil Analytical Results

No. of Primary Samples	Analyte	Min. Conc. (mg/kg)	Max. Conc. (mg/kg)	Sample(s) Exceeding SILs
Priority Metals				
43	Arsenic	<1	14	None
43	Cadmium	<0.3	<0.3	None
43	Chromium (Total)	2.3	42	None
43	Copper	<0.5	130	None
43	Lead	2	23	None
43	Nickel	<0.5	34	None
43	Zinc	<2	87	None
43	Mercury	<0.05	<0.05	None
PAHs				
42	Benzo(α)pyrene	<0.1	0.5	None
42	Carcinogenic PAHs	<0.3	0.8	None
42	Naphthalene	<0.1	<0.1	None
42	Total PAHs	<0.8	8	None
TRHs (including BTEX)				
42	TRH C_6-C_{10} minus BTEX (F1)	<25	<25	None
42	TRH >C_{10}-C_{16} (F2) minus Naphthalene	<25	<25	None
42	TRH >C_{16}-C_{34} (F3)	<90	280	None
42	TRH >C_{34}-C_{40} (F4)	<120	370	None
42	Benzene	<0.1	<0.1	None
42	Toluene	<0.1	<0.1	None
42	Ethylbenzene	<0.1	<0.1	None
42	Total Xylenes	<0.3	<0.3	None
OCPs				

No. of Primary Samples	Analyte	Min. Conc. (mg/kg)	Max. Conc. (mg/kg)	Sample(s) Exceeding SILs
38	OCPs	<1	<1	None
OPPs				
38	OPPs	<1.7	<1.7	None
PCBs				
38	PCBs	<1	<1	None
Asbestos (presence/absence)				
39	Asbestos	Not Detected	Not Detected	None

8.3.2 Soil salinity

Laboratory results indicated that natural soils on site were non-saline. Soils were found to be slightly acidic (pH ranged from 4.6 to 6.1), with the exception of soil sample at BH3M reported pH at 9.4.

8.3.3 Groundwater Analytical Results

Laboratory analytical results for groundwater samples are summarised in **Table 8-5**, which also include the test sample quantities, minimum/maximum analyte concentrations for primary samples and samples found to exceed the GILs. More detailed tabulations of results showing the tested concentrations for individual samples alongside the adopted groundwater criteria are presented in **Table T2** in **Appendix B**.

Completed documentation used to track groundwater sample movements and laboratory receipt (COC and SRA forms) are copied in **Appendix H**. Copies of the laboratory analytical reports are attached in **Appendix I**.

Table 8-5 Summary of Groundwater Analytical Results

No. of Primary Samples	Analyte	Min. Conc. (µg/L) [1]	Max. Conc. (µg/L) [1]	Sample(s) Exceeding GILs
Priority Metals				
3	Arsenic	<1	2	None
3	Cadmium	<0.1	0.2	None
3	Chromium (Total)	1	3	**BH5M (3µg/L) exceeded fresh water criteria for Cr VI (1 µg/L)**
3	Copper	22	23	**BH3M-a (22 µg/L), BH4M-a (22 µg/L) and BH5M (23 µg/L) exceeded fresh water criteria (1.4 µg/L)**
3	Lead	<1	30	**BH4M-a (30 µg/L) and BH5M (11µg/L) exceeded fresh water criteria (3.4µg/L)**
3	Nickel	26	38	**BH3M-a (26µg/L), BH4M-a (38 µg/L) and BH5M (27µg/L) exceeded fresh water criteria (11µg/L)**
3	Zinc	74	240	**BH3M-a (74 µg/L), BH4M-a (240 µg/L) and BH5M (180 µg/L) exceeded fresh water criteria (8µg/L)**
3	Mercury	<0.1	<0.1	None
PAHs				
3	Benzo(α)pyrene	<0.1	<0.1	None
3	Naphthalene	<0.1	<0.1	None
3	Total PAHs	<1	<1	None
TRHs (including BTEX)				
3	TRH C_6-C_{10} minus BTEX (F1)	<50	52	None
3	TRH >C_{10}-C_{16} (F2) minus Naphthalene	<60	76	None
3	TRH >C_{16}-C_{34} (F3)	<500	<500	None
3	TRH >C_{34}-C_{40} (F4)	<500	<500	None
3	Benzene	<0.5	<0.5	None
3	Toluene	<0.5	<0.5	None
3	Ethylbenzene	<0.5	<0.5	None
3	o-xylene	<0.5	<0.5	None
3	m/p-xylene	<1	<1	None
VOCs				

No. of Primary Samples	Analyte	Min. Conc. (µg/L) [1]	Max. Conc. (µg/L) [1]	Sample(s) Exceeding GILs
3	Chloroform (THM)	1.7	39	None
3	Bromodichloromethane (THM)	<0.5	6.6	None
3	Dibromochloromethane (THM)	<0.5	1.6	None
3	Total VOC	<10	48	None

Note 1 Reported minimum and maximum concentrations shows results after resampling of BH4M-a.

9. Site Characterisation

9.1 Subsurface Conditions

The general site lithology encountered during this investigation can be described as a layer of anthropogenic filling overlying residual clay and sandstone bedrock. The depth of fill soils at the site ranged from 0.6 mBGL in the south-eastern corner at BH1 to 4.0 mBGL in the north-eastern corner at BH4M. The fill soils at the central portion of the site (TP15 and TP18) and south-western corner of the site (BH3M, TP12 and TP13) were also noted to be of moderate depths (ranged between 2.1m and 3.0m BGL).

9.2 Soil Impacts

No visual signs of contamination (e.g. oil staining, petrochemical filming, asbestos fragments) were noted during the soil investigation.

Contaminant concentrations in soils, sampled across the site, were all found to be below the most conservative human health (HIL A / HSL A&B) and ecological criteria.

9.3 Salinity

Laboratory results indicated that natural soils on site were non-saline. Soils were found to be slightly acidic (pH ranged from 4.6 to 6.1), with the exception of soil sample at BH3M reported pH at 9.4.

9.4 Groundwater Impacts

With reference to **Table 8-5** and **Table T2**, concentrations of PAHs, BTEX, TRHs and VOCs were reported below the adopted criteria.

For heavy metals, chromium, copper, lead, nickel and zinc were detected in groundwater at levels above the adopted GILs. However, as the elevation of metal concentrations are common in urban groundwater environments, the detected concentrations are considered to be indicative of background conditions, rather than site specific impacts. In addition, no on-site sources in relation to heavy metals were identified in site soils.

Tested TRH concentrations were below the PQL, with the exception of TRH-F1 fraction was detected in BH4M-a (52µg/L) and TRH-F2 fraction was detected in BH5M (76µg/L), which slightly exceeded the laboratory PQL (50µg/L for TRH-F1 and 60µg/L for TRH-F2).

For the proposed mixed use, residential and commercial land use, the TRH-F1 and TRH-F2 results can be compared to the HSL-A&B (low to high density residential) and HSL-D (commercial/industrial) criteria. In such a comparison, the TRH-F1 HSL-A&B and HSL-D criteria are 1,000µg/L and 6,000µg/L, and the TRH-F2 HSL-A&B and HSL-D criteria are 1,000µg/L and Not-Limiting, so the results are below these criteria and thus the TRH in groundwater is not considered to pose human health risk to the current land use.

Total VOC concentrations were detected in BH3M-a (13µg/L) and BH4M-a (48µg/L) for Trihalomethanes (THMs). As the detected THMs concentrations were low, it is not considered to pose human health risk at the site.

9.5 Review of Conceptual Site Model

Preliminary CSM discussed in **Sections 5.7** generally identified a low to moderate contamination risk on the site, relating to the widespread fill across the site, hazardous materials from demolition of historic structures, historical pesticide use, former onsite storage of material/equipment, former AST and water treatment basins in the north-eastern site corner and central portion of the site. On the basis of investigation findings, the preliminary CSM was considered to appropriately identify contamination sources, migration mechanisms and exposure pathways, as well as potential receptors. Previously known data gaps, as discussed in **Section 5.8** have largely been addressed, with the exception of the following:

- Groundwater quality in monitoring well BH7M is not known due to insufficient water for sampling;
- No well survey having been completed at the site. Based on the limited survey data and depth to water the groundwater appears to be flowing to the south west toward Cattai Creek in a similar direction to the overall topography.

9.6 Preliminary Waste Classification

Preliminary waste classification was conducted during this investigation. This information is for the purpose of development planning and does not constitute a formal waste classification certificate, as required by the *NSW Waste Regulations 2014*. A table with tabulated data can be found in **Appendix B**.

It is recommended that the fill soils on the site classified as General Soil Waste (GSW). The analytical results were below CT1 criteria and depending on the receiving facility might be classified as GSW-recyclable. The results also met the Excavated Natural Material (ENM) criteria but testing is needed for pH, EC and foreign material. The underlying natural soils on the site can be classified as Virgin Excavated Natural Material (VENM).

10. Conclusions

The property located at Doran Drive Precinct, 2 Mandala Parade, Castle Hill NSW was the subject of a Detailed Site Investigation, which was conducted in order to assess the nature and degree of on-site contamination associated with current and former uses of the property. Based on the findings of this DSI it was concluded that:

- The site was found to be a rectangular vacant block, secured by construction hoarding and security fencing. It was elevated above the surrounding land, which displayed a moderate downslope towards the southwest. The ground surface was covered by exposed fill materials, with limited vegetation present onsite. No visual evidence of gross contamination, UPSS or UST was observed on the site during the site inspection.
- A review of historical information indicated the site was used as rural residential, agricultural, vacant pastoral and public open space (playing fields) until the late 1980s. Since 2013, significant ground disturbance works (bulk earthworks and material storage) have been completed as a result of the SMNW Project activities. The site was used for a holding and processing yard during that period, which included excavated water treatment basins, material/equipment storage and site sheds. During 2019, the current site configuration was established and cleared of all previous structures. The site surface was significantly filled and raised above the surrounding land.
- The site and surrounding lands were not listed on any of the EPA records reviewed.
- Soil sampling and analysis were conducted at 19 locations across the site.
  - The sub-surface layers observed comprised of fill materials (up to 4.0m depth) overlying natural clay and sandstone bedrock;
  - Laboratory results for all the soil samples collected reported concentrations below the most conservative human health and ecological based SILs;
  - Laboratory results indicated that natural soils on site were non-saline. Soils were found to be slightly acidic (pH ranged from 4.6 to 6.1), with the exception of soil sample at BH3M reported pH at 9.4
- Four groundwater monitoring wells were installed on the site.
  - Standing Water Levels (SWL) were observed between 2.58 and 4.48 mBGL;
  - Groundwater was likely to flow south-westerly towards Cattai Creek;
  - Concentrations of PAHs, BTEX, TRHs and VOCs were reported below the adopted criteria;
  - Concentrations of heavy metals were reported below the adopted freshwater criteria, with the exception of chromium, copper, lead, nickel and zinc. However, the detected concentrations are considered to be indicative of background conditions, rather than site specific impacts.
  - Therefore the identified groundwater concentrations are not considered to present a cause for human health and environmental concern.
- Based on the analytical results, the following preliminary classifications were provided (with reference to the EPA (2014) *Waste Classification Guidelines*):

- The fill materials on the site were classified as *General Solid Waste (Non-Putrescible)*; and
- The underlying natural soils on the site were classified as *Virgin Excavated Natural Material* (VENM).

Based on the findings of this investigation, EI conclude that the site is suitable for the proposed mixed commercial and residential development provided the recommendations detailed in **Section 11** are implemented.

11. Recommendations

In view of the above findings and in accordance with the NEPM 2013 guidelines, it is considered that the site is suitable for the proposed mixed commercial and residential development on completion of the following recommendations:

- Any fill or natural soil materials that are required to be removed from site as surplus materials (including virgin excavated natural materials or VENM) as part of any excavation and foundation works are to be classified for off-site disposal in accordance the EPA (2014) *Waste Classification Guidelines* and *Protection of the Environmental Operations (Waste) Regulations* (2014);
- Any material imported to the site should be validated as suitable for the intended use in accordance with EPA guidelines.

12. Statement of Limitations

The findings presented in this report are the result of discrete and specific sampling methodologies used in accordance with best industry practices and standards. Due to the site-specific nature of soil sampling from point locations, it is considered likely that all variations in subsurface conditions across a site cannot be fully defined, no matter how comprehensive the field investigation program.

While normal assessments of data reliability have been made, EI assumes no responsibility or liability for errors in any data obtained from previous assessments conducted on site, regulatory agencies (e.g. Council, EPA), statements from sources outside of EI, or developments resulting from situations outside the scope of works of this project.

Despite all reasonable care and diligence, the ground conditions encountered and concentrations of contaminants measured may not be representative of conditions between the locations sampled and investigated. In addition, site characteristics may change at any time in response to variations in natural conditions, chemical reactions and other events, e.g. groundwater movement and or spillages of contaminating substances. These changes may occur subsequent to EI's investigations and assessment.

EI's assessment is necessarily based upon the result of the site investigation and the restricted program of surface and subsurface sampling, screening and chemical testing which was set out in the proposal. Neither EI, nor any other reputable consultant, can provide unqualified warranties nor does EI assume any liability for site conditions not observed or accessible during the time of the investigations.

This report was prepared for the above named client and no responsibility is accepted for use of any part of this report in any other context or for any other purpose or by other third parties. This report does not purport to provide legal advice.

This report and associated documents remain the property of EI subject to payment of all fees due for this assessment. The report shall not be reproduced except in full and with prior written permission by EI.

13. References

Bannerman, S.M. and Hazelton, P.A. (1990) *Soil Landscapes of the Penrith 1:100,000 Sheet map and report*, Soil Conservation Service of NSW, Sydney.

Daw & Walton Consulting Surveyors (2020) *Detail Survey @ 2 Mandala Parade, Castle Hill NSW 2154*, Job No. 5042-20, Revision 01, dated 07 August 2020.

DIPNR (2003) *Salinity Potential in Western Sydney 2002,* dated March 2003.

DMR (1991) *Penrith 1:100,000 Geological Series Sheet 9030 (Edition 1)*, Geological Survey of New South Wales, Department of Mineral Resources.

EPA (1995) *Sampling Design Guidelines*, Contaminated Sites Unit, Environment Protection Authority of New South Wales, EPA 95/59, September 1995.

EPA (2014) *Waste Classification Guidelines – Part 1: Classifying waste*, Environment Protection Authority of New South Wales, Doc. EPA 2014/0796, November 2014.

EPA (2017) *Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme* (3rd Edition), NSW EPA, October 2017.

EPA (2020) *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*, NSW EPA, EPA 2020P2233, April 2020.

Murphy CL (1997) *Prospect/Parramatta River Acid Sulfate Soil Risk Map*, Department of Land and Water Conservation, Sydney, Second Edition, supplied by the Sydney South Coast, Geographical Information Systems Unit.

NEMP (2020) *PFAS National Environmental Management Plan*, National Chemicals Working Group of the Heads of the EPAs Australia and New Zealand (HEPA), January 2020.

NEPC (2013) *Schedule B1 Guideline on Investigation Levels for Soil and Groundwater*, *Schedule B2 Guideline on Site Characterisation* and *Schedule B4 Guideline on Site-Specific Health Risk Assessments*, from the *National Environmental Protection (Assessment of Site Contamination) Amendment Measure 1999*, National Environmental Protection Council, April 2013.

NHMRC (2018) *Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy*, National Health and Medical Research Council, National Resource Management Ministerial Council, Commonwealth of Australia, Canberra. Version 3.5, August 2018.

NSW Government (1997) *Contaminated Land Management Act* 1997 No 140.

NUDLC (2012) *Minimum Construction Requirements for Water Bores in Australia*, National Uniform Drillers Licensing Committee 2011, Third edition, February 2012.

RPS Australia East Pty Ltd (2019) *Plan Showing Detail & Contour Survey Showground Road Castle Hill*, Drawing No. PR144385-DET-001b.dwg, Revision A, dated 4 October 2019.

SEPP 55 (1997) *State Environmental Planning Policy 55*, Remediation of Land under the Environmental Planning and Assessment Act 1997.

Sydney Regional Environmental Plan No 20—Hawkesbury-Nepean River (No 2-1997).

The Hills Development Control Plan (DCP) 2012.

The Hills Local Environmental Plan 2019.

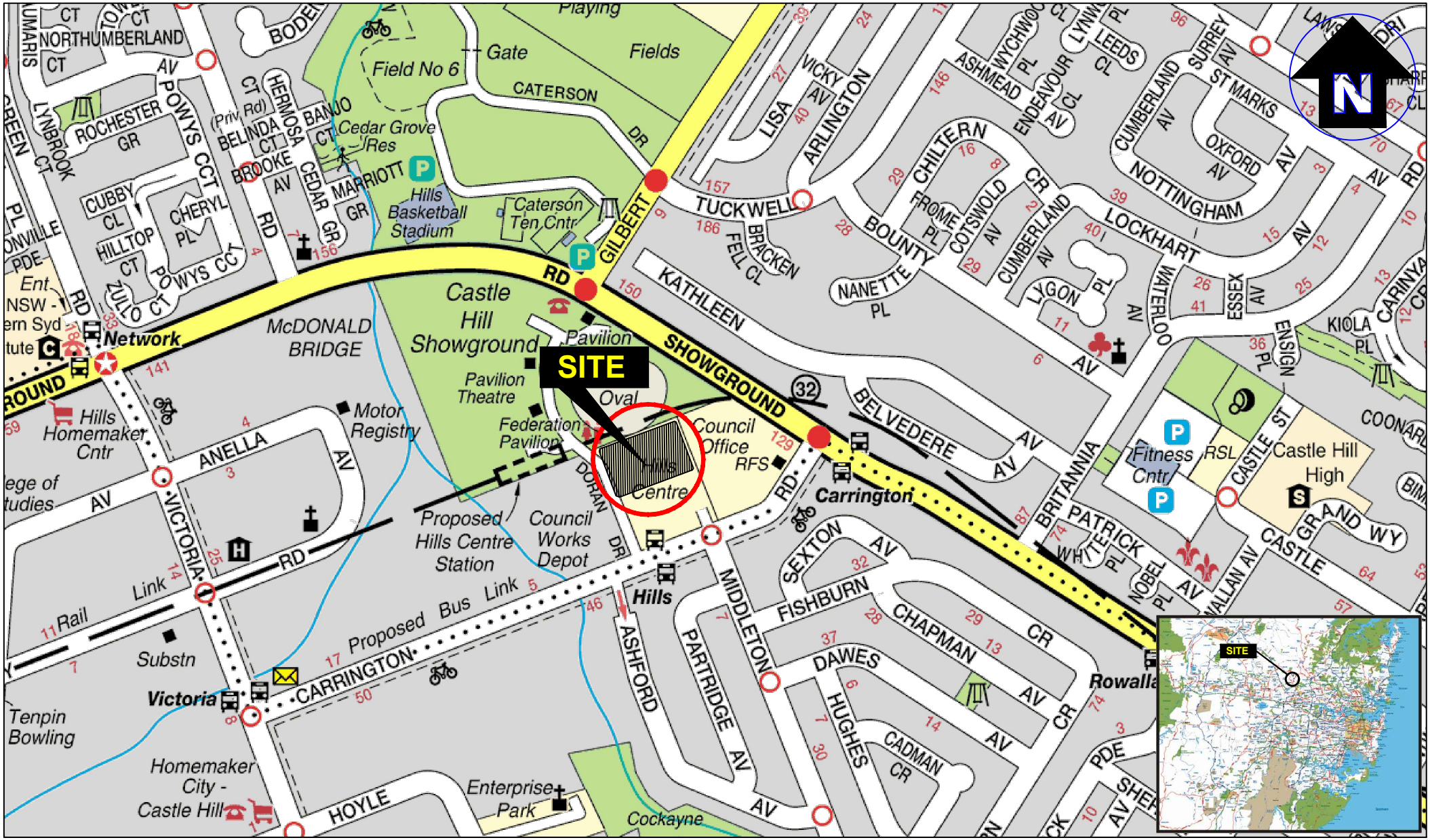
USEPA (2006) *Data Quality Assessment: A Reviewers Guide – EPA QA/G-9R*. USEPA Office of Environmental Information, EPA/240/B-06/002, February 2006.

14. Abbreviations

ACM	Asbestos-Containing Materials
AHD	Australian Height Datum
AS	Australian Standard
ASS	Acid Sulfate Soils
B(a)P	Benzo(a)Pyrene (a PAH compound), - B(a)P TEQ Toxicity Equivalent Quotient
BGL	Below Ground Level
BH	Borehole
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
COC	Chain of Custody
CSM	Conceptual Site Model
DA	Development Application
DP	Deposited Plan
DSI	Detailed Site Investigation
EIL	Ecological Investigation Level
ENM	Excavated Natural Material
EPA	Environment Protection Authority NSW
ESL	Ecological Screening Level
F1	TRH C_6 – C_{10} less the sum of BTEX concentrations (Ref. NEPM 2013, Schedule B1)
F2	TRH >C_{10} – C_{16} less the concentration of naphthalene (Ref. NEPM 2013, Schedule B1)
F3	TRH >C16-C34
F4	TRH >C34-C40
FFL	Finished Floor Level
GIL	Groundwater Investigation Level
GME	Groundwater Monitoring Event
GSW	General Solid Waste
HIL	Health-based Investigation Level
HSL	Health-based Screening Level
km	Kilometres
LEP	Local Environmental Plan
LGA	Local Government Area
m	Metres
NATA	National Association of Testing Authorities, Australia
NEPC	National Environmental Protection Council
NEPM	National Environmental Protection Measure
NSW	New South Wales
OCP/OPP	Organochlorine and Organophosphorus Pesticides
PAHs	Polycyclic Aromatic Hydrocarbons
PFAS	Per- and Poly-Fluoroalkyl Substances
PID	Photo-ionisation Detector
ppm	Parts Per Million
PQL	Practical Quantitation Limit (limit of detection for respective laboratory instruments)
QA/QC	Quality Assurance / Quality Control
SIL	Soil Investigation Level
SMNW	Metro North West
SRA	Sample receipt advice (document confirming laboratory receipt of samples)
SWL	Standing Water Level
TP	Test Pit
TPH	Total Petroleum Hydrocarbons (superseded term equivalent to TRH)
TRH	Total Recoverable Hydrocarbons (non-specific analysis of organic compounds)
UCL	Upper Confidence Limit of the mean
UPSS	Underground Petroleum Storage System

USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VENM	Virgin Excavated Natural Material
VOC	Volatile Organic Compounds

Appendix A - Figures



Drawn:	AM.H.	
Approved:	L.W.	
Date:	21-05-21	
Scale:	Not To Scale	

Deicorp Projects Showground Pty Ltd
Detailed Site Investigation
2 Mandala Parade, Castle Hill NSW
Site Locality Plan

Figure:
1

Project: E24724.E02

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street, PYRMONT 2009
Ph (02) 9516 0722 Fax (02) 9518 5088

LEGEND

- Approximate Site Boundary
- Approximate Sydney Metro Tunnel
- Approximate Showground Station Footprint
- Approximate 1st & 2nd tunnel reserve extents 5m & 25m away from the tunnel boundaries
- Approximate test pit location
- Approximate borehole / monitoring well location
- Approximate borehole location

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street, PYRMONT 2009
Ph (02) 9516 0722 Fax (02) 9518 5088

Drawn:	AM.H.
Approved:	L.W.
Date:	21-05-21

Deicorp Projects Showground Pty Ltd
Detailed Site Investigation
2 Mandala Parade, Castle Hill NSW
Sampling Location Plan

Figure: 2

Project: E24724.E02

Appendix B - Tables

Table T1 – Summary of Soil Test Results

E24724 - Castle Hill

Sample ID	Sampling Date	Priority Metals								PAHs				BTEX				TRHs						Pesticides		PCBs	Asbestos
		As	Cd	Cr[#]	Cu	Pb	Hg	Ni	Zn	Carcinogenic PAHs (as B(a)P TEQ)	Benzo(a)pyrene	Total PAHs	Naphthalene	Benzene	Toluene	Ethylbenzene	Total Xylenes	F1	F2	F3	F4	C6-C9	C10-C36	OCPs	OPPs		Presence / absence
Fill																											
BH1_0.1-0.2	8/07/2020	5	<0.3	8.8	9.8	12	<0.05	5.4	16	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH2_0.1-0.2	9/07/2020	4	<0.3	14	21	11	<0.05	17	27	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH2_1.2-1.3		7	<0.3	25	2.3	12	<0.05	2.9	6.9	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	N.A.	N.A.	N.A.	N.A.
BH3M_0.1-0.2	13/07/2020	5	<0.3	24	9.2	14	<0.05	6.9	21	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	No
BH3M_0.7-0.8		3	<0.3	16	16	16	<0.05	10	26	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH3M_1.7-1.8		4	<0.3	13	12	17	<0.05	7.8	32	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH4M_0.3-0.5	14/07/2020	6	<0.3	15	19	16	<0.05	8.5	35	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH4M_1.4-1.5		2	<0.3	6.3	2.8	6	<0.05	0.9	5.3	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	N.A.	N.A.	N.A.	N.A.
BH4M_2.9-3.0		5	<0.3	18	5.3	10	<0.05	3.6	9.5	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH5M_0.1-0.2	16/07/2020	4	<0.3	9.5	14	11	<0.05	7.2	22	0.8	0.5	8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH5M_1.5-1.6		6	<0.3	11	14	11	<0.05	16	24	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	N.A.	N.A.	N.A.	N.A.
BH6_0.1-0.2	20/07/2020	4	<0.3	12	15	23	<0.05	9.9	45	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP7_0.1-0.2	8/07/2020	4	<0.3	11	24	12	<0.05	13	34	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP8_0.1-0.2		5	<0.3	24	26	12	<0.05	18	27	0.3	0.2	1.7	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP9_0.1-0.2		4	<0.3	8.4	16	11	<0.05	5.7	22	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP10_0.1-0.2		4	<0.3	14	16	12	<0.05	10	31	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP11_0.1-0.2		4	<0.3	42	12	12	<0.05	10	39	<0.3	0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP11_0.8-0.9		2	<0.3	29	130	4	<0.05	34	39	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP12_0.1-0.2		4	<0.3	11	22	15	<0.05	20	42	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP12_0.8-0.9		3	<0.3	12	19	13	<0.05	18	38	<0.3	0.1	1.2	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP12_1.7-1.8		4	<0.3	12	13	13	<0.05	10	25	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP13_0.1-0.2		3	<0.3	8.1	9.4	10	<0.05	8.6	20	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP13_1.2-1.3		4	<0.3	10	14	13	<0.05	8.3	28	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP13_2.0-2.1		5	<0.3	14	12	17	<0.05	8.2	28	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP14_0.1-0.2		4	<0.3	13	15	14	<0.05	13	35	<0.3	0.1	0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP15_0.1-0.2		3	<0.3	11	15	16	<0.05	9.3	87	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP15_1.7-1.8		4	<0.3	16	22	15	<0.05	6.8	36	<0.3	0.1	1.7	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	280	370	<20	430	<1	<1.7	<1	No
TP16_0.1-0.2		3	<0.3	15	24	9	<0.05	18	50	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP17_0.1-0.2		4	<0.3	10	12	12	<0.05	9.8	32	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP18_0.1-0.2		3	<0.3	9.1	12	11	<0.05	9	30	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP18_1.8-1.9		6	<0.3	11	16	14	<0.05	9.2	44	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP19_0.1-0.2		4	<0.3	32	23	11	<0.05	15	43	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
Statistical Analysis																											
Maximum concentration		7	<0.3	42	130	23	<0.05	34	87	0.8	0.5	8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	280	370	<20	430	<1	<1.7	<1	No
Natural																											
BH1_0.7-0.8	8/07/2020	6	<0.3	7.9	8.9	14	<0.05	0.8	7.8	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH2_1.6-1.7	9/07/2020	14	<0.3	9.8	2.9	21	<0.05	<0.5	2.4	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH3M_2.8-2.9	13/07/2020	2	<0.3	13	14	5	<0.05	3.5	17	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH4M_4.9-5.0	14/07/2020	2	<0.3	4.5	2.7	7	<0.05	4	25	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	N.A.	N.A.	N.A.	N.A.
BH5M_1.9-2.0	16/07/2020	4	<0.3	15	3.8	8	<0.05	2.3	6.8	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH6_1.4-1.5	20/07/2020	1	<0.3	2.5	0.6	2	<0.05	<0.5	<2	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP7_1.3-1.4	8/07/2020	14	<0.3	20	9.6	17	<0.05	<0.5	7.1	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP8_0.9-1.0		5	<0.3	4.6	6.9	18	<0.05	<0.5	2.2	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP9_1.2-1.3		<1	<0.3	2.3	2.1	15	<0.05	<0.5	<2	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP14_1.5-1.6		4	<0.3	6.1	<0.5	5	<0.05	<0.5	<2	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
TP19_1.4-1.5		5	<0.3	16	1.9	13	<0.05	0.7	2.9	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
Statistical Analysis																											
Maximum concentration		14	<0.3	20	14	21	<0.05	4	25	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
NEPM (2013) Criteria																											
HIL A - *Residential with garden / accessible soil*		100	20	100 Cr(VI)	6,000	300	40	400	7,400	3		300												240		1	
HIL B - *Residential with minimal soil access*		500	150	500 Cr(VI)	30,000	1,200	120	1,200	60,000	4		400												600		1	
HIL C - *Recreational*		300	90	300 Cr(VI)	17,000	600	80	1,200	30,000	3		300												400		1	
HIL D - *Commercial / industrial*		3,000	900	3,600 Cr(VI)	240,000	1,500	730	6,000	400,000	40		4,000												3,600		7	
HSL A & B - Low to high density residential Soil texture classification – Clay		Source depths (0 m to <1 m. BGL)											5	0.7	480	NL	110	50	280								0.01 / 0.001
		Source depths (1 m to <2 m. BGL)											NL	1	NL	NL	310	90	NL								
		Source depths (2 m to <4 m. BGL)											NL	2	NL	NL	NL	150	NL								
		Source depths (4 m + BGL)											NL	3	NL	NL	NL	290	NL								
HSL C - Recreational / open space Soil texture classification – Clay		Source depths (0 m to <1 m. BGL)											NL	NL	NL	NL	NL	NL	NL								0.02 / 0.001
		Source depths (1 m to <2 m. BGL)											NL	NL	NL	NL	NL	NL	NL								
		Source depths (2 m to <4 m. BGL)											NL	NL	NL	NL	NL	NL	NL								
		Source depths (4 m + BGL)											NL	NL	NL	NL	NL	NL	NL								
HSL D - Commercial / Industrial Soil texture classification – Clay		Source depths (0 m to <1 m. BGL)											NL	4	NL	NL	NL	310	NL								0.05 / 0.001
		Source depths (1 m to <2 m. BGL)											NL	6	NL	NL	NL	480	NL								
		Source depths (2 m to <4 m. BGL)											NL	9	NL	NL	NL	NL	NL								
		Source depths (4 m + BGL)											NL	20	NL	NL	NL	NL	NL								
EILs / ESLs - *Urban Residential and Public Open Space* [1] [2]		100		410	180	1,100		100	450		0.7		170	65	105	125	45	180	120	1,300	5,600			180			
Management Limits – *Residential, parkland and public open space* [1]																		800	1,000	3,500	10,000						
NSW EPA (2014) Waste Classification Criteria																											
General Soild Waste	CT1 (mg/kg)	100	20	100		100	4	40			0.8	200		10	288	600	1,000					650	10,000	<50	250	<50	If detected material is Special Waste - Asbestos Waste
	TCLP1 (mg/L) / SCC1 (mg/kg)	5 / 500	1 / 100	5 / 1,900		5 / 1,500	0.2 / 50	2 / 1,050			0.04 / 10	NR / 200		0.5 / 18	14.4 / 518	30 / 1,080	50 / 1,800					NR / 650	NR / 10,000	NR / <50	NR / 250	NR / <50	
Restricted Solid Waste	CT2 (mg/kg)	400	80	400		400	16	160			3.2	800		40	1,152	2,400	4,000					2,600	40,000	NR	1,000	NR	
	TCLP2 (mg/L) / SCC2 (mg/kg)	20 / 2,000	4 / 400	20 / 7,600		20 / 6,000	0.8 / 200	8 / 4,200			0.16 / 23	NR / 800		2 / 72	57.6 / 2,073	120 / 4,320	200 / 7,200					NR / 2,600	NR / 40,000	NR / <50	NR / 1,000	NR / <50	
Special Waste / Scheduled Waste																								> 2 mg/kg - Scheduled Waste [3]		> 2 mg/kg - PCB Waste [4]	
NSW EPA ENM Order [5]	Maximum Average Concentration (mg/kg)	20	0.5	75	100	50	0.5	30	150		0.5	20											250				
	Absolute Maximum Concentration (mg/kg)	40	1	150	200	100	1	60	300		1	40		0.5	65	25	15						500				

Notes:

Highlighted values exceed HIL / HSL

Highlighted values exceed EIL / ESL

Concentration exceeds highlighted criteria

Results are recorded in mg/kg

HIL A	NEPC 1999 Amendment 2013 'HIL A' - Health based Residential with garden / accessible soil, also includes children's day care centres, preschools and primary schools.
HIL B	NEPC 1999 Amendment 2013 'HIL B' - Health based Residential with minimal opportunities for soil access including dwellings with fully and permanenetly paved yard space such as high-rise buildings and apartments.
HIL C	NEPC 1999 Amendment 2013 'HIL C' - Health based public open space such as parks, playgrounds, playing fields, secondary schools and footpaths.
HIL D	NEPC 1999 Amendment 2013 'HIL D' - Health based commercial / industrial settings.
HSL A & B	NEPC 1999 Amendment 2013 'HSL A & B' Health Based Screening Levels applicable for vapour intrusion values applicable for low-high density residential settings.
HSL C	NEPC 1999 Amendment 2013 'HSL C' Health Based Screening Levels applicable for vapour intrusion values applicable for recreational/open space settings.
HSL D	NEPC 1999 Amendment 2013 'HSL D' Health Based Screening Levels applicable for vapour intrusion values applicable for commercial / industrial settings.
EIL	Ecological Investigation Level for urban residential and public open space land use.
ESL	Ecology Screening Level for urban residential and public open space land use.
GSW	NSW EPA 2014 General Solid Waste Thresholds, in Waste Classification Guidelines, Table 1 (CT1) and Table 2 (TCLP1 / SCC1)
RSW	NSW EPA 2014 Restricted Solid Waste Thresholds, in Waste Classification Guidelines, Table 1 (CT2) and Table 2 (TCLP2 / SCC2)
NA	Not Analysed
NL	Not Limiting' If the derived soil vapour limit exceeds the soil concentration at which the pore water phase cannot dissolve any more of the individual chemical
NC	Not calculated
1	As strata is predominantly clay, fine grained soil assessment criteria values were applied.
2	EIL/ESL were calculated based on the average results of pH (6.1) and CEC (7.8 meq/100g) for a high traffic NSW suburb.
3	NSW EPA Scheduled Chemical Wastes Chemical Control Order 2004. Section 4.14
4	NSW EPA Polychlorinated Biphenyl (PCB) Chemical Control Order 1997. Where PCBs are reported at concentrations >2 mg/kg and <50 mg/kg, material is *non-scheduled PCB waste* . Where PCBs are reported at concentrations >50 mg/kg, material is *scheduled PCB waste* .
5	ENM Exemption and Order (NSW EPA, 2014).
F1	To obtain F1 subtract the sum of BTEX concentrations from the C6-C10 fraction.
F2	To obtain F2 subtract naphthalene from the >C10-C16 fraction.
F3	(>C16-C34)
F4	(>C34-C40)

Sample	pH	Electrical Conductivity (EC - µs/cm)	Soil Texture	ECe (µS/cm)	Adopted Multiplication Factor	ECe (dS/m)	Cation Exchange Capacity (CEC - meq/100)	Exchangeable Sodium Percentage (%)	Cations (mg/kg)					Anions (mg/kg)		Soil Salinity Class [1]
									Ca	Mg	Na	K	Mn	Chloride	Sulfate	
BH2_1.9-2.0	4.6	73	Sandy Clay	657	9	0.657	3.6	11.7	1900	590	170	280	51	18	110	Non-Saline
BH2_2.9-3.0	4.7	85	Sandy Clay	765	9	0.765	13	3.4	4400	1300	320	340	110	16	130	Non-Saline
BH3M_2.8-2.9	9.4	130	Sandy Clay Loam	1170	9	1.17	17	2.2	3400	650	130	240	47	22	92	Non-Saline
BH4M_4.4-4.5	5.5	60	Loamy Sand	840	14	0.84	2.9	27.5	1100	350	290	320	13	6.5	83	Non-Saline
BH4M_4.9-5.0	6.1	47	Loamy Sand	658	14	0.658	2.3	27.3	66	120	170	280	5	10	64	Non-Saline

[1] DLWC (2002)

Table T2 - Summary of Groundwater Analytical Results

Sample ID	Sampling Date	Metals								PAHs			BTEX					TRHs				VOCs				pH	EC (µS/cm)
		As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	Total PAHs	Benzo(a)pyrene	Naphthalene	Benzene	Toluene	Ethylbenzene	o-xylene	m/p-xylene	F1	F2	F3	F4	Chloroform (THM) *	Bromodichloromethane (THM) *	Dibromochloromethane (THM) *	Total VOC		
Detailed Site Investigation (EI, 2020)																											
BH3M-a	29/7/2020	<1	<0.1	1	22	<1	<0.1	26	74	<1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	9.2	2.3	0.6	13	5.1	1,200
BH4M-a		<1	<0.1	170	24	<1	<0.1	3	21	<1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<1	52	<60	<500	<500	39	6.6	1.6	48	6.3	980
BH5M		1	0.2	3	23	11	<0.1	27	180	<1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<1	<50	76	<500	<500	1.7	<0.5	<0.5	<10	4.6	4,100
BH4M-a	18/8/2020	2	0.2	1	22	30	<0.1	38	240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Statistical Analysis																											
Maximum Concentration		2	0.2	170	24	30	<0.1	38	240	<1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<1	52	76	<500	<500	39	6.6	1.6	48	6.3	4,100
GILs																											
HSL A & B - *Low to high density residential* Soil texture classification – Sand	2m to <4m											NL	800	NL	NL	NL	NL	1,000	1,000								
	4m to <8m											NL	800	NL	NL	NL	NL	1,000	1,000								
	8m+											NL	900	NL	NL	NL	NL	1,000	1,000								
HSL C - *Recreational / open space* Soil texture classification – Sand	2m to <4m											NL	NL	NL	NL	NL	NL	NL	NL								
	4m to <8m											NL	NL	NL	NL	NL	NL	NL	NL								
	8m+											NL	NL	NL	NL	NL	NL	NL	NL								
HSL D - *Commercial / industrial* Soil texture classification – Sand	2m to <4m											NL	5,000	NL	NL	NL	NL	6,000	NL								
	4m to <8m											NL	5,000	NL	NL	NL	NL	6,000	NL								
	8m+											NL	5,000	NL	NL	NL	NL	7,000	NL								
GILs	Fresh Waters [1]	24 (AsIII) 13 (AsV)	0.2	1 [3] (Cr VI)	1.4	3.4	0.06 [2]	11	8 [3]			16	950	180 [4]	80 [4]	350	275 [4]	50 [5]	60 [5]	500 [5]	500 [5]						
	Marine Waters [1]		0.7 [2]	27 (Cr III) 4.4 (Cr IV)	1.3	4.4	0.1 [2]	7	15 [3]			50 [3]	500 [3]	180 [4]	5 [4]	350 [4]	275 [4]	50 [5]	60 [5]	500 [5]	500 [5]						
	Recreational Water [6]	100	20		1,000 *	100	10	200	3,000*				10	25*	3*	20 *	20 *					2,500					

Notes:

Highlighted indicates criteria exceeded

All values are µg/L unless stated otherwise

HSL A & B	NEPC 1999 Amendment 2013 'HSL A & B' Health Based Screening Levels for vapour intrusion applicable for low-high density residential settings.
HSL C	NEPC 1999 Amendment 2013 'HSL C' Health Based Screening Levels for vapour intrusion applicable for recreational/open space settings.
HSL D	NEPC 1999 Amendment 2013 'HSL D' Health Based Screening Levels for vapour intrusion applicable for commercial / industrial settings.
NL	Not Limiting
NA	'Not Analysed' i.e. the sample was not analysed.
ND	Not Detected - i.e. concentration below the laboratory PQL
F1	To obtain F1 subtract the sum of BTEX concentrations from the C6-C10 fraction.
F2	To obtain F2 subtract naphthalene from the >C10-C16 fraction.
F3	(>C16-C34)
F4	(>C34-C40)
*	Only thoes VOC values above the laboratory PQL have been tabulated.
1	NEPM (2013) Groundwater Investigation Levels for fresh and marine water quality, based on ANZECC & ARMCANZ (2000).
2	Chemical for which possible bioaccumulation and secondary poisoning effects should be considered, refer to ANZG (2018) for further guidance.
3	Figure may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance
4	Low reliability toxicity data, refer to ANZECC & ARMCANZ (2000)
5	In lack of a criteria the laboratory PQL has been used (DEC, 2007).
6	Based on NHMRC (2011 - update August 2018 v.3.5) Drinking Water Guidelines. The lowest of the Health Guideline x10 or the Aesthetic Guideline has been chosen as the assessment criteria. Aesthetic based criteria have been indicated by *

Table J-2 Summary of QA/QC results for Investigation samples

Sample identification	Sampled Date	Description	TRH				BTEX				Heavy Metals							
			F1*	F2**	F3 (>C_{16} - C_{34})	F4 (>C_{34} - C_{40})	Benzene	Toluene	Ethylbenzene	Xylene (total)	Arsenic	Cadmium	Chromium (Total)	Copper	Lead	Mercury	Nickel	Zinc
Intra-laboratory Duplicate																		
TP8_0.1-0.2	8/7/2020	Fill	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	5	<0.3	24	26	12	<0.05	18	27
QD1		Replicate of TP8_0.1-0.2	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	4	<0.3	19	21	12	<0.05	15	27
RPD			***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***22.22***	***0.00***	***23.26***	***21.28***	***0.00***	***0.00***	***18.18***	***0.00***
TP17_0.1-0.2	8/7/2020	Fill	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	4	<0.3	10	12	12	<0.05	9.8	32
QD2		Replicate of TP17_0.1-0.2	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	4	<0.3	9.9	12	13	<0.05	12	33
RPD			***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***1.01***	***0.00***	***8.00***	***0.00***	***20.18***	***3.08***
BH3M-a	29/7/2020	Groundwater	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	1	22	<1	<0.1	26	74
GWQD1		Replicate of BH3M-a	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	1	<0.1	1	26	<1	<0.1	25	71
RPD			***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***16.67***	***0.00***	***0.00***	***3.92***	***4.14***
Inter-laboratory Duplicate																		
TP8_0.1-0.2	8/7/2020	Fill	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	5	<0.3	24	26	12	<0.05	18	27
QT1		Replicate of TP8_0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	4	<0.4	31	26	18	<0.1	18	33
RPD			***0.00***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***22.22***	***NA***	***25.45***	***0.00***	***40.00***	***NA***	***0.00***	***20.00***
TP17_0.1-0.2	8/7/2020	Fill	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	4	<0.3	10	12	12	<0.05	9.8	32
QT2		Replicate of TP17_0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	8	<0.4	29	35	28	<0.1	26	72
RPD			***0.00***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	**66.67**	***NA***	**97.44**	**97.87**	**80.00**	***NA***	**90.50**	**76.92**
BH3M-a	29/7/2020	Groundwater	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	1	22	<1	<0.1	26	74
GWQT1		Replicate of BH3M-a	15	<50	<100	<100	<1	<1	<1	<3	<1	0.2	1	7	<1	<0.05	24	100
RPD			**175.00**	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***0.00***	**80.00**	***0.00***	**103.45**	***0.00***	***NA***	***8.00***	***29.89***
QTB1	8/7/2020	Trip blank	-	-	-	-	<0.1	<0.1	<0.1	<0.3	-	-	-	-	-	-	-	-
QTS1		Trip spike	-	-	-	-	[87%]	[89%]	[90%]	[91%]	-	-	-	-	-	-	-	-
QR1		Rinsate	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	<0.1	<1	<5
GWTB1	29/7/2020	Trip blank	-	-	-	-	<0.5	<0.5	<0.5	<1.5	-	-	-	-	-	-	-	-
GWTS1		Trip spike	-	-	-	-	[99%]	[99%]	[99%]	[99%]	-	-	-	-	-	-	-	-
GWQR1		Rinsate	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	<0.1	<1	<5

Indicates values where a single result is found to be less than detection, with the duplicate sample found to be over the detection limit.

RPD exceeds 30-50% range referenced from AS4482.1 (2005)

NOTE:

All soil results are reported in mg/kg . All water results are reported in µg/L.

* - to obtain F1 subtract the sum of BTEX concentrations from the C_6-C_{10} fraction

** - to obtain F2 subtract naphthalene from the > C_{10}-C_{16} fraction

eiaustralia

Appendix C - Development Plans

MGA

DE CLAMBE DRIVE

DRIVE

DORAN

SCHEDULE OF SHORT BOUNDARIES

NO.	CHORD		ARC	RADIUS
2	6°04'	6.435	6.685	7
3	30°43'55"	2.195	2.2	23.5
36	33°25'10"	5.505		
37	28°03'35"	4.8		
38	30°43'30"	3.185		

89.58 5329266666

97.13 5329266665

INV. RL. 87.79

INV. RL. 90.32

CONCRETE

68°

41'

05"

103.545

INV. RL. 94.63

FOOTPATH

234°41'05" 5.555

5.77 112°30'15"

55
7969m²
DP1253217

156°19'20" 24.4

158°40'05" 12.325

162°07'55" 9.32

338° 41' 05" 62.76

BUS SHELTER

0.98 0.96 0.94 0.92 0.90 0.88 0.86 0.84 0.82 0.80 0.78 0.76 0.74 0.72 0.70

293°51'45" 5.58

249° 08' 30" 104.725

203°10'20" 5.56

157°12'15" 17.66

INV. RL. 88.67

INV. RL. 90.93

CONCRETE

FOOTPATH

BUS SHELTER

99.95 N/A 99.83 N/A

MANDALA PARADE

PT 54

MEDIAN

MEDIAN

DOUBLE LINE MARKING

WAY

ANDALUSIAN

NBN LINE DIGITISED FROM DTDB DIAGRAM

0.05/1/3

0.05/1/4

SIGN

CONCRETE

BITUMEN

37°17'10" 12.2

34°00'20" 17.163 A17.175 R150

PAVED

BRICK RET WALL

38 37 3 36 2

NBN PIT

0.4/6/10

0.3/6/5

SURFACE

338°42'45" 11.025

5.825 344°02"

RL. 97.78 PINV/450D

RL. 97.81 PINV/450D

FOOTPATH

PATH

BITUMEN

RL. 98.05 PINV/450D

RL. 98.09 PINV/450D

DRAIN

DISH

GAS

SURFACE

CONCRETE

RL. 98.29 PINV/450D

RL. 98.36 PINV/300D

RL. 98.30 PINV/450D

76.35 338° 40' 05"

CONCRETE

CONCRETE

RL. 94.70 PINV/375D

NBN PIT

RL. 94.99 PINV/375D

RL. 94.24 PINV/375D

RL. 94.53 PINV/375D

RL. 94.56 PINV/300D

248° 41' 35" 21.03

UNIDENTIFIED PIT

NOTES

ANY ELECTRONIC FILE IS PROVIDED WITHOUT WARRANTY AND SHOULD BE USED ONLY IN CONJUNCTION WITH THE SUPPLIED PDF/PAPER COPY OF THIS PLAN.

THE BOUNDARY COMPONENT OF THIS SURVEY HAS BEEN UNDERTAKEN IN ACCORDANCE WITH CLAUSE 9 OF THE SURVEYING AND SPATIAL INFORMATION REGULATION 2017 "SURVEYS NOT REQUIRING STRICT ACCURACY", AND IS A COMPILED PLAN WITHIN THE MEANING OF THOSE REGULATIONS.

NO BOUNDARY SURVEY HAS BEEN UNDERTAKEN. BEARINGS, DIMENSIONS AND AREA ARE FROM REGISTERED DP 1253217

GAS LINE HAS BEEN DIGITISED BY IN DIRECT METHODS FROM JEMENA DIAGRAMS PROVIDED BY DBYD CONFIRMATION OF THE EXACT POSITION SHOULD BE MADE PRIOR TO ANY EXCAVATION WORK. OTHER SERVICES MAY EXIST WHICH ARE NOT SHOWN.

SERVICES SHOWN ARE INDICATIVE ONLY. POSITIONS ARE BASED ON SURFACE INDICATOR(S) LOCATED DURING FIELD SURVEY. CONFIRMATION OF THE EXACT POSITION SHOULD BE MADE TO THE RELEVANT AUTHORITIES PRIOR TO ANY EXCAVATION WORK. OTHER SERVICES MAY EXIST WHICH ARE NOT SHOWN.

LEVELS ARE BASED ON AUSTRALIAN HEIGHT DATUM (AHD) USING SSM 62673 WITH RL OF 102.368m LOCATED AT CARRINGTON ROAD.

ORIGIN OF CO-ORDINATES SSM 62673 WITH GDA94 MGA CO-ORDINATE VALUES OF E313716.011 N6266241.388

RIDGE, EAVE & GUTTER HEIGHTS HAVE BEEN OBTAINED BY AN INDIRECT METHOD AND ARE ACCURATE TO ± 0.05m.

ADJOINING DWELLING, BUILDING HAVE BEEN PLOTTED FOR DIAGRAMMATIC PURPOSES ONLY.

CONTOURS ARE AN INDICATION OF LANDFORM AND SHOULD NOT BE TAKEN IN PREFERENCE TO SPOT LEVELS SHOWN.

CONTOUR INTERVAL 0.25m.

U/G TANK

FUEL TANK

LEGEND

- COMMUNICATIONS PIT
- STOP VALVE
- WATER HYDRANT
- NBN PIT
- ELECTRICITY PILAR
- ELECTRIC LIGHT POLE
- ELECTRICAL TURRET
- SEWER LAMPHOLE
- SEWER MANHOLE
- SEWER CONNECTION
- SIGNAL JUNCTION BOX
- TRAFFIC SIGNAL LIGHT
- WATER TAP
- FIRE HYDRANT
- DRAINAGE PIT
- SIGN
- TOP BANK
- BOTTOM BANK
- LINE OF DRAINAGE PIPE
- INVERT KERB
- LIP KERB
- BACK KERB
- DIGITISED GAS LINE DBYD
- UG POTABLE WATER SERVICE LINE
- UG ELEC LINE
- UG TELECOMMUNICATIONS LINE
- UG GPR UNKNOWN SERVICE LINE
- UG OPTICAL FIBRE LINE
- 0.2/5/3 DENOTES TREE DIA/SPREAD/HEIGHT

REVISIONS

No.	DATE	REVISION DETAILS	DRAWN	CHK	APP
A	1-10-2019	INITIAL VERSION	LAS	SC	WJB

HORIZ. SCALE: 1:250

VERT. SCALE: N/A @ A1

COORDINATES: MGA

DATUM: AHD

ORIGIN: SEE NOTES

ORIGIN: SEE NOTES

5 2.5 0 5 10 15

SCALE IN METRES AT ORIGINAL REDUCTION RATIO

NOTES

(A) EASEMENT FOR UNDERGROUND CABLES 1.5m WIDE VIDE DP1194607
(B) EASEMENT FOR PADMOUNT SUBSTATION 2.75m WIDE VIDE DP1194607
(C) EASEMENT FOR ELECTRICITY PURPOSES VARIABLE WIDTH VIDE DP633665
(F) PROPOSED EASEMENT FOR DRAINAGE PURPOSES 2, 3, 3.5, 4 WIDE AND VARIABLE WIDTH

CLIENT: LANDCOM

SURVEY:	SG	DATE OF SURVEY:	OCT 2019
DRAWN:	LAS	DATE OF PLAN:	3-10-2019
CHECKED:	SG	DATE LAST SAVED:	04.10.2019
APPROVED:	WJB	DATE APPROVED:	4-10-2019

TITLE

Plan Showing Detail & Contour Survey Showground Road Castle Hill

DRAWING No: PR144385-DET-001b.dwg

JOB No: PR144385

ISSUE: A

www.dialbeforeyoudig.com.au DIAL 1100 BEFORE YOU DIG

SHEET 2 OF 4 SHEETS

SIZE: A1

RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762)
SUITE 404 29-31 LEXINGTON DR, PO BOX 6843 BAULKHAM HILLS NSW 2153
T: 02 8884 6900 F: 02 8884 6999 www.rpsgroup.com.au

THIS IS A COLOURED PLAN.
REPRODUCTION IN COLOUR ONLY.

MAKING COMPLEX EASY

rps

N:\Projects\144K\PR144385 - Hills Showground Precinct - Landcom\05 Drafting\Survey\02 Detail\PR144385-DET-001b.dwg

NOTES

DLCS Quality Endorsed Company ISO 9001:2015, Registration Number 20476
Nominated Architect: Nicholas Turner 6685, ABN 86 094 694 911

CLIENT
Deicorp

Rev	Date	Approved by	Revision Notes
a	07.06.21	JMC	Draft DA for Review
01	25.06.21	JMC	Retail Update
02	06.07.21	JMC	DA Submission

Project Title
Doran Drive
Doran Drive, Castle Hill Castle Hill NSW 2154 Australia

Drawing Title
GA PLANS
Basement 06

Scale **1:200 @A1, 50%@A3**
Status **DA Submission**
Project No. **19068**
Dwg No. **DA-110-002**
Drawn by **AM, VT, JL, JE**
Rev **02**
North

TURNER
Level 7 ONE Oxford Street
Darlinghurst NSW 2010
AUSTRALIA
T +61 2 8668 0000
F +61 2 8668 0088
turnerstudio.com.au

NOTES

THIS DRAWING IS COPYRIGHT © OF TURNER. NO REPRODUCTION WITHOUT PERMISSION. UNLESS NOTED OTHERWISE THIS DRAWING IS NOT FOR CONSTRUCTION. ALL DIMENSIONS AND LEVELS ARE TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF WORK. INFORM TURNER OF ANY DISCREPANCIES FOR CLARIFICATION BEFORE PROCEEDING WITH WORK. DRAWINGS ARE NOT TO BE SCALED. USE ONLY FIGURED DIMENSIONS. REFER TO CONSULTANT DOCUMENTATION FOR FURTHER INFORMATION.DWG, IFC AND BIMX FILES ARE UNCONTROLLED DOCUMENTS AND ARE ISSUED FOR INFORMATION ONLY.

DLCS Quality Endorsed Company ISO 9001:2015, Registration Number 20476
Nominated Architect: Nicholas Turner 6695, ABN 86 064 084 911

CLIENT

Deicorp

Rev	Date	Approved by	Revision Notes
a	07.06.21	JMC	Draft DA for Review
01	25.06.21	JMC	Retail Update
02	06.07.21	JMC	DA Submission

Project Title
Doran Drive
Doran Drive, Castle Hill Castle Hill NSW 2154 Australia

Drawing Title
GA PLANS
Basement 05

Scale	Project No.	Drawn by	North
1:200 @A1, 50%@A3	19068	AM, VT, JL, JE	
Status	Dwg No.	Rev	
DA Submission	DA-110-003	02	

TURNER
Level 7 ONE Oxford Street
Darlinghurst NSW 2010
AUSTRALIA
T +61 2 8668 0000
F +61 2 8668 0088
turnerstudio.com.au

NOTES

THIS DRAWING IS COPYRIGHT © OF TURNER. NO REPRODUCTION WITHOUT PERMISSION. UNLESS NOTED OTHERWISE THIS DRAWING IS NOT FOR CONSTRUCTION. ALL DIMENSIONS AND LEVELS ARE TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF WORK. INFORM TURNER OF ANY DISCREPANCIES FOR CLARIFICATION BEFORE PROCEEDING WITH WORK. DRAWINGS ARE NOT TO BE SCALED. USE ONLY FIGURED DIMENSIONS. REFER TO CONSULTANT DOCUMENTATION FOR FURTHER INFORMATION.DWG, IFC AND BIMX FILES ARE UNCONTROLLED DOCUMENTS AND ARE ISSUED FOR INFORMATION ONLY.

CLIENT

Deicorp

Rev	Date	Approved by	Revision Notes
a	07.06.21	JMC	Draft DA for Review
01	25.06.21	JMC	Retail Update
02	06.07.21	JMC	DA Submission

Project Title

Doran Drive

Doran Drive, Castle Hill Castle Hill NSW 2154 Australia

Drawing Title

GA PLANS

Basement 04

Scale	Project No.	Drawn by	North
1:200 @A1, 50%@A3	19068	AM, VT, JL, JE	
Status	Dwg No.	Rev	
DA Submission	DA-110-004	02	

TURNER
Level 7 ONE Oxford Street
Darlinghurst NSW 2010
AUSTRALIA
T +61 2 8668 0000
F +61 2 8668 0088
turnerstudio.com.au

NOTES

DLCS Quality Endorsed Company ISO 9001:2015, Registration Number 20476
Nominated Architect: Nicholas Turner 6685, ABN 86 094 694 911

CLIENT
Deicorp

Rev	Date	Approved by	Revision Notes
a	07.06.21	JMC	Draft DA for Review
01	25.06.21	JMC	Retail Update
02	06.07.21	JMC	DA Submission

Project Title
Doran Drive
Doran Drive, Castle Hill Castle Hill NSW 2154 Australia

Drawing Title
GA PLANS
Basement 03

Scale: 1:200 @A1, 50%@A3
Status: DA Submission
Project No.: 19068
Dwg No.: DA-110-005
Drawn by: AM, YT, JL, JE
Rev: 02
North

TURNER
Level 7 ONE Oxford Street
Darlinghurst NSW 2010
AUSTRALIA
T +61 2 8668 0000
F +61 2 8668 0088
turnerstudio.com.au

NOTES

DLCS Quality Endorsed Company ISO 9001:2015, Registration Number 20476
Nominated Architect: Nicholas Turner 6685, ABN 86 094 694 911

CLIENT
Deicorp

Rev	Date	Approved by	Revision Notes
a	07.06.21	JMC	Draft DA for Review
01	25.06.21	JMC	Retail Update
02	06.07.21	JMC	DA Submission

Project Title
Doran Drive
Doran Drive, Castle Hill Castle Hill NSW 2154 Australia

Drawing Title
GA PLANS
Basement 02

Scale: 1:200 @A1, 50%@A3
Status: DA Submission
Project No.: 19068
Dwg No.: DA-110-006
Drawn by: AM, YT, JL, JE
Rev: 02
North

TURNER
Level 7 ONE Oxford Street
Darlinghurst NSW 2010
AUSTRALIA
T +61 2 8668 0000
F +61 2 8668 0088
turnerstudio.com.au

NOTES

DLCS Quality Endorsed Company ISO 9001:2015, Registration Number 20476
Nominated Architect: Nicholas Turner 6695, ABN 86 064 084 911

CLIENT
Deicorp

Rev	Date	Approved by	Revision Notes
a	07.06.21	JMC	Draft DA for Review
01	25.06.21	JMC	Retail Update
02	06.07.21	JMC	DA Submission

Project Title
Doran Drive
Doran Drive, Castle Hill Castle Hill NSW 2154 Australia

Drawing Title
GA PLANS
Basement 01

Scale: 1:200 @A1, 50%@A3
Status: DA Submission
Project No.: 19068
Dwg No.: DA-110-007
Drawn by: AM, VT, JL, JE
Rev: 02
North

TURNER
Level 7 ONE Oxford Street
Darlinghurst NSW 2010
AUSTRALIA
T +61 2 8668 0000
F +61 2 8668 0088
turnerstudio.com.au

DE CLAMBE DRIVE

DORAN DRIVE

MANDALA PARADE

Site Boundary

EL 90.180

EL 91.530

Bollard

Ramp 1:100

RL 90.300

Ramp 1:25

Boundary Boundary

REDUCED HEAD HEIGHT

SP PLANT
2300 CLR HH
57.72 m²
88.200

88.200

FS_01

Reduced HH
2300 CLR

LIQUOR
4050CLR HH
199.43 m²

SUPERMARKET
BOH STAFF
196.77 m²

FFL 89.900

Reduced head height
3000 CLR

FS_15

88.950

89.150

COMBINED FIRE HYD & SPRINKLER PUMP
12500x5500 OPTION 1
132.18 m²

MECH SUPPLY PLANT
35.66 m²

FS_02

89.150

RAMP 1:6

10.000

RAMP 1:6

RL 88.150

RAMP 1:6

FFL 89.900

TENANCY
4100 CLR HH
82.41 m²

RL 89.900

Public Art

EL 89.300

Travelator UP from B1-GF

Travelator DOWN from GF-B1

RL 89.900

Awnings above shown dashed

KIOSK
4100 CLR HH
10.08 m²

8x2m
Promo
Area

6m Kiosk Free Zone &
Casula Mall Exclusion Zone

TENANCY
4100 CLR HH
193.04 m²

Hoist Mech Room
12.28 m²

SUPERMARKET
BOH STOCK AREA
436.37 m²

FS_14

SUPERMARKET
CHILLED COOLROOM
22.90 m²

SUPERMARKET
TRADING FLOOR
2,187.06 m²

SUPERMARKET
P/U STAGING AREA
45.95 m²

RL 89.900

FFL 89.900

RL 89.970

Ramp 1:20

Reduced
head height
4000 CLR

SUPERMARKET
BAKERY PREP.
133.32 m²

RL 90.135

RL 90.135

Tank Hatch

RL 89.900

MAIL BOXES

LOBBY B
3630 CLR HH
67.27 m²

TENANCY
3700 CLR HH
46.04 m²

AIRLOCK
Ramp 1:20

RL 90.275

BOH
27.31 m²

SUPERMARKET
COMMS
44.47 m²

RL 90.300

RL 90.275

TENANCY
4100 CLR HH
121.83 m²

SUPERMARKET
DELI PREP
103.18 m²

SUPERMARKET
Deli Coolroom
23.95 m²

Ramp 1:20

RL 90.135

90.450

Pit

Tank
Hatch

RL 90.250

Tank Hatch

OSD tank below
shown dashed

RL 91.250

SW tank below
shown dashed
RL 92.050

FS_03

RL 89.900

FS_12

Planter

SUPERMARKET
SEAFOOD PREP
75.21 m²

SUPERMARKET
SEAFOOD COOLROOM
48.69 m²
Reduced
head height
3650 CLR

SUPERMARKET
PRODUCE PREP AND COOLROOM
60.33 m²
Reduced
head height
4100 CLR

SUPERMARKET
MEAT COOLROOM
31.27 m²

SUPERMARKET
FROZEN FOOD FREEZER
37.79 m²

CSA Above
25.12 m²

CPE
23.89 m²

FS_13

EL 89.900 EL 90.200 EL 90.500 EL 90.700 EL 91.000 EL 91.200 EL 91.750 EL 92.000 RL 92.000 EL 93.020

EL 90.640

Site Boundary

CLIENT
Deicorp

Rev	Date	Approved by	Revision Notes
01	07.06.21	JMC	Draft DA for Review
02	25.06.21	JMC	Retail Update
03	06.07.21	JMC	DA Submission

Project Title
Doran Drive
Doran Drive, Castle Hill Castle Hill NSW 2154 Australia

Drawing Title
GA PLANS
Ground Level

Scale: 1:200 @A1, 50%@A3
Status: DA Submission
Project No.: 19068
Dwg No.: DA-110-008
Drawn by: AM, VT, JL, JE
Rev: 03
North

TURNER
Level 7 ONE Oxford Street
Darlinghurst NSW 2010
AUSTRALIA
T +61 2 8668 0000
F +61 2 8668 0088
turnerstudio.com.au

DE CLAMBE DRIVE

MANDALA PARADE

Site Boundary

Boundary Boundary

Awning Below

Awning Below

Awning Below

Awning Below

EL 92.100
RL 92.100
EL 92.700
EL 93.200
EL 93.900
EL 94.300
RL 94.300
EL 94.600
RL 94.600
RL 92.500
RL 92.450
RL 93.253
RL 93.400
RL 93.900
SIGHT CLR ZONE
RL 92.150
RL 95.250
RL 94.250
RL 93.900
RL 94.089
RL 92.600
RL 92.450
RL 95.400
RL 92.600
Hatch above
RL 88.150
FFL 92.200
FFL 94.250
EL 93.750
EL 94.000
EL 94.250
EL 94.400
RL 94.050
RL 94.000
RL 93.800
RL 93.850
RL 94.400
RL 90.000

LOBBY A
95.89 m²

RAMP 1:20

RAMP 1:20

RAMP 1:6

RAMP 1:6

RAMP 1:6

MAIL BOXES

FS_01

FS_16

FS_15

FS_02

FS_14

FS_12

FS_13

FS_11

FS_10

FS_09

TENANCY
3600 CLR HH
185.01 m²

TENANCY
3600 CLR HH
266.21 m²

TENANCY
3600 CLR HH
345.28 m²

TENANCY
3525 CLR HH
183.78 m²
3400 CLR HH
below drop panels

VOID

VOID

BOH
62.54 m²

BOH Lift

MASTER GAS METER ROOM
8000x3000
45.07 m²

FIRE HYD & FIRE SPRINKLER BOOSTER
6000x4200

FIRE CONTROL ROOM
FCR-SLV

ACCESS/EGRESS
OVR @RL95.400

REMOTE WATER MASTER METERS
5000x4000

Tank 1
31.20 m²

Tank 2
31.20 m²

MECH SUPPLY PLANT
35.66 m²

10,000

Commercial Lobby
55.31 m²

LOBBY D
54.06 m²

MASTER GAS METER
500 CLR HH
21.70 m²

Planter

Intercom

SME
2400x575

SMOKE OPERATED

AEX
2400x575

1
DA-200-10

1
DA-310-10

1
DA-310-07

3
DA-310-07

3
DA-310-10

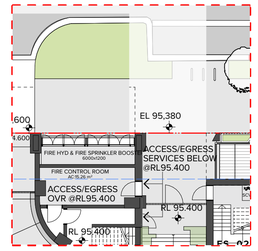
2
DA-310-07

1
DA-310-07

1
DA-310-10

1
DA-200-20

1
DA-200-30



1 Access/Egress Fire Control Room

NOTES

DLCS Quality Endorsed Company ISO 9001:2015, Registration Number 20476
Nominated Architect: Nicholas Turner 6695, ABN 86 094 684 911

CLIENT
Deicorp

Rev	Date	Approved by	Revision Notes
01	07.06.21	JMC	Draft DA for Review
02	25.06.21	JMC	Retail Update
03	06.07.21	JMC	DA Submission

Project Title
Doran Drive
Doran Drive, Castle Hill Castle Hill NSW 2154 Australia

Drawing Title
GA PLANS
Upper Level

Scale: 1:200 @A1, 50%@A3
Status: DA Submission
Project No.: 19068
Dwg No.: DA-110-009
Drawn by: AM, VT, A., JE
Rev: 03
North

TURNER
Level 7 ONE Oxford Street
Darlinghurst NSW 2010
AUSTRALIA
T +61 2 8668 0000
F +61 2 8668 0088
turnerstudio.com.au

NOTES

THIS DRAWING IS COPYRIGHT © OF TURNER. NO REPRODUCTION WITHOUT PERMISSION. UNLESS NOTED OTHERWISE THIS DRAWING IS NOT FOR CONSTRUCTION. ALL DIMENSIONS AND LEVELS ARE TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF WORK. INFORM TURNER OF ANY DISCREPANCIES FOR CLARIFICATION BEFORE PROCEEDING WITH WORK. DRAWINGS ARE NOT TO BE SCALED. USE ONLY FIGURED DIMENSIONS. REFER TO CONSULTANT DOCUMENTATION FOR FURTHER INFORMATION.DWG, IFC AND BIMX FILES ARE UNCONTROLLED DOCUMENTS AND ARE ISSUED FOR INFORMATION ONLY.

DLCS Quality Endorsed Company ISO 9001:2015, Registration Number 20476
Nominated Architect: Nicholas Turner 6695, ABN 86 064 084 911

CLIENT
Deicorp

Rev	Date	Approved by	Revision Notes
01	07.06.21	JMC	Draft DA for Review
02	25.06.21	JMC	Retail Update
03	06.07.21	JMC	DA Submission

Project Title
Doran Drive
Doran Drive, Castle Hill Castle Hill NSW 2154 Australia

Drawing Title
GA PLANS
Level 01

Scale: 1:200 @A1, 50%@A3
Status: DA Submission
Project No.: 19068
Dwg No.: DA-110-010
Drawn by: AM, VT, JL, JE
Rev: 03
North

TURNER
Level 7 ONE Oxford Street
Darlinghurst NSW 2010
AUSTRALIA
T +61 2 8668 0000
F +61 2 8668 0088
turnerstudio.com.au

NOTES

THIS DRAWING IS COPYRIGHT © OF TURNER. NO REPRODUCTION WITHOUT PERMISSION. UNLESS NOTED OTHERWISE THIS DRAWING IS NOT FOR CONSTRUCTION. ALL DIMENSIONS AND LEVELS ARE TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF WORK. INFORM TURNER OF ANY DISCREPANCIES FOR CLARIFICATION BEFORE PROCEEDING WITH WORK. DRAWINGS ARE NOT TO BE SCALED. USE ONLY FIGURED DIMENSIONS. REFER TO CONSULTANT DOCUMENTATION FOR FURTHER INFORMATION.DWG, IFC AND BIMX FILES ARE UNCONTROLLED DOCUMENTS AND ARE ISSUED FOR INFORMATION ONLY.

DLCS Quality Endorsed Company: ISO 9001:2015, Registration Number 20476
Nominated Architect: Nicholas Turner 6695, ABN 86 064 084 911

CLIENT
Deicorp

Rev	Date	Approved by	Revision Notes
01	07.06.21	JMC	Draft DA for Review
02	18.06.21	JMC	Draft DA for Review
03	25.06.21	JMC	Retail Update
04	06.07.21	JMC	DA Submission

Project Title
Doran Drive
Doran Drive, Castle Hill Castle Hill NSW 2154 Australia

Drawing Title
GA PLANS
Level 02

Scale: 1:200 @A1, 50%@A3
Status: DA Submission
Project No.: 19068
Dwg No.: DA-110-020
Drawn by: AM, VT, JL, JE
Rev: 04
North

TURNER
Level 7 ONE Oxford Street
Darlinghurst NSW 2010
AUSTRALIA
T +61 2 8668 0000
F +61 2 8668 0088
turnerstudio.com.au

Legend:

- BAL1 — Semi-frameless full height clear glass balustrade system with 150mm wide top rail. Framing System, aluminium powder coat finish. Colour to match PCF1
- BAL2 — Vertical 10 x 100 Steel Balustrade. Powder coat finish, colour and finish to match PCF1
- BW1 — Brick Work Type 1 Light Grey Brick, Pgh Bricks "Dark-and-stormy, lightning" or Similar Stretcher Bond
- BW2 — Brick Work Type 2 Light Grey Brick, Pgh Bricks "Dark-and-stormy, lightning" or Similar Monk Bond Protruding Bricks
- BW3 — Brick Work Type 2 Red-blue Brick, Austral Bricks "Bowral Blue" or Similar, Stretcher Bond
- BW4 — Brick Work Type 3 Red-blue Brick, Austral Bricks "Bowral Blue" or Similar, Soldier Bond
- BW5 — Brick Work Type 4 Pink Brick, Austral Bricks "Allure Capri White" or Similar, Stretcher Bond
- BW6 — Brick Work Type 5 Pink Brick, Austral Bricks "Allure Capri White" or Similar, Soldier Bond
- BW7 — Brick Work Type 6 Light Orange, Austral Bricks "Simmental Silver" or Similar, Stretcher Bond
- BW8 — Brick Work Type 7 Orange Brick, Austral Bricks "UrbanOneLathe" or Similar, Stretcher Bond
- BW9 — Brick Work Type 9 Green Glazed Brick, Pyrolave "Oregon" or Similar, Stretcher Bond
- COF1 — Off form Concrete with natural finish. Penetrating Clear matt sealer over
- COF2 — Off form Concrete with Charcoal finish. Penetrating Clear matt sealer over
- COF3 — Off form Concrete with White finish. Penetrating Clear matt sealer over
- CPC1 — Smooth Finish Concrete precast wall element. Pigmented white
- CPC2 — Decorative profile finish concrete precast spandrel, finish to match CCF1
- CPC3 — Smooth finish concrete precast Wall Element, Dark Grey finish
- CPC4 — Smooth finish concrete precast Wall Element, Natural finish
- CPC5 — Smooth finish concrete precast Wall Element, Charcoal finish
- CPC6 — Decorative profile finish concrete precast spandrel, pigmented white
- CLD1 — Profile Metal Cladding colour to match PCF2
- PCF1 — Powder coat Finish: Colour to match Dulux " Domino" or Similar
- PCF2 — Powder coat Finish: Colour to match Dulux " Eternity Gold Pearl" or Similar
- PCF3 — Powder coat finish: Colour to match Dulux "Dulux Natural White" or Similar
- PCF4 — Powder coat finish: Colour to match Dulux "Dulux Eternity Pewter Pearl" or Similar
- SC1 — Vertical steel screen, Detailing, material and finish to match BAL2
- SC2 — Horizontal Aluminium Louver screen, finish to match PCF1
- SC3 — Horizontal Aluminium Louver screen, finish to match PCF2
- SC4 — Vertical Aluminium Batten screen, finish to match PCF2
- SC5 — Horizontal Aluminium Louver screen, finish to match PCF4
- GC1 — Glass clear, Framing System, aluminium, Powder coat finish, Framing colour to match PCF1
- GC2 — Glass clear, Framing System, aluminium, Powder coat finish, Framing colour to match PCF2
- GC3 — Glass clear, Framing System, aluminium, Powder coat finish, Framing colour to match PCF4
- GC4 — Colour-back glass panel Framing System, aluminium, Powder coat finish, Framing colour to match PCF2, Colour back panel to match PF1
- GC5 — Colour-back glass panel Framing System, aluminium, Powder coat finish, Framing colour to match PCF1, Colour back panel to match PF2
- GC6 — Colour-back glass panel Framing System, aluminium, Powder coat finish, Framing colour to match PCF1, Colour back panel to match PF3
- GC7 — Colour-back glass panel Framing System, aluminium, Powder coat finish, Framing colour to match PCF1, Colour back panel to match PF1
- GC8 — Glass clear Louvers, Framing System, aluminium, Powder coat finish, Framing colour to match PCF1
- GC9 — Glass clear Curtain Wall System
- PF1 — Paint finish Dark grey Colour to match Dulux "Domino" or Similar
- PF2 — Paint Finish: Colour to match Dulux "Eternity Gold Pearl" or Similar
- PF3 — Paint finish White Colour to match Dulux "Dulux Natural White" or Similar
- SG1 — External Sign - The corner of Doran Drive and Mandala Parade
- SG2 — External Sign - The corner of Doran Drive and De Clambe Drive
- SG3 — External Sign - The corner of Andalusian Way and De Clambe Drive
- SG5 — Mall/Car park directional :
- SG6 — Car park Entry/Exit Signag
- SG7 — External Sign - Online Pic Signage

NOTES

CLIENT

Deicorp

Rev	Date	Approved by	Revision Notes
01	07.06.21	JMC	Draft DA for Review
02	01.07.21	JMC	For Coordination
03	06.07.21	JMC	DA Submission

Project Title
Doran Drive
Doran Drive, Castle Hill Castle Hill NSW 2154 Australia

Drawing Title
GA ELEVATIONS
North Elevation

Scale: 1:200 @A1, 50%@A3
Status: DA Submission
Project No.: 19068
Dwg No.: DA-210-101
Drawn by: AG, VT, JB
Rev: 03

TURNER
Level 7 ONE Oxford Street
Darlinghurst NSW 2010
AUSTRALIA
T +61 2 8668 0000
F +61 2 8668 0088
turnerstudio.com.au

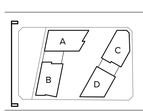
Legend:

- BAL1 — Semi-frameless full height clear glass balustrade system with 150mm wide top rail. Framing System, aluminium powder coat finish. Colour to match PCF1
- BAL2 — Vertical 10 x 100 Steel Balustrade. Powder coat finish, colour and finish to match PCF1
- BW1 — Brick Work Type 1 Light Grey Brick, Pgh Bricks "Dark-and-stormy, lightning" or Similar Stretcher Bond
- BW2 — Brick Work Type 2 Light Grey Brick, Pgh Bricks "Dark-and-stormy, lightning" or Similar Monk Bond Protruding Bricks
- BW3 — Brick Work Type 2 Red-blue Brick, Austral Bricks "Bowral Blue" or Similar, Stretcher Bond
- BW4 — Brick Work Type 3 Red-blue Brick, Austral Bricks "Bowral Blue" or Similar, Soldier Bond
- BW5 — Brick Work Type 4 Pink Brick, Austral Bricks "Allure Capri White" or Similar, Stretcher Bond
- BW6 — Brick Work Type 5 Pink Brick, Austral Bricks "Allure Capri White" or Similar, Soldier Bond
- BW7 — Brick Work Type 6 Light Orange, Austral Bricks "Simmental Silver" or Similar, Stretcher Bond
- BW8 — Brick Work Type 7 Orange Brick, Austral Bricks "UrbanOneLatte" or Similar, Stretcher Bond
- BW9 — Brick Work Type 9 Green Glazed Brick, Pyrolave "Oregon" or Similar, Stretcher Bond
- COF1 — Off form Concrete with natural finish. Penetrating Clear matt sealer over
- COF2 — Off form Concrete with Charcoal finish. Penetrating Clear matt sealer over
- COF3 — Off form Concrete with White finish. Penetrating Clear matt sealer over
- CPC1 — Smooth Finish Concrete precast wall element. Pigmented white
- CPC2 — Decorative profile finish concrete precast spandrel, finish to match COF1
- CPC3 — Smooth finish concrete precast Wall Element, Dark Grey finish
- CPC4 — Smooth finish concrete precast Wall Element, Natural finish
- CPC5 — Smooth finish concrete precast Wall Element, Charcoal finish
- CPC6 — Decorative profile finish concrete precast spandrel, pigmented white
- CLD1 — Profile Metal Cladding colour to match PCF2
- PCF1 — Powder coat Finish: Colour to match Dulux " Domino" or Similar
- PCF2 — Powder coat Finish: Colour to match Dulux " Eternity Gold Pearl" or Similar
- PCF3 — Powder coat finish: Colour to match Dulux "Dulux Natural White" or Similar
- PCF4 — Powder coat finish: Colour to match Dulux "Dulux Eternity Pewter Pearl" or Similar
- SC1 — Vertical steel screen, Detailing, material and finish to match BAL2
- SC2 — Horizontal Aluminium Louver screen, finish to match PCF1
- SC3 — Horizontal Aluminium Louver screen, finish to match PCF2
- SC4 — Vertical Aluminium Batten screen, finish to match PCF2
- SC5 — Horizontal Aluminium Louver screen, finish to match PCF4
- GC1 — Glass clear, Framing System, aluminium, Powder coat finish, Framing colour to match PCF1
- GC2 — Glass clear, Framing System, aluminium, Powder coat finish, Framing colour to match PCF2
- GC3 — Glass clear, Framing System, aluminium, Powder coat finish, Framing colour to match PCF4
- GC4 — Colour-back glass panel Framing System, aluminium, Powder coat finish, Framing colour to match PCF2, Colour back panel to match PF1
- GC5 — Colour-back glass panel Framing System, aluminium, Powder coat finish, Framing colour to match PCF1, Colour back panel to match PF2
- GC6 — Colour-back glass panel Framing System, aluminium, Powder coat finish, Framing colour to match PCF1, Colour back panel to match PF3
- GC7 — Colour-back glass panel Framing System, aluminium, Powder coat finish, Framing colour to match PCF1, Colour back panel to match PF1
- GC8 — Glass clear Louvers, Framing System, aluminium, Powder coat finish, Framing colour to match PCF1
- GC9 — Glass clear Curtain Wall System
- PF1 — Paint finish Dark grey Colour to match Dulux "Domino" or Similar
- PF2 — Paint Finish: Colour to match Dulux "Eternity Gold Pearl" or Similar
- PF3 — Paint finish White Colour to match Dulux "Dulux Natural White" or Similar
- SG1 — External Sign - The corner of Doran Drive and Mandala Parade
- SG2 — External Sign - The corner of Doran Drive and De Clambe Drive
- SG3 — External Sign - The corner of Andalusian Way and De Clambe Drive
- SG5 — Mall/Car park directional :
- SG6 — Car park Entry/Exit Signag
- SG7 — External Sign - Online Pic Signage

NOTES

DLCS Quality Endorsed Company ISO 9001:2015, Registration Number 20476
Nominated Architect: Nicholas Turner 6695, ABN 86 064 084 911

CLIENT
Deicorp



Rev	Date	Approved by	Revision Notes
01	07.06.21	JMC	Draft DA for Review
02	01.07.21	JMC	For Coordination
03	06.07.21	JMC	DA Submission

Project Title
Doran Drive
Doran Drive, Castle Hill Castle Hill NSW 2154 Australia

Drawing Title
GA ELEVATIONS
West Elevation

Scale: 1:200 @A1, 50%@A3
Project No.: 19068
Drawn by: AG, VT, JB
Status: DA Submission
Dwg No.: DA-210-201
Rev: 03

TURNER
Level 7 ONE Oxford Street
Darlinghurst NSW 2010
AUSTRALIA
T +61 2 8668 0000
F +61 2 8668 0088
turnerstudio.com.au

Legend:

- BAL1 — Semi-frameless full height clear glass balustrade system with 150mm wide top rail. Framing System, aluminium powder coat finish. Colour to match PCF1
- BAL2 — Vertical 10 x 100 Steel Balustrade. Powder coat finish, colour and finish to match PCF1
- BW1 — Brick Work Type 1 Light Grey Brick, Pgh Bricks "Dark-and-stormy, lightning" or Similar Stretcher Bond
- BW2 — Brick Work Type 2 Light Grey Brick, Pgh Bricks "Dark-and-stormy, lightning" or Similar Monk Bond Protruding Bricks
- BW3 — Brick Work Type 2 Red-blue Brick, Austral Bricks "Bowral Blue" or Similar, Stretcher Bond
- BW4 — Brick Work Type 3 Red-blue Brick, Austral Bricks "Bowral Blue" or Similar, Soldier Bond
- BW5 — Brick Work Type 4 Pink Brick, Austral Bricks "Allure Capri White" or Similar, Stretcher Bond
- BW6 — Brick Work Type 5 Pink Brick, Austral Bricks "Allure Capri White" or Similar, Soldier Bond
- BW7 — Brick Work Type 6 Light Orange, Austral Bricks "Simmental Silver" or Similar, Stretcher Bond
- BW8 — Brick Work Type 7 Orange Brick, Austral Bricks "UrbanOneLatte" or Similar, Stretcher Bond
- BW9 — Brick Work Type 9 Green Glazed Brick, Pyrolave "Oregon" or Similar, Stretcher Bond
- COF1 — Off form Concrete with natural finish. Penetrating Clear matt sealer over
- COF2 — Off form Concrete with Charcoal finish. Penetrating Clear matt sealer over
- COF3 — Off form Concrete with White finish. Penetrating Clear matt sealer over
- CPC1 — Smooth Finish Concrete precast wall element. Pigmented white
- CPC2 — Decorative profile finish concrete precast spandrel, finish to match COF1
- CPC3 — Smooth finish concrete precast Wall Element, Dark Grey finish
- CPC4 — Smooth finish concrete precast Wall Element, Natural finish
- CPC5 — Smooth finish concrete precast Wall Element, Charcoal finish
- CPC6 — Decorative profile finish concrete precast spandrel, pigmented white
- CLD1 — Profile Metal Cladding colour to match PCF2
- PCF1 — Powder coat Finish: Colour to match Dulux " Domino" or Similar
- PCF2 — Powder coat Finish: Colour to match Dulux " Eternity Gold Pearl" or Similar
- PCF3 — Powder coat finish: Colour to match Dulux "Dulux Natural White" or Similar
- PCF4 — Powder coat finish: Colour to match Dulux "Dulux Eternity Pewter Pearl" or Similar
- SC1 — Vertical steel screen, Detailing, material and finish to match BAL2
- SC2 — Horizontal Aluminium Louver screen, finish to match PCF1
- SC3 — Horizontal Aluminium Louver screen, finish to match PCF2
- SC4 — Vertical Aluminium Batten screen, finish to match PCF2
- SC5 — Horizontal Aluminium Louver screen, finish to match PCF4
- GC1 — Glass clear, Framing System, aluminium, Powder coat finish, Framing colour to match PCF1
- GC2 — Glass clear, Framing System, aluminium, Powder coat finish, Framing colour to match PCF2
- GC3 — Glass clear, Framing System, aluminium, Powder coat finish, Framing colour to match PCF4
- GC4 — Colour-back glass panel Framing System, aluminium, Powder coat finish, Framing colour to match PCF2, Colour back panel to match PF1
- GC5 — Colour-back glass panel Framing System, aluminium, Powder coat finish, Framing colour to match PCF1, Colour back panel to match PF2
- GC6 — Colour-back glass panel Framing System, aluminium, Powder coat finish, Framing colour to match PCF1, Colour back panel to match PF3
- GC7 — Colour-back glass panel Framing System, aluminium, Powder coat finish, Framing colour to match PCF1, Colour back panel to match PF1
- GC8 — Glass clear Louvers, Framing System, aluminium, Powder coat finish, Framing colour to match PCF1
- GC9 — Glass clear Curtain Wall System
- PF1 — Paint finish Dark grey Colour to match Dulux "Domino" or Similar
- PF2 — Paint Finish: Colour to match Dulux "Eternity Gold Pearl" or Similar
- PF3 — Paint finish White Colour to match Dulux "Dulux Natural White" or Similar
- SG1 — External Sign - The corner of Doran Drive and Mandala Parade
- SG2 — External Sign - The corner of Doran Drive and De Clambe Drive
- SG3 — External Sign - The corner of Andalusian Way and De Clambe Drive
- SG5 — Mall/Car park directional :
- SG6 — Car park Entry/Exit Signag
- SG7 — External Sign - Online Pic Signage

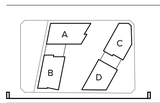
NOTES

THIS DRAWING IS COPYRIGHT © OF TURNER. NO REPRODUCTION WITHOUT PERMISSION. UNLESS NOTED OTHERWISE THIS DRAWING IS NOT FOR CONSTRUCTION. ALL DIMENSIONS AND LEVELS ARE TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF WORK. INFORM TURNER OF ANY DISCREPANCIES FOR CLARIFICATION BEFORE PROCEEDING WITH WORK. DRAWINGS ARE NOT TO BE SCALED. USE ONLY FIGURED DIMENSIONS. REFER TO CONSULTANT DOCUMENTATION FOR FURTHER INFORMATION.DWG, IFC AND BIMX FILES ARE UNCONTROLLED DOCUMENTS AND ARE ISSUED FOR INFORMATION ONLY.

DLCS Quality Endorsed Company: ISO 9001:2015, Registration Number 20476
Nominated Architect: Nicholas Turner 6665, ABN 86 064 084 911

CLIENT

Deicorp



Rev	Date	Approved by	Revision Notes
01	07.06.21	JMC	Draft DA for Review
02	01.07.21	JMC	For Coordination
03	06.07.21	JMC	DA Submission

Project Title
Doran Drive
Doran Drive, Castle Hill Castle Hill NSW 2154 Australia

Drawing Title
GA ELEVATIONS
South Elevation

Scale: 1:200 @A1, 50%@A3
Status: DA Submission
Project No.: 19068
Dwg No.: DA-210-301
Drawn by: AG, VT, JB
Rev: 03

TURNER
Level 7 ONE Oxford Street
Darlinghurst NSW 2010
AUSTRALIA
T +61 2 8668 0000
F +61 2 8668 0088
turnerstudio.com.au

Legend:

- BAL1 — Semi-frameless full height clear glass balustrade system with 150mm wide top rail. Framing System, aluminium powder coat finish. Colour to match PCF1
- BAL2 — Vertical 10 x 100 Steel Balustrade. Powder coat finish, colour and finish to match PCF1
- BW1 — Brick Work Type 1 Light Grey Brick, Pgh Bricks "Dark-and-stormy, lightning" or Similar Stretcher Bond
- BW2 — Brick Work Type 2 Light Grey Brick, Pgh Bricks "Dark-and-stormy, lightning" or Similar Monk Bond Protruding Bricks
- BW3 — Brick Work Type 2 Red-blue Brick, Austral Bricks "Bowral Blue" or Similar, Stretcher Bond
- BW4 — Brick Work Type 3 Red-blue Brick, Austral Bricks "Bowral Blue" or Similar, Soldier Bond
- BW5 — Brick Work Type 4 Pink Brick, Austral Bricks "Allure Capri White" or Similar, Stretcher Bond
- BW6 — Brick Work Type 5 Pink Brick, Austral Bricks "Allure Capri White" or Similar, Soldier Bond
- BW7 — Brick Work Type 6 Light Orange, Austral Bricks "Simmental Silver" or Similar, Stretcher Bond
- BW8 — Brick Work Type 7 Orange Brick, Austral Bricks "UrbanOneLatte" or Similar, Stretcher Bond
- BW9 — Brick Work Type 9 Green Glazed Brick, Pyrolave "Oregon" or Similar, Stretcher Bond
- COF1 — Off form Concrete with natural finish. Penetrating Clear matt sealer over
- COF2 — Off form Concrete with Charcoal finish. Penetrating Clear matt sealer over
- COF3 — Off form Concrete with White finish. Penetrating Clear matt sealer over
- CPC1 — Smooth Finish Concrete precast wall element. Pigmented white
- CPC2 — Decorative profile finish concrete precast spandrel, finish to match COF1
- CPC3 — Smooth finish concrete precast Wall Element, Dark Grey finish
- CPC4 — Smooth finish concrete precast Wall Element, Natural finish
- CPC5 — Smooth finish concrete precast Wall Element, Charcoal finish
- CPC6 — Decorative profile finish concrete precast spandrel, pigmented white
- CLD1 — Profile Metal Cladding colour to match PCF2
- PCF1 — Powder coat Finish: Colour to match Dulux " Domino" or Similar
- PCF2 — Powder coat Finish: Colour to match Dulux " Eternity Gold Pearl" or Similar
- PCF3 — Powder coat finish: Colour to match Dulux "Dulux Natural White" or Similar
- PCF4 — Powder coat finish: Colour to match Dulux "Dulux Eternity Pewter Pearl" or Similar
- SC1 — Vertical steel screen, Detailing, material and finish to match BAL2
- SC2 — Horizontal Aluminium Louver screen, finish to match PCF1
- SC3 — Horizontal Aluminium Louver screen, finish to match PCF2
- SC4 — Vertical Aluminium Batten screen, finish to match PCF2
- SC5 — Horizontal Aluminium Louver screen, finish to match PCF4
- GC1 — Glass clear, Framing System, aluminium, Powder coat finish, Framing colour to match PCF1
- GC2 — Glass clear, Framing System, aluminium, Powder coat finish, Framing colour to match PCF2
- GC3 — Glass clear, Framing System, aluminium, Powder coat finish, Framing colour to match PCF4
- GC4 — Colour-back glass panel Framing System, aluminium, Powder coat finish, Framing colour to match PCF2. Colour back panel to match PF1
- GC5 — Colour-back glass panel Framing System, aluminium, Powder coat finish, Framing colour to match PCF1. Colour back panel to match PF2
- GC6 — Colour-back glass panel Framing System, aluminium, Powder coat finish, Framing colour to match PCF1. Colour back panel to match PF3
- GC7 — Colour-back glass panel Framing System, aluminium, Powder coat finish, Framing colour to match PCF1. Colour back panel to match PF1
- GC8 — Glass clear Louvers, Framing System, aluminium, Powder coat finish, Framing colour to match PCF1
- GC9 — Glass clear Curtain Wall System
- PF1 — Paint finish Dark grey Colour to match Dulux "Domino" or Similar
- PF2 — Paint Finish: Colour to match Dulux "Eternity Gold Pearl" or Similar
- PF3 — Paint finish White Colour to match Dulux "Dulux Natural White" or Similar
- SG1 — External Sign - The corner of Doran Drive and Mandala Parade
- SG2 — External Sign - The corner of Doran Drive and De Clambe Drive
- SG3 — External Sign - The corner of Andalusian Way and De Clambe Drive
- SG5 — Mall/Car park directional
- SG6 — Car park Entry/Exit Signa
- SG7 — External Sign - Online Pic Signage

NOTES

CLIENT
Deicorp

Rev	Date	Approved by	Revision Notes
01	07.06.21	JMC	Draft DA for Review
02	01.07.21	JMC	For Coordination
03	06.07.21	JMC	DA Submission

Project Title
Doran Drive
Doran Drive, Castle Hill Castle Hill NSW 2154 Australia

Drawing Title
GA ELEVATIONS
East Elevation

Scale: 1:200 @A1, 50%@A3
Project No.: 19068
Drawn by: AG, VT, JB
Status: DA Submission
Dwg No.: DA-210-401
Rev: 03

TURNER
Level 7 ONE Oxford Street
Darlinghurst NSW 2010
AUSTRALIA
T +61 2 8668 0000
F +61 2 8668 0088
turnerstudio.com.au

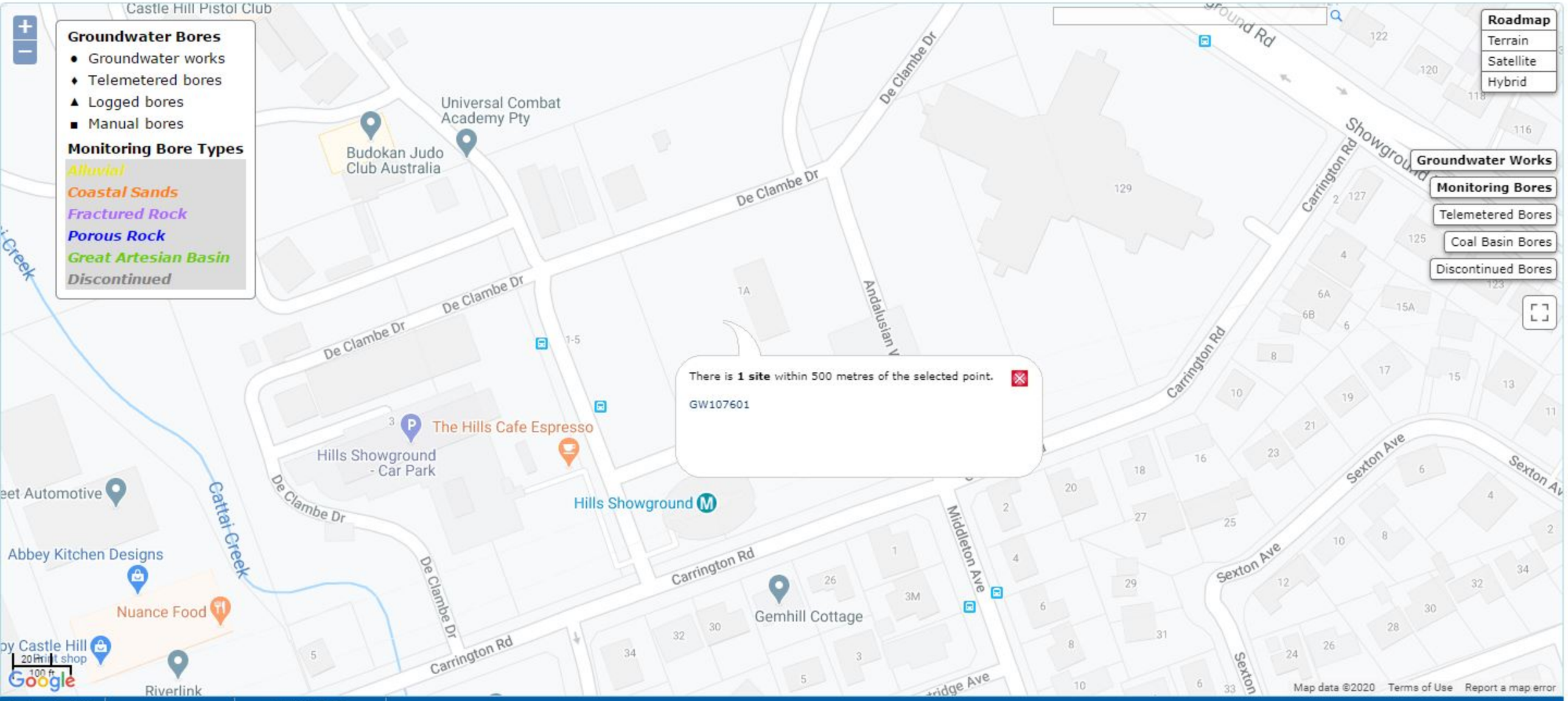
Appendix D - Groundwater Bore Search

GREATER SYDNEY REGION

bookmark this page

All data times are Eastern Standard Time

Map



Scale = 1 : 1693 | 166021, 0, 31

WaterNSW
Work Summary

GW107601

Licence: 10BL160929 **Licence Status:** ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status:
Construct.Method:
Owner Type:

Commenced Date: **Final Depth:** 35.34 m
Completion Date: 24/10/2002 **Drilled Depth:** 35.34 m

Contractor Name: JEFFERY & KATAUSKAS PTY LTD
Driller: Yoon Fook Chin
Assistant Driller:

Property: CASTLE HILL SHOWGROUND NSW
GWMA: -
GW Zone: -
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	CASTLE HI	199 752020
Licensed:	CUMBERLAND	CASTLE HILL	PART LOT 199//752020

Region: 10 - Sydney South Coast **CMA Map:**
River Basin: - Unknown **Grid Zone:** **Scale:**
Area/District:

Elevation: 0.00 m (A.H.D.) **Northing:** 6266332.000 **Latitude:** 33°43'35.8"S
Elevation Source: Unknown **Easting:** 313192.000 **Longitude:** 150°59'01.4"E

GS Map: - **MGA Zone:** 56 **Coordinate Source:** Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	35.34	70			Unknown
1	1	Casing	P.V.C.	0.00	35.34	50			Seated on Bottom, Glued
1	1	Opening	Slots - Horizontal	0.00	35.34	50		0	PVC, SL: 0.5mm

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.20	1.20	TOPSOIL	Topsoil	
1.20	35.34	34.14	SANDSTONE	Sandstone	

***** End of GW107601 *****

Appendix E - Site Photography

Photograph 1: View of the eastern portion of the site.

Photograph 2: South-western corner of the site.

Photograph 3: Western boundary of the site.

Photograph 4: Southern boundary of the site.

Photograph 5: Northern boundary of the site.

Photograph 6: Doran Drive (west) and Mandala Parade (south).

Appendix F - Test Pit and Borehole Logs

BOREHOLE: BH1

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Mandala Parade, Castle Hill NSW			Date Started	8/7/20
Position	Refer to Figure 2	Surface RL	96.50 m	Date Completed	9/7/20
Job No.	E24724.E02	Contractor	Hagstrom	Logged	DS Date:8/7/20
Client	Deicorp Pty Ltd	Drill Rig	Hydrapower Scout V (DR011)	Checked	SR Date: 24/8/20
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	-	GWNE	0	96.50	BH1_0.1-0.2 ES			-	FILL: Silty CLAY; low plasticity, pale grey to red-brown, with fine to coarse sandstone, igneous gravel and fine to medium grained sand, no odour.	M	-	FILL
				0.60								
			1	95.90	BH1_0.7-0.8 ES			CI	Silty CLAY; medium plasticity, pale grey, with fine to coarse ironstone gravel and fine to medium grained sand, grading to extremely weathered material, no odour.	M (<PL)	H	RESIDUAL SOIL
					BH1_1.4-1.5 ES							
			2	*2.10*								
	M-H			94.40				-	SANDSTONE; fine to medium grained, pale grey and orange-brown, low to medium strength, slightly to distinctly weathered, no odour.	-	-	BEDROCK
			3	*3.00*					Borehole Terminated at 3.00 mBGL; Target Depth Reached.			
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH2

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Mandala Parade, Castle Hill NSW			Date Started	9/7/20
Position	Refer to Figure 2	Surface RL	95.10 m	Date Completed	10/7/20
Job No.	E24724.E02	Contractor	Hagstrom	Logged	DS Date:9/7/20
Client	Deicorp Pty Ltd	Drill Rig	Hydrapower Scout V (DR011)	Checked	SR Date: 24/8/20
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	-	GWNE	0	95.10	BH2_0.1-0.2 ES			-	FILL: Silty CLAY; low plasticity, dark brown, with fine to coarse, sub-rounded to angular sandstone and igneous gravel and fine to medium grained sand, no odour.	M	-	FILL
					BH2_0.7-0.8 ES							
				1.00								
			1	94.10					From 1.0 m, with weak odour.			
					BH2_1.2-1.3 ES							
				1.40								
				93.70				CI	Silty CLAY; medium plasticity, pale grey to red-brown, trace fine to medium ironstone gravels and rootlets, with weak odour.			RESIDUAL SOIL
					BH2_1.6-1.7 ES							
				2.00	BH2_1.9-2.0 ES							
			2	93.10					From 2.0 m, no odour.	M (<PL)	VSt	
					BH2_2.4-2.5 ES							
				3.00	BH2_2.9-3.0 ES							
			3	92.10				CL	Sandy CLAY; low plasticity, pale grey, grading to extremely weathered sandstone, no odour.	M (<PL)	H	BEDROCK
				3.30								
	M-H			91.80				-	SANDSTONE; fine to medium grained, pale grey and orange-brown, low to medium strength, slightly to distinctly weathered, no odour.	-	-	
				3.95								
			4						Borehole Terminated at 3.95 mBGL; Target Depth Reached.			
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH3M

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Mandala Parade, Castle Hill NSW			Date Started	14/7/20
Position	Refer to Figure 2	Surface RL	91.00 m	Date Completed	14/7/20
Job No.	E24724.E02	Contractor	Hagstrom	Logged DS	Date:14/7/20
Client	Deicorp Pty Ltd	Drill Rig	Hydrapower Scout V (DR011)	Checked SR	Date: 24/8/20
		Inclination	-90°		

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	-	14/7/20	0	91.00	BH3M_0.1-0.2 ES			-	FILL: Silty CLAY; low plasticity, brown-dark grey to dark brown, with fine to coarse grained sand, fine to coarse, sub-rounded to angular sandstone and igneous gravel, trace rubber fragments, no odour.	M	-	FILL
			1		BH3M_0.7-0.8 ES							
					BH3M_1.2-1.3 ES							
					BH3M_1.7-1.8 ES							
			2		BH3M_2.2-2.3 ES							
				2.60								
				88.40				C	Sandy CLAY; fine to medium grained, pale grey and orange-brown, grading to extremely weathered sandstone, no odour.	M	VSt	RESIDUAL SOIL
				2.90	BH3M_2.8-2.9 ES				Borehole Terminated at 2.90 mBGL; T/C Bit Refusal on Sandstone.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH3M-a

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Mandala Parade, Castle Hill NSW			Date Started	21/7/20
Position	Refer to Figure 2			Date Completed	22/7/20
Job No.	E24724.E02	Contractor	Hagstrom	Logged LW	Date:21/7/20
Client	Deicorp Pty Ltd	Drill Rig	Hydrapower Scout V (DR011)	Checked SR	Date: 24/8/20
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	PIEZOMETER DETAILS ID Static Water Level BH3M-a
AD/T	-	21/7/20	0					-	FILL: Silty CLAY; low plasticity, brown-dark grey to dark brown, with fine to coarse grained sand, fine to coarse, sub-rounded to angular sandstone and igneous gravel, trace rubber fragments, no odour.	M	-	BH3M-a
			1									Grout
			2	2.40								
				2.50				C	Sandy CLAY; fine to medium grained, pale grey and orange-brown, grading to extremely weathered sandstone, no odour.	M	VSt	Bentonite
			3						Borehole Terminated at 2.50 mBGL; T/C Bit Refusal on Sandstone.			uPVC 50 mm Casing
			4									Sand
			5									uPVC 50 mm Screen
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH4M

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Mandala Parade, Castle Hill NSW			Date Started	14/7/20
Position	Refer to Figure 2	Surface RL	98.00 m	Date Completed	14/7/20
Job No.	E24724.E02	Contractor	Geosense Drilling	Logged SL	Date:14/7/20
Client	Deicorp Pty Ltd	Drill Rig	Hanjin DB8	Checked SR	Date: 24/8/20
		Inclination	-90°		

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	L	GWNE	0	98.00	BH4M_0.3-0.5 ES			-	FILL: Silty SAND; fine to medium grained, brown, with low plasticity clay and concrete fragments, no odour.			FILL
			1	1.10	BH4M_0.9-1.0 ES					-	-	
				96.90					Fom 1.1 m, orange-brown, with medium sandstone gravel, no odour.			
				1.60	BH4M_1.4-1.5 ES							
				96.40					From 1.6 m, grey, no odour.			
	H		2	2.00	BH4M_1.9-2.0 ES							
				96.00				-	FILL: Silty CLAY; medium plasticity, red mottled grey-brown, with fine to medium, sub-angular to sub-rounded gravel, no odour.			
					BH4M_2.4-2.5 ES							
	L		3		BH4M_2.9-3.0 ES					-	-	
			4	4.00	BH4M_3.9-4.0 ES							
				94.00				Cl	Silty CLAY; medium plasticity, red mottled grey, no odour.	M (<PL)	VSt - H	RESIDUAL SOIL
	M			4.60	BH4M_4.4-4.5 ES							
				93.40	BH4M_4.6-4.7 ES			C	Sandy CLAY; fine to medium grained, pale grey and orange-brown, grading to extremely weathered sandstone, no odour.	D	VSt - H	
			5	5.00	BH4M_4.9-5.0 ES							
									Borehole Terminated at 5.00 mBGL; T/C Bit Refusal.			
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH4M-a

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Mandala Parade, Castle Hill NSW			Date Started	21/7/20
Position	Refer to Figure 2			Date Completed	22/7/20
Job No.	E24724.E02	Contractor	Hagstrom	Logged LW	Date:21/7/20
Client	Deicorp Pty Ltd	Drill Rig	Hydrapower Scout V (DR011)	Checked SR	Date: 24/8/20
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	PIEZOMETER DETAILS ID Static Water Level BH4M-a
AD/T	L	GWNE	0					-	FILL: Silty SAND; fine to medium grained, brown, with low plasticity clay and concrete fragments, no odour.	-	-	BH4M-a
			1	1.10					Fom 1.1 m, orange-brown, with medium sandstone gravel, no odour.			
				1.60					From 1.6 m, grey, no odour.			
	H		2	2.00				-	FILL: Silty CLAY; medium plasticity, red mottled grey-brown, with fine to medium, sub-angular to sub-rounded gravel, no odour.	-	-	Grout
	L		3									
			4	4.00				CI	Silty CLAY; medium plasticity, red mottled grey, no odour.	M (<PL)	VSt - H	Bentonite
	M			4.40				C	Sandy CLAY; fine to medium grained, pale grey and orange-brown, grading to extremely weathered sandstone, no odour.	D	VSt - H	uPVC 50 mm Casing
			5						Borehole Terminated at 4.50 mBGL; T/C Bit Refusal.			
			6									uPVC 50 mm Screen Sand
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH5M

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Mandala Parade, Castle Hill NSW			Date Started	16/7/20
Position	Refer to Figure 2	Surface RL	94.10 m	Date Completed	16/7/20
Job No.	E24724.E02	Contractor	Geosense Drilling	Logged SL	Date:16/7/20
Client	Deicorp Pty Ltd	Drill Rig	Hanjin DB8	Checked SR	Date: 24/8/20
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	PIEZOMETER DETAILS ID Static Water Level BH5M
AD/T	L	GWNE	0	94.10	BH5M_0.1-0.2 ES			-	FILL: Gravelly SAND; fine to medium grained, brown, fine to medium, sub-angular to sub-rounded garvels, with clay, plastic fragments, no odour.	-	-	Bentonite
			1		BH5M_0.5-0.6 ES							
					BH5M_1.0-1.1 ES							
					BH5M_1.5-1.6 ES							
				1.80 92.30	BH5M_1.8-1.9 ES			CI	Silty CLAY; medium plasticity, red-brown, no odour.	M <PL	VSt	
			2	92.10	BH5M_1.9-2.0 ES				From 1.9 m, grey, grading to extremely weathered sandstone, no odour.			uPVC 50 mm Casing
									Borehole Terminated at 2.00 mBGL; T/C Bit Refusal.			uPVC 50 mm Screen
			3									Sand
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH6

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Mandala Parade, Castle Hill NSW			Date Started	20/7/20
Position	Refer to Figure 2	Surface RL	90.80 m	Date Completed	20/7/20
Job No.	E24724.E02	Contractor	Geosense Drilling	Logged SL	Date:20/7/20
Client	Deicorp Pty Ltd	Drill Rig	Hanjin DB8	Checked SR	Date: 24/8/20
		Inclination	-90°		

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	-	GWNE	0	90.80	BH6_0.1-0.2 ES			-	FILL: Silty CLAY; low plasticity, pale grey mottled red-brown, with fine to medium gravels and fine to medium grained sand, no odour.	-	-	FILL
					BH6_0.4-0.5 ES							
			1		BH6_0.9-1.0 ES							
				1.20								
	M			89.60				CL	Sandy CLAY; low plasticity, pale grey, grading to extremely weathered sandstone, no odour.	D	VSt	RESIDUAL SOIL
				1.50	BH6_1.4-1.5 ES							
									Borehole Terminated at 1.50 mBGL; T/C Bit Refusal.			
			2									
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH7M

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Mandala Parade, Castle Hill NSW			Date Started	21/7/20
Position	Refer to Figure 2			Date Completed	22/7/20
Job No.	E24724.E02	Contractor	Hagstrom	Logged LW	Date:21/7/20
Client	Deicorp Pty Ltd	Drill Rig	Hydrapower Scout V (DR011)	Checked MD	Date: 28/8/20
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	PIEZOMETER DETAILS ID Static Water Level BH7M
AD/T	-	GWNE	0					-	FILL: Gravelly Clayey SAND; medium to coarse grained, light brown, with fine to coarse, sub-angular to angular gravel, sandstone, shale, with some foreign material, brick, metal, concrete, PVC, no odour.	-	-	BH7M
			1	1.40								Grout
				1.50				CL-CI	Silty CLAY; low to medium plasticity, light brown mottled orange, extremely weathered sandstone, no odour.	-	-	Bentonite
									Borehole Terminated at 1.50 mBGL; T/C Bit Refusal on Sandstone.			uPVC 50 mm Casing
			2									
			3									Sand
												uPVC 50 mm Screen
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

TEST PIT: TP7

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Mandala Parade, Castle Hill NSW			Date	8/7/20
Position	Refer to Figure 2			Logged	LW
Job No.	E24724.E02	Contractor	-	Checked	MD
Client	Deicorp Pty Ltd	Machine	8T Backhoe Excavator		
		Bucket Size	600 mm		

Excavation					Sampling		Field Material Description				
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
E	-	GWNE	0.0		TP7_0.1-0.2 ES PID = 0.6 ppm			-	FILL: Gravelly Clayey SAND; medium to coarse grained, light brown, with fine to coarse, sub-angular to angular gravel, sandstone, shale, with some foreign material, brick, metal, concrete, PVC, no odour.	M	-	FILL
			0.5	0.50				-	FILL: Gravelly SAND; fine to coarse grained, grey, with sub-angular to anguar gravel, no odour.	M	-	ROADBASE
				0.70	TP7_0.6-0.7 ES PID = 0.5 ppm			-	FILL: Gravelly Clayey SAND; medium to coasre grained, light brown, with fine to coarse, sub-angular to angular gravel, no odour.	M	-	FILL
			1.0	1.00				CL-CI	Silty CLAY; low to medium plasticity, light brown mottled orange, extremely weathered sandstone, no odour.	D	-	NATURAL
				1.40	TP7_1.3-1.4 ES PID = 0.4 ppm				From 1.4 m, grading to pale grey mottled red-orange, no odour.			
			1.5	1.50					Test Pit Terminated at 1.50 mBGL; Target Depth Reached.			
			2.0									
			2.5									
			3.0									

Sketch & Other Observations

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

TEST PIT: TP8

Project	Detailed Site Investigation		
Location	2 Mandala Parade, Castle Hill NSW	Sheet	1 OF 1
Position	Refer to Figure 2	Date	8/7/20
Job No.	E24724.E02	Logged	LW
Client	Deicorp Pty Ltd	Checked	MD
Contractor	-		
Machine	8T Backhoe Excavator		
Bucket Size	600 mm		

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
E	-	GWNE	0.0		TP8_0.1-0.2 ES PID = 0.8 ppm			-	FILL: Gravelly Clayey SAND; medium to coarse grained, light brown, with fine to coarse, sub-angular to angular gravel, sandstone, shale, with some foreign material, brick, metal, concrete, PVC, no odour.	M	-	FILL
			0.5									
				0.80								
				1.00	TP8_0.9-1.0 ES PID = 0.8 ppm			CL-CI	Silty CLAY; low to medium plasticity, light brown mottled orange, extremely weathered sandstone, no odour.	D	-	NATURAL
			1.0						Test Pit Terminated at 1.00 mBGL; Target Depth Reached.			
			1.5									
			2.0									
			2.5									
			3.0									

Sketch & Other Observations

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

TEST PIT: TP9

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Mandala Parade, Castle Hill NSW			Date	8/7/20
Position	Refer to Figure 2			Logged	LW
Job No.	E24724.E02	Contractor	-	Checked	MD
Client	Deicorp Pty Ltd	Machine	8T Backhoe Excavator		
		Bucket Size	600 mm		

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
E	-	GWNE	0.0		TP9_0.1-0.2 ES PID = 0.6 ppm			-	FILL: Gravelly Clayey SAND; medium to coarse grained, light brown, with fine to coarse, sub-angular to angular gravel, sandstone, shale, with some foreign material, brick, metal, concrete, PVC, no odour.	M	-	FILL
			0.5									
			1.0	1.10				CL-CI	Silty CLAY; low to medium plasticity, light brown mottled orange, extremely weathered sandstone, no odour.	D	-	NATURAL
				1.30	TP9_1.2-1.3 ES PID = 0.4 ppm				Test Pit Terminated at 1.30 mBGL; Target Depth Reached.			
			1.5									
			2.0									
			2.5									
			3.0									

Sketch & Other Observations

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

TEST PIT: TP10

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Mandala Parade, Castle Hill NSW			Date	8/7/20
Position	Refer to Figure 2			Logged	LW
Job No.	E24724.E02	Contractor	-	Checked	MD
Client	Deicorp Pty Ltd	Machine	8T Backhoe Excavator		

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
E	-	GWNE	0.0		TP10_0.1-0.2 ES PID = 0.7 ppm			-	FILL: Gravelly Clayey SAND; medium to coasre grained, light brown, with fine to coarse, sub-angular to angular gravel, sandstone, shale, with some foreign material, brick, metal, concrete, PVC, no odour.	M	-	FILL
			0.5									
			1.0		TP10_1.0-1.1 ES PID = 0.6 ppm							
				1.30					From 1.3 m, with steel wires, no odour.			
				1.40					Test Pit Terminated at 1.40 mBGL; Refusal on Fill.			
			1.5									
			2.0									
			2.5									
			3.0									

Sketch & Other Observations

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

TEST PIT: TP11

Project	Detailed Site Investigation		
Location	2 Mandala Parade, Castle Hill NSW	Sheet	1 OF 1
Position	Refer to Figure 2	Date	8/7/20
Job No.	E24724.E02	Logged	LW
Client	Deicorp Pty Ltd	Checked	MD
Contractor	-		
Machine	8T Backhoe Excavator		
Bucket Size	600 mm		

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
E	-	GWNE	0.0		TP11_0.1-0.2 ES PID = 0.5 ppm			-	FILL: Gravelly Clayey SAND; medium to coarse grained, light brown, with fine to coarse, sub-angular to angular gravel, sandstone, shale, with some foreign material, brick, metal, concrete, PVC, no odour.	M	-	FILL
			0.5									
				0.80								
				0.90	TP11_0.8-0.9 ES PID = 0.7 ppm			-	FILL: Gravelly SAND; grey, with concrete, no odour.	M	-	ROADBASE
			1.0						Test Pit Terminated at 0.90 mBGL; Refusal on Fill.			
			1.5									
			2.0									
			2.5									
			3.0									

Sketch & Other Observations

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

TEST PIT: TP12

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Mandala Parade, Castle Hill NSW			Date	8/7/20
Position	Refer to Figure 2			Logged	LW
Job No.	E24724.E02	Contractor	-	Checked	MD
Client	Deicorp Pty Ltd	Machine	8T Backhoe Excavator		
		Bucket Size	600 mm		

Excavation					Sampling		Field Material Description				
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
E	-	GWNE	0.0		TP12_0.1-0.2 ES PID = 1 ppm			-	FILL: Gravelly Clayey SAND; medium to coarse grained, light brown, with fine to coarse, sub-angular to angular gravel, sandstone, shale, with some foreign material, brick, metal, concrete, PVC, no odour.	M	-	FILL
			0.5	0.70								
					TP12_0.8-0.9 ES PID = 0.8 ppm			-	FILL: Gravelly SAND; grey, no odour.	M	-	ROADBASE
			1.0									
			1.5	1.50				-	FILL: Silty CLAY; low plasticity, brown-dark grey to dark brown, with fine to coarse, sub-rounded to rounded gravel, no odour.			FILL
				1.70	TP12_1.7-1.8 ES PID = 1.6 ppm				From 1.7 m, with hydrocarbon odour.	M	-	
			2.0	2.40								
			2.5						Test Pit Terminated at 2.40 mBGL; Refusal on Fill.			
			3.0									

Sketch & Other Observations

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

TEST PIT: TP13

Project	Detailed Site Investigation		
Location	2 Mandala Parade, Castle Hill NSW	Sheet	1 OF 1
Position	Refer to Figure 2	Date	8/7/20
Job No.	E24724.E02	Logged	LW
Client	Deicorp Pty Ltd	Checked	MD
Contractor	-		
Machine	8T Backhoe Excavator		
Bucket Size	600 mm		

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
E	-	GWNE	0.0		TP13_0.1-0.2 ES PID = 0.6 ppm			-	FILL: Gravelly Clayey SAND; medium to coarse grained, light brown, with fine to coarse, sub-angular to angular gravel, sandstone, shale, with some foreign material, brick, metal, concrete, PVC, no odour.	M	-	FILL
			0.5		TP13_0.7-0.8 ES PID = 0.4 ppm							
			1.0	1.00				-	FILL: Gravelly SAND; grey, no odour.	M	-	ROADBASE
					TP13_1.2-1.3 ES PID = 1 ppm							
			1.5	1.50				-	FILL: Silty CLAY; low plasticity, brown-dark grey to dark brown, with fine to coarse, sub-rounded to rounded gravel, no odour.	M	-	FILL
				1.80					From 1.8 m, with steel wires, with hydrocarbon odour.			
			2.0	2.10	TP13_2.0-2.1 ES PID = 1.1 ppm				Test Pit Terminated at 2.10 mBGL; Refusal on Fill.			
			2.5									
			3.0									

Sketch & Other Observations

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

TEST PIT: TP14

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Mandala Parade, Castle Hill NSW			Date	8/7/20
Position	Refer to Figure 2			Logged	LW
Job No.	E24724.E02	Contractor	-	Checked	MD
Client	Deicorp Pty Ltd	Machine	8T Backhoe Excavator		
		Bucket Size	600 mm		

Excavation					Sampling		Field Material Description				
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
E	-	GWNE	0.0		TP14_0.1-0.2 ES PID = 0.7 ppm			-	FILL: Gravelly Clayey SAND; medium to coarse grained, light brown, with fine to coarse, sub-angular to angular gravel, sandstone, shale, with some foreign material, brick, metal, concrete, PVC, no odour.	M	-	FILL
			0.5									
			1.0		TP14_1.0-1.1 ES PID = 0.6 ppm							
				1.40								
			1.5		TP14_1.5-1.6 ES PID = 0.4 ppm			CL-CI	Silty CLAY; low to medium plasticity, light brown mottled orange, extremely weathered sandstone, no odour.	D	-	NATURAL
				1.60					Test Pit Terminated at 1.60 mBGL; Target Depth Reached.			
			2.0									
			2.5									
			3.0									

Sketch & Other Observations

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

TEST PIT: TP15

Project	Detailed Site Investigation		
Location	2 Mandala Parade, Castle Hill NSW	Sheet	1 OF 1
Position	Refer to Figure 2	Date	8/7/20
Job No.	E24724.E02	Logged	LW
Client	Deicorp Pty Ltd	Checked	MD
Contractor	-		
Machine	8T Backhoe Excavator		
Bucket Size	600 mm		

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
E	-	GWNE	0.0		TP15_0.1-0.2 ES PID = 0.8 ppm			-	FILL: Gravelly Clayey SAND; medium to coarse grained, light brown, with fine to coarse, sub-angular to angular gravel, sandstone, shale, with some foreign material, brick, metal, concrete, PVC, no odour.	M	-	FILL
			0.5									
			1.0		TP15_1.0-1.1 ES PID = 0.7 ppm							
				1.40								
			1.5		TP15_1.7-1.8 ES PID = 0.8 ppm			-	FILL: Gravelly SAND; grey, with concrete, steel, no odour.	M	-	ROADBASE
			2.0									
			2.5	2.60					Test Pit Terminated at 2.60 mBGL; Refusal on Fill.			
			3.0									

Sketch & Other Observations

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

TEST PIT: TP16

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Mandala Parade, Castle Hill NSW			Date	8/7/20
Position	Refer to Figure 2			Logged	LW
Job No.	E24724.E02	Contractor	-	Checked	MD
Client	Deicorp Pty Ltd	Machine	8T Backhoe Excavator		
		Bucket Size	600 mm		

Excavation					Sampling		Field Material Description				
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
E	-	GWNE	0.0		TP16_0.1-0.2 ES PID = 0.6 ppm			-	FILL: Gravelly Clayey SAND; medium to coarse grained, light brown, with fine to coarse, sub-angular to angular gravel, sandstone, shale, with some foreign material, brick, metal, concrete, PVC, no odour.	M	-	FILL
			0.5									
			1.0		TP16_1.3-1.4 ES PID = 0.3 ppm							
			1.5	*1.70*								
									Test Pit Terminated at 1.70 mBGL; Refusal on Concrete Footing.			
			2.0									
			2.5									
			3.0									

Sketch & Other Observations

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

TEST PIT: TP17

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Mandala Parade, Castle Hill NSW			Date	8/7/20
Position	Refer to Figure 2			Logged	LW
Job No.	E24724.E02	Contractor	-	Checked	MD
Client	Deicorp Pty Ltd	Machine	8T Backhoe Excavator		
		Bucket Size	600 mm		

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
E	-	GWNE	0.0		TP17_0.1-0.2 ES PID = 1.3 ppm			-	FILL: Gravelly Clayey SAND; medium to coarse grained, light brown, with fine to coarse, sub-angular to angular gravel, sandstone, shale, with some foreign material, brick, metal, concrete, PVC, no odour.	M	-	FILL
			0.5									
					TP17_0.8-0.9 ES PID = 0.5 ppm							
			1.0	*1.00*					Borehole Terminated at 1.00 mBGL; Refusal on very stiff clay.			
			1.5									
			2.0									
			2.5									
			3.0									

Sketch & Other Observations

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

TEST PIT: TP18

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Mandala Parade, Castle Hill NSW			Date	8/7/20
Position	Refer to Figure 2			Logged	LW
Job No.	E24724.E02	Contractor	-	Checked	MD
Client	Deicorp Pty Ltd	Machine	8T Backhoe Excavator		
		Bucket Size	600 mm		

Excavation					Sampling		Field Material Description				
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
E	-	GWNE	0.0		TP18_0.1-0.2 ES PID = 0.6 ppm			-	FILL: Gravelly Clayey SAND; medium to coarse grained, light brown, with fine to coarse, sub-angular to angular gravel, sandstone, shale, with some foreign material, brick, metal, concrete, PVC, no odour.	M	-	FILL
			0.5									
			1.0		TP18_0.9-1.0 ES PID = 0.5 ppm							
			1.5									
			2.0		TP18_1.8-1.9 ES PID = 0.4 ppm							
			2.5		TP18_2.2-2.3 ES PID = 0.3 ppm							
			3.0	3.00					Test Pit Terminated at 3.00 mBGL; Refusal on Sandstone.			

Sketch & Other Observations

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

TEST PIT: TP19

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Mandala Parade, Castle Hill NSW			Date	8/7/20
Position	Refer to Figure 2			Logged	LW
Job No.	E24724.E02	Contractor	-	Checked	MD
Client	Deicorp Pty Ltd	Machine	8T Backhoe Excavator		
		Bucket Size	600 mm		

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
E	-	GWNE	0.0		TP19_0.1-0.2 ES PID = 0.5 ppm			-	FILL: Gravelly Clayey SAND; medium to coarse grained, light brown, with fine to coarse, sub-angular to angular gravel, sandstone, shale, with some foreign material, brick, metal, concrete, PVC, no odour.	M	-	FILL
			0.5									
					TP19_0.8-0.9 ES PID = 0.5 ppm							
			1.0									
				1.30								
				1.50	TP19_1.4-1.5 ES PID = 0.3 ppm			CL-CI	Silty CLAY; low to medium plasticity, light brown mottled orange, extremely weathered sandstone, no odour.	D	-	NATURAL
			1.5						Test Pit Terminated at 1.50 mBGL; Target Depth Reached.			
			2.0									
			2.5									
			3.0									

Sketch & Other Observations

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

EXPLANATION OF NOTES, ABBREVIATIONS & TERMS USED ON BOREHOLE AND TEST PIT LOGS

eiaustralia
Contamination | Remediation | Geotechnical

DRILLING/EXCAVATION METHOD

HA	Hand Auger	RD	Rotary blade or drag bit	NQ	Diamond Core - 47 mm
DTC	Diatube Coring	RT	Rotary Tricone bit	NMLC	Diamond Core - 52 mm
NDD	Non-destructive digging	RAB	Rotary Air Blast	HQ	Diamond Core - 63 mm
AS*	Auger Screwing	RC	Reverse Circulation	HMLC	Diamond Core - 63mm
AD*	Auger Drilling	PT	Push Tube	BH	Tractor Mounted Backhoe
*V	V-Bit	CT	Cable Tool Rig	EX	Tracked Hydraulic Excavator
*T	TC-Bit, e.g. ADT	JET	Jetting	EE	Existing Excavation
ADH	Hollow Auger	WB	Washbore or Bailer	HAND	Excavated by Hand Methods

PENETRATION/EXCAVATION RESISTANCE

L **Low resistance.** Rapid penetration/ excavation possible with little effort from equipment used.

M **Medium resistance.** Penetration/ excavation possible at an acceptable rate with moderate effort from equipment used.

H **High resistance.** Penetration/ excavation is possible but at a slow rate and requires significant effort from equipment used.

R **Refusal/ Practical Refusal.** No further progress possible without risk of damage or unacceptable wear to equipment used.

These assessments are subjective and are dependent on many factors, including equipment power and weight, condition of excavation or drilling tools and experience of the operator.

WATER

Water level at date shown

Water inflow

Partial water loss

Complete water loss

GROUNDWATER NOT OBSERVED — Observation of groundwater, whether present or not, was not possible due to drilling water, surface seepage or cave-in of the borehole/ test pit.

GROUNDWATER NOT ENCOUNTERED — Borehole/ test pit was dry soon after excavation. However, groundwater could be present in less permeable strata. Inflow may have been observed had the borehole/ test pit been left open for a longer period.

SAMPLING AND TESTING

SPT	Standard Penetration Test to AS1289.6.3.1-2004
4,7,11 N=18	4,7,11 = Blows per 150mm. N = Blows per 300mm penetration following 150mm
seating 30/80mm	Where practical refusal occurs, the blows and penetration for that interval are reported
RW	Penetration occurred under the rod weight only
HW	Penetration occurred under the hammer and rod weight only
HB	Hammer double bouncing on anvil
Sampling	
DS	Disturbed Sample
BDS	Bulk disturbed Sample
GS	Gas Sample
WS	Water Sample
U63	Thin walled tube sample - number indicates nominal sample diameter in millimetres
Testing	
FP	Field Permeability test over section noted
FVS	Field Vane Shear test expressed as uncorrected shear strength (sv = peak value, sr = residual value)
PID	Photoionisation Detector reading in ppm
PM	Pressuremeter test over section noted
PP	Pocket Penetrometer test expressed as instrument reading in kPa
WPT	Water Pressure tests
DCP	Dynamic Cone Penetrometer test
CPT	Static Cone Penetration test
CPTu	Static Cone Penetration test with pore pressure (u) measurement

RANKING OF VISUALLY OBSERVABLE CONTAMINATION AND ODOUR (for specific soil contamination assessment

R = 0	No visible evidence of contamination	R = A	No non-natural odours identified
R = 1	Slight evidence of visible contamination	R = B	Slight non-natural odours identified
R = 2	Visible contamination	R = C	Moderate non-natural odours identified
R = 3	Significant visible contamination	R = D	Strong non-natural odours identified

ROCK CORE RECOVERY

TCR = Total Core Recovery (%)

$$= \frac{\text{Length of core recevered}}{\text{Lengh of core run}} \text{ x } 100$$

SCR = Solid Core Recovery (%)

$$= \frac{\Sigma \text{ Length ofcylindrical core recevered}}{\text{Lengh of core run}} \text{ x } 100$$

RQD = Rock Quality Designation (%)

$$= \frac{\Sigma \text{Axial Lenghts of core} > 100\text{mm}}{\text{Lengh of core run}} \text{ x } 100$$

MATERIAL BOUNDARIES

———— = inferred boundary

- - - - - - - - = probable boundary

— ?— ?— ?— ? = possible boundary

METHOD OF SOIL DESCRIPTION USED ON BOREHOLE AND TEST PIT LOGS

FILL	ORGANIC SOILS (OL, OH or Pt)	CLAY (CL, CI or CH)
COUBLES or BOULDERS	SILT (ML or MH)	SAND (SP or SW)
GRAVEL (GP or GW)		

Combinations of these basic symbols may be used to indicate mixed materials such as sandy clay

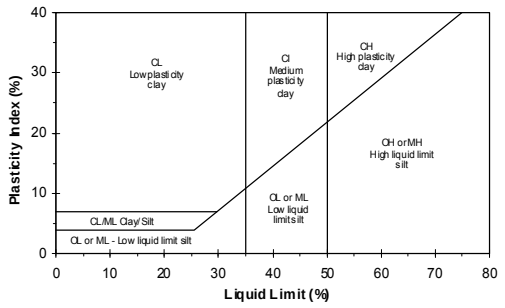
CLASSIFICATION AND INFERRED STRATIGRAPHY

Soil is broadly classified and described in Borehole and Test Pit Logs using the preferred method given in AS1726 – 1993, (Amdt1 – 1994 and Amdt2 – 1994), Appendix A. Material properties are assessed in the field by visual/tactile methods.

PARTICLE SIZE CHARACTERISTICS

Major Division	Sub Division	Particle Size
BOULDERS		>200 mm
COBBLES		63 to 200 mm
GRAVEL	Coarse	20 to 63 mm
	Medium	6 to 20 mm
	Fine	2 to 6 mm
SAND	Coarse	0.6 to 2 mm
	Medium	0.2 to 0.6 mm
	Fine	0.075 to 0.2mm
SILT		0.002 to 0.075 mm
CLAY		<0.002 mm

PLASTICITY PROPERTIES



USCS SYMBOLS

Major Divisions		Symbol	Description
COARSE GRAINED SOILS More than 50% by dry mass less than 63mm is greater than 0.075mm	More than 50% of coarse grains are >2.36mm	GW	Well graded gravel and gravel-sand mixtures, little or no fines.
		GP	Poorly graded gravel and gravel-sand mixtures, little or no fines.
		GM	Silty gravel, gravel-sand-silt mixtures.
		GC	Clayey gravel, gravel-sand-clay mixtures.
	More than 50% of coarse grains are <2.36mm	SW	Well graded sand and gravelly sand, little or no fines.
		SP	Poorly graded sand and gravelly sand, little or no fines.
		SM	Silty sand, sand-silt mixtures.
		SC	Clayey sand, sandy-clay mixtures.
FINE GRAINED SOILS More than 50% by dry mass less than 63mm is less than 0.075mm	Liquid Limit less < 50%	ML	Inorganic silts of low plasticity, very fine sands, rock flour, silty or clayey fine sands.
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays.
		OL	Organic silts and organic silty clays of low plasticity.
	Liquid Limit > than 50%	MH	Inorganic silts of high plasticity.
		CH	Inorganic clays of high plasticity.
		OH	Organic clays of medium to high plasticity.
		PT	Peat muck and other highly organic soils.

MOISTURE CONDITION

Symbol	Term	Description
D	Dry	Sands and gravels are free flowing. Clays & Silts may be brittle or friable and powdery.
M	Moist	Soils are darker than in the dry condition & may feel cool. Sands and gravels tend to cohere.
W	Wet	Soils exude free water. Sands and gravels tend to cohere.

Moisture content of cohesive soils may also be described in relation to plastic limit (WP) or liquid limit (WL) [» much greater than, > greater than, < less than, « much less than].

CONSISTENCY

Symbol	Term	Undrained Shear Strength
VS	Very Soft	0. to 12 kPa
S	Soft	12 to 25 kPa
F	Firm	25 to 50 kPa
St	Stiff	50 to 100 kPa
VSt	Very Stiff	100 to 200 kPa
H	Hard	Above 200 kPa

DENSITY

Symbol	Term	Density Index %	SPT "N" #
VL	Very Loose	< 15	0 to 4
L	Loose	15 to 35	4 to 10
MD	Medium Density	35 to 65	10 to 30
D	Dense	65 to 85	30 to 50
VD	Very Dense	Above 85	Above 50

In the absence of test results, consistency and density may be assessed from correlations with the observed behaviour of the material.
SPT correlations are not stated in AS1726 – 1993, and may be subject to corrections for overburden pressure and equipment type.

MINOR COMPONENTS

Term	Assessment Guide	Proportion by Mass
Trace	Presence just detectable by feel or eye but soil properties little or no different to general properties of primary component	Coarse grained soils: ≤ 5% Fine grained soil: ≤15%
Some	Presence easily detectable by feel or eye but soil properties little or no different to general properties of primary component	Coarse grained soils: 5 - 12% Fine grained soil: 15 - 30%

ABBREVIATIONS AND DESCRIPTIONS FOR ROCK MATERIAL AND DEFECTS

CLASSIFICATION AND INFERRED STRATIGRAPHY

Rock is broadly classified and described in Borehole Logs using the preferred method given in AS1726 – 1993, (Amdt1 – 1994 and Amdt2 – 1994), Appendix A. Material properties are assessed in the field by visual/ tactile methods.

ROCK MATERIAL DESCRIPTION

Layering	
Term	**Description**
Massive	No layering apparent
Poorly Developed	Layering just visible; little effect on properties
Well Developed	Layering (bedding, foliation, cleavage) distinct; rock breaks more easily parallel to layering

Structure	
Term	**Spacing (mm)**
Thinly laminated	<6
Laminated	6 – 20
Very thinly bedded	20 – 60
Thinly bedded	60 – 200
Medium bedded	200 – 600
Thickly bedded	600 – 2,000
Very thickly bedded	> 2,000

ABBREVIATIONS AND DESCRIPTIONS FOR DEFECT TYPES

Defect Type	Abbr.	Description
Joint	J	Surface of a fracture or parting, formed without displacement, across which the rock has little or no tensile strength. May be closed or filled by air, water or soil or rock substance, which acts as cement.
Bedding Parting	B	Surface of fracture or parting, across which the rock has little or no tensile strength, parallel or sub-parallel to layering/ bedding. Bedding refers to the layering or stratification of a rock, indicating orientation during deposition, resulting in planar anisotropy in the rock material.
Foliation	X	Repetitive planar structure parallel to the shear direction or perpendicular to the direction of higher pressure, especially in metamorphic rock, e.g. Schistosity (S) and Gneissosity.
Contact	C	The surface between two types or ages of rock.
Cleavage	L	Cleavage planes appear as parallel, closely spaced and planar surfaces resulting from mechanical fracturing of rock through deformation or metamorphism, independent of bedding.
Sheared Seam/ Zone (Fault)	SS/SZ	Seam or zone with roughly parallel almost planar boundaries of rock substance cut by closely spaced (often <50 mm) parallel and usually smooth or slickensided joints or cleavage planes.
Crushed Seam/ Zone (Fault)	CS/CZ	Seam or zone composed of disoriented usually angular fragments of the host rock substance, with roughly parallel near-planar boundaries. The fragments may be of clay, silt, sand or gravel sizes or mixtures of these.
Decomposed Seam/ Zone	DS/DZ	Seam of soil substance, often with gradational boundaries, formed by weathering of the rock material in places.
Infilled Seam	IS/IZ	Seam of soil substance, usually clay or clayey, with very distinct roughly parallel boundaries, formed by soil migrating into joint or open cavity.
Schistocity	S	The foliation in schist or other coarse grained crystalline rock due to the parallel arrangement of platy or prismatic mineral grains, such as mica.
Vein	V	Distinct sheet-like body of minerals crystallised within rock through typically open-space filling or crack-seal growth.

ABBREVIATIONS AND DESCRIPTIONS FOR DEFECT SHAPE AND ROUGHNESS

Shape	Abbr.	Description	Roughness	Abbr.	Description
Planar	Pl	Consistent orientation	Polished	Po	Shiny smooth surface
Curved	Cu	Gradual change in orientation	Slickensided	Sl	Grooved or striated surface, usually polished
Undulating	Un	Wavy surface	Smooth	Sm	Smooth to touch. Few or no surface irregularities
Stepped	St	One or more well defined steps	Rough	Ro	Many small surface irregularities (amplitude generally <1mm). Feels like fine to coarse sandpaper
Irregular	Irr	Many sharp changes in orientation	Very Rough	VRo	Many large surface irregularities, amplitude generally >1mm. Feels like very coarse sandpaper

Orientation: **Vertical Boreholes –** The dip (inclination from horizontal) of the defect.
Inclined Boreholes – The inclination is measured as the acute angle to the core axis.

ABBREVIATIONS AND DESCRIPTIONS FOR DEFECT COATING

Coating	Abbr.	Description
Clean	Cn	No visible coating or infilling
Stain	Sn	No visible coating but surfaces are discoloured by staining, often limonite (orange-brown)
Veneer	Vr	A visible coating of soil or mineral substance, usually too thin to measure (< 1 mm); may be patchy

DEFECT APERTURE

Aperture	Abbr.	Description
Closed	Cl	
Open	O	Without Infill
Infilled	-	Soil or rock i.e. clay, talc, pyrite, quartz, etc.

Appendix G - Field Data Sheets

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address: 2 Mandala Pde, Castle Hill	Job Number: E24724
Client: Dejcorp	Date: 29/7/20
Field Staff: LW	Sampling Location ID BH3m-a
Well Location:	Round No: 1

MEDIUM ☒Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date: 22/7/20	Stick up / down (m): +1.0 (+ above ground - below ground)
Initial Well Depth (mBTOC): 7.1	Screen Interval (mBTOC): 4.1-7.1
Previous Sampling Date:	Previous SWL (mBTOC):

PID READINGS

PID Headspace (ppm):	PID Background (ppm):
PID Breathing Space (ppm):	

PRE PURGE

Total Well Depth (mBTOC): 7.1	Well Head Condition: Good
SWL (mBTOC): 3.58	Water Column (m): 3.52

PHASE SEPARATED HYDROCARBONS (PSH)

Depth to PSH (mBTOC):	PSH Visually Confirmed (Bailer):
PSH Thickness (mm):	

PURGE AND SAMPLE

Sampling Method ☒Bladder ☐Peristaltic ☐Submersible ☐Other:

Depth of Pump Inlet (mBTOC): 5.5	Fill Timer: 10
Pump Pressure Regulator (psi):	Discharge Timer: 5
Weather Conditions: fine	Cycle: cpm 4
Pump on time: 12:30 pm	Pump off time: 1:15 pm

WATER QUALITY PARAMETERS

Probe Make and Model:	Bump Test Date and Time:

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	pH (units)	Comments (colour, turbidity, odour, sheen etc.)
12:32	0.5	3.62	21.33	2396	91.2	2.73	5.43	Light brown, L-m
12:34	1	3.68	21.15	2878	95.3	0.62	5.42	no, no.
12:36	1.5	3.71	21.10	2742	97.2	0.52	5.28	
12:38	2	3.74	20.90	2782	102.9	0.61	5.30	
12:40	2.5	3.76	21.08	2809	106.2	0.59	5.15	
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

GWOD1 / GWQT1 taken

SIGNATURE: [signature]

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address: 2 Mandala pde, Castle Hill	Job Number: E29729
Client: Delcorp	Date: 29/7/20
Field Staff: LW	Sampling Location ID BH4M-a
Well Location:	Round No: 1

MEDIUM ☒Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date: 22/7/20	Stick up / down (m): +0.96 (+ above ground - below ground)
Initial Well Depth (mBTOC): 8.66	Screen Interval (mBTOC): 5.66 - 8.66
Previous Sampling Date:	Previous SWL (mBTOC):

PID READINGS

PID Headspace (ppm):	PID Background (ppm):
PID Breathing Space (ppm):	

PRE PURGE

Total Well Depth (mBTOC): 8.66	Well Head Condition: Good
SWL (mBTOC): 5.49	Water Column (m): 3.22

PHASE SEPARATED HYDROCARBONS (PSH)

Depth to PSH (mBTOC):	PSH Visually Confirmed (Bailer):
PSH Thickness (mm):	

PURGE AND SAMPLE

Sampling Method ☒Bladder ☐Peristaltic ☐Submersible ☐Other:

Depth of Pump Inlet (mBTOC): 7.5	Fill Timer: 60
Pump Pressure Regulator (psi):	Discharge Timer: 5
Weather Conditions: fine	Cycle: CPMP
Pump on time: 3:10 pm	Pump off time: 3:40 pm

WATER QUALITY PARAMETERS

Probe Make and Model:	Bump Test Date and Time:

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	pH (units)	Comments (colour, turbidity, odour, sheen etc.)
3:12	0.5	5.49	20.91	3278	92.05	2.63	5.56	brown, m-h
3:14	1	5.52	21.30	3019	96.33	0.99	5.43	no, ns.
3:16	1.5	5.55	21.09	3165	95.43	0.89	5.38	
3:18	2	5.60	20.98	3088	97.03	0.91	5.39	
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

SIGNATURE: LW 16

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address:	2 Mandalay Pde, Castle Hill	Job Number:	E29729
Client:	Retzorp	Date:	29/7/20
Field Staff:	LW	Sampling Location ID	BH5M
Well Location:		Round No:	1

MEDIUM ☒Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date:	17/7/20	Stick up / down (m):	+0.6 (+ above ground - below ground)
Initial Well Depth (mBTOC):	7.1	Screen Interval (mBTOC):	3.1 - 7.1
Previous Sampling Date:		Previous SWL (mBTOC):	

PID READINGS

PID Headspace (ppm):		PID Background (ppm):	
PID Breathing Space (ppm):			

PRE PURGE

Total Well Depth (mBTOC):	7.09	Well Head Condition:	Good
SWL (mBTOC):	4.69	Water Column (m):	2.4

PHASE SEPARATED HYDROCARBONS (PSH)

Depth to PSH (mBTOC):		PSH Visually Confirmed (Bailer):	
PSH Thickness (mm):			

PURGE AND SAMPLE

Sampling Method ☒Bladder ☐Peristaltic ☐Submersible ☐Other:

Depth of Pump Inlet (mBTOC):	5.9	Fill Timer:	10
Pump Pressure Regulator (psi):		Discharge Timer:	5
Weather Conditions:	fine	Cycle:	cpmg
Pump on time:	2:00pm	Pump off time:	2:30pm

WATER QUALITY PARAMETERS

Probe Make and Model:	Bump Test Date and Time:

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	pH (units)	Comments (colour, turbidity, odour, sheen etc.)
2:02	0.5	4.68	21.10	2973	92.2	1.65	5.52	Light brown, (-ve
2:04	1	4.71	21.02	2823	90.8	0.90	5.43	no HC
2:06	1.5	4.74	20.92	2793	91.8	0.82	5.39	
~~2:08~~	2	4.79	20.90	2782	92.4	0.80	5.39	
2:08								
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

SIGNATURE:

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address: 2 mandala pde, castle hill	Job Number: E29729
Client: Deicorp	Date: 29/7/20
Field Staff: LW	Sampling Location ID BH7M
Well Location:	Round No: 1
MEDIUM ☒Groundwater ☐Surface Water	☐Stormwater ☐Other:
SAMPLING POINT INFO	
Well Installation Date: 21/7/20	Stick up / down (m): +1.0 (+ above ground - below ground)
Initial Well Depth (mBTOC): 5.9	Screen Interval (mBTOC): 2.9-5.9
Previous Sampling Date:	Previous SWL (mBTOC):
PID READINGS	
PID Headspace (ppm):	PID Background (ppm):
PID Breathing Space (ppm):	
PRE PURGE	
Total Well Depth (mBTOC): 5.89	Well Head Condition: Good
SWL (mBTOC): 5.79	Water Column (m): 0.1
PHASE SEPARATED HYDROCARBONS (PSH)	
Depth to PSH (mBTOC):	PSH Visually Confirmed (Bailer):
PSH Thickness (mm):	
PURGE AND SAMPLE	
Sampling Method ☐Bladder ☐Peristaltic ☐Submersible ☐Other:	
Depth of Pump Inlet (mBTOC):	Fill Timer:
Pump Pressure Regulator (psi):	Discharge Timer:
Weather Conditions:	Cycle:
Pump on time:	Pump off time:
WATER QUALITY PARAMETERS	
Probe Make and Model:	Bump Test Date and Time:

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	pH (units)	Comments (colour, turbidity, odour, sheen etc.)
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

No sufficient water for sampling.

SIGNATURE: LWer

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address: 2 mandala Pde, Castle Hill	Job Number: E24729
Client: Deicorp	Date: 18/8/20
Field Staff: CW	Sampling Location ID BH4M-a
Well Location:	Round No: 2

MEDIUM ☒Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date: 22/7/20	Stick up / down (m): +0.96 (+ above ground - below ground)
Initial Well Depth (mBTOC): 8.66	Screen Interval (mBTOC): 5.66-8.66
Previous Sampling Date:	Previous SWL (mBTOC):

PID READINGS

PID Headspace (ppm):	PID Background (ppm):
PID Breathing Space (ppm):	

PRE PURGE

Total Well Depth (mBTOC): 8.66	Well Head Condition: Good
SWL (mBTOC): 5.43	Water Column (m): 3.23

PHASE SEPARATED HYDROCARBONS (PSH)

Depth to PSH (mBTOC):	PSH Visually Confirmed (Bailer):
PSH Thickness (mm):	

PURGE AND SAMPLE

Sampling Method ☐Bladder ☐Peristaltic ☐Submersible ☒Other: bailer

Depth of Pump Inlet (mBTOC):	Fill Timer:
Pump Pressure Regulator (psi):	Discharge Timer:
Weather Conditions:	Cycle:
Pump on time:	Pump off time:

WATER QUALITY PARAMETERS

Probe Make and Model:	Bump Test Date and Time:

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	pH (units)	Comments (colour, turbidity, odour, sheen etc.)
								Light brown, l-m, no, no
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

Sample taker for heavy metal testing

SIGNATURE: [signature]

Appendix H - Chain of Custody and Sample Receipt Forms

Sheet 1 of 4

Site: 2 Mandala Parade, Castle Hill

Project No: E24724. E02

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	Analysis: HM [A] /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS	TCLP HM [B] / PAH
TP7_0.1-0.2	1	J/ZLB	8/7/20	AM/PM		X		X												
TP7_0.6-0.7						X														
TP7_1.3-1.4	2					X		X												
TP8_0.1-0.2	3					X		X												
TP8_0.9-1.0	4					X		X												
TP9_0.1-0.2	5					X		X												
TP9_1.2-1.3	6					X		X												
TP10_0.1-0.2	7					X		X												
TP10_1.0-1.1						X														
TP11_0.1-0.2	8					X		X												
TP11_0.8-0.9	9					X		X												
TP12_0.1-0.2	10					X		X												

Comments

HM [A]
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND
- [x] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

SGS EHS Sydney COC
SE208655

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print: Li Wei	Print: Suba
Signature:	Signature:
Date: 13/7/20	Date: 13/07/20 @ 3:30

Sampler's Comments:

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

COC March 2018 FORM v.4 - SGS

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

Sheet 2 of 4

Site: 2 Mandala Parade, Castle Hill

Project No: E24724. E02

Laboratory: **SGS Australia**
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM [A] /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS				TCLP HM [B] / PAH
TP12_0.8-0.9	11	J/ZLB	8/7/20	AM/PM		X		X															
TP12_1.7-1.8	12	↓	↓	↓		X		X															
TP13_0.1-0.2	13					X		X															
TP13_0.7-0.8						X																	
TP13_1.2-1.3	14					X		X															
TP13_2.0-2.1	15					X		X															
TP14_0.1-0.2	16					X		X															
TP14_1.0-1.1						X																	
TP14_1.5-1.6	17					X		X															
TP15_0.1-0.2	18					X		X															
TP15_1.0-1.1						X																	
TP15_1.7-1.8	19	↓	↓	↓		X		X															

Comments

HM [A]
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- [x] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print: Li Wei	Print: Suba
Signature: Li Wei	Signature: B. Suba
Date: 13/7/20	Date: 13/07/20 @ 3:30

Sampler's Comments:

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

Sheet 3 of 4

Site:	Project No:
2 Mandala Parade, Castle Hill	E24724. E02

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	Analysis: HM [A] /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS				TCLP HM [B] / PAH
TP16_0.1-0.2	20	J/ZLB	8/7/20	AM/PM		X		X															
TP16_1.3-1.4						X																	
TP17_0.1-0.2	21					X		X															
TP17_0.8-0.9						X																	
TP18_0.1-0.2	22					X		X															
TP18_0.9-1.0						X																	
TP18_1.8-1.9	23					X		X															
TP18_2.2-2.3						X																	
TP19_0.1-0.2	24					X		X															
TP19_0.8-0.9						X																	
TP19_1.4-1.5	25					X		X															
						X																	

Comments

HM [A]
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- [X] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print: Li Wei	Print: Suba
Signature:	Signature:
Date: 13/7/20	Date: 13/07/20 @ 3.35

Sampler's Comments:

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

Sheet 4 of 4

Site: 2 Mandala Parade, Castle Hill

Project No: E24724. E02

Laboratory: **SGS Australia**
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	Analysis: HM A /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM A /TRH/BTEX/PAHs	HM A /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS				TCLP HM B / PAH
QD1	26	J	8/7/20	AM/PM		X				X													
QD2	27	J	↓	↓		X				X													
QR1	28	P,S,2Vc			X					X													
QRB1		P,S,2Vc	↓	↓	X																		
QTB1	29		Lab Prepared			X					X												
QTS1	30					X					X												
BH1_0.1-0.2	31	J/ZLB	8/7/20	AM/PM		X		X															
BH1_0.7-0.8	32	↓	↓	↓		X		X															
BH1_1.4-1.5		↓	↓	↓		X																	

Comments

HM A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- [x] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print: Li Wei	Print: Suba
Signature:	Signature:
Date: 13/7/20	Date: 13/07/20 @ 3:30

Sampler's Comments:

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

COC March 2018 FORM v.4 - SGS

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

SAMPLE RECEIPT ADVICE

SE208655

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 Mandala Parade, Castle Hill**
Order Number	**E24724.E02**
Samples	32

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Mon 13/7/2020
Report Due	Mon 20/7/2020
SGS Reference	**SE208655**

SUBMISSION DETAILS

This is to confirm that 32 samples were received on Monday 13/7/2020. Results are expected to be ready by COB Monday 20/7/2020. Please quote SGS reference SE208655 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	31 Soil, 1 Water
Date documentation received	13/7/2020	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	5.7°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

11 soil samples have been placed on hold as no tests have been assigned for them by the client. These samples will not be processed.

SAMPLE RECEIPT ADVICE

SE208655

CLIENT DETAILS

Client EI AUSTRALIA

Project E24724.E02 2 Mandala Parade, Castle Hill

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	TP7_0.1-0.2	29	14	26	11	7	10	11	7
002	TP7_1.3-1.4	29	14	26	11	7	10	11	7
003	TP8_0.1-0.2	29	14	26	11	7	10	11	7
004	TP8_0.9-1.0	29	14	26	11	7	10	11	7
005	TP9_0.1-0.2	29	14	26	11	7	10	11	7
006	TP9_1.2-1.3	29	14	26	11	7	10	11	7
007	TP10_0.1-0.2	29	14	26	11	7	10	11	7
008	TP11_0.1-0.2	29	14	26	11	7	10	11	7
009	TP11_0.8-0.9	29	14	26	11	7	10	11	7
010	TP12_0.1-0.2	29	14	26	11	7	10	11	7
011	TP12_0.8-0.9	29	14	26	11	7	10	11	7
012	TP12_1.7-1.8	29	14	26	11	7	10	11	7
013	TP13_0.1-0.2	29	14	26	11	7	10	11	7
014	TP13_1.2-1.3	29	14	26	11	7	10	11	7
015	TP13_2.0-2.1	29	14	26	11	7	10	11	7
016	TP14_0.1-0.2	29	14	26	11	7	10	11	7
017	TP14_1.5-1.6	29	14	26	11	7	10	11	7
018	TP15_0.1-0.2	29	14	26	11	7	10	11	7
019	TP15_1.7-1.8	29	14	26	11	7	10	11	7
020	TP16_0.1-0.2	29	14	26	11	7	10	11	7
021	TP17_0.1-0.2	29	14	26	11	7	10	11	7
022	TP18_0.1-0.2	29	14	26	11	7	10	11	7
023	TP18_1.8-1.9	29	14	26	11	7	10	11	7
024	TP19_0.1-0.2	29	14	26	11	7	10	11	7

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE208655

CLIENT DETAILS

Client EI AUSTRALIA

Project E24724.E02 2 Mandala Parade, Castle Hill

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
025	TP19_1.4-1.5	29	14	26	11	7	10	11	7
026	QD1	-	-	-	-	7	10	11	7
027	QD2	-	-	-	-	7	10	11	7
029	QTB1	-	-	-	-	-	-	11	-
030	QTS1	-	-	-	-	-	-	11	-
031	BH1_0.1-0.2	29	14	26	11	7	10	11	7
032	BH1_0.7-0.8	29	14	26	11	7	10	11	7

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE208655

CLIENT DETAILS

Client EI AUSTRALIA

Project E24724.E02 2 Mandala Parade, Castle Hill

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	TP7_0.1-0.2	2	1	1
002	TP7_1.3-1.4	2	1	1
003	TP8_0.1-0.2	2	1	1
004	TP8_0.9-1.0	2	1	1
005	TP9_0.1-0.2	2	1	1
006	TP9_1.2-1.3	2	1	1
007	TP10_0.1-0.2	2	1	1
008	TP11_0.1-0.2	2	1	1
009	TP11_0.8-0.9	2	1	1
010	TP12_0.1-0.2	2	1	1
011	TP12_0.8-0.9	2	1	1
012	TP12_1.7-1.8	2	1	1
013	TP13_0.1-0.2	2	1	1
014	TP13_1.2-1.3	2	1	1
015	TP13_2.0-2.1	2	1	1
016	TP14_0.1-0.2	2	1	1
017	TP14_1.5-1.6	2	1	1
018	TP15_0.1-0.2	2	1	1
019	TP15_1.7-1.8	2	1	1
020	TP16_0.1-0.2	2	1	1
021	TP17_0.1-0.2	2	1	1
022	TP18_0.1-0.2	2	1	1
023	TP18_1.8-1.9	2	1	1
024	TP19_0.1-0.2	2	1	1

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE208655

CLIENT DETAILS

Client EI AUSTRALIA

Project E24724.E02 2 Mandala Parade, Castle Hill

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content	VOCs in Water
025	TP19_1.4-1.5	2	1	1	-
026	QD1	-	1	1	-
027	QD2	-	1	1	-
028	QR1	-	-	-	11
029	QTB1	-	-	1	-
031	BH1_0.1-0.2	2	1	1	-
032	BH1_0.7-0.8	2	1	1	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE208655

CLIENT DETAILS

Client EI AUSTRALIA

Project E24724.E02 2 Mandala Parade, Castle Hill

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water	Volatile Petroleum Hydrocarbons in Water
028	QR1	1	7	9	7

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

Sheet 1 of 1

Site: 2 Wandella Parade, Castle Hill

Project No: E29729 E02

Laboratory: **Envirolab Services**
12 Ashley Street,
CHATSWOOD NSW 2067
P: 02 9910 6200

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM [A] /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS				TCLP HM [B] / PAH
QT1	1	J	8/7/20	Am/pm		X				X													
QT2	2	J	↓	↓		X				X													

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 246861
Date Received: 13/7/20
Time Received: 1610
Received by: 10.2
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Comments

HM [A]
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- [X] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table [ ]

Sampler's Name (EI):	Received by (Envirolab) Sin
Print Liwei	Print Jason Day
Signature Liwei	Signature
Date 13/7/20	Date 13/7/20 1610

Sampler's Comments:

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	EI Australia
Attention	Lab Email

Sample Login Details

Your reference	E24724. E02, Castle Hill
Envirolab Reference	246861
Date Sample Received	13/07/2020
Date Instructions Received	13/07/2020
Date Results Expected to be Reported	20/07/2020

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	2 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10.2
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	Acid Extractable metalsin soil
QT1	✓	✓	✓
QT2	✓	✓	✓

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

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Sheet 1 of 3

Site: 2 Mandala Parade, Castle Hill

Project No: E24724. E02

Laboratory: **SGS Australia**
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	Analysis: HM [A] /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos /HM	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS				TCLP HM [B] / PAH
BH2_0.1-0.2	1	J/ZLB	9/7/20	AM/PM		X		X														
BH2_0.7-0.8		↓	↓	↓		X																
BH2_1.2-1.3	2					X			X													
BH2_1.6-1.7	3					X		X														
BH2_1.9-2.0		J				X																
BH2_2.4-2.5		J/ZLB				X																
BH2_2.9-3.0		J	↓	↓		X																
BH3M_0.1-0.2	4	ZLB	13/7/20	AM/PM		X							X									
BH3M_0.7-0.8	5	J/ZLB				X		X														
BH3M_1.2-1.3		↓	↓	↓		X																
BH3M_1.7-1.8	6					X		X														
BH3M_2.2-2.3		↓	↓	↓		X																

SGS EHS Sydney COC
SE208846

Comments

HM [A]
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- [x] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print: Li Wei	Print: George Zhi
Signature:	Signature:
Date: 17/7/20	Date: 17/7 3:35

Sampler's Comments:

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

COC March 2018 FORM v.4 - SGS

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

Sheet 2 of 3

Site: 2 Mandala Parade, Castle Hill

Project No: E24724. E02

Laboratory: **SGS Australia**
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	Analysis: HM [A] /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS				TCLP HM [B] / PAH
BH3M_2.8-2.9	7	J/ZLB	13/7/20	AM/PM		X		X															
BH4M_0.3-0.5	8	↓	14/7/20	AM/PM		X		X															
BH4M_0.9-1.0		↓	↓	↓		X																	
BH4M_1.4-1.5	9	↓				X			X														
BH4M_1.9-2.0		2J/ZLB				X												•					
BH4M_2.4-2.5		J				X																	
BH4M_2.9-3.0	10	J/ZLB				X		X															
BH4M_3.9-4.0		↓				X																	
BH4M_4.4-4.5		↓				X																	
BH4M_4.6-4.7		J				X												•					
BH4M_4.9-5.0	11	J/ZLB	↓	↓		X		•	X														
BH5M_0.1-0.2	12	↓	16/7/20	AM/PM		X		X															

Comments

HM [A]
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- [X] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print: Li Wei	Print: George Zhi
Signature:	Signature:
Date: 17/7/20	Date: 17/7 3.35

Sampler's Comments:

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

Sheet 3 of 3

Site: 2 Mandala Parade, Castle Hill

Project No: E24724. E02

Laboratory: **SGS Australia**
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	Analysis: HM [A] /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS ·	PFAS				TCLP HM [B] / PAH
BH5M_0.5-0.6		J/ZLB	16/7/20	AM/PM		X																	
BH5M_1.0-1.1		↓	↓	↓		X																	
BH5M_1.5-1.6	13	↓	↓	↓		X			X									·					
BH5M_1.8-1.9		J	↓	↓		X																	
BH5M_1.9-2.0	14	J/ZLB	↓	↓		X		X															
																		·					

Comments

HM [A]
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- [X] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

· Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print: Li Wei	Print: George Zhi
Signature:	Signature:
Date: 17/7/20	Date: 17/7 3:35

Sampler's Comments:

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

SAMPLE RECEIPT ADVICE

SE208846

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 Mandala Parade, Castle Hill**
Order Number	**E24724.E02**
Samples	14

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Fri 17/7/2020
Report Due	Fri 24/7/2020
SGS Reference	**SE208846**

SUBMISSION DETAILS

This is to confirm that 14 samples were received on Friday 17/7/2020. Results are expected to be ready by COB Friday 24/7/2020. Please quote SGS reference SE208846 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	14 Soil
Date documentation received	17/7/2020	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	14°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

16 soil samples have been placed on hold as no tests have been assigned for them by the client. These samples will not be processed.

SAMPLE RECEIPT ADVICE

SE208846

CLIENT DETAILS

Client EI AUSTRALIA

Project E24724.E02 2 Mandala Parade, Castle Hill

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH2_0.1-0.2	29	14	26	11	7	10	11	7
002	BH2_1.2-1.3	-	-	26	-	7	10	11	7
003	BH2_1.6-1.7	29	14	26	11	7	10	11	7
004	BH3M_0.1-0.2	-	-	-	-	7	-	-	-
005	BH3M_0.7-0.8	29	14	26	11	7	10	11	7
006	BH3M_1.7-1.8	29	14	26	11	7	10	11	7
007	BH3M_2.8-2.9	29	14	26	11	7	10	11	7
008	BH4M_0.3-0.5	29	14	26	11	7	10	11	7
009	BH4M_1.4-1.5	-	-	26	-	7	10	11	7
010	BH4M_2.9-3.0	29	14	26	11	7	10	11	7
011	BH4M_4.9-5.0	-	-	26	-	7	10	11	7
012	BH5M_0.1-0.2	29	14	26	11	7	10	11	7
013	BH5M_1.5-1.6	-	-	26	-	7	10	11	7
014	BH5M_1.9-2.0	29	14	26	11	7	10	11	7

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE208846

CLIENT DETAILS

Client EI AUSTRALIA

Project E24724.E02 2 Mandala Parade, Castle Hill

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	BH2_0.1-0.2	2	1	1
002	BH2_1.2-1.3	-	1	1
003	BH2_1.6-1.7	2	1	1
004	BH3M_0.1-0.2	2	1	1
005	BH3M_0.7-0.8	2	1	1
006	BH3M_1.7-1.8	2	1	1
007	BH3M_2.8-2.9	2	1	1
008	BH4M_0.3-0.5	2	1	1
009	BH4M_1.4-1.5	-	1	1
010	BH4M_2.9-3.0	2	1	1
011	BH4M_4.9-5.0	-	1	1
012	BH5M_0.1-0.2	2	1	1
013	BH5M_1.5-1.6	-	1	1
014	BH5M_1.9-2.0	2	1	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

Sheet 1 of 1

Site: 2 Mandala Parade, Castle Hill

Project No: E29729 E02

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	Analysis: HM A /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM A /TRH/BTEX/PAHs	HM A /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS				TCLP HM B / PAH
BH6_0.1-0.2	1	J/ZLB	20/7/20	AM/PM		X		X															
BH6-0.4-0.5	2	↓	↓	↓		X																	
BH6-0.9-1.0	3					X																	
BH6-1.4-1.5	4					X		X															

SGS EHS Sydney COC
SE209082

Comments

HM A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- [X] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table [ ]

Sampler's Name (EI):	Received by (SGS):
Print: Liwei	Print: George Zhi
Signature: Liwei	Signature: Zhi
Date: 23/7/20	Date: 23/7/20 @ 2:20pm

Sampler's Comments:

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

SAMPLE RECEIPT ADVICE

SE209082

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 Mandala Parade, Castle Hill**
Order Number	**E24724.E02**
Samples	4

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Thu 23/7/2020
Report Due	Thu 30/7/2020
SGS Reference	**SE209082**

SUBMISSION DETAILS

This is to confirm that 4 samples were received on Thursday 23/7/2020. Results are expected to be ready by COB Thursday 30/7/2020. Please quote SGS reference SE209082 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	2 Soil
Date documentation received	23/7/2020	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	8.1°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

2 soil samples have been placed on hold as no tests have been assigned for them by the client. These samples will not be processed.

Sheet 1 of 1

Site: 2 mandala Parade Castle Hill

Project No: E29729 E02

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	Analysis: HM [A] /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS	pH/EC/Soluble cations/manganese	Soluble anions (cl, carbonate, sulphate)	Textural classification (CEC)	TCLP HM [B] / PAH
BH2_1.9-2.9	15	J	9/7/20	Am/pm		X														X	X	X	
BH2_2.9-3.0	16	J	↓			X														X	X	X	
BH3M 2.8-2.9	7		13/7/20			X														X	X	X	
BH4M_4.4-4.5	17		14/7/20			X														X	X	X	
BH4M_4.9-5.0	11	↓	↓	↓		X														X	X	X	

Comments

HM [A]
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- [X] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other____

Container Type:
J= solvent washed, acid rinsed, Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print: Li Wei	Print: Shuiyi
Signature:	Signature:
Date: 21/7/20	Date: 21/7/20 16:0

Sampler's Comments:

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

eiaustralia
Contamination | Remediation | Geotechnical

Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

COC March 2016 FORM v.4 - SGS

SGS EHS Alexandria Laboratory

SE208846A COC
Received: 21-Jul-2020

SAMPLE RECEIPT ADVICE

SE209082

CLIENT DETAILS

Client EI AUSTRALIA

Project E24724.E02 2 Mandala Parade, Castle Hill

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH6_0.1-0.2	29	14	26	11	7	10	11	7
004	BH6_1.4-1.5	29	14	26	11	7	10	11	7

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE209082

CLIENT DETAILS

Client EI AUSTRALIA

Project E24724.E02 2 Mandala Parade, Castle Hill

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	BH6_0.1-0.2	2	1	1
004	BH6_1.4-1.5	2	1	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE208846A

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 Mandala Parade, Castle Hill**
Order Number	**E24724.E02**
Samples	17

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Tue 21/7/2020
Report Due	Tue 28/7/2020
SGS Reference	**SE208846A**

SUBMISSION DETAILS

This is to confirm that 17 samples were received on Tuesday 21/7/2020. Results are expected to be ready by COB Tuesday 28/7/2020. Please quote SGS reference SE208846A when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	5 Soil
Date documentation received	21/7/2020@8:16am	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	14°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

SAMPLE RECEIPT ADVICE

SE208846A

CLIENT DETAILS

Client EI AUSTRALIA

Project E24724.E02 2 Mandala Parade, Castle Hill

SUMMARY OF ANALYSIS

No.	Sample ID	Alkalinity in Soil	Conductivity and TDS by Calculation - Soil	Exchangeable Cations and Cation Exchange Capacity	Moisture Content	pH in soil (1:5)	Soil Texture (AS4419)	Soluble Anions (1:5) in Soil by Ion Chromatography	Total Recoverable Elements in Soil/Waste
007	BH3M_2.8-2.9	4	1	13	-	1	1	2	5
011	BH4M_4.9-5.0	4	1	13	-	1	1	2	5
015	BH2_1.9-2.0	4	1	13	1	1	1	2	5
016	BH2_2.9-3.0	4	1	13	1	1	1	2	5
017	BH4M_4.4-4.5	4	1	13	1	1	1	2	5

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

Sheet 1 of 1

Site: 2 Mandala Parade, Castle Hill

Project No: E29729, Eor

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM [A] /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS				TCLP HM [B] / PAH
BH3m-a	1	ep,S,2Vc	29/7/20	8am/pm	X				X			X				X							
BH4m-a	2	↓	↓	↓	X				X			X				X							
BH5m	3	↓	↓	↓	X				X			X				X							
GWDD1	4	P,S,2Vc			X					X													
GWDR1	5	↓	↓	↓	X					X													
GWDRB1		↓	↓	↓	X																		
GWTB1	6	Lab prepared			X						X												
GWTS1	7				X						X												

SGS EHS Sydney COC
SE209379

Comments

HM [A]
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND
- [X] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print: Li Wei	Print: Suba
Signature: Li Wei	Signature:
Date: 30/7/20	Date: 30/07/20 @ 12:15

Sampler's Comments:

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

SAMPLE RECEIPT ADVICE

SE209379

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 Mandala Parade, Castle Hill**
Order Number	**E24724.E02**
Samples	7

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Thu 30/7/2020
Report Due	Thu 6/8/2020
SGS Reference	**SE209379**

SUBMISSION DETAILS

This is to confirm that 7 samples were received on Thursday 30/7/2020. Results are expected to be ready by COB Thursday 6/8/2020. Please quote SGS reference SE209379 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	7 Water
Date documentation received	30/7/2020	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	5.4°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

SAMPLE RECEIPT ADVICE

SE209379

CLIENT DETAILS

Client EI AUSTRALIA

Project E24724.E02 2 Mandala Parade, Castle Hill

SUMMARY OF ANALYSIS

No.	Sample ID	Conductivity and TDS by Calculation - Water	Mercury (dissolved) in Water	PAH (Polynuclear Aromatic Hydrocarbons) in Water	pH in water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	BH3M-a	1	1	22	1	7	9	78	7
002	BH4M-a	1	1	22	1	7	9	78	7
003	BH5M	1	1	22	1	7	9	78	7
004	GWQD 1	-	1	-	-	7	9	11	7
005	GWQR 1	-	1	-	-	7	9	11	7
006	GWTB 1	-	-	-	-	-	-	11	-
007	GWTS 1	-	-	-	-	-	-	11	-

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

Sheet 1 of 1

Site: 2 mandala Parade, castle Hill

Project No: E29729. E02

Laboratory: **Envirolab Services**
12 Ashley Street,
CHATSWOOD NSW 2067
P: 02 9910 6200

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	Analysis: HM [A] /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS				TCLP HM [B] / PAH
GWOT1	(1)	P&ZVc	29/7/20	Am/Pm	X					X													

ENVIROLAB GROUP

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 248038
Date Received: 30/07/2020
Time Received: 1540
Received By: KG
Temp: Cool/Ambient 13.2°C
Cooling: Ice/Icepack
Security: Intact/Broken/None

Comments

HM [A]
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- [X] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (Envirolab)
Print: Li Wei	Print: K-Gore
Signature: Li Wei	Signature:
Date: 30/7/20	Date: 30/07/2020

Sampler's Comments:

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	EI Australia
Attention	Lab Email

Sample Login Details

Your reference	E24729.E02, Castle Hill
Envirolab Reference	248038
Date Sample Received	30/07/2020
Date Instructions Received	30/07/2020
Date Results Expected to be Reported	06/08/2020

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	13.2
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	HM in water - dissolved
GWQT1	✓	✓	✓

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

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Appendix I - Laboratory Analytical Reports

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 Mandala Parade, Castle Hill**
Order Number	**E24724.E02**
Samples	32

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE208655 R0**
Date Received	13/7/2020
Date Reported	20/7/2020

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Akheeqar BENIAMEEN
Chemist

Bennet LO
Senior Organic Chemist/Metals Chemist

Dong LIANG
Metals/Inorganics Team Leader

Kamrul AHSAN
Senior Chemist

Ly Kim HA
Organic Section Head

Yusuf KUTHPUDIN
Asbestos Analyst

VOC's in Soil [AN433] Tested: 15/7/2020

PARAMETER	UOM	LOR	TP7_0.1-0.2 SOIL - 8/7/2020 SE208655.001	TP7_1.3-1.4 SOIL - 8/7/2020 SE208655.002	TP8_0.1-0.2 SOIL - 8/7/2020 SE208655.003	TP8_0.9-1.0 SOIL - 8/7/2020 SE208655.004	TP9_0.1-0.2 SOIL - 8/7/2020 SE208655.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	TP9_1.2-1.3 SOIL - 8/7/2020 SE208655.006	TP10_0.1-0.2 SOIL - 8/7/2020 SE208655.007	TP11_0.1-0.2 SOIL - 8/7/2020 SE208655.008	TP11_0.8-0.9 SOIL - 8/7/2020 SE208655.009	TP12_0.1-0.2 SOIL - 8/7/2020 SE208655.010
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	TP12_0.8-0.9 SOIL - 8/7/2020 SE208655.011	TP12_1.7-1.8 SOIL - 8/7/2020 SE208655.012	TP13_0.1-0.2 SOIL - 8/7/2020 SE208655.013	TP13_1.2-1.3 SOIL - 8/7/2020 SE208655.014	TP13_2.0-2.1 SOIL - 8/7/2020 SE208655.015
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	TP14_0.1-0.2 SOIL - 8/7/2020 SE208655.016	TP14_1.5-1.6 SOIL - 8/7/2020 SE208655.017	TP15_0.1-0.2 SOIL - 8/7/2020 SE208655.018	TP15_1.7-1.8 SOIL - 8/7/2020 SE208655.019	TP16_0.1-0.2 SOIL - 8/7/2020 SE208655.020
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

VOC's in Soil [AN433] Tested: 15/7/2020 (continued)

PARAMETER	UOM	LOR	TP17_0.1-0.2 SOIL - 8/7/2020 SE208655.021	TP18_0.1-0.2 SOIL - 8/7/2020 SE208655.022	TP18_1.8-1.9 SOIL - 8/7/2020 SE208655.023	TP19_0.1-0.2 SOIL - 8/7/2020 SE208655.024	TP19_1.4-1.5 SOIL - 8/7/2020 SE208655.025
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	QD1 SOIL - 8/7/2020 SE208655.026	QD2 SOIL - 8/7/2020 SE208655.027	QTB1 SOIL - 8/7/2020 SE208655.029	QTS1 SOIL - 8/7/2020 SE208655.030	BH1_0.1-0.2 SOIL - 8/7/2020 SE208655.031
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	[87%]	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	[89%]	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	[90%]	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	[90%]	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	[91%]	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	-	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	-	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1

PARAMETER	UOM	LOR	BH1_0.7-0.8 SOIL - 8/7/2020 SE208655.032
Benzene	mg/kg	0.1	<0.1
Toluene	mg/kg	0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2
o-xylene	mg/kg	0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 15/7/2020

PARAMETER	UOM	LOR	TP7_0.1-0.2 SOIL - 8/7/2020 SE208655.001	TP7_1.3-1.4 SOIL - 8/7/2020 SE208655.002	TP8_0.1-0.2 SOIL - 8/7/2020 SE208655.003	TP8_0.9-1.0 SOIL - 8/7/2020 SE208655.004	TP9_0.1-0.2 SOIL - 8/7/2020 SE208655.005
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	TP9_1.2-1.3 SOIL - 8/7/2020 SE208655.006	TP10_0.1-0.2 SOIL - 8/7/2020 SE208655.007	TP11_0.1-0.2 SOIL - 8/7/2020 SE208655.008	TP11_0.8-0.9 SOIL - 8/7/2020 SE208655.009	TP12_0.1-0.2 SOIL - 8/7/2020 SE208655.010
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	TP12_0.8-0.9 SOIL - 8/7/2020 SE208655.011	TP12_1.7-1.8 SOIL - 8/7/2020 SE208655.012	TP13_0.1-0.2 SOIL - 8/7/2020 SE208655.013	TP13_1.2-1.3 SOIL - 8/7/2020 SE208655.014	TP13_2.0-2.1 SOIL - 8/7/2020 SE208655.015
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	TP14_0.1-0.2 SOIL - 8/7/2020 SE208655.016	TP14_1.5-1.6 SOIL - 8/7/2020 SE208655.017	TP15_0.1-0.2 SOIL - 8/7/2020 SE208655.018	TP15_1.7-1.8 SOIL - 8/7/2020 SE208655.019	TP16_0.1-0.2 SOIL - 8/7/2020 SE208655.020
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	TP17_0.1-0.2 SOIL - 8/7/2020 SE208655.021	TP18_0.1-0.2 SOIL - 8/7/2020 SE208655.022	TP18_1.8-1.9 SOIL - 8/7/2020 SE208655.023	TP19_0.1-0.2 SOIL - 8/7/2020 SE208655.024	TP19_1.4-1.5 SOIL - 8/7/2020 SE208655.025
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	QD1 SOIL - 8/7/2020 SE208655.026	QD2 SOIL - 8/7/2020 SE208655.027	BH1_0.1-0.2 SOIL - 8/7/2020 SE208655.031	BH1_0.7-0.8 SOIL - 8/7/2020 SE208655.032
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 15/7/2020

PARAMETER	UOM	LOR	TP7_0.1-0.2 SOIL - 8/7/2020 SE208655.001	TP7_1.3-1.4 SOIL - 8/7/2020 SE208655.002	TP8_0.1-0.2 SOIL - 8/7/2020 SE208655.003	TP8_0.9-1.0 SOIL - 8/7/2020 SE208655.004	TP9_0.1-0.2 SOIL - 8/7/2020 SE208655.005
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	TP9_1.2-1.3 SOIL - 8/7/2020 SE208655.006	TP10_0.1-0.2 SOIL - 8/7/2020 SE208655.007	TP11_0.1-0.2 SOIL - 8/7/2020 SE208655.008	TP11_0.8-0.9 SOIL - 8/7/2020 SE208655.009	TP12_0.1-0.2 SOIL - 8/7/2020 SE208655.010
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	**70**
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	TP12_0.8-0.9 SOIL - 8/7/2020 SE208655.011	TP12_1.7-1.8 SOIL - 8/7/2020 SE208655.012	TP13_0.1-0.2 SOIL - 8/7/2020 SE208655.013	TP13_1.2-1.3 SOIL - 8/7/2020 SE208655.014	TP13_2.0-2.1 SOIL - 8/7/2020 SE208655.015
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	**48**	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 15/7/2020 (continued)

PARAMETER	UOM	LOR	TP14_0.1-0.2 SOIL - 8/7/2020 SE208655.016	TP14_1.5-1.6 SOIL - 8/7/2020 SE208655.017	TP15_0.1-0.2 SOIL - 8/7/2020 SE208655.018	TP15_1.7-1.8 SOIL - 8/7/2020 SE208655.019	TP16_0.1-0.2 SOIL - 8/7/2020 SE208655.020
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	**99**	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	**330**	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	**230**	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	**280**	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	**370**	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	**430**	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	**650**	<210

PARAMETER	UOM	LOR	TP17_0.1-0.2 SOIL - 8/7/2020 SE208655.021	TP18_0.1-0.2 SOIL - 8/7/2020 SE208655.022	TP18_1.8-1.9 SOIL - 8/7/2020 SE208655.023	TP19_0.1-0.2 SOIL - 8/7/2020 SE208655.024	TP19_1.4-1.5 SOIL - 8/7/2020 SE208655.025
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	QD1 SOIL - 8/7/2020 SE208655.026	QD2 SOIL - 8/7/2020 SE208655.027	BH1_0.1-0.2 SOIL - 8/7/2020 SE208655.031	BH1_0.7-0.8 SOIL - 8/7/2020 SE208655.032
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 15/7/2020

PARAMETER	UOM	LOR	TP7_0.1-0.2 SOIL - 8/7/2020 SE208655.001	TP7_1.3-1.4 SOIL - 8/7/2020 SE208655.002	TP8_0.1-0.2 SOIL - 8/7/2020 SE208655.003	TP8_0.9-1.0 SOIL - 8/7/2020 SE208655.004	TP9_0.1-0.2 SOIL - 8/7/2020 SE208655.005
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.4**	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	**0.5**	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	**0.2**	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	**0.3**	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	**0.3**	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	**1.7**	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	**1.7**	<0.8	<0.8

PARAMETER	UOM	LOR	TP9_1.2-1.3 SOIL - 8/7/2020 SE208655.006	TP10_0.1-0.2 SOIL - 8/7/2020 SE208655.007	TP11_0.1-0.2 SOIL - 8/7/2020 SE208655.008	TP11_0.8-0.9 SOIL - 8/7/2020 SE208655.009	TP12_0.1-0.2 SOIL - 8/7/2020 SE208655.010
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	**0.2**
Pyrene	mg/kg	0.1	<0.1	**0.1**	**0.2**	<0.1	**0.2**
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 15/7/2020 (continued)

PARAMETER	UOM	LOR	TP12_0.8-0.9 SOIL - 8/7/2020 SE208655.011	TP12_1.7-1.8 SOIL - 8/7/2020 SE208655.012	TP13_0.1-0.2 SOIL - 8/7/2020 SE208655.013	TP13_1.2-1.3 SOIL - 8/7/2020 SE208655.014	TP13_2.0-2.1 SOIL - 8/7/2020 SE208655.015
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	**0.1**	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	**0.2**	<0.1	<0.1	**0.1**	<0.1
Pyrene	mg/kg	0.1	**0.3**	**0.1**	<0.1	**0.1**	<0.1
Benzo(a)anthracene	mg/kg	0.1	**0.1**	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	**0.1**	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	**0.1**	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	**0.1**	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	**0.2**	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	**1.2**	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	**1.2**	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	TP14_0.1-0.2 SOIL - 8/7/2020 SE208655.016	TP14_1.5-1.6 SOIL - 8/7/2020 SE208655.017	TP15_0.1-0.2 SOIL - 8/7/2020 SE208655.018	TP15_1.7-1.8 SOIL - 8/7/2020 SE208655.019	TP16_0.1-0.2 SOIL - 8/7/2020 SE208655.020
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.2**	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	**0.2**	<0.1	**0.1**	**0.3**	<0.1
Pyrene	mg/kg	0.1	**0.3**	<0.1	**0.1**	**0.3**	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.2**	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	**0.1**	<0.1	<0.1	**0.1**	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	**0.1**	<0.1	<0.1	**0.1**	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.1**	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.3**	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	**0.2**	<0.2	<0.2	**0.2**	<0.2
Total PAH (18)	mg/kg	0.8	**0.8**	<0.8	<0.8	**1.7**	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	**0.8**	<0.8	<0.8	**1.7**	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 15/7/2020 (continued)

PARAMETER	UOM	LOR	TP17_0.1-0.2 SOIL - 8/7/2020 SE208655.021	TP18_0.1-0.2 SOIL - 8/7/2020 SE208655.022	TP18_1.8-1.9 SOIL - 8/7/2020 SE208655.023	TP19_0.1-0.2 SOIL - 8/7/2020 SE208655.024	TP19_1.4-1.5 SOIL - 8/7/2020 SE208655.025
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	**0.1**	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	**0.2**	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	BH1_0.1-0.2 SOIL - 8/7/2020 SE208655.031	BH1_0.7-0.8 SOIL - 8/7/2020 SE208655.032
Naphthalene	mg/kg	0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8

OC Pesticides in Soil [AN420] Tested: 15/7/2020

PARAMETER	UOM	LOR	TP7_0.1-0.2 SOIL - 8/7/2020 SE208655.001	TP7_1.3-1.4 SOIL - 8/7/2020 SE208655.002	TP8_0.1-0.2 SOIL - 8/7/2020 SE208655.003	TP8_0.9-1.0 SOIL - 8/7/2020 SE208655.004	TP9_0.1-0.2 SOIL - 8/7/2020 SE208655.005
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 15/7/2020 (continued)

PARAMETER	UOM	LOR	TP9_1.2-1.3 SOIL - 8/7/2020 SE208655.006	TP10_0.1-0.2 SOIL - 8/7/2020 SE208655.007	TP11_0.1-0.2 SOIL - 8/7/2020 SE208655.008	TP11_0.8-0.9 SOIL - 8/7/2020 SE208655.009	TP12_0.1-0.2 SOIL - 8/7/2020 SE208655.010
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 15/7/2020 (continued)

PARAMETER	UOM	LOR	TP12_0.8-0.9 SOIL - 8/7/2020 SE208655.011	TP12_1.7-1.8 SOIL - 8/7/2020 SE208655.012	TP13_0.1-0.2 SOIL - 8/7/2020 SE208655.013	TP13_1.2-1.3 SOIL - 8/7/2020 SE208655.014	TP13_2.0-2.1 SOIL - 8/7/2020 SE208655.015
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 15/7/2020 (continued)

PARAMETER	UOM	LOR	TP14_0.1-0.2 SOIL - 8/7/2020 SE208655.016	TP14_1.5-1.6 SOIL - 8/7/2020 SE208655.017	TP15_0.1-0.2 SOIL - 8/7/2020 SE208655.018	TP15_1.7-1.8 SOIL - 8/7/2020 SE208655.019	TP16_0.1-0.2 SOIL - 8/7/2020 SE208655.020
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 15/7/2020 (continued)

PARAMETER	UOM	LOR	TP17_0.1-0.2 SOIL - 8/7/2020 SE208655.021	TP18_0.1-0.2 SOIL - 8/7/2020 SE208655.022	TP18_1.8-1.9 SOIL - 8/7/2020 SE208655.023	TP19_0.1-0.2 SOIL - 8/7/2020 SE208655.024	TP19_1.4-1.5 SOIL - 8/7/2020 SE208655.025
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 15/7/2020 (continued)

PARAMETER	UOM	LOR	BH1_0.1-0.2 SOIL - 8/7/2020 SE208655.031	BH1_0.7-0.8 SOIL - 8/7/2020 SE208655.032
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1

OP Pesticides in Soil [AN420] Tested: 15/7/2020

PARAMETER	UOM	LOR	TP7_0.1-0.2 SOIL - 8/7/2020 SE208655.001	TP7_1.3-1.4 SOIL - 8/7/2020 SE208655.002	TP8_0.1-0.2 SOIL - 8/7/2020 SE208655.003	TP8_0.9-1.0 SOIL - 8/7/2020 SE208655.004	TP9_0.1-0.2 SOIL - 8/7/2020 SE208655.005
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	TP9_1.2-1.3 SOIL - 8/7/2020 SE208655.006	TP10_0.1-0.2 SOIL - 8/7/2020 SE208655.007	TP11_0.1-0.2 SOIL - 8/7/2020 SE208655.008	TP11_0.8-0.9 SOIL - 8/7/2020 SE208655.009	TP12_0.1-0.2 SOIL - 8/7/2020 SE208655.010
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	TP12_0.8-0.9 SOIL - 8/7/2020 SE208655.011	TP12_1.7-1.8 SOIL - 8/7/2020 SE208655.012	TP13_0.1-0.2 SOIL - 8/7/2020 SE208655.013	TP13_1.2-1.3 SOIL - 8/7/2020 SE208655.014	TP13_2.0-2.1 SOIL - 8/7/2020 SE208655.015
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

OP Pesticides in Soil [AN420] Tested: 15/7/2020 (continued)

PARAMETER	UOM	LOR	TP14_0.1-0.2 SOIL - 8/7/2020 SE208655.016	TP14_1.5-1.6 SOIL - 8/7/2020 SE208655.017	TP15_0.1-0.2 SOIL - 8/7/2020 SE208655.018	TP15_1.7-1.8 SOIL - 8/7/2020 SE208655.019	TP16_0.1-0.2 SOIL - 8/7/2020 SE208655.020
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	TP17_0.1-0.2 SOIL - 8/7/2020 SE208655.021	TP18_0.1-0.2 SOIL - 8/7/2020 SE208655.022	TP18_1.8-1.9 SOIL - 8/7/2020 SE208655.023	TP19_0.1-0.2 SOIL - 8/7/2020 SE208655.024	TP19_1.4-1.5 SOIL - 8/7/2020 SE208655.025
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	BH1_0.1-0.2 SOIL - 8/7/2020 SE208655.031	BH1_0.7-0.8 SOIL - 8/7/2020 SE208655.032
Dichlorvos	mg/kg	0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7

PCBs in Soil [AN420] Tested: 15/7/2020

PARAMETER	UOM	LOR	TP7_0.1-0.2 SOIL - 8/7/2020 SE208655.001	TP7_1.3-1.4 SOIL - 8/7/2020 SE208655.002	TP8_0.1-0.2 SOIL - 8/7/2020 SE208655.003	TP8_0.9-1.0 SOIL - 8/7/2020 SE208655.004	TP9_0.1-0.2 SOIL - 8/7/2020 SE208655.005
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	TP9_1.2-1.3 SOIL - 8/7/2020 SE208655.006	TP10_0.1-0.2 SOIL - 8/7/2020 SE208655.007	TP11_0.1-0.2 SOIL - 8/7/2020 SE208655.008	TP11_0.8-0.9 SOIL - 8/7/2020 SE208655.009	TP12_0.1-0.2 SOIL - 8/7/2020 SE208655.010
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	TP12_0.8-0.9 SOIL - 8/7/2020 SE208655.011	TP12_1.7-1.8 SOIL - 8/7/2020 SE208655.012	TP13_0.1-0.2 SOIL - 8/7/2020 SE208655.013	TP13_1.2-1.3 SOIL - 8/7/2020 SE208655.014	TP13_2.0-2.1 SOIL - 8/7/2020 SE208655.015
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PCBs in Soil [AN420] Tested: 15/7/2020 (continued)

PARAMETER	UOM	LOR	TP14_0.1-0.2 SOIL - 8/7/2020 SE208655.016	TP14_1.5-1.6 SOIL - 8/7/2020 SE208655.017	TP15_0.1-0.2 SOIL - 8/7/2020 SE208655.018	TP15_1.7-1.8 SOIL - 8/7/2020 SE208655.019	TP16_0.1-0.2 SOIL - 8/7/2020 SE208655.020
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	TP17_0.1-0.2 SOIL - 8/7/2020 SE208655.021	TP18_0.1-0.2 SOIL - 8/7/2020 SE208655.022	TP18_1.8-1.9 SOIL - 8/7/2020 SE208655.023	TP19_0.1-0.2 SOIL - 8/7/2020 SE208655.024	TP19_1.4-1.5 SOIL - 8/7/2020 SE208655.025
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	BH1_0.1-0.2 SOIL - 8/7/2020 SE208655.031	BH1_0.7-0.8 SOIL - 8/7/2020 SE208655.032
Arochlor 1016	mg/kg	0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 15/7/2020

PARAMETER	UOM	LOR	TP7_0.1-0.2 SOIL - 8/7/2020 SE208655.001	TP7_1.3-1.4 SOIL - 8/7/2020 SE208655.002	TP8_0.1-0.2 SOIL - 8/7/2020 SE208655.003	TP8_0.9-1.0 SOIL - 8/7/2020 SE208655.004	TP9_0.1-0.2 SOIL - 8/7/2020 SE208655.005
Arsenic, As	mg/kg	1	4	14	5	5	4
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	11	20	24	4.6	8.4
Copper, Cu	mg/kg	0.5	24	9.6	26	6.9	16
Lead, Pb	mg/kg	1	12	17	12	18	11
Nickel, Ni	mg/kg	0.5	13	<0.5	18	<0.5	5.7
Zinc, Zn	mg/kg	2	34	7.1	27	2.2	22

PARAMETER	UOM	LOR	TP9_1.2-1.3 SOIL - 8/7/2020 SE208655.006	TP10_0.1-0.2 SOIL - 8/7/2020 SE208655.007	TP11_0.1-0.2 SOIL - 8/7/2020 SE208655.008	TP11_0.8-0.9 SOIL - 8/7/2020 SE208655.009	TP12_0.1-0.2 SOIL - 8/7/2020 SE208655.010
Arsenic, As	mg/kg	1	<1	4	4	2	4
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	2.3	14	42	29	11
Copper, Cu	mg/kg	0.5	2.1	16	12	130	22
Lead, Pb	mg/kg	1	15	12	12	4	15
Nickel, Ni	mg/kg	0.5	<0.5	10	10	34	20
Zinc, Zn	mg/kg	2	<2.0	31	39	39	42

PARAMETER	UOM	LOR	TP12_0.8-0.9 SOIL - 8/7/2020 SE208655.011	TP12_1.7-1.8 SOIL - 8/7/2020 SE208655.012	TP13_0.1-0.2 SOIL - 8/7/2020 SE208655.013	TP13_1.2-1.3 SOIL - 8/7/2020 SE208655.014	TP13_2.0-2.1 SOIL - 8/7/2020 SE208655.015
Arsenic, As	mg/kg	1	3	4	3	4	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	12	12	8.1	10	14
Copper, Cu	mg/kg	0.5	19	13	9.4	14	12
Lead, Pb	mg/kg	1	13	13	10	13	17
Nickel, Ni	mg/kg	0.5	18	10	8.6	8.3	8.2
Zinc, Zn	mg/kg	2	38	25	20	28	28

PARAMETER	UOM	LOR	TP14_0.1-0.2 SOIL - 8/7/2020 SE208655.016	TP14_1.5-1.6 SOIL - 8/7/2020 SE208655.017	TP15_0.1-0.2 SOIL - 8/7/2020 SE208655.018	TP15_1.7-1.8 SOIL - 8/7/2020 SE208655.019	TP16_0.1-0.2 SOIL - 8/7/2020 SE208655.020
Arsenic, As	mg/kg	1	4	4	3	4	3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	13	6.1	11	16	15
Copper, Cu	mg/kg	0.5	15	<0.5	15	22	24
Lead, Pb	mg/kg	1	14	5	16	15	9
Nickel, Ni	mg/kg	0.5	13	<0.5	9.3	6.8	18
Zinc, Zn	mg/kg	2	35	<2.0	87	36	50

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 15/7/2020

(continued)

PARAMETER	UOM	LOR	TP17_0.1-0.2 SOIL - 8/7/2020 SE208655.021	TP18_0.1-0.2 SOIL - 8/7/2020 SE208655.022	TP18_1.8-1.9 SOIL - 8/7/2020 SE208655.023	TP19_0.1-0.2 SOIL - 8/7/2020 SE208655.024	TP19_1.4-1.5 SOIL - 8/7/2020 SE208655.025
Arsenic, As	mg/kg	1	4	3	6	4	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	10	9.1	11	32	16
Copper, Cu	mg/kg	0.5	12	12	16	23	1.9
Lead, Pb	mg/kg	1	12	11	14	11	13
Nickel, Ni	mg/kg	0.5	9.8	9.0	9.2	15	0.7
Zinc, Zn	mg/kg	2	32	30	44	43	2.9

PARAMETER	UOM	LOR	QD1 SOIL - 8/7/2020 SE208655.026	QD2 SOIL - 8/7/2020 SE208655.027	BH1_0.1-0.2 SOIL - 8/7/2020 SE208655.031	BH1_0.7-0.8 SOIL - 8/7/2020 SE208655.032
Arsenic, As	mg/kg	1	4	4	5	6
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	19	9.9	8.8	7.9
Copper, Cu	mg/kg	0.5	21	12	9.8	8.9
Lead, Pb	mg/kg	1	12	13	12	14
Nickel, Ni	mg/kg	0.5	15	12	5.4	0.8
Zinc, Zn	mg/kg	2	27	33	16	7.8

Mercury in Soil [AN312] Tested: 15/7/2020

PARAMETER	UOM	LOR	TP7_0.1-0.2 SOIL - 8/7/2020 SE208655.001	TP7_1.3-1.4 SOIL - 8/7/2020 SE208655.002	TP8_0.1-0.2 SOIL - 8/7/2020 SE208655.003	TP8_0.9-1.0 SOIL - 8/7/2020 SE208655.004	TP9_0.1-0.2 SOIL - 8/7/2020 SE208655.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	TP9_1.2-1.3 SOIL - 8/7/2020 SE208655.006	TP10_0.1-0.2 SOIL - 8/7/2020 SE208655.007	TP11_0.1-0.2 SOIL - 8/7/2020 SE208655.008	TP11_0.8-0.9 SOIL - 8/7/2020 SE208655.009	TP12_0.1-0.2 SOIL - 8/7/2020 SE208655.010
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	TP12_0.8-0.9 SOIL - 8/7/2020 SE208655.011	TP12_1.7-1.8 SOIL - 8/7/2020 SE208655.012	TP13_0.1-0.2 SOIL - 8/7/2020 SE208655.013	TP13_1.2-1.3 SOIL - 8/7/2020 SE208655.014	TP13_2.0-2.1 SOIL - 8/7/2020 SE208655.015
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	TP14_0.1-0.2 SOIL - 8/7/2020 SE208655.016	TP14_1.5-1.6 SOIL - 8/7/2020 SE208655.017	TP15_0.1-0.2 SOIL - 8/7/2020 SE208655.018	TP15_1.7-1.8 SOIL - 8/7/2020 SE208655.019	TP16_0.1-0.2 SOIL - 8/7/2020 SE208655.020
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	TP17_0.1-0.2 SOIL - 8/7/2020 SE208655.021	TP18_0.1-0.2 SOIL - 8/7/2020 SE208655.022	TP18_1.8-1.9 SOIL - 8/7/2020 SE208655.023	TP19_0.1-0.2 SOIL - 8/7/2020 SE208655.024	TP19_1.4-1.5 SOIL - 8/7/2020 SE208655.025
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	QD1 SOIL - 8/7/2020 SE208655.026	QD2 SOIL - 8/7/2020 SE208655.027	BH1_0.1-0.2 SOIL - 8/7/2020 SE208655.031	BH1_0.7-0.8 SOIL - 8/7/2020 SE208655.032
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 15/7/2020

PARAMETER	UOM	LOR	TP7_0.1-0.2 SOIL - 8/7/2020 SE208655.001	TP7_1.3-1.4 SOIL - 8/7/2020 SE208655.002	TP8_0.1-0.2 SOIL - 8/7/2020 SE208655.003	TP8_0.9-1.0 SOIL - 8/7/2020 SE208655.004	TP9_0.1-0.2 SOIL - 8/7/2020 SE208655.005
% Moisture	%w/w	1	12.1	18.3	13.5	11.0	8.1

PARAMETER	UOM	LOR	TP9_1.2-1.3 SOIL - 8/7/2020 SE208655.006	TP10_0.1-0.2 SOIL - 8/7/2020 SE208655.007	TP11_0.1-0.2 SOIL - 8/7/2020 SE208655.008	TP11_0.8-0.9 SOIL - 8/7/2020 SE208655.009	TP12_0.1-0.2 SOIL - 8/7/2020 SE208655.010
% Moisture	%w/w	1	13.4	9.8	11.0	7.3	10.2

PARAMETER	UOM	LOR	TP12_0.8-0.9 SOIL - 8/7/2020 SE208655.011	TP12_1.7-1.8 SOIL - 8/7/2020 SE208655.012	TP13_0.1-0.2 SOIL - 8/7/2020 SE208655.013	TP13_1.2-1.3 SOIL - 8/7/2020 SE208655.014	TP13_2.0-2.1 SOIL - 8/7/2020 SE208655.015
% Moisture	%w/w	1	10.2	10.8	10.3	11.6	14.7

PARAMETER	UOM	LOR	TP14_0.1-0.2 SOIL - 8/7/2020 SE208655.016	TP14_1.5-1.6 SOIL - 8/7/2020 SE208655.017	TP15_0.1-0.2 SOIL - 8/7/2020 SE208655.018	TP15_1.7-1.8 SOIL - 8/7/2020 SE208655.019	TP16_0.1-0.2 SOIL - 8/7/2020 SE208655.020
% Moisture	%w/w	1	10.7	11.1	9.0	11.8	9.2

PARAMETER	UOM	LOR	TP17_0.1-0.2 SOIL - 8/7/2020 SE208655.021	TP18_0.1-0.2 SOIL - 8/7/2020 SE208655.022	TP18_1.8-1.9 SOIL - 8/7/2020 SE208655.023	TP19_0.1-0.2 SOIL - 8/7/2020 SE208655.024	TP19_1.4-1.5 SOIL - 8/7/2020 SE208655.025
% Moisture	%w/w	1	9.7	10.5	15.0	9.9	18.4

PARAMETER	UOM	LOR	QD1 SOIL - 8/7/2020 SE208655.026	QD2 SOIL - 8/7/2020 SE208655.027	QTB1 SOIL - 8/7/2020 SE208655.029	BH1_0.1-0.2 SOIL - 8/7/2020 SE208655.031	BH1_0.7-0.8 SOIL - 8/7/2020 SE208655.032
% Moisture	%w/w	1	13.3	11.3	<1.0	10.7	11.0

Fibre Identification in soil [AN602] Tested: 17/7/2020

PARAMETER	UOM	LOR	TP7_0.1-0.2 SOIL - 8/7/2020 SE208655.001	TP7_1.3-1.4 SOIL - 8/7/2020 SE208655.002	TP8_0.1-0.2 SOIL - 8/7/2020 SE208655.003	TP8_0.9-1.0 SOIL - 8/7/2020 SE208655.004	TP9_0.1-0.2 SOIL - 8/7/2020 SE208655.005
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	TP9_1.2-1.3 SOIL - 8/7/2020 SE208655.006	TP10_0.1-0.2 SOIL - 8/7/2020 SE208655.007	TP11_0.1-0.2 SOIL - 8/7/2020 SE208655.008	TP11_0.8-0.9 SOIL - 8/7/2020 SE208655.009	TP12_0.1-0.2 SOIL - 8/7/2020 SE208655.010
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	TP12_0.8-0.9 SOIL - 8/7/2020 SE208655.011	TP12_1.7-1.8 SOIL - 8/7/2020 SE208655.012	TP13_0.1-0.2 SOIL - 8/7/2020 SE208655.013	TP13_1.2-1.3 SOIL - 8/7/2020 SE208655.014	TP13_2.0-2.1 SOIL - 8/7/2020 SE208655.015
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	TP14_0.1-0.2 SOIL - 8/7/2020 SE208655.016	TP14_1.5-1.6 SOIL - 8/7/2020 SE208655.017	TP15_0.1-0.2 SOIL - 8/7/2020 SE208655.018	TP15_1.7-1.8 SOIL - 8/7/2020 SE208655.019	TP16_0.1-0.2 SOIL - 8/7/2020 SE208655.020
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	TP17_0.1-0.2 SOIL - 8/7/2020 SE208655.021	TP18_0.1-0.2 SOIL - 8/7/2020 SE208655.022	TP18_1.8-1.9 SOIL - 8/7/2020 SE208655.023	TP19_0.1-0.2 SOIL - 8/7/2020 SE208655.024	TP19_1.4-1.5 SOIL - 8/7/2020 SE208655.025
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	BH1_0.1-0.2 SOIL - 8/7/2020 SE208655.031	BH1_0.7-0.8 SOIL - 8/7/2020 SE208655.032
Asbestos Detected	No unit	-	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01

VOCs in Water [AN433] Tested: 16/7/2020

PARAMETER	UOM	LOR	QR1 WATER - 8/7/2020 SE208655.028
Benzene	µg/L	0.5	<0.5
Toluene	µg/L	0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5
m/p-xylene	µg/L	1	<1
o-xylene	µg/L	0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5
Total BTEX	µg/L	3	<3
Naphthalene	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 16/7/2020

PARAMETER	UOM	LOR	QR1 WATER - 8/7/2020 SE208655.028
TRH C6-C9	µg/L	40	<40
Benzene (F0)	µg/L	0.5	<0.5
TRH C6-C10	µg/L	50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 15/7/2020

PARAMETER	UOM	LOR	QR1 WATER - 8/7/2020 SE208655.028
TRH C10-C14	µg/L	50	<50
TRH C15-C28	µg/L	200	<200
TRH C29-C36	µg/L	200	<200
TRH C37-C40	µg/L	200	<200
TRH >C10-C16	µg/L	60	<60
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60
TRH >C16-C34 (F3)	µg/L	500	<500
TRH >C34-C40 (F4)	µg/L	500	<500
TRH C10-C40	µg/L	320	<320

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 15/7/2020

PARAMETER	UOM	LOR	QR1 WATER - 8/7/2020 SE208655.028
Arsenic, As	µg/L	1	<1
Cadmium, Cd	µg/L	0.1	<0.1
Chromium, Cr	µg/L	1	<1
Copper, Cu	µg/L	1	<1
Lead, Pb	µg/L	1	<1
Nickel, Ni	µg/L	1	<1
Zinc, Zn	µg/L	5	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 15/7/2020

PARAMETER	UOM	LOR	QR1 WATER - 8/7/2020 SE208655.028
Mercury	mg/L	0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN318	Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS /ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 Mandala Parade, Castle Hill**
Order Number	**E24724.E02**
Samples	27

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE208655 R0**
Date Received	13 Jul 2020
Date Reported	20 Jul 2020

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Akheeqar BENIAMEEN
Chemist

Bennet LO
Senior Organic Chemist/Metals Chemis

Kamrul AHSAN
Senior Chemist

Ly Kim HA
Organic Section Head

Yusuf KUTHPUDIN
Asbestos Analyst

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE208655.001	TP7_0.1-0.2	Soil	155g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found Organic Fibres Detected	<0.01
SE208655.002	TP7_1.3-1.4	Soil	207g Clay, Rocks	08 Jul 2020	No Asbestos Found	<0.01
SE208655.003	TP8_0.1-0.2	Soil	112g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found Organic Fibres Detected	<0.01
SE208655.004	TP8_0.9-1.0	Soil	175g Clay, Rocks	08 Jul 2020	No Asbestos Found	<0.01
SE208655.005	TP9_0.1-0.2	Soil	154g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found	<0.01
SE208655.006	TP9_1.2-1.3	Soil	185g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found	<0.01
SE208655.007	TP10_0.1-0.2	Soil	127g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found Organic Fibres Detected	<0.01
SE208655.008	TP11_0.1-0.2	Soil	112g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found Organic Fibres Detected	<0.01
SE208655.009	TP11_0.8-0.9	Soil	164g Sand, Rocks	08 Jul 2020	No Asbestos Found	<0.01
SE208655.010	TP12_0.1-0.2	Soil	124g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found Organic Fibres Detected	<0.01
SE208655.011	TP12_0.8-0.9	Soil	160g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found Organic Fibres Detected	<0.01
SE208655.012	TP12_1.7-1.8	Soil	131g Clay, Sand, Soil, Rocks	08 Jul 2020	No Asbestos Found Organic Fibres Detected	<0.01
SE208655.013	TP13_0.1-0.2	Soil	111g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found	<0.01
SE208655.014	TP13_1.2-1.3	Soil	95g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found Organic Fibres Detected	<0.01
SE208655.015	TP13_2.0-2.1	Soil	105g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found Organic Fibres Detected	<0.01
SE208655.016	TP14_0.1-0.2	Soil	95g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found Organic Fibres Detected	<0.01
SE208655.017	TP14_1.5-1.6	Soil	103g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found	<0.01
SE208655.018	TP15_0.1-0.2	Soil	106g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found Organic Fibres Detected	<0.01
SE208655.019	TP15_1.7-1.8	Soil	132g Sand, Rocks, Bitumen	08 Jul 2020	No Asbestos Found Organic Fibres Detected	<0.01
SE208655.020	TP16_0.1-0.2	Soil	99g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found Organic Fibres Detected	<0.01
SE208655.021	TP17_0.1-0.2	Soil	103g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found	<0.01
SE208655.022	TP18_0.1-0.2	Soil	126g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found Organic Fibres Detected	<0.01
SE208655.023	TP18_1.8-1.9	Soil	125g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found Organic Fibres Detected	<0.01
SE208655.024	TP19_0.1-0.2	Soil	175g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found Organic Fibres Detected	<0.01
SE208655.025	TP19_1.4-1.5	Soil	187g Clay, Rocks	08 Jul 2020	No Asbestos Found	<0.01
SE208655.031	BH1_0.1-0.2	Soil	161g Clay, Sand, Rocks	08 Jul 2020	No Asbestos Found	<0.01
SE208655.032	BH1_0.7-0.8	Soil	331g Clay, Rocks	08 Jul 2020	No Asbestos Found	<0.01

RESULTS

Fibre Identification in soil	Method	AN602

METHOD SUMMARY

SE208655 R0

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable ’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy , including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety .

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 246861

Client Details

Client	EI Australia
Attention	Lab Email
Address	Suite 6.01, 55 Miller Street, Pyrmont, NSW, 2009

Sample Details

Your Reference	**E24724. E02, Castle Hill**
Number of Samples	2 Soil
Date samples received	13/07/2020
Date completed instructions received	13/07/2020

Analysis Details

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

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

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

Report Details

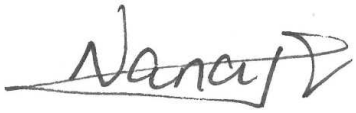
Date results requested by	20/07/2020
Date of Issue	17/07/2020

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

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

Results Approved By
Hannah Nguyen, Senior Chemist
Josh Williams, Senior Chemist

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		246861-1	246861-2
Your Reference	UNITS	QT1	QT2
Date Sampled		8/07/2020	8/07/2020
Type of sample		Soil	Soil
Date extracted	-	15/07/2020	15/07/2020
Date analysed	-	17/07/2020	17/07/2020
TRH C_6 - C_9	mg/kg	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<3	<3
Surrogate aaa-Trifluorotoluene	%	125	121

svTRH (C10-C40) in Soil			
Our Reference		246861-1	246861-2
Your Reference	UNITS	QT1	QT2
Date Sampled		8/07/2020	8/07/2020
Type of sample		Soil	Soil
Date extracted	-	15/07/2020	15/07/2020
Date analysed	-	16/07/2020	16/07/2020
TRH C_{10} - C_{14}	mg/kg	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	97	101

Acid Extractable metals in soil			
Our Reference	UNITS	246861-1	246861-2
Your Reference		QT1	QT2
Date Sampled		8/07/2020	8/07/2020
Type of sample		Soil	Soil
Date prepared	-	15/07/2020	15/07/2020
Date analysed	-	15/07/2020	15/07/2020
Arsenic	mg/kg	4	8
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	31	29
Copper	mg/kg	26	35
Lead	mg/kg	18	28
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	18	26
Zinc	mg/kg	33	72

Moisture			
Our Reference		246861-1	246861-2
Your Reference	UNITS	QT1	QT2
Date Sampled		8/07/2020	8/07/2020
Type of sample		Soil	Soil
Date prepared	-	15/07/2020	15/07/2020
Date analysed	-	16/07/2020	16/07/2020
Moisture	%	11	50

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date extracted	-			15/07/2020	[NT]	[NT]	[NT]	[NT]	15/07/2020	[NT]
Date analysed	-			17/07/2020	[NT]	[NT]	[NT]	[NT]	17/07/2020	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	90	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	90	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	76	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]	[NT]	[NT]	[NT]	103	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	87	[NT]
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	83	[NT]
naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	123	[NT]	[NT]	[NT]	[NT]	119	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date extracted	-			15/07/2020	[NT]	[NT]	[NT]	[NT]	15/07/2020	[NT]
Date analysed	-			16/07/2020	[NT]	[NT]	[NT]	[NT]	16/07/2020	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	130	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	108	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	128	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	130	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	108	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	128	[NT]
Surrogate o-Terphenyl	%		Org-020	104	[NT]	[NT]	[NT]	[NT]	119	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date prepared	-			15/07/2020	[NT]	[NT]	[NT]	[NT]	15/07/2020	[NT]
Date analysed	-			15/07/2020	[NT]	[NT]	[NT]	[NT]	15/07/2020	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	107	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	104	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 Mandala Parade, Castle Hill**
Order Number	**E24724.E02**
Samples	14

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE208846 R0**
Date Received	17/7/2020
Date Reported	24/7/2020

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Counter Ravee Sivasubramaniam .

SIGNATORIES

Bennet LO
Senior Organic Chemist/Metals Chemist

Kamrul AHSAN
Senior Chemist

Ly Kim HA
Organic Section Head

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

VOC's in Soil [AN433] Tested: 21/7/2020

PARAMETER	UOM	LOR	BH2_0.1-0.2 SOIL - 9/7/2020 SE208846.001	BH2_1.2-1.3 SOIL - 9/7/2020 SE208846.002	BH2_1.6-1.7 SOIL - 9/7/2020 SE208846.003	BH3M_0.7-0.8 SOIL - 13/7/2020 SE208846.005	BH3M_1.7-1.8 SOIL - 13/7/2020 SE208846.006
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH3M_2.8-2.9 SOIL - 13/7/2020 SE208846.007	BH4M_0.3-0.5 SOIL - 14/7/2020 SE208846.008	BH4M_1.4-1.5 SOIL - 14/7/2020 SE208846.009	BH4M_2.9-3.0 SOIL - 14/7/2020 SE208846.010	BH4M_4.9-5.0 SOIL - 14/7/2020 SE208846.011
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH5M_0.1-0.2 SOIL - 16/7/2020 SE208846.012	BH5M_1.5-1.6 SOIL - 16/7/2020 SE208846.013	BH5M_1.9-2.0 SOIL - 16/7/2020 SE208846.014
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 21/7/2020

PARAMETER	UOM	LOR	BH2_0.1-0.2 SOIL - 9/7/2020 SE208846.001	BH2_1.2-1.3 SOIL - 9/7/2020 SE208846.002	BH2_1.6-1.7 SOIL - 9/7/2020 SE208846.003	BH3M_0.7-0.8 SOIL - 13/7/2020 SE208846.005	BH3M_1.7-1.8 SOIL - 13/7/2020 SE208846.006
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH3M_2.8-2.9 SOIL - 13/7/2020 SE208846.007	BH4M_0.3-0.5 SOIL - 14/7/2020 SE208846.008	BH4M_1.4-1.5 SOIL - 14/7/2020 SE208846.009	BH4M_2.9-3.0 SOIL - 14/7/2020 SE208846.010	BH4M_4.9-5.0 SOIL - 14/7/2020 SE208846.011
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH5M_0.1-0.2 SOIL - 16/7/2020 SE208846.012	BH5M_1.5-1.6 SOIL - 16/7/2020 SE208846.013	BH5M_1.9-2.0 SOIL - 16/7/2020 SE208846.014
TRH C6-C9	mg/kg	20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 21/7/2020

PARAMETER	UOM	LOR	BH2_0.1-0.2 SOIL - 9/7/2020 SE208846.001	BH2_1.2-1.3 SOIL - 9/7/2020 SE208846.002	BH2_1.6-1.7 SOIL - 9/7/2020 SE208846.003	BH3M_0.7-0.8 SOIL - 13/7/2020 SE208846.005	BH3M_1.7-1.8 SOIL - 13/7/2020 SE208846.006
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH3M_2.8-2.9 SOIL - 13/7/2020 SE208846.007	BH4M_0.3-0.5 SOIL - 14/7/2020 SE208846.008	BH4M_1.4-1.5 SOIL - 14/7/2020 SE208846.009	BH4M_2.9-3.0 SOIL - 14/7/2020 SE208846.010	BH4M_4.9-5.0 SOIL - 14/7/2020 SE208846.011
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH5M_0.1-0.2 SOIL - 16/7/2020 SE208846.012	BH5M_1.5-1.6 SOIL - 16/7/2020 SE208846.013	BH5M_1.9-2.0 SOIL - 16/7/2020 SE208846.014
TRH C10-C14	mg/kg	20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 21/7/2020

PARAMETER	UOM	LOR	BH2_0.1-0.2 SOIL - 9/7/2020 SE208846.001	BH2_1.2-1.3 SOIL - 9/7/2020 SE208846.002	BH2_1.6-1.7 SOIL - 9/7/2020 SE208846.003	BH3M_0.7-0.8 SOIL - 13/7/2020 SE208846.005	BH3M_1.7-1.8 SOIL - 13/7/2020 SE208846.006
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	**0.1**	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	**0.1**	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	BH3M_2.8-2.9 SOIL - 13/7/2020 SE208846.007	BH4M_0.3-0.5 SOIL - 14/7/2020 SE208846.008	BH4M_1.4-1.5 SOIL - 14/7/2020 SE208846.009	BH4M_2.9-3.0 SOIL - 14/7/2020 SE208846.010	BH4M_4.9-5.0 SOIL - 14/7/2020 SE208846.011
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 21/7/2020 (continued)

PARAMETER	UOM	LOR	BH5M_0.1-0.2 SOIL - 16/7/2020 SE208846.012	BH5M_1.5-1.6 SOIL - 16/7/2020 SE208846.013	BH5M_1.9-2.0 SOIL - 16/7/2020 SE208846.014
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	**0.2**	<0.1	<0.1
Phenanthrene	mg/kg	0.1	**1.6**	<0.1	<0.1
Anthracene	mg/kg	0.1	**0.4**	<0.1	<0.1
Fluoranthene	mg/kg	0.1	**1.6**	<0.1	<0.1
Pyrene	mg/kg	0.1	**1.4**	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	**0.6**	<0.1	<0.1
Chrysene	mg/kg	0.1	**0.6**	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	**0.4**	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	**0.4**	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	**0.5**	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	**0.3**	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	**0.2**	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	**0.7**	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	**0.8**	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	**0.8**	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	**8.0**	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	**8.0**	<0.8	<0.8

OC Pesticides in Soil [AN420] Tested: 21/7/2020

PARAMETER	UOM	LOR	BH2_0.1-0.2 SOIL - 9/7/2020 SE208846.001	BH2_1.2-1.3 SOIL - 9/7/2020 SE208846.002	BH2_1.6-1.7 SOIL - 9/7/2020 SE208846.003	BH3M_0.7-0.8 SOIL - 13/7/2020 SE208846.005	BH3M_1.7-1.8 SOIL - 13/7/2020 SE208846.006
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	-	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	-	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	-	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	-	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	-	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	-	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 21/7/2020 (continued)

PARAMETER	UOM	LOR	BH3M_2.8-2.9 SOIL - 13/7/2020 SE208846.007	BH4M_0.3-0.5 SOIL - 14/7/2020 SE208846.008	BH4M_1.4-1.5 SOIL - 14/7/2020 SE208846.009	BH4M_2.9-3.0 SOIL - 14/7/2020 SE208846.010	BH4M_4.9-5.0 SOIL - 14/7/2020 SE208846.011
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
Lindane	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
Heptachlor	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
Aldrin	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
Beta BHC	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
Delta BHC	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	<0.2	-
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
Dieldrin	mg/kg	0.2	<0.2	<0.2	-	<0.2	-
Endrin	mg/kg	0.2	<0.2	<0.2	-	<0.2	-
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	<0.2	-
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
Isodrin	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
Mirex	mg/kg	0.1	<0.1	<0.1	-	<0.1	-
Total CLP OC Pesticides	mg/kg	1	<1	<1	-	<1	-

OC Pesticides in Soil [AN420] Tested: 21/7/2020 (continued)

PARAMETER	UOM	LOR	BH5M_0.1-0.2 SOIL - 16/7/2020 SE208846.012	BH5M_1.5-1.6 SOIL - 16/7/2020 SE208846.013	BH5M_1.9-2.0 SOIL - 16/7/2020 SE208846.014
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	<0.1
Alpha BHC	mg/kg	0.1	<0.1	-	<0.1
Lindane	mg/kg	0.1	<0.1	-	<0.1
Heptachlor	mg/kg	0.1	<0.1	-	<0.1
Aldrin	mg/kg	0.1	<0.1	-	<0.1
Beta BHC	mg/kg	0.1	<0.1	-	<0.1
Delta BHC	mg/kg	0.1	<0.1	-	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	-	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	-	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	-	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	-	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	-	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	-	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	-	<0.1
Dieldrin	mg/kg	0.2	<0.2	-	<0.2
Endrin	mg/kg	0.2	<0.2	-	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	-	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	-	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	-	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	-	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	-	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	-	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	-	<0.1
Methoxychlor	mg/kg	0.1	<0.1	-	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	-	<0.1
Isodrin	mg/kg	0.1	<0.1	-	<0.1
Mirex	mg/kg	0.1	<0.1	-	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	-	<1

OP Pesticides in Soil [AN420] Tested: 21/7/2020

PARAMETER	UOM	LOR	BH2_0.1-0.2 SOIL - 9/7/2020 SE208846.001	BH2_1.6-1.7 SOIL - 9/7/2020 SE208846.003	BH3M_0.7-0.8 SOIL - 13/7/2020 SE208846.005	BH3M_1.7-1.8 SOIL - 13/7/2020 SE208846.006	BH3M_2.8-2.9 SOIL - 13/7/2020 SE208846.007
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	BH4M_0.3-0.5 SOIL - 14/7/2020 SE208846.008	BH4M_2.9-3.0 SOIL - 14/7/2020 SE208846.010	BH5M_0.1-0.2 SOIL - 16/7/2020 SE208846.012	BH5M_1.9-2.0 SOIL - 16/7/2020 SE208846.014
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7

PCBs in Soil [AN420] Tested: 21/7/2020

PARAMETER	UOM	LOR	BH2_0.1-0.2 SOIL - 9/7/2020 SE208846.001	BH2_1.2-1.3 SOIL - 9/7/2020 SE208846.002	BH2_1.6-1.7 SOIL - 9/7/2020 SE208846.003	BH3M_0.7-0.8 SOIL - 13/7/2020 SE208846.005	BH3M_1.7-1.8 SOIL - 13/7/2020 SE208846.006
Arochlor 1016	mg/kg	0.2	<0.2	-	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	-	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	-	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	-	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	-	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	-	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	-	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	-	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	-	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	-	<1	<1	<1

PARAMETER	UOM	LOR	BH3M_2.8-2.9 SOIL - 13/7/2020 SE208846.007	BH4M_0.3-0.5 SOIL - 14/7/2020 SE208846.008	BH4M_1.4-1.5 SOIL - 14/7/2020 SE208846.009	BH4M_2.9-3.0 SOIL - 14/7/2020 SE208846.010	BH4M_4.9-5.0 SOIL - 14/7/2020 SE208846.011
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	-	<0.2	-
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	-	<0.2	-
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	-	<0.2	-
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	-	<0.2	-
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	-	<0.2	-
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	-	<0.2	-
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	-	<0.2	-
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	-	<0.2	-
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	-	<0.2	-
Total PCBs (Arochlors)	mg/kg	1	<1	<1	-	<1	-

PARAMETER	UOM	LOR	BH5M_0.1-0.2 SOIL - 16/7/2020 SE208846.012	BH5M_1.5-1.6 SOIL - 16/7/2020 SE208846.013	BH5M_1.9-2.0 SOIL - 16/7/2020 SE208846.014
Arochlor 1016	mg/kg	0.2	<0.2	-	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	-	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	-	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	-	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	-	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	-	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	-	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	-	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	-	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	-	<1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 21/7/2020

PARAMETER	UOM	LOR	BH2_0.1-0.2 SOIL - 9/7/2020 SE208846.001	BH2_1.2-1.3 SOIL - 9/7/2020 SE208846.002	BH2_1.6-1.7 SOIL - 9/7/2020 SE208846.003	BH3M_0.1-0.2 SOIL - 13/7/2020 SE208846.004	BH3M_0.7-0.8 SOIL - 13/7/2020 SE208846.005
Arsenic, As	mg/kg	1	4	7	14	5	3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	14	25	9.8	24	16
Copper, Cu	mg/kg	0.5	21	2.3	2.9	9.2	16
Lead, Pb	mg/kg	1	11	12	21	14	16
Nickel, Ni	mg/kg	0.5	17	2.9	<0.5	6.9	10
Zinc, Zn	mg/kg	2	27	6.9	2.4	21	26

PARAMETER	UOM	LOR	BH3M_1.7-1.8 SOIL - 13/7/2020 SE208846.006	BH3M_2.8-2.9 SOIL - 13/7/2020 SE208846.007	BH4M_0.3-0.5 SOIL - 14/7/2020 SE208846.008	BH4M_1.4-1.5 SOIL - 14/7/2020 SE208846.009	BH4M_2.9-3.0 SOIL - 14/7/2020 SE208846.010
Arsenic, As	mg/kg	1	4	2	6	2	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	13	13	15	6.3	18
Copper, Cu	mg/kg	0.5	12	14	19	2.8	5.3
Lead, Pb	mg/kg	1	17	5	16	6	10
Nickel, Ni	mg/kg	0.5	7.8	3.5	8.5	0.9	3.6
Zinc, Zn	mg/kg	2	32	17	35	5.3	9.5

PARAMETER	UOM	LOR	BH4M_4.9-5.0 SOIL - 14/7/2020 SE208846.011	BH5M_0.1-0.2 SOIL - 16/7/2020 SE208846.012	BH5M_1.5-1.6 SOIL - 16/7/2020 SE208846.013	BH5M_1.9-2.0 SOIL - 16/7/2020 SE208846.014
Arsenic, As	mg/kg	1	2	4	6	4
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	4.5	9.5	11	15
Copper, Cu	mg/kg	0.5	2.7	14	14	3.8
Lead, Pb	mg/kg	1	7	11	11	8
Nickel, Ni	mg/kg	0.5	4.0	7.2	16	2.3
Zinc, Zn	mg/kg	2	25	22	24	6.8

Mercury in Soil [AN312] Tested: 21/7/2020

PARAMETER	UOM	LOR	BH2_0.1-0.2 SOIL - 9/7/2020 SE208846.001	BH2_1.2-1.3 SOIL - 9/7/2020 SE208846.002	BH2_1.6-1.7 SOIL - 9/7/2020 SE208846.003	BH3M_0.1-0.2 SOIL - 13/7/2020 SE208846.004	BH3M_0.7-0.8 SOIL - 13/7/2020 SE208846.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	BH3M_1.7-1.8 SOIL - 13/7/2020 SE208846.006	BH3M_2.8-2.9 SOIL - 13/7/2020 SE208846.007	BH4M_0.3-0.5 SOIL - 14/7/2020 SE208846.008	BH4M_1.4-1.5 SOIL - 14/7/2020 SE208846.009	BH4M_2.9-3.0 SOIL - 14/7/2020 SE208846.010
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	BH4M_4.9-5.0 SOIL - 14/7/2020 SE208846.011	BH5M_0.1-0.2 SOIL - 16/7/2020 SE208846.012	BH5M_1.5-1.6 SOIL - 16/7/2020 SE208846.013	BH5M_1.9-2.0 SOIL - 16/7/2020 SE208846.014
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 21/7/2020

PARAMETER	UOM	LOR	BH2_0.1-0.2 SOIL - 9/7/2020 SE208846.001	BH2_1.2-1.3 SOIL - 9/7/2020 SE208846.002	BH2_1.6-1.7 SOIL - 9/7/2020 SE208846.003	BH3M_0.1-0.2 SOIL - 13/7/2020 SE208846.004	BH3M_0.7-0.8 SOIL - 13/7/2020 SE208846.005
% Moisture	%w/w	1	13.4	31.4	24.9	12.9	12.8

PARAMETER	UOM	LOR	BH3M_1.7-1.8 SOIL - 13/7/2020 SE208846.006	BH3M_2.8-2.9 SOIL - 13/7/2020 SE208846.007	BH4M_0.3-0.5 SOIL - 14/7/2020 SE208846.008	BH4M_1.4-1.5 SOIL - 14/7/2020 SE208846.009	BH4M_2.9-3.0 SOIL - 14/7/2020 SE208846.010
% Moisture	%w/w	1	14.2	13.3	11.1	8.4	10.5

PARAMETER	UOM	LOR	BH4M_4.9-5.0 SOIL - 14/7/2020 SE208846.011	BH5M_0.1-0.2 SOIL - 16/7/2020 SE208846.012	BH5M_1.5-1.6 SOIL - 16/7/2020 SE208846.013	BH5M_1.9-2.0 SOIL - 16/7/2020 SE208846.014
% Moisture	%w/w	1	6.6	11.4	14.3	9.1

Fibre Identification in soil [AN602] Tested: 23/7/2020

PARAMETER	UOM	LOR	BH2_0.1-0.2 SOIL - 9/7/2020 SE208846.001	BH2_1.6-1.7 SOIL - 9/7/2020 SE208846.003	BH3M_0.1-0.2 SOIL - 13/7/2020 SE208846.004	BH3M_0.7-0.8 SOIL - 13/7/2020 SE208846.005	BH3M_1.7-1.8 SOIL - 13/7/2020 SE208846.006
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	BH3M_2.8-2.9 SOIL - 13/7/2020 SE208846.007	BH4M_0.3-0.5 SOIL - 14/7/2020 SE208846.008	BH4M_2.9-3.0 SOIL - 14/7/2020 SE208846.010	BH5M_0.1-0.2 SOIL - 16/7/2020 SE208846.012	BH5M_1.9-2.0 SOIL - 16/7/2020 SE208846.014
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 Mandala Parade, Castle Hill**
Order Number	**E24724.E02**
Samples	10

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE208846 R0**
Date Received	17 Jul 2020
Date Reported	24 Jul 2020

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Counter Ravee Sivasubramaniam.

SIGNATORIES

Bennet LO
Senior Organic Chemist/Metals Chemis

Kamrul AHSAN
Senior Chemist

Ly Kim HA
Organic Section Head

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE208846.001	BH2_0.1-0.2	Soil	170g Clay, Sand, Rocks	09 Jul 2020	No Asbestos Found	<0.01
SE208846.003	BH2_1.6-1.7	Soil	116g Clay	09 Jul 2020	No Asbestos Found	<0.01
SE208846.004	BH3M_0.1-0.2	Soil	245g Clay, Sand, Rocks	13 Jul 2020	No Asbestos Found	<0.01
SE208846.005	BH3M_0.7-0.8	Soil	272g Clay, Sand, Rocks	13 Jul 2020	No Asbestos Found	<0.01
SE208846.006	BH3M_1.7-1.8	Soil	271g Clay, Sand, Rocks	13 Jul 2020	No Asbestos Found	<0.01
SE208846.007	BH3M_2.8-2.9	Soil	294g Clay, Sand, Rocks	13 Jul 2020	No Asbestos Found	<0.01
SE208846.008	BH4M_0.3-0.5	Soil	385g Clay, Sand, Rocks	14 Jul 2020	No Asbestos Found Organic Fibres Detected	<0.01
SE208846.010	BH4M_2.9-3.0	Soil	238g Clay, Sand, Rocks	14 Jul 2020	No Asbestos Found	<0.01
SE208846.012	BH5M_0.1-0.2	Soil	222g Clay, Sand, Rocks	16 Jul 2020	No Asbestos Found	<0.01
SE208846.014	BH5M_1.9-2.0	Soil	141g Clay, Sand	16 Jul 2020	No Asbestos Found	<0.01

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable ’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy , including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 Mandala Parade, Castle Hill**
Order Number	**E24724.E02**
Samples	4

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE209082 R0**
Date Received	23/7/2020
Date Reported	30/7/2020

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Bennet LO
Senior Organic Chemist/Metals Chemist

Kamrul AHSAN
Senior Chemist

Ly Kim HA
Organic Section Head

Yusuf KUTHPUDIN
Asbestos Analyst

VOC's in Soil [AN433] Tested: 24/7/2020

PARAMETER	UOM	LOR	BH6_0.1-0.2 SOIL - 20/7/2020 SE209082.001	BH6_1.4-1.5 SOIL - 20/7/2020 SE209082.004
Benzene	mg/kg	0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 24/7/2020

PARAMETER	UOM	LOR	BH6_0.1-0.2 SOIL - 20/7/2020 SE209082.001	BH6_1.4-1.5 SOIL - 20/7/2020 SE209082.004
TRH C6-C9	mg/kg	20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 24/7/2020

PARAMETER	UOM	LOR	BH6_0.1-0.2 SOIL - 20/7/2020 SE209082.001	BH6_1.4-1.5 SOIL - 20/7/2020 SE209082.004
TRH C10-C14	mg/kg	20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 24/7/2020

PARAMETER	UOM	LOR	BH6_0.1-0.2 SOIL - 20/7/2020 SE209082.001	BH6_1.4-1.5 SOIL - 20/7/2020 SE209082.004
Naphthalene	mg/kg	0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	**0.2**	<0.1
Pyrene	mg/kg	0.1	**0.2**	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8

OC Pesticides in Soil [AN420] Tested: 24/7/2020

PARAMETER	UOM	LOR	BH6_0.1-0.2 SOIL - 20/7/2020 SE209082.001	BH6_1.4-1.5 SOIL - 20/7/2020 SE209082.004
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1

OP Pesticides in Soil [AN420] Tested: 24/7/2020

PARAMETER	UOM	LOR	BH6_0.1-0.2 SOIL - 20/7/2020 SE209082.001	BH6_1.4-1.5 SOIL - 20/7/2020 SE209082.004
Dichlorvos	mg/kg	0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7

PCBs in Soil [AN420] Tested: 24/7/2020

PARAMETER	UOM	LOR	BH6_0.1-0.2 SOIL - 20/7/2020 SE209082.001	BH6_1.4-1.5 SOIL - 20/7/2020 SE209082.004
Arochlor 1016	mg/kg	0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 27/7/2020

PARAMETER	UOM	LOR	BH6_0.1-0.2 SOIL - 20/7/2020 SE209082.001	BH6_1.4-1.5 SOIL - 20/7/2020 SE209082.004
Arsenic, As	mg/kg	1	**4**	**1**
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	**12**	**2.5**
Copper, Cu	mg/kg	0.5	**15**	**0.6**
Lead, Pb	mg/kg	1	**23**	**2**
Nickel, Ni	mg/kg	0.5	**9.9**	<0.5
Zinc, Zn	mg/kg	2	**45**	<2.0

Mercury in Soil [AN312] Tested: 27/7/2020

PARAMETER	UOM	LOR	BH6_0.1-0.2 SOIL - 20/7/2020 SE209082.001	BH6_1.4-1.5 SOIL - 20/7/2020 SE209082.004
Mercury	mg/kg	0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 24/7/2020

PARAMETER	UOM	LOR	BH6_0.1-0.2 SOIL - 20/7/2020 SE209082.001	BH6_1.4-1.5 SOIL - 20/7/2020 SE209082.004
% Moisture	%w/w	1	**14.5**	**5.5**

Fibre Identification in soil [AN602] Tested: 29/7/2020

PARAMETER	UOM	LOR	BH6_0.1-0.2 SOIL - 20/7/2020 SE209082.001	BH6_1.4-1.5 SOIL - 20/7/2020 SE209082.004
Asbestos Detected	No unit	-	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable ’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 Mandala Parade, Castle Hill**
Order Number	**E24724.E02**
Samples	2

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE209082 R0**
Date Received	23 Jul 2020
Date Reported	30 Jul 2020

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Bennet LO
Senior Organic Chemist/Metals Chemis

Kamrul AHSAN
Senior Chemist

Ly Kim HA
Organic Section Head

Yusuf KUTHPUDIN
Asbestos Analyst

ANALYTICAL REPORT

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE209082.001	BH6_0.1-0.2	Soil	181g Clay,Sand,Rocks	20 Jul 2020	No Asbestos Found Organic Fibres Detected	<0.01
SE209082.004	BH6_1.4-1.5	Soil	130g Sand	20 Jul 2020	No Asbestos Found	<0.01

METHOD SUMMARY

SE209082 R0

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable ’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy , including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 Mandala Parade, Castle Hill**
Order Number	**E24724.E02**
Samples	17

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE208846A R0**
Date Received	21/7/2020
Date Reported	28/7/2020

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES

Bennet LO
Senior Organic Chemist/Metals Chemist

Shane MCDERMOTT
Inorganic/Metals Chemist

Soluble Anions (1:5) in Soil by Ion Chromatography [AN245] Tested: 24/7/2020

PARAMETER	UOM	LOR	BH3M_2.8-2.9 SOIL - 13/7/2020 SE208846A.007	BH4M_4.9-5.0 SOIL - 14/7/2020 SE208846A.011	BH2_1.9-2.0 SOIL - 16/7/2020 SE208846A.015	BH2_2.9-3.0 SOIL - 16/7/2020 SE208846A.016	BH4M_4.4-4.5 SOIL - 16/7/2020 SE208846A.017
Chloride	mg/kg	0.25	22	10	18	16	6.5
Sulfate	mg/kg	5	92	64	110	130	83

Alkalinity in Soil [AN002/AN135] Tested: 23/7/2020

PARAMETER	UOM	LOR	BH3M_2.8-2.9 SOIL - 13/7/2020 SE208846A.007	BH4M_4.9-5.0 SOIL - 14/7/2020 SE208846A.011	BH2_1.9-2.0 SOIL - 16/7/2020 SE208846A.015	BH2_2.9-3.0 SOIL - 16/7/2020 SE208846A.016	BH4M_4.4-4.5 SOIL - 16/7/2020 SE208846A.017
Bicarbonate Alkalinity as HCO3 in Soil*	mg/kg	25	**63**	**35**	**26**	**31**	**53**
Carbonate Alkalinity as CO3 in Soil*	mg/kg	25	**140**	<25	<25	<25	<25
Hydroxide Alkalinity as OH in Soil*	mg/kg	25	<25	<25	<25	<25	<25
Total Alkalinity as CaCO3 in Soil*	mg/kg	25	**280**	**28**	<25	**25**	**44**

pH in soil (1:5) [AN101] Tested: 24/7/2020

PARAMETER	UOM	LOR	BH3M_2.8-2.9 SOIL - 13/7/2020 SE208846A.007	BH4M_4.9-5.0 SOIL - 14/7/2020 SE208846A.011	BH2_1.9-2.0 SOIL - 16/7/2020 SE208846A.015	BH2_2.9-3.0 SOIL - 16/7/2020 SE208846A.016	BH4M_4.4-4.5 SOIL - 16/7/2020 SE208846A.017
pH	pH Units	0.1	**9.4**	**6.1**	**4.6**	**4.7**	**5.5**

Conductivity and TDS by Calculation - Soil [AN106] Tested: 24/7/2020

PARAMETER	UOM	LOR	BH3M_2.8-2.9 SOIL - 13/7/2020 SE208846A.007	BH4M_4.9-5.0 SOIL - 14/7/2020 SE208846A.011	BH2_1.9-2.0 SOIL - 16/7/2020 SE208846A.015	BH2_2.9-3.0 SOIL - 16/7/2020 SE208846A.016	BH4M_4.4-4.5 SOIL - 16/7/2020 SE208846A.017
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	**130**	**47**	**73**	**85**	**60**

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) [AN122] Tested: 24/7/2020

PARAMETER	UOM	LOR	BH3M_2.8-2.9 SOIL - 13/7/2020 SE208846A.007	BH4M_4.9-5.0 SOIL - 14/7/2020 SE208846A.011	BH2_1.9-2.0 SOIL - 16/7/2020 SE208846A.015	BH2_2.9-3.0 SOIL - 16/7/2020 SE208846A.016	BH4M_4.4-4.5 SOIL - 16/7/2020 SE208846A.017
Exchangeable Sodium, Na	mg/kg	2	84	140	96	98	190
Exchangeable Sodium, Na	meq/100g	0.01	0.37	0.63	0.42	0.42	0.81
Exchangeable Sodium Percentage*	%	0.1	2.2	27.3	11.7	3.4	27.5
Exchangeable Potassium, K	mg/kg	2	110	95	79	70	99
Exchangeable Potassium, K	meq/100g	0.01	0.27	0.24	0.20	0.18	0.25
Exchangeable Potassium Percentage*	%	0.1	1.6	10.6	5.6	1.4	8.6
Exchangeable Calcium, Ca	mg/kg	2	3200	120	380	2200	120
Exchangeable Calcium, Ca	meq/100g	0.01	16	0.59	1.9	11	0.59
Exchangeable Calcium Percentage*	%	0.1	95.0	25.9	53.5	87.8	20.2
Exchangeable Magnesium, Mg	mg/kg	2	24	100	130	110	160
Exchangeable Magnesium, Mg	meq/100g	0.02	0.20	0.83	1.0	0.93	1.3
Exchangeable Magnesium Percentage*	%	0.1	1.2	36.1	29.2	7.4	43.6
Cation Exchange Capacity	meq/100g	0.02	17	2.3	3.6	13	2.9

Soil Texture (AS4419) [AN051] Tested: 23/7/2020

PARAMETER	UOM	LOR	BH3M_2.8-2.9 SOIL - 13/7/2020 SE208846A.007	BH4M_4.9-5.0 SOIL - 14/7/2020 SE208846A.011	BH2_1.9-2.0 SOIL - 16/7/2020 SE208846A.015	BH2_2.9-3.0 SOIL - 16/7/2020 SE208846A.016	BH4M_4.4-4.5 SOIL - 16/7/2020 SE208846A.017
Texture Classification*	No unit	1	Sandy Clay Loam	Loamy Sand	Sandy Clay	Sandy Clay	Loamy Sand

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 23/7/2020

PARAMETER	UOM	LOR	BH3M_2.8-2.9 SOIL - 13/7/2020 SE208846A.007	BH4M_4.9-5.0 SOIL - 14/7/2020 SE208846A.011	BH2_1.9-2.0 SOIL - 16/7/2020 SE208846A.015	BH2_2.9-3.0 SOIL - 16/7/2020 SE208846A.016	BH4M_4.4-4.5 SOIL - 16/7/2020 SE208846A.017
Calcium, Ca	mg/kg	5	3400	66	1900	4400	1100
Magnesium, Mg	mg/kg	5	650	120	590	1300	350
Sodium, Na	mg/kg	5	130	170	170	320	290
Potassium, K	mg/kg	10	240	280	280	340	320
Manganese, Mn	mg/kg	1	47	5	51	110	13

Moisture Content [AN002] Tested: 24/7/2020

PARAMETER	UOM	LOR	BH2_1.9-2.0 SOIL - 16/7/2020 SE208846A.015	BH2_2.9-3.0 SOIL - 16/7/2020 SE208846A.016	BH4M_4.4-4.5 SOIL - 16/7/2020 SE208846A.017
% Moisture	%w/w	1	**14.6**	**14.7**	**10.1**

METHOD	METHODOLOGY SUMMARY
AN002/AN135	Alkalinity (and forms of) by Titration: The sample is extracted 1to 5 in deionised water and the extract titrated with standard acid to pH 8.3 (P titre) and pH 4.5 (T titre) and permanent and/or total alkalinity calculated. The results are expressed as equivalents of calcium carbonate or recalculated as bicarbonate, carbonate and hydroxide . Reference APHA 2320. Internal Reference AN135
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN051	A small sample of soil is kneaded with water and then pressed out into a ribbon. The behaviour of this ribbon is used to classify the soil into one of the texture classes in AS 4419.
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl2) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos /cm or µS/cm @ 25°C. For soils, an extract of as received sample with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Salinity can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. Reference APHA 2510 B.
AN122	Exchangeable Cations, CEC and ESP: Soil sample is extracted in 1M Ammonium Acetate at pH=7 (or 1M Ammonium Chloride at pH=7) with cations (Na, K, Ca & Mg) then determined by ICP OES/ICP MS and reported as Exchangeable Cations. For saline soils, these results can be corrected for water soluble cations and reported as Exchangeable cations in meq/100g or soil can be pre-treated (aqueous ethanol/aqueous glycerol) prior to extraction. Cation Exchange Capacity (CEC) is the sum of the exchangeable cations in meq/100g.
AN122	The Exchangeable Sodium Percentage (ESP) is calculated as the exchangeable sodium divided by the CEC (all in meq/100g) times 100. ESP can be used to categorise the sodicity of the soil as below: ESP < 6% non-sodic ESP 6-15% sodic ESP >15% strongly sodic Method is referenced to Rayment and Lyons, 2011, sections 15D3 and 15N1.-
AN245	Anions by Ion Chromatography: A water sample is injected into an eluent stream that passes through the ion chromatographic system where the anions of interest ie Br, Cl, NO2, NO3 and SO4 are separated on their relative affinities for the active sites on the column packing material. Changes to the conductivity and the UV-visible absorbance of the eluent enable identification and quantitation of the anions based on their retention time and peak height or area. APHA 4110 B

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 Mandala Parade, Castle Hill**
Order Number	**E24724.E02**
Samples	7

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE209379 R0**
Date Received	30/7/2020
Date Reported	6/8/2020

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES

Dong LIANG
Metals/Inorganics Team Leader

Ly Kim HA
Organic Section Head

VOCs in Water [AN433] Tested: 3/8/2020

PARAMETER	UOM	LOR	BH3M-a WATER - 29/7/2020 SE209379.001	BH4M-a WATER - 29/7/2020 SE209379.002	BH5M WATER - 29/7/2020 SE209379.003	GWQD 1 WATER - 29/7/2020 SE209379.004	GWQR 1 WATER - 29/7/2020 SE209379.005
Benzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
m/p-xylene	µg/L	1	<1	<1	<1	<1	<1
o-xylene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Total BTEX	µg/L	3	<3	<3	<3	<3	<3
Naphthalene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane (CFC-12)	µg/L	5	<5	<5	<5	-	-
Chloromethane	µg/L	5	<5	<5	<5	-	-
Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3	<0.3	<0.3	-	-
Bromomethane	µg/L	10	<10	<10	<10	-	-
Chloroethane	µg/L	5	<5	<5	<5	-	-
Trichlorofluoromethane	µg/L	1	<1	<1	<1	-	-
Acetone (2-propanone)	µg/L	10	<10	<10	<10	-	-
Iodomethane	µg/L	5	<5	<5	<5	-	-
1,1-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Acrylonitrile	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Dichloromethane (Methylene chloride)	µg/L	5	<5	<5	<5	-	-
Allyl chloride	µg/L	2	<2	<2	<2	-	-
Carbon disulfide	µg/L	2	<2	<2	<2	-	-
trans-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
MtBE (Methyl-tert-butyl ether)	µg/L	2	<2	<2	<2	-	-
1,1-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Vinyl acetate	µg/L	10	<10	<10	<10	-	-
MEK (2-butanone)	µg/L	10	<10	<10	<10	-	-
cis-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Bromochloromethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Chloroform (THM)	µg/L	0.5	**9.2**	**39**	**1.7**	-	-
2,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,1-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Carbon tetrachloride	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Dibromomethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2-nitropropane	µg/L	100	<100	<100	<100	-	-
Bromodichloromethane (THM)	µg/L	0.5	**2.3**	**6.6**	<0.5	-	-
MIBK (4-methyl-2-pentanone)	µg/L	5	<5	<5	<5	-	-
cis-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
trans-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,2-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,3-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Dibromochloromethane (THM)	µg/L	0.5	**0.6**	**1.6**	<0.5	-	-
2-hexanone (MBK)	µg/L	5	<5	<5	<5	-	-
1,2-dibromoethane (EDB)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Chlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Bromoform (THM)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
cis-1,4-dichloro-2-butene	µg/L	1	<1	<1	<1	-	-
Styrene (Vinyl benzene)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,3-trichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
trans-1,4-dichloro-2-butene	µg/L	1	<1	<1	<1	-	-

VOCs in Water [AN433] Tested: 3/8/2020 (continued)

PARAMETER	UOM	LOR	BH3M-a WATER - 29/7/2020 SE209379.001	BH4M-a WATER - 29/7/2020 SE209379.002	BH5M WATER - 29/7/2020 SE209379.003	GWQD 1 WATER - 29/7/2020 SE209379.004	GWQR 1 WATER - 29/7/2020 SE209379.005
Isopropylbenzene (Cumene)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Bromobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
n-propylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
4-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,3,5-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
tert-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,4-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
sec-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,3-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,4-dichlorobenzene	µg/L	0.3	<0.3	<0.3	<0.3	-	-
p-isopropyltoluene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
n-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,4-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Hexachlorobutadiene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,3-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Total VOC	µg/L	10	**13**	**48**	<10	-	-

VOCs in Water [AN433] Tested: 3/8/2020 (continued)

PARAMETER	UOM	LOR	GWTB 1 WATER - 29/7/2020 SE209379.006	GWTS 1 WATER - 29/7/2020 SE209379.007
Benzene	µg/L	0.5	<0.5	[99%]
Toluene	µg/L	0.5	<0.5	[99%]
Ethylbenzene	µg/L	0.5	<0.5	[99%]
m/p-xylene	µg/L	1	<1	[98%]
o-xylene	µg/L	0.5	<0.5	[99%]
Total Xylenes	µg/L	1.5	<1.5	-
Total BTEX	µg/L	3	<3	-
Naphthalene	µg/L	0.5	<0.5	-
Dichlorodifluoromethane (CFC-12)	µg/L	5	-	-
Chloromethane	µg/L	5	-	-
Vinyl chloride (Chloroethene)	µg/L	0.3	-	-
Bromomethane	µg/L	10	-	-
Chloroethane	µg/L	5	-	-
Trichlorofluoromethane	µg/L	1	-	-
Acetone (2-propanone)	µg/L	10	-	-
Iodomethane	µg/L	5	-	-
1,1-dichloroethene	µg/L	0.5	-	-
Acrylonitrile	µg/L	0.5	-	-
Dichloromethane (Methylene chloride)	µg/L	5	-	-
Allyl chloride	µg/L	2	-	-
Carbon disulfide	µg/L	2	-	-
trans-1,2-dichloroethene	µg/L	0.5	-	-
MtBE (Methyl-tert-butyl ether)	µg/L	2	-	-
1,1-dichloroethane	µg/L	0.5	-	-
Vinyl acetate	µg/L	10	-	-
MEK (2-butanone)	µg/L	10	-	-
cis-1,2-dichloroethene	µg/L	0.5	-	-
Bromochloromethane	µg/L	0.5	-	-
Chloroform (THM)	µg/L	0.5	-	-
2,2-dichloropropane	µg/L	0.5	-	-
1,2-dichloroethane	µg/L	0.5	-	-
1,1,1-trichloroethane	µg/L	0.5	-	-
1,1-dichloropropene	µg/L	0.5	-	-
Carbon tetrachloride	µg/L	0.5	-	-
Dibromomethane	µg/L	0.5	-	-
1,2-dichloropropane	µg/L	0.5	-	-
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	-	-
2-nitropropane	µg/L	100	-	-
Bromodichloromethane (THM)	µg/L	0.5	-	-
MIBK (4-methyl-2-pentanone)	µg/L	5	-	-
cis-1,3-dichloropropene	µg/L	0.5	-	-
trans-1,3-dichloropropene	µg/L	0.5	-	-
1,1,2-trichloroethane	µg/L	0.5	-	-
1,3-dichloropropane	µg/L	0.5	-	-
Dibromochloromethane (THM)	µg/L	0.5	-	-
2-hexanone (MBK)	µg/L	5	-	-
1,2-dibromoethane (EDB)	µg/L	0.5	-	-
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	-	-
1,1,1,2-tetrachloroethane	µg/L	0.5	-	-
Chlorobenzene	µg/L	0.5	-	-
Bromoform (THM)	µg/L	0.5	-	-
cis-1,4-dichloro-2-butene	µg/L	1	-	-
Styrene (Vinyl benzene)	µg/L	0.5	-	-
1,1,2,2-tetrachloroethane	µg/L	0.5	-	-
1,2,3-trichloropropane	µg/L	0.5	-	-
trans-1,4-dichloro-2-butene	µg/L	1	-	-

VOCs in Water [AN433] Tested: 3/8/2020 (continued)

PARAMETER	UOM	LOR	GWTB 1 WATER - 29/7/2020 SE209379.006	GWTS 1 WATER - 29/7/2020 SE209379.007
Isopropylbenzene (Cumene)	µg/L	0.5	-	-
Bromobenzene	µg/L	0.5	-	-
n-propylbenzene	µg/L	0.5	-	-
2-chlorotoluene	µg/L	0.5	-	-
4-chlorotoluene	µg/L	0.5	-	-
1,3,5-trimethylbenzene	µg/L	0.5	-	-
tert-butylbenzene	µg/L	0.5	-	-
1,2,4-trimethylbenzene	µg/L	0.5	-	-
sec-butylbenzene	µg/L	0.5	-	-
1,3-dichlorobenzene	µg/L	0.5	-	-
1,4-dichlorobenzene	µg/L	0.3	-	-
p-isopropyltoluene	µg/L	0.5	-	-
1,2-dichlorobenzene	µg/L	0.5	-	-
n-butylbenzene	µg/L	0.5	-	-
1,2-dibromo-3-chloropropane	µg/L	0.5	-	-
1,2,4-trichlorobenzene	µg/L	0.5	-	-
Hexachlorobutadiene	µg/L	0.5	-	-
1,2,3-trichlorobenzene	µg/L	0.5	-	-
Total VOC	µg/L	10	-	-

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 3/8/2020

PARAMETER	UOM	LOR	BH3M-a WATER - 29/7/2020 SE209379.001	BH4M-a WATER - 29/7/2020 SE209379.002	BH5M WATER - 29/7/2020 SE209379.003	GWQD 1 WATER - 29/7/2020 SE209379.004	GWQR 1 WATER - 29/7/2020 SE209379.005
TRH C6-C9	µg/L	40	<40	**46**	<40	<40	<40
Benzene (F0)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRH C6-C10	µg/L	50	<50	**52**	<50	<50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	**52**	<50	<50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 31/7/2020

PARAMETER	UOM	LOR	BH3M-a WATER - 29/7/2020 SE209379.001	BH4M-a WATER - 29/7/2020 SE209379.002	BH5M WATER - 29/7/2020 SE209379.003	GWQD 1 WATER - 29/7/2020 SE209379.004	GWQR 1 WATER - 29/7/2020 SE209379.005
TRH C10-C14	µg/L	50	<50	<50	**76**	<50	<50
TRH C15-C28	µg/L	200	<200	<200	<200	<200	<200
TRH C29-C36	µg/L	200	<200	<200	<200	<200	<200
TRH C37-C40	µg/L	200	<200	<200	<200	<200	<200
TRH >C10-C16	µg/L	60	<60	<60	**76**	<60	<60
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	<60	**76**	<60	<60
TRH >C16-C34 (F3)	µg/L	500	<500	<500	<500	<500	<500
TRH >C34-C40 (F4)	µg/L	500	<500	<500	<500	<500	<500
TRH C10-C40	µg/L	320	<320	<320	<320	<320	<320

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 31/7/2020

PARAMETER	UOM	LOR	BH3M-a WATER - 29/7/2020 SE209379.001	BH4M-a WATER - 29/7/2020 SE209379.002	BH5M WATER - 29/7/2020 SE209379.003
Naphthalene	µg/L	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	<0.1
Total PAH (18)	µg/L	1	<1	<1	<1

pH in water [AN101] Tested: 30/7/2020

PARAMETER	UOM	LOR	BH3M-a WATER - 29/7/2020 SE209379.001	BH4M-a WATER - 29/7/2020 SE209379.002	BH5M WATER - 29/7/2020 SE209379.003
pH**	No unit	-	**5.1**	**6.3**	**4.6**

Conductivity and TDS by Calculation - Water [AN106] Tested: 30/7/2020

PARAMETER	UOM	LOR	BH3M-a WATER - 29/7/2020 SE209379.001	BH4M-a WATER - 29/7/2020 SE209379.002	BH5M WATER - 29/7/2020 SE209379.003
Conductivity @ 25 C	µS/cm	2	**1200**	**980**	**4100**

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 3/8/2020

PARAMETER	UOM	LOR	BH3M-a WATER - 29/7/2020 SE209379.001	BH4M-a WATER - 29/7/2020 SE209379.002	BH5M WATER - 29/7/2020 SE209379.003	GWQD 1 WATER - 29/7/2020 SE209379.004	GWQR 1 WATER - 29/7/2020 SE209379.005
Arsenic, As	µg/L	1	<1	<1	**1**	**1**	<1
Cadmium, Cd	µg/L	0.1	<0.1	<0.1	**0.2**	<0.1	<0.1
Chromium, Cr	µg/L	1	**1**	**170**	**3**	**1**	<1
Copper, Cu	µg/L	1	**22**	**24**	**23**	**26**	<1
Lead, Pb	µg/L	1	<1	<1	**11**	<1	<1
Nickel, Ni	µg/L	1	**26**	**3**	**27**	**25**	<1
Zinc, Zn	µg/L	5	**74**	**21**	**180**	**71**	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 31/7/2020

PARAMETER	UOM	LOR	BH3M-a WATER - 29/7/2020 SE209379.001	BH4M-a WATER - 29/7/2020 SE209379.002	BH5M WATER - 29/7/2020 SE209379.003	GWQD 1 WATER - 29/7/2020 SE209379.004	GWQR 1 WATER - 29/7/2020 SE209379.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode (glass plus reference electrode) and is calibrated against 3 buffers purchased commercially. For soils, an extract with water is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos /cm or µS/cm @ 25°C. For soils, an extract with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Total Dissolved Salts can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. SGS use 0.6. Reference APHA 2510 B.
AN106	Salinity may be calculated in terms of NaCl from the sample conductivity. This assumes all soluble salts present , measured by the conductivity, are present as NaCl.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN318	Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). Where F2 is corrected for Naphthalene, the VOC data for Naphthalene is used.
AN403	Additionally, the volatile C6-C9/C6-C10 fractions may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoveerable Hydrocarbons - Silica (TRH-Silica) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 mandala pole, castle hill**
Order Number	**E24724.E02**
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE210081 R1**
Date Received	18/8/2020
Date Reported	20/8/2020

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

This report cancels and supersedes the report No.SE210081 R0 dated 19th August 2020 issued by SGS Environment, Health and Safety due to amended sample id.

SIGNATORIES

Dong LIANG
Metals/Inorganics Team Leader

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 19/8/2020

PARAMETER	UOM	LOR	BH4M-a WATER - 18/8/2020 SE210081.001
Arsenic, As	µg/L	1	**2**
Cadmium, Cd	µg/L	0.1	**0.2**
Chromium, Cr	µg/L	1	**1**
Copper, Cu	µg/L	1	**22**
Lead, Pb	µg/L	1	**30**
Nickel, Ni	µg/L	1	**38**
Zinc, Zn	µg/L	5	**240**

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 19/8/2020

PARAMETER	UOM	LOR	BH4M-a WATER - 18/8/2020 SE210081.001
Mercury	mg/L	0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN318	Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 248038

Client Details

Client	EI Australia
Attention	Lab Email
Address	Suite 6.01, 55 Miller Street, Pyrmont, NSW, 2009

Sample Details

Your Reference	**E24729.E02, Castle Hill**
Number of Samples	1 Water
Date samples received	30/07/2020
Date completed instructions received	30/07/2020

Analysis Details

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

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

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

Report Details

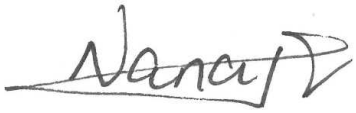
Date results requested by	06/08/2020
Date of Issue	04/08/2020

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

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

Results Approved By
Dragana Tomas, Senior Chemist
Loren Bardwell, Senior Chemist

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference		248038-1
Your Reference	UNITS	GWQT1
Date Sampled		29/07/2020
Type of sample		Water
Date extracted	-	31/07/2020
Date analysed	-	31/07/2020
TRH C_6 - C_9	µg/L	15
TRH C_6 - C_{10}	µg/L	15
TRH C_6 - C_{10} less BTEX (F1)	µg/L	15
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	112
Surrogate toluene-d8	%	93
Surrogate 4-BFB	%	87

svTRH (C10-C40) in Water		
Our Reference	UNITS	248038-1
Your Reference		GWQT1
Date Sampled		29/07/2020
Type of sample		Water
Date extracted	-	31/07/2020
Date analysed	-	01/08/2020
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Surrogate o-Terphenyl	%	98

HM in water - dissolved		
Our Reference		248038-1
Your Reference	UNITS	GWQT1
Date Sampled		29/07/2020
Type of sample		Water
Date prepared	-	31/07/2020
Date analysed	-	31/07/2020
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	0.2
Chromium-Dissolved	µg/L	1
Copper-Dissolved	µg/L	7
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	24
Zinc-Dissolved	µg/L	100

Method ID	Methodology Summary
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			31/07/2020	1	31/07/2020	31/07/2020		31/07/2020	[NT]
Date analysed	-			31/07/2020	1	31/07/2020	31/07/2020		31/07/2020	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	15	12	22	108	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	15	12	22	108	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	106	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	97	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	106	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	115	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	116	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	113	1	112	114	2	97	[NT]
Surrogate toluene-d8	%		Org-023	93	1	93	93	0	92	[NT]
Surrogate 4-BFB	%		Org-023	86	1	87	87	0	111	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			31/07/2020	1	31/07/2020	31/07/2020		31/07/2020	[NT]
Date analysed	-			31/07/2020	1	01/08/2020	01/08/2020		31/07/2020	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	<50	<50	0	80	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	<100	<100	0	70	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	<100	<100	0	77	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	<50	50	0	80	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	<100	<100	0	70	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	77	[NT]
Surrogate o-Terphenyl	%		Org-020	90	1	98	103	5	85	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date prepared	-			31/07/2020	[NT]	[NT]	[NT]	[NT]	31/07/2020	[NT]
Date analysed	-			31/07/2020	[NT]	[NT]	[NT]	[NT]	31/07/2020	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	105	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Appendix J - QA/QC Assessment

J.1 Introduction

For the purpose of assessing the quality of data presented in this report, EI collected field QC samples for analysis. The primary laboratory, SGS Australia Pty Ltd (SGS), and secondary laboratory, Envirolab Services Pty Ltd (Envirolab), also prepared and analysed internal QC samples. Details of the field and laboratory QC samples, with the allowable data acceptance ranges are presented in **Table J-1**.

Table J.1 Sampling Data Quality Indicators

QA/QC Measures	Data Quality Indicators
Precision – A quantitative measure of the variability (or reproducibility) of data	Data precision would be assessed by reviewing the performance of blind field duplicate sample sets, through calculation of relative percentage differences (RPD). Data precision would be deemed acceptable if RPDs are found to be less than 30%. RPDs that exceed this range may be considered acceptable where: ▪ Results are less than 10 times the limits of reporting (LOR); ▪ Results are less than 20 times the LOR and the RPD is less than 50%; or ▪ Heterogeneous materials or volatile compounds are encountered.
Accuracy – A quantitative measure of the closeness of reported data to the "true" value	Data accuracy would be assessed through the analysis of: ▪ Method blanks, which are analysed for the analytes targeted in the primary samples; ▪ Matrix spike and matrix spike duplicate sample sets; ▪ Laboratory control samples; and ▪ Calibration of instruments against known standards.
Representativeness – The confidence (expressed qualitatively) that data are representative of each medium present onsite	To ensure the data produced by the laboratory is representative of conditions encountered in the field, the laboratory would carry out the following: ▪ Blank samples will be run in parallel with field samples to confirm there are no unacceptable instances of laboratory artefacts; ▪ Review of relative percentage differences (RPD) values for field and laboratory duplicates to provide an indication that the samples are generally homogeneous, with no unacceptable instances of significant sample matrix heterogeneities; and ▪ The appropriateness of collection methodologies, handling, storage and preservation techniques will be assessed to ensure/confirm there was minimal opportunity for sample interference or degradation (i.e. volatile loss during transport due to incorrect preservation / transport methods).
Completeness – A measure of the amount of useable data from a data collection activity	Analytical data sets acquired during the assessment will be evaluated as complete, upon confirmation that: ▪ Standard operating procedures (SOPs) for sampling protocols were adhered to; and ▪ Copies of all COC documentation are presented, reviewed and found to be properly completed. It can therefore be considered whether the proportion of "useable data" generated in the data collection activities is sufficient for the purposes of the land use assessment.

QA/QC Measures	Data Quality Indicators
Comparability – The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event	Given that a reported data set can comprise several data sets from separate sampling episodes, issues of comparability between data sets are reduced through adherence to SOPs and regulator-endorsed or published guidelines and standards on each data gathering activity. In addition the data will be collected by experienced samplers and NATA-accredited laboratory methodologies will be employed in all laboratory testing programs.

J.1.1 Calculation of Relative Percentage Difference (RPD)

The RPD values were calculated using the following equation:

$$RPD = \frac{|C_O - C_R|}{[(C_O + C_R)/2]} \times 100$$

Where:

C_O = Concentration obtained for the primary sample; and

C_R = Concentration obtained for the blind replicate or split duplicate sample.

J.2 Field QA/QC Data Evaluation

The field quality assurance/quality control (QA/QC) soil samples collected during the investigations were as follows:

- Blind field duplicates (i.e. Intra-laboratory duplicates)
- Inter-laboratory duplicates
- Trip blanks
- Trip spikes
- Rinsate blank

Analytical results for tested soil and groundwater QA/QC samples, including calculated RPD values between primary and duplicate samples, are presented in **Table J-2** in **Appendix B**.

J.2.1 Soil Investigation

J.2.1.1 Blind Field Duplicates

Two blind field duplicate (BFD) soil samples were collected as follows:

- Sample QD1 was collected from the primary sample TP8_0.1-0.2 on 8 July 2020; and
- Sample QD2 was collected from the primary sample TP17_0.1-0.2 on 8 July 2020;

The preparation of the BFD sample involved the collection of a bulk quantity of soil from the same sampling point without mixing, before dividing the material into identical sampling vessels. The duplicate sample was then presented blind to the primary laboratory (SGS) to avoid any potential analytical bias. BFD soil samples were analysed for TRHs, BTEX, and selected metals. Calculated RPD values were found to be within the Data Acceptance Criteria.

J.2.1.2 Inter-Laboratory Duplicate

Two inter-laboratory duplicate (ILD) soil samples were collected as follows:

- Sample QT1 was collected from the primary sample TP8_0.1-0.2 on 8 July 2020; and
- Sample QT2 was collected from the primary sample TP17_0.1-0.2 on 8 July 2020.

The preparation of the ILD sample was identical to the BFD sample, as described above, and was analysed for TRHs, BTEX and selected metals by the secondary laboratory (Envirolab).

Calculated RPD values were found to be within the Data Acceptance Criteria, with the exception of chromium, copper, lead, nickel and zinc; however, this exceedance of the DQIs has no impact on the conclusions and recommendations provided.

J.2.2 Groundwater Investigation

J.2.2.1 Blind Field Duplicates

One blind field duplicate (BFD) groundwater sample was collected as follows:

- Sample GWQD1 was collected from the primary sample BH3M-a on 29 July 2020;

The duplicate sample was presented blind to the primary laboratory (SGS) to avoid any potential analytical bias. BFD groundwater samples were analysed for TRHs, BTEX, and selected metals. Calculated RPD values were found to be within the Data Acceptance Criteria.

J.2.2.2 Inter-Laboratory Duplicate

Sample GWQT1 was collected as an inter-laboratory duplicate (ILD) of the primary sample BH3M-a on 29 July 2020. It was analysed for TRHs, BTEX and selected metals by the secondary laboratory (Envirolab). Calculated RPD values were found to be within the Data Acceptance Criteria, with the exception of copper; however, this exceedance of the DQIs has no impact on the conclusions and recommendations provided.

J.2.2.3 Trip Blank

Two trip blank samples were prepared and analysed by the primary laboratory for BTEX. Analytical results for the samples were all below the corresponding laboratory LOR, indicating that ideal sample transport and handling conditions were achieved (i.e. there was no cross-contamination during sample transport and handling).

J.2.2.4 Trip Spike

Two trip spike samples were prepared and analysed by the primary laboratory for BTEX. Analyte recoveries for these samples were 87-99%, which complied with the DQI. It was therefore concluded that satisfactory sample transport and handling conditions were achieved (i.e. there was negligible loss of volatiles, and by default semi-volatiles, during sample transport and handling).

J.2.2.5 Rinsate Blank

Two rinsate blank samples were submitted to the primary laboratory for TRHs, BTEX, and selected metals analyses. Analytical results were reported below the laboratory LOR.

J.2.3 Assessment of Field QA/QC Data

All samples were classified in the field with respect to soil/fill characteristics and any observable signs of contamination based on visual and odour assessment, in regards to soil and groundwater.

All samples, including field QC samples, were transported to the primary and secondary laboratories under strict Chain-of-Custody conditions and appropriate copies of relevant documentation were included in the respective reports.

The overall completeness of documentation produced under the field program of the subject assessment was considered to be adequate for the purposes of drawing valid conclusions regarding the environmental condition of the site.

Based on the results of the field QA/QC data EI considered the field QA/QC programme carried out during the investigation to be appropriate and the results to be acceptable.

J.3 Laboratory QA/QC

J.3.1 Laboratory Accreditation

To undertake all analytical testing, EI commissioned SGS as the primary laboratory and Envirolab as the secondary laboratory. SGS and Envirolab, both established analytical laboratories which operate in accordance with the guidelines set out in ISO/IEC Guide 25 “General requirements for the competence of calibration and testing laboratories”, conducted all respective analyses using National Association Testing Authorities (NATA)-registered procedures.

In relation to contingencies, should the pre-determined DQOs not be achieved, in accordance with each laboratory’s QC policy (**Appendix K**), respective tests would be accordingly repeated. Should the results again fall outside the DQOs, then sample heterogeneity may be assumed and written comment will be provided to this effect on the final laboratory certificate. The laboratory QA/QC reports are included in **Appendix K**.

J.3.2 Sample Holding Times

Sample holding times were generally within the laboratory DQOs, which were consistent with standard environmental protocols as tabulated in **Appendix K**, **Tables QC1** and **QC2**.

J.3.3 Test Methods and Practical Quantitation Limits (PQLs)

Practical Quantitation Limits for all tested parameters during the assessment of soils and groundwater are presented in **Appendix K**, **Tables QC3** and **QC4**.

J.3.4 Method Blanks

Concentrations of all parameters in method blanks during the assessment were below the laboratory PQLs and were therefore within the DAC.

J.3.5 Laboratory Duplicate Samples

The Laboratory Control Samples (LCS) for the analysis batches showed calculated RPDs that were within acceptable ranges and conformed to the DAC, with the exception of copper, nickel and zinc in one soil sample and chromium in two soil samples due to sample heterogeneity.

J.3.6 Laboratory Control Samples

The Laboratory Control Samples for the analysis batches were within acceptable ranges and conformed to the DAC.

J.3.7 Matrix Spikes

Matrix spikes for the respective sample batches were within acceptable ranges and conformed to the DAC, with the exception of zinc and lead in two soil samples, chromium and copper in one soil sample, and calcium, magnesium and sodium in one soil sample due to matrix interference.

J.3.8 Surrogate

Recovery results for surrogate samples conformed to the DAC, with the exception of VOCs in two soil samples. However, at least 2 of 3 surrogates are within acceptance criteria.

J.3.9 Concluding Remark

Based on the laboratory QA/QC results EI considers that the data confirms that although a small number of discrepancies were identified, the analytical results for the various phases of laboratory testing were valid and useable for interpretation purposes.

Appendix K - Laboratory QA/AC Policies and DQOs

STATEMENT OF QA/QC PERFORMANCE

SE208655 R0

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 Mandala Parade, Castle Hill**
Order Number	**E24724.E02**
Samples	32

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE208655 R0**
Date Received	13 Jul 2020
Date Reported	20 Jul 2020

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Extraction Date	VOCs in Water	1 item
	Volatile Petroleum Hydrocarbons in Water	1 item
Duplicate	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	3 items
Matrix Spike	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item
	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item
	VOC's in Soil	1 item
	VOC's in Soil	1 item

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	31 Soil, 1 Water
Date documentation received	13/7/2020	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	5.7°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

HOLDING TIME SUMMARY

SE208655 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP7_0.1-0.2	SE208655.001	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP7_1.3-1.4	SE208655.002	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP8_0.1-0.2	SE208655.003	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP8_0.9-1.0	SE208655.004	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP9_0.1-0.2	SE208655.005	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP9_1.2-1.3	SE208655.006	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP10_0.1-0.2	SE208655.007	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP11_0.1-0.2	SE208655.008	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP11_0.8-0.9	SE208655.009	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP12_0.1-0.2	SE208655.010	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP12_0.8-0.9	SE208655.011	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP12_1.7-1.8	SE208655.012	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP13_0.1-0.2	SE208655.013	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP13_1.2-1.3	SE208655.014	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP13_2.0-2.1	SE208655.015	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP14_0.1-0.2	SE208655.016	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP14_1.5-1.6	SE208655.017	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP15_0.1-0.2	SE208655.018	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP15_1.7-1.8	SE208655.019	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP16_0.1-0.2	SE208655.020	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP17_0.1-0.2	SE208655.021	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP18_0.1-0.2	SE208655.022	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP18_1.8-1.9	SE208655.023	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP19_0.1-0.2	SE208655.024	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
TP19_1.4-1.5	SE208655.025	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
BH1_0.1-0.2	SE208655.031	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020
BH1_0.7-0.8	SE208655.032	LB204569	08 Jul 2020	13 Jul 2020	08 Jul 2021	17 Jul 2020	08 Jul 2021	20 Jul 2020

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE208655.028	LB204300	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	15 Jul 2020

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP7_0.1-0.2	SE208655.001	LB204384	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP7_1.3-1.4	SE208655.002	LB204384	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP8_0.1-0.2	SE208655.003	LB204384	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP8_0.9-1.0	SE208655.004	LB204384	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP9_0.1-0.2	SE208655.005	LB204384	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP9_1.2-1.3	SE208655.006	LB204384	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP10_0.1-0.2	SE208655.007	LB204384	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP11_0.1-0.2	SE208655.008	LB204384	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP11_0.8-0.9	SE208655.009	LB204384	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP12_0.1-0.2	SE208655.010	LB204384	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP12_0.8-0.9	SE208655.011	LB204384	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP12_1.7-1.8	SE208655.012	LB204384	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP13_0.1-0.2	SE208655.013	LB204384	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP13_1.2-1.3	SE208655.014	LB204384	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP13_2.0-2.1	SE208655.015	LB204384	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP14_0.1-0.2	SE208655.016	LB204384	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP14_1.5-1.6	SE208655.017	LB204384	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP15_0.1-0.2	SE208655.018	LB204384	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP15_1.7-1.8	SE208655.019	LB204384	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP16_0.1-0.2	SE208655.020	LB204386	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP17_0.1-0.2	SE208655.021	LB204386	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP18_0.1-0.2	SE208655.022	LB204386	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP18_1.8-1.9	SE208655.023	LB204386	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP19_0.1-0.2	SE208655.024	LB204386	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
TP19_1.4-1.5	SE208655.025	LB204386	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
QD1	SE208655.026	LB204386	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Mercury in Soil (continued)

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QD2	SE208655.027	LB204386	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
BH1_0.1-0.2	SE208655.031	LB204386	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020
BH1_0.7-0.8	SE208655.032	LB204386	08 Jul 2020	13 Jul 2020	05 Aug 2020	15 Jul 2020	05 Aug 2020	20 Jul 2020

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP7_0.1-0.2	SE208655.001	LB204345	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	17 Jul 2020
TP7_1.3-1.4	SE208655.002	LB204345	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	17 Jul 2020
TP8_0.1-0.2	SE208655.003	LB204345	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	17 Jul 2020
TP8_0.9-1.0	SE208655.004	LB204345	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	17 Jul 2020
TP9_0.1-0.2	SE208655.005	LB204345	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	17 Jul 2020
TP9_1.2-1.3	SE208655.006	LB204345	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	17 Jul 2020
TP10_0.1-0.2	SE208655.007	LB204345	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	17 Jul 2020
TP11_0.1-0.2	SE208655.008	LB204345	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	17 Jul 2020
TP11_0.8-0.9	SE208655.009	LB204345	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	17 Jul 2020
TP12_0.1-0.2	SE208655.010	LB204345	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	17 Jul 2020
TP12_0.8-0.9	SE208655.011	LB204345	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	17 Jul 2020
TP12_1.7-1.8	SE208655.012	LB204345	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	17 Jul 2020
TP13_0.1-0.2	SE208655.013	LB204345	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	17 Jul 2020
TP13_1.2-1.3	SE208655.014	LB204345	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	17 Jul 2020
TP13_2.0-2.1	SE208655.015	LB204345	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	17 Jul 2020
TP14_0.1-0.2	SE208655.016	LB204345	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	17 Jul 2020
TP14_1.5-1.6	SE208655.017	LB204346	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	20 Jul 2020
TP15_0.1-0.2	SE208655.018	LB204346	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	20 Jul 2020
TP15_1.7-1.8	SE208655.019	LB204346	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	20 Jul 2020
TP16_0.1-0.2	SE208655.020	LB204346	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	20 Jul 2020
TP17_0.1-0.2	SE208655.021	LB204346	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	20 Jul 2020
TP18_0.1-0.2	SE208655.022	LB204346	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	20 Jul 2020
TP18_1.8-1.9	SE208655.023	LB204346	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	20 Jul 2020
TP19_0.1-0.2	SE208655.024	LB204346	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	20 Jul 2020
TP19_1.4-1.5	SE208655.025	LB204346	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	20 Jul 2020
QD1	SE208655.026	LB204346	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	20 Jul 2020
QD2	SE208655.027	LB204346	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	20 Jul 2020
QTB1	SE208655.029	LB204346	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	20 Jul 2020
BH1_0.1-0.2	SE208655.031	LB204346	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	20 Jul 2020
BH1_0.7-0.8	SE208655.032	LB204346	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	20 Jul 2020	20 Jul 2020

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP7_0.1-0.2	SE208655.001	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP7_1.3-1.4	SE208655.002	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP8_0.1-0.2	SE208655.003	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP8_0.9-1.0	SE208655.004	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP9_0.1-0.2	SE208655.005	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP9_1.2-1.3	SE208655.006	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP10_0.1-0.2	SE208655.007	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP11_0.1-0.2	SE208655.008	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP11_0.8-0.9	SE208655.009	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP12_0.1-0.2	SE208655.010	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP12_0.8-0.9	SE208655.011	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP12_1.7-1.8	SE208655.012	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP13_0.1-0.2	SE208655.013	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP13_1.2-1.3	SE208655.014	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP13_2.0-2.1	SE208655.015	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP14_0.1-0.2	SE208655.016	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP14_1.5-1.6	SE208655.017	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP15_0.1-0.2	SE208655.018	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP15_1.7-1.8	SE208655.019	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP16_0.1-0.2	SE208655.020	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP17_0.1-0.2	SE208655.021	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP18_0.1-0.2	SE208655.022	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020

HOLDING TIME SUMMARY

SE208655 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP18_1.8-1.9	SE208655.023	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP19_0.1-0.2	SE208655.024	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP19_1.4-1.5	SE208655.025	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
QD1	SE208655.026	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
QD2	SE208655.027	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
BH1_0.1-0.2	SE208655.031	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
BH1_0.7-0.8	SE208655.032	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP7_0.1-0.2	SE208655.001	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP7_1.3-1.4	SE208655.002	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP8_0.1-0.2	SE208655.003	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP8_0.9-1.0	SE208655.004	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP9_0.1-0.2	SE208655.005	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP9_1.2-1.3	SE208655.006	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP10_0.1-0.2	SE208655.007	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP11_0.1-0.2	SE208655.008	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP11_0.8-0.9	SE208655.009	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP12_0.1-0.2	SE208655.010	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP12_0.8-0.9	SE208655.011	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP12_1.7-1.8	SE208655.012	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP13_0.1-0.2	SE208655.013	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP13_1.2-1.3	SE208655.014	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP13_2.0-2.1	SE208655.015	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP14_0.1-0.2	SE208655.016	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP14_1.5-1.6	SE208655.017	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP15_0.1-0.2	SE208655.018	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP15_1.7-1.8	SE208655.019	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP16_0.1-0.2	SE208655.020	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP17_0.1-0.2	SE208655.021	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP18_0.1-0.2	SE208655.022	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP18_1.8-1.9	SE208655.023	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP19_0.1-0.2	SE208655.024	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP19_1.4-1.5	SE208655.025	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
QD1	SE208655.026	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
QD2	SE208655.027	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
BH1_0.1-0.2	SE208655.031	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
BH1_0.7-0.8	SE208655.032	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP7_0.1-0.2	SE208655.001	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP7_1.3-1.4	SE208655.002	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP8_0.1-0.2	SE208655.003	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP8_0.9-1.0	SE208655.004	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP9_0.1-0.2	SE208655.005	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP9_1.2-1.3	SE208655.006	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP10_0.1-0.2	SE208655.007	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP11_0.1-0.2	SE208655.008	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP11_0.8-0.9	SE208655.009	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP12_0.1-0.2	SE208655.010	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP12_0.8-0.9	SE208655.011	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP12_1.7-1.8	SE208655.012	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP13_0.1-0.2	SE208655.013	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP13_1.2-1.3	SE208655.014	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP13_2.0-2.1	SE208655.015	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP14_0.1-0.2	SE208655.016	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP14_1.5-1.6	SE208655.017	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP15_0.1-0.2	SE208655.018	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP15_1.7-1.8	SE208655.019	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020

HOLDING TIME SUMMARY

SE208655 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP16_0.1-0.2	SE208655.020	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP17_0.1-0.2	SE208655.021	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP18_0.1-0.2	SE208655.022	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP18_1.8-1.9	SE208655.023	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP19_0.1-0.2	SE208655.024	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP19_1.4-1.5	SE208655.025	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
QD1	SE208655.026	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
QD2	SE208655.027	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
BH1_0.1-0.2	SE208655.031	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
BH1_0.7-0.8	SE208655.032	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP7_0.1-0.2	SE208655.001	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP7_1.3-1.4	SE208655.002	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP8_0.1-0.2	SE208655.003	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP8_0.9-1.0	SE208655.004	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP9_0.1-0.2	SE208655.005	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP9_1.2-1.3	SE208655.006	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP10_0.1-0.2	SE208655.007	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP11_0.1-0.2	SE208655.008	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP11_0.8-0.9	SE208655.009	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP12_0.1-0.2	SE208655.010	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP12_0.8-0.9	SE208655.011	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP12_1.7-1.8	SE208655.012	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP13_0.1-0.2	SE208655.013	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP13_1.2-1.3	SE208655.014	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP13_2.0-2.1	SE208655.015	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP14_0.1-0.2	SE208655.016	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP14_1.5-1.6	SE208655.017	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP15_0.1-0.2	SE208655.018	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP15_1.7-1.8	SE208655.019	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP16_0.1-0.2	SE208655.020	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP17_0.1-0.2	SE208655.021	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP18_0.1-0.2	SE208655.022	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP18_1.8-1.9	SE208655.023	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP19_0.1-0.2	SE208655.024	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP19_1.4-1.5	SE208655.025	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
QD1	SE208655.026	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
QD2	SE208655.027	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
BH1_0.1-0.2	SE208655.031	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
BH1_0.7-0.8	SE208655.032	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP7_0.1-0.2	SE208655.001	LB204380	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	17 Jul 2020
TP7_1.3-1.4	SE208655.002	LB204380	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	17 Jul 2020
TP8_0.1-0.2	SE208655.003	LB204380	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	17 Jul 2020
TP8_0.9-1.0	SE208655.004	LB204380	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	17 Jul 2020
TP9_0.1-0.2	SE208655.005	LB204380	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	17 Jul 2020
TP9_1.2-1.3	SE208655.006	LB204380	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	17 Jul 2020
TP10_0.1-0.2	SE208655.007	LB204380	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	17 Jul 2020
TP11_0.1-0.2	SE208655.008	LB204380	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	17 Jul 2020
TP11_0.8-0.9	SE208655.009	LB204380	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	17 Jul 2020
TP12_0.1-0.2	SE208655.010	LB204380	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	17 Jul 2020
TP12_0.8-0.9	SE208655.011	LB204380	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	17 Jul 2020
TP12_1.7-1.8	SE208655.012	LB204380	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	17 Jul 2020
TP13_0.1-0.2	SE208655.013	LB204380	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	17 Jul 2020
TP13_1.2-1.3	SE208655.014	LB204380	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	17 Jul 2020
TP13_2.0-2.1	SE208655.015	LB204380	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	17 Jul 2020
TP14_0.1-0.2	SE208655.016	LB204380	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	17 Jul 2020

HOLDING TIME SUMMARY

SE208655 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP14_1.5-1.6	SE208655.017	LB204380	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	20 Jul 2020
TP15_0.1-0.2	SE208655.018	LB204380	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	20 Jul 2020
TP15_1.7-1.8	SE208655.019	LB204380	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	20 Jul 2020
TP16_0.1-0.2	SE208655.020	LB204381	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	20 Jul 2020
TP17_0.1-0.2	SE208655.021	LB204381	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	20 Jul 2020
TP18_0.1-0.2	SE208655.022	LB204381	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	20 Jul 2020
TP18_1.8-1.9	SE208655.023	LB204381	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	20 Jul 2020
TP19_0.1-0.2	SE208655.024	LB204381	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	20 Jul 2020
TP19_1.4-1.5	SE208655.025	LB204381	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	20 Jul 2020
QD1	SE208655.026	LB204381	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	20 Jul 2020
QD2	SE208655.027	LB204381	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	20 Jul 2020
BH1_0.1-0.2	SE208655.031	LB204381	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	20 Jul 2020
BH1_0.7-0.8	SE208655.032	LB204381	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	20 Jul 2020

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE208655.028	LB204402	08 Jul 2020	13 Jul 2020	04 Jan 2021	15 Jul 2020	04 Jan 2021	16 Jul 2020

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP7_0.1-0.2	SE208655.001	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP7_1.3-1.4	SE208655.002	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP8_0.1-0.2	SE208655.003	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP8_0.9-1.0	SE208655.004	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP9_0.1-0.2	SE208655.005	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP9_1.2-1.3	SE208655.006	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP10_0.1-0.2	SE208655.007	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP11_0.1-0.2	SE208655.008	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP11_0.8-0.9	SE208655.009	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP12_0.1-0.2	SE208655.010	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP12_0.8-0.9	SE208655.011	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP12_1.7-1.8	SE208655.012	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP13_0.1-0.2	SE208655.013	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP13_1.2-1.3	SE208655.014	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP13_2.0-2.1	SE208655.015	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP14_0.1-0.2	SE208655.016	LB204342	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP14_1.5-1.6	SE208655.017	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP15_0.1-0.2	SE208655.018	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP15_1.7-1.8	SE208655.019	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP16_0.1-0.2	SE208655.020	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP17_0.1-0.2	SE208655.021	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP18_0.1-0.2	SE208655.022	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP18_1.8-1.9	SE208655.023	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP19_0.1-0.2	SE208655.024	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP19_1.4-1.5	SE208655.025	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
QD1	SE208655.026	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
QD2	SE208655.027	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
BH1_0.1-0.2	SE208655.031	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
BH1_0.7-0.8	SE208655.032	LB204343	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE208655.028	LB204298	08 Jul 2020	13 Jul 2020	15 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP7_0.1-0.2	SE208655.001	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP7_1.3-1.4	SE208655.002	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP8_0.1-0.2	SE208655.003	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP8_0.9-1.0	SE208655.004	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020

HOLDING TIME SUMMARY

SE208655 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP9_0.1-0.2	SE208655.005	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP9_1.2-1.3	SE208655.006	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP10_0.1-0.2	SE208655.007	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP11_0.1-0.2	SE208655.008	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP11_0.8-0.9	SE208655.009	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP12_0.1-0.2	SE208655.010	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP12_0.8-0.9	SE208655.011	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP12_1.7-1.8	SE208655.012	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP13_0.1-0.2	SE208655.013	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP13_1.2-1.3	SE208655.014	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP13_2.0-2.1	SE208655.015	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP14_0.1-0.2	SE208655.016	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP14_1.5-1.6	SE208655.017	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP15_0.1-0.2	SE208655.018	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP15_1.7-1.8	SE208655.019	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP16_0.1-0.2	SE208655.020	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP17_0.1-0.2	SE208655.021	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP18_0.1-0.2	SE208655.022	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP18_1.8-1.9	SE208655.023	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP19_0.1-0.2	SE208655.024	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP19_1.4-1.5	SE208655.025	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
QD1	SE208655.026	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
QD2	SE208655.027	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
QTB1	SE208655.029	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
QTS1	SE208655.030	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
BH1_0.1-0.2	SE208655.031	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
BH1_0.7-0.8	SE208655.032	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE208655.028	LB204439	08 Jul 2020	13 Jul 2020	15 Jul 2020	16 Jul 2020†	25 Aug 2020	17 Jul 2020

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP7_0.1-0.2	SE208655.001	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP7_1.3-1.4	SE208655.002	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP8_0.1-0.2	SE208655.003	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP8_0.9-1.0	SE208655.004	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP9_0.1-0.2	SE208655.005	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP9_1.2-1.3	SE208655.006	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP10_0.1-0.2	SE208655.007	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP11_0.1-0.2	SE208655.008	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP11_0.8-0.9	SE208655.009	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP12_0.1-0.2	SE208655.010	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP12_0.8-0.9	SE208655.011	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP12_1.7-1.8	SE208655.012	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP13_0.1-0.2	SE208655.013	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP13_1.2-1.3	SE208655.014	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP13_2.0-2.1	SE208655.015	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP14_0.1-0.2	SE208655.016	LB204339	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	17 Jul 2020
TP14_1.5-1.6	SE208655.017	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP15_0.1-0.2	SE208655.018	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP15_1.7-1.8	SE208655.019	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP16_0.1-0.2	SE208655.020	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP17_0.1-0.2	SE208655.021	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP18_0.1-0.2	SE208655.022	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP18_1.8-1.9	SE208655.023	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP19_0.1-0.2	SE208655.024	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
TP19_1.4-1.5	SE208655.025	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
QD1	SE208655.026	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020

HOLDING TIME SUMMARY

SE208655 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Volatile Petroleum Hydrocarbons in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QD2	SE208655.027	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
QTB1	SE208655.029	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
QTS1	SE208655.030	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
BH1_0.1-0.2	SE208655.031	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020
BH1_0.7-0.8	SE208655.032	LB204340	08 Jul 2020	13 Jul 2020	22 Jul 2020	15 Jul 2020	24 Aug 2020	20 Jul 2020

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE208655.028	LB204439	08 Jul 2020	13 Jul 2020	15 Jul 2020	16 Jul 2020†	25 Aug 2020	17 Jul 2020

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	TP7_0.1-0.2	SE208655.001	%	60 - 130%	103
	TP7_1.3-1.4	SE208655.002	%	60 - 130%	105
	TP8_0.1-0.2	SE208655.003	%	60 - 130%	104
	TP8_0.9-1.0	SE208655.004	%	60 - 130%	98
	TP9_0.1-0.2	SE208655.005	%	60 - 130%	105
	TP9_1.2-1.3	SE208655.006	%	60 - 130%	107
	TP10_0.1-0.2	SE208655.007	%	60 - 130%	111
	TP11_0.1-0.2	SE208655.008	%	60 - 130%	106
	TP11_0.8-0.9	SE208655.009	%	60 - 130%	104
	TP12_0.1-0.2	SE208655.010	%	60 - 130%	107
	TP12_0.8-0.9	SE208655.011	%	60 - 130%	104
	TP12_1.7-1.8	SE208655.012	%	60 - 130%	109
	TP13_0.1-0.2	SE208655.013	%	60 - 130%	109
	TP13_1.2-1.3	SE208655.014	%	60 - 130%	103
	TP13_2.0-2.1	SE208655.015	%	60 - 130%	102
	TP14_0.1-0.2	SE208655.016	%	60 - 130%	100
	TP14_1.5-1.6	SE208655.017	%	60 - 130%	93
	TP15_0.1-0.2	SE208655.018	%	60 - 130%	104
	TP15_1.7-1.8	SE208655.019	%	60 - 130%	103
	TP16_0.1-0.2	SE208655.020	%	60 - 130%	106
	TP17_0.1-0.2	SE208655.021	%	60 - 130%	104
	TP18_0.1-0.2	SE208655.022	%	60 - 130%	113
	TP18_1.8-1.9	SE208655.023	%	60 - 130%	110
	TP19_0.1-0.2	SE208655.024	%	60 - 130%	106
	TP19_1.4-1.5	SE208655.025	%	60 - 130%	107
	BH1_0.1-0.2	SE208655.031	%	60 - 130%	109
	BH1_0.7-0.8	SE208655.032	%	60 - 130%	122

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TP7_0.1-0.2	SE208655.001	%	60 - 130%	93
	TP7_1.3-1.4	SE208655.002	%	60 - 130%	71
	TP8_0.1-0.2	SE208655.003	%	60 - 130%	96
	TP8_0.9-1.0	SE208655.004	%	60 - 130%	89
	TP9_0.1-0.2	SE208655.005	%	60 - 130%	72
	TP9_1.2-1.3	SE208655.006	%	60 - 130%	72
	TP10_0.1-0.2	SE208655.007	%	60 - 130%	72
	TP11_0.1-0.2	SE208655.008	%	60 - 130%	92
	TP11_0.8-0.9	SE208655.009	%	60 - 130%	77
	TP12_0.1-0.2	SE208655.010	%	60 - 130%	78
	TP12_0.8-0.9	SE208655.011	%	60 - 130%	101
	TP12_1.7-1.8	SE208655.012	%	60 - 130%	88
	TP13_0.1-0.2	SE208655.013	%	60 - 130%	94
	TP13_1.2-1.3	SE208655.014	%	60 - 130%	82
	TP13_2.0-2.1	SE208655.015	%	60 - 130%	76
	TP14_0.1-0.2	SE208655.016	%	60 - 130%	91
	TP14_1.5-1.6	SE208655.017	%	60 - 130%	81
	TP15_0.1-0.2	SE208655.018	%	60 - 130%	89
	TP15_1.7-1.8	SE208655.019	%	60 - 130%	93
	TP16_0.1-0.2	SE208655.020	%	60 - 130%	86
	TP17_0.1-0.2	SE208655.021	%	60 - 130%	90
	TP18_0.1-0.2	SE208655.022	%	60 - 130%	89
	TP18_1.8-1.9	SE208655.023	%	60 - 130%	100
	TP19_0.1-0.2	SE208655.024	%	60 - 130%	94
	TP19_1.4-1.5	SE208655.025	%	60 - 130%	85
	BH1_0.1-0.2	SE208655.031	%	60 - 130%	92
	BH1_0.7-0.8	SE208655.032	%	60 - 130%	96
d14-p-terphenyl (Surrogate)	TP7_0.1-0.2	SE208655.001	%	60 - 130%	92
	TP7_1.3-1.4	SE208655.002	%	60 - 130%	97
	TP8_0.1-0.2	SE208655.003	%	60 - 130%	82
	TP8_0.9-1.0	SE208655.004	%	60 - 130%	97

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	TP9_0.1-0.2	SE208655.005	%	60 - 130%	80
	TP9_1.2-1.3	SE208655.006	%	60 - 130%	100
	TP10_0.1-0.2	SE208655.007	%	60 - 130%	90
	TP11_0.1-0.2	SE208655.008	%	60 - 130%	83
	TP11_0.8-0.9	SE208655.009	%	60 - 130%	79
	TP12_0.1-0.2	SE208655.010	%	60 - 130%	97
	TP12_0.8-0.9	SE208655.011	%	60 - 130%	90
	TP12_1.7-1.8	SE208655.012	%	60 - 130%	89
	TP13_0.1-0.2	SE208655.013	%	60 - 130%	93
	TP13_1.2-1.3	SE208655.014	%	60 - 130%	85
	TP13_2.0-2.1	SE208655.015	%	60 - 130%	81
	TP14_0.1-0.2	SE208655.016	%	60 - 130%	87
	TP14_1.5-1.6	SE208655.017	%	60 - 130%	75
	TP15_0.1-0.2	SE208655.018	%	60 - 130%	85
	TP15_1.7-1.8	SE208655.019	%	60 - 130%	91
	TP16_0.1-0.2	SE208655.020	%	60 - 130%	84
	TP17_0.1-0.2	SE208655.021	%	60 - 130%	89
	TP18_0.1-0.2	SE208655.022	%	60 - 130%	87
	TP18_1.8-1.9	SE208655.023	%	60 - 130%	97
	TP19_0.1-0.2	SE208655.024	%	60 - 130%	93
	TP19_1.4-1.5	SE208655.025	%	60 - 130%	84
	BH1_0.1-0.2	SE208655.031	%	60 - 130%	90
	BH1_0.7-0.8	SE208655.032	%	60 - 130%	98

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TP7_0.1-0.2	SE208655.001	%	70 - 130%	93
	TP7_1.3-1.4	SE208655.002	%	70 - 130%	90
	TP8_0.1-0.2	SE208655.003	%	70 - 130%	96
	TP8_0.9-1.0	SE208655.004	%	70 - 130%	89
	TP9_0.1-0.2	SE208655.005	%	70 - 130%	72
	TP9_1.2-1.3	SE208655.006	%	70 - 130%	72
	TP10_0.1-0.2	SE208655.007	%	70 - 130%	72
	TP11_0.1-0.2	SE208655.008	%	70 - 130%	92
	TP11_0.8-0.9	SE208655.009	%	70 - 130%	77
	TP12_0.1-0.2	SE208655.010	%	70 - 130%	78
	TP12_0.8-0.9	SE208655.011	%	70 - 130%	101
	TP12_1.7-1.8	SE208655.012	%	70 - 130%	88
	TP13_0.1-0.2	SE208655.013	%	70 - 130%	94
	TP13_1.2-1.3	SE208655.014	%	70 - 130%	82
	TP13_2.0-2.1	SE208655.015	%	70 - 130%	76
	TP14_0.1-0.2	SE208655.016	%	70 - 130%	91
	TP14_1.5-1.6	SE208655.017	%	70 - 130%	81
	TP15_0.1-0.2	SE208655.018	%	70 - 130%	89
	TP15_1.7-1.8	SE208655.019	%	70 - 130%	93
	TP16_0.1-0.2	SE208655.020	%	70 - 130%	86
	TP17_0.1-0.2	SE208655.021	%	70 - 130%	90
	TP18_0.1-0.2	SE208655.022	%	70 - 130%	89
	TP18_1.8-1.9	SE208655.023	%	70 - 130%	100
	TP19_0.1-0.2	SE208655.024	%	70 - 130%	94
	TP19_1.4-1.5	SE208655.025	%	70 - 130%	85
	BH1_0.1-0.2	SE208655.031	%	70 - 130%	92
	BH1_0.7-0.8	SE208655.032	%	70 - 130%	96
d14-p-terphenyl (Surrogate)	TP7_0.1-0.2	SE208655.001	%	70 - 130%	92
	TP7_1.3-1.4	SE208655.002	%	70 - 130%	97
	TP8_0.1-0.2	SE208655.003	%	70 - 130%	82
	TP8_0.9-1.0	SE208655.004	%	70 - 130%	97
	TP9_0.1-0.2	SE208655.005	%	70 - 130%	80
	TP9_1.2-1.3	SE208655.006	%	70 - 130%	100
	TP10_0.1-0.2	SE208655.007	%	70 - 130%	90
	TP11_0.1-0.2	SE208655.008	%	70 - 130%	83

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	TP11_0.8-0.9	SE208655.009	%	70 - 130%	79
	TP12_0.1-0.2	SE208655.010	%	70 - 130%	97
	TP12_0.8-0.9	SE208655.011	%	70 - 130%	90
	TP12_1.7-1.8	SE208655.012	%	70 - 130%	89
	TP13_0.1-0.2	SE208655.013	%	70 - 130%	93
	TP13_1.2-1.3	SE208655.014	%	70 - 130%	85
	TP13_2.0-2.1	SE208655.015	%	70 - 130%	81
	TP14_0.1-0.2	SE208655.016	%	70 - 130%	87
	TP14_1.5-1.6	SE208655.017	%	70 - 130%	75
	TP15_0.1-0.2	SE208655.018	%	70 - 130%	85
	TP15_1.7-1.8	SE208655.019	%	70 - 130%	91
	TP16_0.1-0.2	SE208655.020	%	70 - 130%	84
	TP17_0.1-0.2	SE208655.021	%	70 - 130%	89
	TP18_0.1-0.2	SE208655.022	%	70 - 130%	87
	TP18_1.8-1.9	SE208655.023	%	70 - 130%	97
	TP19_0.1-0.2	SE208655.024	%	70 - 130%	93
	TP19_1.4-1.5	SE208655.025	%	70 - 130%	84
	BH1_0.1-0.2	SE208655.031	%	70 - 130%	90
	BH1_0.7-0.8	SE208655.032	%	70 - 130%	98
d5-nitrobenzene (Surrogate)	TP7_0.1-0.2	SE208655.001	%	70 - 130%	87
	TP7_1.3-1.4	SE208655.002	%	70 - 130%	84
	TP8_0.1-0.2	SE208655.003	%	70 - 130%	84
	TP8_0.9-1.0	SE208655.004	%	70 - 130%	86
	TP9_0.1-0.2	SE208655.005	%	70 - 130%	82
	TP9_1.2-1.3	SE208655.006	%	70 - 130%	87
	TP10_0.1-0.2	SE208655.007	%	70 - 130%	82
	TP11_0.1-0.2	SE208655.008	%	70 - 130%	86
	TP11_0.8-0.9	SE208655.009	%	70 - 130%	88
	TP12_0.1-0.2	SE208655.010	%	70 - 130%	84
	TP12_0.8-0.9	SE208655.011	%	70 - 130%	85
	TP12_1.7-1.8	SE208655.012	%	70 - 130%	86
	TP13_0.1-0.2	SE208655.013	%	70 - 130%	88
	TP13_1.2-1.3	SE208655.014	%	70 - 130%	90
	TP13_2.0-2.1	SE208655.015	%	70 - 130%	84
	TP14_0.1-0.2	SE208655.016	%	70 - 130%	84
	TP14_1.5-1.6	SE208655.017	%	70 - 130%	73
	TP15_0.1-0.2	SE208655.018	%	70 - 130%	82
	TP15_1.7-1.8	SE208655.019	%	70 - 130%	87
	TP16_0.1-0.2	SE208655.020	%	70 - 130%	82
	TP17_0.1-0.2	SE208655.021	%	70 - 130%	88
	TP18_0.1-0.2	SE208655.022	%	70 - 130%	89
	TP18_1.8-1.9	SE208655.023	%	70 - 130%	100
	TP19_0.1-0.2	SE208655.024	%	70 - 130%	98
	TP19_1.4-1.5	SE208655.025	%	70 - 130%	86
	BH1_0.1-0.2	SE208655.031	%	70 - 130%	96
	BH1_0.7-0.8	SE208655.032	%	70 - 130%	101

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	TP7_0.1-0.2	SE208655.001	%	60 - 130%	103
	TP7_1.3-1.4	SE208655.002	%	60 - 130%	105
	TP8_0.1-0.2	SE208655.003	%	60 - 130%	104
	TP8_0.9-1.0	SE208655.004	%	60 - 130%	98
	TP9_0.1-0.2	SE208655.005	%	60 - 130%	105
	TP9_1.2-1.3	SE208655.006	%	60 - 130%	107
	TP10_0.1-0.2	SE208655.007	%	60 - 130%	111
	TP11_0.1-0.2	SE208655.008	%	60 - 130%	106
	TP11_0.8-0.9	SE208655.009	%	60 - 130%	104
	TP12_0.1-0.2	SE208655.010	%	60 - 130%	107
	TP12_0.8-0.9	SE208655.011	%	60 - 130%	104
	TP12_1.7-1.8	SE208655.012	%	60 - 130%	109

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PCBs in Soil (continued) — Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	TP13_0.1-0.2	SE208655.013	%	60 - 130%	109
	TP13_1.2-1.3	SE208655.014	%	60 - 130%	103
	TP13_2.0-2.1	SE208655.015	%	60 - 130%	102
	TP14_0.1-0.2	SE208655.016	%	60 - 130%	100
	TP14_1.5-1.6	SE208655.017	%	60 - 130%	93
	TP15_0.1-0.2	SE208655.018	%	60 - 130%	104
	TP15_1.7-1.8	SE208655.019	%	60 - 130%	103
	TP16_0.1-0.2	SE208655.020	%	60 - 130%	106
	TP17_0.1-0.2	SE208655.021	%	60 - 130%	104
	TP18_0.1-0.2	SE208655.022	%	60 - 130%	113
	TP18_1.8-1.9	SE208655.023	%	60 - 130%	110
	TP19_0.1-0.2	SE208655.024	%	60 - 130%	106
	TP19_1.4-1.5	SE208655.025	%	60 - 130%	107
	BH1_0.1-0.2	SE208655.031	%	60 - 130%	109
	BH1_0.7-0.8	SE208655.032	%	60 - 130%	122

VOC's in Soil — Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP7_0.1-0.2	SE208655.001	%	60 - 130%	71
	TP7_1.3-1.4	SE208655.002	%	60 - 130%	68
	TP8_0.1-0.2	SE208655.003	%	60 - 130%	72
	TP8_0.9-1.0	SE208655.004	%	60 - 130%	73
	TP9_0.1-0.2	SE208655.005	%	60 - 130%	70
	TP9_1.2-1.3	SE208655.006	%	60 - 130%	67
	TP10_0.1-0.2	SE208655.007	%	60 - 130%	69
	TP11_0.1-0.2	SE208655.008	%	60 - 130%	71
	TP11_0.8-0.9	SE208655.009	%	60 - 130%	68
	TP12_0.1-0.2	SE208655.010	%	60 - 130%	69
	TP12_0.8-0.9	SE208655.011	%	60 - 130%	66
	TP12_1.7-1.8	SE208655.012	%	60 - 130%	70
	TP13_0.1-0.2	SE208655.013	%	60 - 130%	68
	TP13_1.2-1.3	SE208655.014	%	60 - 130%	66
	TP13_2.0-2.1	SE208655.015	%	60 - 130%	67
	TP14_0.1-0.2	SE208655.016	%	60 - 130%	68
	TP14_1.5-1.6	SE208655.017	%	60 - 130%	71
	TP15_0.1-0.2	SE208655.018	%	60 - 130%	69
	TP15_1.7-1.8	SE208655.019	%	60 - 130%	68
	TP16_0.1-0.2	SE208655.020	%	60 - 130%	77
	TP17_0.1-0.2	SE208655.021	%	60 - 130%	64
	TP18_0.1-0.2	SE208655.022	%	60 - 130%	68
	TP18_1.8-1.9	SE208655.023	%	60 - 130%	67
	TP19_0.1-0.2	SE208655.024	%	60 - 130%	70
	TP19_1.4-1.5	SE208655.025	%	60 - 130%	71
	QD1	SE208655.026	%	60 - 130%	66
	QD2	SE208655.027	%	60 - 130%	68
	QTB1	SE208655.029	%	60 - 130%	78
	QTS1	SE208655.030	%	60 - 130%	70
	BH1_0.1-0.2	SE208655.031	%	60 - 130%	69
	BH1_0.7-0.8	SE208655.032	%	60 - 130%	69
d4-1,2-dichloroethane (Surrogate)	TP7_0.1-0.2	SE208655.001	%	60 - 130%	83
	TP7_1.3-1.4	SE208655.002	%	60 - 130%	80
	TP8_0.1-0.2	SE208655.003	%	60 - 130%	84
	TP8_0.9-1.0	SE208655.004	%	60 - 130%	86
	TP9_0.1-0.2	SE208655.005	%	60 - 130%	84
	TP9_1.2-1.3	SE208655.006	%	60 - 130%	78
	TP10_0.1-0.2	SE208655.007	%	60 - 130%	80
	TP11_0.1-0.2	SE208655.008	%	60 - 130%	85
	TP11_0.8-0.9	SE208655.009	%	60 - 130%	79
	TP12_0.1-0.2	SE208655.010	%	60 - 130%	82
	TP12_0.8-0.9	SE208655.011	%	60 - 130%	78
	TP12_1.7-1.8	SE208655.012	%	60 - 130%	82

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	TP13_0.1-0.2	SE208655.013	%	60 - 130%	80
	TP13_1.2-1.3	SE208655.014	%	60 - 130%	78
	TP13_2.0-2.1	SE208655.015	%	60 - 130%	79
	TP14_0.1-0.2	SE208655.016	%	60 - 130%	81
	TP14_1.5-1.6	SE208655.017	%	60 - 130%	87
	TP15_0.1-0.2	SE208655.018	%	60 - 130%	86
	TP15_1.7-1.8	SE208655.019	%	60 - 130%	85
	TP16_0.1-0.2	SE208655.020	%	60 - 130%	95
	TP17_0.1-0.2	SE208655.021	%	60 - 130%	80
	TP18_0.1-0.2	SE208655.022	%	60 - 130%	85
	TP18_1.8-1.9	SE208655.023	%	60 - 130%	84
	TP19_0.1-0.2	SE208655.024	%	60 - 130%	89
	TP19_1.4-1.5	SE208655.025	%	60 - 130%	89
	QD1	SE208655.026	%	60 - 130%	84
	QD2	SE208655.027	%	60 - 130%	85
	QTB1	SE208655.029	%	60 - 130%	83
	QTS1	SE208655.030	%	60 - 130%	84
	BH1_0.1-0.2	SE208655.031	%	60 - 130%	86
	BH1_0.7-0.8	SE208655.032	%	60 - 130%	87
d8-toluene (Surrogate)	TP7_0.1-0.2	SE208655.001	%	60 - 130%	80
	TP7_1.3-1.4	SE208655.002	%	60 - 130%	75
	TP8_0.1-0.2	SE208655.003	%	60 - 130%	79
	TP8_0.9-1.0	SE208655.004	%	60 - 130%	83
	TP9_0.1-0.2	SE208655.005	%	60 - 130%	79
	TP9_1.2-1.3	SE208655.006	%	60 - 130%	75
	TP10_0.1-0.2	SE208655.007	%	60 - 130%	75
	TP11_0.1-0.2	SE208655.008	%	60 - 130%	78
	TP11_0.8-0.9	SE208655.009	%	60 - 130%	76
	TP12_0.1-0.2	SE208655.010	%	60 - 130%	78
	TP12_0.8-0.9	SE208655.011	%	60 - 130%	74
	TP12_1.7-1.8	SE208655.012	%	60 - 130%	79
	TP13_0.1-0.2	SE208655.013	%	60 - 130%	75
	TP13_1.2-1.3	SE208655.014	%	60 - 130%	73
	TP13_2.0-2.1	SE208655.015	%	60 - 130%	73
	TP14_0.1-0.2	SE208655.016	%	60 - 130%	77
	TP14_1.5-1.6	SE208655.017	%	60 - 130%	84
	TP15_0.1-0.2	SE208655.018	%	60 - 130%	83
	TP15_1.7-1.8	SE208655.019	%	60 - 130%	81
	TP16_0.1-0.2	SE208655.020	%	60 - 130%	91
	TP17_0.1-0.2	SE208655.021	%	60 - 130%	78
	TP18_0.1-0.2	SE208655.022	%	60 - 130%	82
	TP18_1.8-1.9	SE208655.023	%	60 - 130%	82
	TP19_0.1-0.2	SE208655.024	%	60 - 130%	86
	TP19_1.4-1.5	SE208655.025	%	60 - 130%	86
	QD1	SE208655.026	%	60 - 130%	81
	QD2	SE208655.027	%	60 - 130%	83
	QTB1	SE208655.029	%	60 - 130%	81
	QTS1	SE208655.030	%	60 - 130%	82
	BH1_0.1-0.2	SE208655.031	%	60 - 130%	85
	BH1_0.7-0.8	SE208655.032	%	60 - 130%	86

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QR1	SE208655.028	%	40 - 130%	98
d4-1,2-dichloroethane (Surrogate)	QR1	SE208655.028	%	40 - 130%	110
d8-toluene (Surrogate)	QR1	SE208655.028	%	40 - 130%	96

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP7_0.1-0.2	SE208655.001	%	60 - 130%	71
	TP7_1.3-1.4	SE208655.002	%	60 - 130%	68
	TP8_0.1-0.2	SE208655.003	%	60 - 130%	72

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP8_0.9-1.0	SE208655.004	%	60 - 130%	73
	TP9_0.1-0.2	SE208655.005	%	60 - 130%	70
	TP9_1.2-1.3	SE208655.006	%	60 - 130%	67
	TP10_0.1-0.2	SE208655.007	%	60 - 130%	69
	TP11_0.1-0.2	SE208655.008	%	60 - 130%	71
	TP11_0.8-0.9	SE208655.009	%	60 - 130%	68
	TP12_0.1-0.2	SE208655.010	%	60 - 130%	69
	TP12_0.8-0.9	SE208655.011	%	60 - 130%	66
	TP12_1.7-1.8	SE208655.012	%	60 - 130%	70
	TP13_0.1-0.2	SE208655.013	%	60 - 130%	68
	TP13_1.2-1.3	SE208655.014	%	60 - 130%	66
	TP13_2.0-2.1	SE208655.015	%	60 - 130%	67
	TP14_0.1-0.2	SE208655.016	%	60 - 130%	68
	TP14_1.5-1.6	SE208655.017	%	60 - 130%	71
	TP15_0.1-0.2	SE208655.018	%	60 - 130%	69
	TP15_1.7-1.8	SE208655.019	%	60 - 130%	68
	TP16_0.1-0.2	SE208655.020	%	60 - 130%	77
	TP17_0.1-0.2	SE208655.021	%	60 - 130%	64
	TP18_0.1-0.2	SE208655.022	%	60 - 130%	68
	TP18_1.8-1.9	SE208655.023	%	60 - 130%	67
	TP19_0.1-0.2	SE208655.024	%	60 - 130%	70
	TP19_1.4-1.5	SE208655.025	%	60 - 130%	71
	QD1	SE208655.026	%	60 - 130%	66
	QD2	SE208655.027	%	60 - 130%	68
	BH1_0.1-0.2	SE208655.031	%	60 - 130%	69
	BH1_0.7-0.8	SE208655.032	%	60 - 130%	69
d4-1,2-dichloroethane (Surrogate)	TP7_0.1-0.2	SE208655.001	%	60 - 130%	83
	TP7_1.3-1.4	SE208655.002	%	60 - 130%	80
	TP8_0.1-0.2	SE208655.003	%	60 - 130%	84
	TP8_0.9-1.0	SE208655.004	%	60 - 130%	86
	TP9_0.1-0.2	SE208655.005	%	60 - 130%	84
	TP9_1.2-1.3	SE208655.006	%	60 - 130%	78
	TP10_0.1-0.2	SE208655.007	%	60 - 130%	80
	TP11_0.1-0.2	SE208655.008	%	60 - 130%	85
	TP11_0.8-0.9	SE208655.009	%	60 - 130%	79
	TP12_0.1-0.2	SE208655.010	%	60 - 130%	82
	TP12_0.8-0.9	SE208655.011	%	60 - 130%	78
	TP12_1.7-1.8	SE208655.012	%	60 - 130%	82
	TP13_0.1-0.2	SE208655.013	%	60 - 130%	80
	TP13_1.2-1.3	SE208655.014	%	60 - 130%	78
	TP13_2.0-2.1	SE208655.015	%	60 - 130%	79
	TP14_0.1-0.2	SE208655.016	%	60 - 130%	81
	TP14_1.5-1.6	SE208655.017	%	60 - 130%	87
	TP15_0.1-0.2	SE208655.018	%	60 - 130%	86
	TP15_1.7-1.8	SE208655.019	%	60 - 130%	85
	TP16_0.1-0.2	SE208655.020	%	60 - 130%	95
	TP17_0.1-0.2	SE208655.021	%	60 - 130%	80
	TP18_0.1-0.2	SE208655.022	%	60 - 130%	85
	TP18_1.8-1.9	SE208655.023	%	60 - 130%	84
	TP19_0.1-0.2	SE208655.024	%	60 - 130%	89
	TP19_1.4-1.5	SE208655.025	%	60 - 130%	89
	QD1	SE208655.026	%	60 - 130%	84
	QD2	SE208655.027	%	60 - 130%	85
	BH1_0.1-0.2	SE208655.031	%	60 - 130%	86
	BH1_0.7-0.8	SE208655.032	%	60 - 130%	87
d8-toluene (Surrogate)	TP7_0.1-0.2	SE208655.001	%	60 - 130%	80
	TP7_1.3-1.4	SE208655.002	%	60 - 130%	75
	TP8_0.1-0.2	SE208655.003	%	60 - 130%	79
	TP8_0.9-1.0	SE208655.004	%	60 - 130%	83
	TP9_0.1-0.2	SE208655.005	%	60 - 130%	79
	TP9_1.2-1.3	SE208655.006	%	60 - 130%	75

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	TP10_0.1-0.2	SE208655.007	%	60 - 130%	75
	TP11_0.1-0.2	SE208655.008	%	60 - 130%	78
	TP11_0.8-0.9	SE208655.009	%	60 - 130%	76
	TP12_0.1-0.2	SE208655.010	%	60 - 130%	78
	TP12_0.8-0.9	SE208655.011	%	60 - 130%	74
	TP12_1.7-1.8	SE208655.012	%	60 - 130%	79
	TP13_0.1-0.2	SE208655.013	%	60 - 130%	75
	TP13_1.2-1.3	SE208655.014	%	60 - 130%	73
	TP13_2.0-2.1	SE208655.015	%	60 - 130%	73
	TP14_0.1-0.2	SE208655.016	%	60 - 130%	77
	TP14_1.5-1.6	SE208655.017	%	60 - 130%	84
	TP15_0.1-0.2	SE208655.018	%	60 - 130%	83
	TP15_1.7-1.8	SE208655.019	%	60 - 130%	81
	TP16_0.1-0.2	SE208655.020	%	60 - 130%	91
	TP17_0.1-0.2	SE208655.021	%	60 - 130%	78
	TP18_0.1-0.2	SE208655.022	%	60 - 130%	82
	TP18_1.8-1.9	SE208655.023	%	60 - 130%	82
	TP19_0.1-0.2	SE208655.024	%	60 - 130%	86
	TP19_1.4-1.5	SE208655.025	%	60 - 130%	86
	QD1	SE208655.026	%	60 - 130%	81
	QD2	SE208655.027	%	60 - 130%	83
	BH1_0.1-0.2	SE208655.031	%	60 - 130%	85
	BH1_0.7-0.8	SE208655.032	%	60 - 130%	86

Volatile Petroleum Hydrocarbons in Water — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QR1	SE208655.028	%	40 - 130%	98
d4-1,2-dichloroethane (Surrogate)	QR1	SE208655.028	%	60 - 130%	110
d8-toluene (Surrogate)	QR1	SE208655.028	%	40 - 130%	96

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB204300.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB204384.001	Mercury	mg/kg	0.05	<0.05
LB204386.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB204342.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	93
LB204343.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	90

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB204342.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	84
		d14-p-terphenyl (Surrogate)	%	-	82
LB204343.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	87
		d14-p-terphenyl (Surrogate)	%	-	82

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB204342.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	82
		2-fluorobiphenyl (Surrogate)	%	-	84
		d14-p-terphenyl (Surrogate)	%	-	82
LB204343.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB204343.001		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	81
		2-fluorobiphenyl (Surrogate)	%	-	87
		d14-p-terphenyl (Surrogate)	%	-	82

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB204342.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	93
LB204343.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	90

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB204380.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0
LB204381.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB204402.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB204342.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110
LB204343.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB204298.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB204339.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	84
		d8-toluene (Surrogate)	%	-	89
		Bromofluorobenzene (Surrogate)	%	-	98
	Totals	Total BTEX	mg/kg	0.6	<0.6
LB204340.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	79
		d8-toluene (Surrogate)	%	-	74
		Bromofluorobenzene (Surrogate)	%	-	79
	Totals	Total BTEX	mg/kg	0.6	<0.6

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB204439.001	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5
	Hydrocarbons	Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
	Polycyclic VOCs	Naphthalene	µg/L	0.5	<0.5
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	109
		d8-toluene (Surrogate)	%	-	95
		Bromofluorobenzene (Surrogate)	%	-	95

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB204339.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	84
LB204340.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	79

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Volatile Petroleum Hydrocarbons in Water (continued) — **Method: ME-(AU)-[ENV]AN433**

Sample Number		Parameter	Units	LOR	Result
LB204439.001		TRH C6-C9	µg/L	40	<40
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	109
		d8-toluene (Surrogate)	%	-	95
		Bromofluorobenzene (Surrogate)	%	-	95

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208675.021	LB204300.007	Mercury	µg/L	0.0001	<0.0001	0.0000	200	11

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208655.010	LB204384.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE208655.019	LB204384.024	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE208655.021	LB204386.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE208655.032	LB204386.023	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208655.010	LB204345.011	% Moisture	%w/w	1	10.2	10.3	40	1
SE208655.016	LB204345.018	% Moisture	%w/w	1	10.7	11.6	39	9
SE208655.026	LB204346.011	% Moisture	%w/w	1	13.3	12.0	38	10
SE208655.032	LB204346.016	% Moisture	%w/w	1	11.0	10.3	39	7

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208655.010	LB204342.014		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.16	30	1
SE208655.016	LB204342.021		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208655.016	LB204342.021		p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.16	30	5
SE208655.025	LB204343.019		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0	200	0
			Alpha BHC	mg/kg	0.1	<0.1	0	200	0
			Lindane	mg/kg	0.1	<0.1	0	200	0
			Heptachlor	mg/kg	0.1	<0.1	0	200	0
			Aldrin	mg/kg	0.1	<0.1	0	200	0
			Beta BHC	mg/kg	0.1	<0.1	0	200	0
			Delta BHC	mg/kg	0.1	<0.1	0	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	0	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	0	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	0	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Dieldrin	mg/kg	0.2	<0.2	0	200	0
			Endrin	mg/kg	0.2	<0.2	0	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	0	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	0	200	0
			Methoxychlor	mg/kg	0.1	<0.1	0	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	0	200	0
			Isodrin	mg/kg	0.1	<0.1	0	200	0
			Mirex	mg/kg	0.1	<0.1	0	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.168	30	4

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208655.010	LB204342.014		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	15

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208655.010	LB204342.014	Surrogates	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1
SE208655.016	LB204342.021		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	9
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	1
SE208655.025	LB204343.019		Dichlorvos	mg/kg	0.5	<0.5	0	200	0
			Dimethoate	mg/kg	0.5	<0.5	0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	0.0138407593	200	0
			Fenitrothion	mg/kg	0.2	<0.2	0.0524397049	200	0
			Malathion	mg/kg	0.2	<0.2	0.0245986969	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	0	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	0	200	0
			Methidathion	mg/kg	0.5	<0.5	0	200	0
			Ethion	mg/kg	0.2	<0.2	0	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4239250481	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4183620820	30	0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208655.010	LB204342.014		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	0.2	0.2	95	2
			Pyrene	mg/kg	0.1	0.2	0.2	83	4
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	158	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	163	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	141	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	195	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	0.1	134	3
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	163	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	133	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	146	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	7
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	15
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1
SE208655.016	LB204342.021		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208655.016	LB204342.021		Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	0.2	0.2	76	14
			Pyrene	mg/kg	0.1	0.3	0.2	69	14
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	144	0
			Chrysene	mg/kg	0.1	<0.1	0.1	138	1
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.1	0.1	111	1
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	148	0
			Benzo(a)pyrene	mg/kg	0.1	0.1	0.1	114	11
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	182	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	163	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	163	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	124	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	0.2	<0.2	112	4
			Total PAH (18)	mg/kg	0.8	0.8	<0.8	137	6
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	9
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	1
SE208655.025	LB204343.019		Naphthalene	mg/kg	0.1	<0.1	0.0003993674	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthene	mg/kg	0.1	<0.1	0.0002972413	200	0
			Fluorene	mg/kg	0.1	<0.1	0	200	0
			Phenanthrene	mg/kg	0.1	<0.1	0.0009925037	200	0
			Anthracene	mg/kg	0.1	<0.1	0.0010180153	200	0
			Fluoranthene	mg/kg	0.1	<0.1	0	200	0
			Pyrene	mg/kg	0.1	<0.1	0	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	0.0050762202	200	0
			Chrysene	mg/kg	0.1	<0.1	0.0055733592	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	0.0061769411	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	0.121	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4385358031	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4239250481	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4183620820	30	0

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208655.010	LB204342.014		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	1
SE208655.016	LB204342.021		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208655.016	LB204342.021		Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	5
SE208655.025	LB204343.019		Arochlor 1016	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	0	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0.168	30	4

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208655.010	LB204380.014	Arsenic, As	mg/kg	1	4	4	58	0
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	11	12	34	6
		Copper, Cu	mg/kg	0.5	22	20	32	10
		Nickel, Ni	mg/kg	0.5	20	21	32	8
		Lead, Pb	mg/kg	1	15	13	37	11
		Zinc, Zn	mg/kg	2	42	38	35	10
SE208655.019	LB204380.024	Arsenic, As	mg/kg	1	4	4	55	22
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	16	14	33	10
		Copper, Cu	mg/kg	0.5	22	37	32	52 ②
		Nickel, Ni	mg/kg	0.5	6.8	12	35	59 ②
		Lead, Pb	mg/kg	1	15	11	38	27
		Zinc, Zn	mg/kg	2	36	54	34	40 ②
SE208655.020	LB204381.014	Arsenic, As	mg/kg	1	3	3	66	4
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	15	15	33	2
		Copper, Cu	mg/kg	0.5	24	22	32	9
		Nickel, Ni	mg/kg	0.5	18	18	33	3
		Lead, Pb	mg/kg	1	9	9	41	0
		Zinc, Zn	mg/kg	2	50	37	35	30
SE208655.032	LB204381.024	Arsenic, As	mg/kg	1	6	6	46	2
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	7.9	10	36	24
		Copper, Cu	mg/kg	0.5	8.9	11	35	19
		Nickel, Ni	mg/kg	0.5	0.8	1.1	80	32
		Lead, Pb	mg/kg	1	14	15	37	10
		Zinc, Zn	mg/kg	2	7.8	9.6	53	20

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208623.001	LB204402.014	Lead, Pb	µg/L	1	<1	<1	162	0
SE208735.001	LB204402.024	Arsenic, As	µg/L	1	<1	<1	200	0
		Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
		Copper, Cu	µg/L	1	9	9	27	0
		Lead, Pb	µg/L	1	<1	<1	200	0
		Zinc, Zn	µg/L	5	23	23	36	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208655.010	LB204342.014		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	58	126	25
			TRH C29-C36	mg/kg	45	70	100	82	38
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	160	125	38
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	120	117	31
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE208655.016	LB204342.021		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE208655.025	LB204343.019		TRH C10-C14	mg/kg	20	<20	0	200	0
			TRH C15-C28	mg/kg	45	<45	0	200	0
			TRH C29-C36	mg/kg	45	<45	0	200	0
			TRH C37-C40	mg/kg	100	<100	0	200	0
			TRH C10-C36 Total	mg/kg	110	<110	0	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	0	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	0	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208655.010	LB204339.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.2	8.2	50	0
			d8-toluene (Surrogate)	mg/kg	-	7.8	7.9	50	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	6.9	7.0	50	2
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE208655.016	LB204339.021	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.1	8.1	50	0
			d8-toluene (Surrogate)	mg/kg	-	7.7	7.8	50	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	6.8	7.0	50	2
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE208655.026	LB204340.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208655.026	LB204340.014	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.4	8.6	50	2
			d8-toluene (Surrogate)	mg/kg	-	8.1	8.3	50	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	6.6	6.9	50	4
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208655.028	LB204439.021	Monocyclic	Benzene	µg/L	0.5	<0.5	0.0382640612	200	0
		Aromatic	Toluene	µg/L	0.5	<0.5	0.0979003260	200	0
			Ethylbenzene	µg/L	0.5	<0.5	0.0263561294	200	0
			m/p-xylene	µg/L	1	<1	0.0831745044	200	0
			o-xylene	µg/L	0.5	<0.5	0.0229546623	200	0
		Polycyclic	Naphthalene	µg/L	0.5	<0.5	0.0149147828	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	11.0	9.2838098028	30	17
			d8-toluene (Surrogate)	µg/L	-	9.6	9.8057867667	30	2
			Bromofluorobenzene (Surrogate)	µg/L	-	9.8	9.6692785559	30	1

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208655.010	LB204339.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.2	8.2	30	0
			d8-toluene (Surrogate)	mg/kg	-	7.8	7.9	30	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	6.9	7.0	30	2
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE208655.016	LB204339.021		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.1	8.1	30	0
			d8-toluene (Surrogate)	mg/kg	-	7.7	7.8	30	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	6.8	7.0	30	2
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE208655.026	LB204340.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.4	8.6	30	2
			d8-toluene (Surrogate)	mg/kg	-	8.1	8.3	30	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	6.6	6.9	30	4
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208655.028	LB204439.021		TRH C6-C10	µg/L	50	<50	0.7730206168	200	0
			TRH C6-C9	µg/L	40	<40	0.3352740386	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	11.0	9.2838098028	30	17
			d8-toluene (Surrogate)	µg/L	-	9.6	9.8057867667	30	2
			Bromofluorobenzene (Surrogate)	µg/L	-	9.8	9.6692785559	30	1
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	0.0382640612	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	0.7730206168	200	0
SE208690.001	LB204439.022	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	0.0	0.0	30	12
			d8-toluene (Surrogate)	µg/L	-	0.0	0.0	30	0
			Bromofluorobenzene (Surrogate)	µg/L	-	0.0	0.0	30	1
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	<0.5	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204384.002	Mercury	mg/kg	0.05	0.23	0.2	70 - 130	116
LB204386.002	Mercury	mg/kg	0.05	0.23	0.2	70 - 130	114

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204342.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	88
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	86
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	83
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	85
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	86
		p,p'-DDT	mg/kg	0.1	0.1	0.2	60 - 140	72
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	40 - 130	91
LB204343.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	89
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	90
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	87
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	90
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	85
		p,p'-DDT	mg/kg	0.1	0.1	0.2	60 - 140	74
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	40 - 130	93

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204342.002		Dichlorvos	mg/kg	0.5	1.8	2	60 - 140	91
		Diazinon (Dimpylate)	mg/kg	0.5	1.7	2	60 - 140	84
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.7	2	60 - 140	87
		Ethion	mg/kg	0.2	1.3	2	60 - 140	66
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	86
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	79
LB204343.002		Dichlorvos	mg/kg	0.5	1.8	2	60 - 140	89
		Diazinon (Dimpylate)	mg/kg	0.5	1.3	2	60 - 140	64
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.4	2	60 - 140	69
		Ethion	mg/kg	0.2	1.3	2	60 - 140	63
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	74

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204342.002		Naphthalene	mg/kg	0.1	4.2	4	60 - 140	104
		Acenaphthylene	mg/kg	0.1	4.3	4	60 - 140	107
		Acenaphthene	mg/kg	0.1	4.1	4	60 - 140	103
		Phenanthrene	mg/kg	0.1	4.0	4	60 - 140	100
		Anthracene	mg/kg	0.1	4.3	4	60 - 140	107
		Fluoranthene	mg/kg	0.1	4.0	4	60 - 140	100
		Pyrene	mg/kg	0.1	4.3	4	60 - 140	108
		Benzo(a)pyrene	mg/kg	0.1	4.0	4	60 - 140	100
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	90
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	86
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	79
LB204343.002		Naphthalene	mg/kg	0.1	4.1	4	60 - 140	102
		Acenaphthylene	mg/kg	0.1	4.0	4	60 - 140	99
		Acenaphthene	mg/kg	0.1	4.2	4	60 - 140	105
		Phenanthrene	mg/kg	0.1	4.1	4	60 - 140	102
		Anthracene	mg/kg	0.1	3.9	4	60 - 140	98
		Fluoranthene	mg/kg	0.1	3.9	4	60 - 140	97
		Pyrene	mg/kg	0.1	4.0	4	60 - 140	101
		Benzo(a)pyrene	mg/kg	0.1	4.2	4	60 - 140	106
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	75
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	74

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204342.002	Arochlor 1260	mg/kg	0.2	0.3	0.4	60 - 140	77
LB204343.002	Arochlor 1260	mg/kg	0.2	0.3	0.4	60 - 140	73

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204380.002	Arsenic, As	mg/kg	1	330	318.22	80 - 120	105
	Cadmium, Cd	mg/kg	0.3	5.5	5.41	80 - 120	102
	Chromium, Cr	mg/kg	0.5	43	38.31	80 - 120	111
	Copper, Cu	mg/kg	0.5	300	290	80 - 120	103
	Nickel, Ni	mg/kg	0.5	190	187	80 - 120	103
	Lead, Pb	mg/kg	1	93	89.9	80 - 120	103
	Zinc, Zn	mg/kg	2	270	273	80 - 120	100
LB204381.002	Arsenic, As	mg/kg	1	330	318.22	80 - 120	105
	Cadmium, Cd	mg/kg	0.3	5.6	5.41	80 - 120	104
	Chromium, Cr	mg/kg	0.5	40	38.31	80 - 120	104
	Copper, Cu	mg/kg	0.5	300	290	80 - 120	105
	Nickel, Ni	mg/kg	0.5	190	187	80 - 120	103
	Lead, Pb	mg/kg	1	93	89.9	80 - 120	104
	Zinc, Zn	mg/kg	2	280	273	80 - 120	102

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204402.002	Arsenic, As	µg/L	1	19	20	80 - 120	94
	Cadmium, Cd	µg/L	0.1	21	20	80 - 120	103
	Chromium, Cr	µg/L	1	22	20	80 - 120	108
	Copper, Cu	µg/L	1	22	20	80 - 120	110
	Lead, Pb	µg/L	1	20	20	80 - 120	101
	Nickel, Ni	µg/L	1	21	20	80 - 120	104
	Zinc, Zn	µg/L	5	22	20	80 - 120	109

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204342.002		TRH C10-C14	mg/kg	20	37	40	60 - 140	93
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	78
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	85
	TRH F Bands	TRH >C10-C16	mg/kg	25	36	40	60 - 140	90
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	78
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	85
LB204343.002		TRH C10-C14	mg/kg	20	47	40	60 - 140	118
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	110
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	98
	TRH F Bands	TRH >C10-C16	mg/kg	25	49	40	60 - 140	123
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	100
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	95

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204298.002		TRH C10-C14	µg/L	50	890	1200	60 - 140	74
		TRH C15-C28	µg/L	200	1100	1200	60 - 140	95
		TRH C29-C36	µg/L	200	1300	1200	60 - 140	107
	TRH F Bands	TRH >C10-C16	µg/L	60	1000	1200	60 - 140	83
		TRH >C16-C34 (F3)	µg/L	500	1400	1200	60 - 140	113
		TRH >C34-C40 (F4)	µg/L	500	610	600	60 - 140	101

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204339.002	Monocyclic	Benzene	mg/kg	0.1	3.4	5	60 - 140	68
	Aromatic	Toluene	mg/kg	0.1	3.4	5	60 - 140	67
		Ethylbenzene	mg/kg	0.1	4.1	5	60 - 140	82
		m/p-xylene	mg/kg	0.2	8.2	10	60 - 140	82
		o-xylene	mg/kg	0.1	4.1	5	60 - 140	82
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.1	10	70 - 130	91

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204339.002	Surrogates	d8-toluene (Surrogate)	mg/kg	-	8.8	10	70 - 130	88
		Bromofluorobenzene (Surrogate)	mg/kg	-	7.1	10	70 - 130	71
LB204340.002	Monocyclic	Benzene	mg/kg	0.1	5.2	5	60 - 140	104
	Aromatic	Toluene	mg/kg	0.1	5.1	5	60 - 140	102
		Ethylbenzene	mg/kg	0.1	5.2	5	60 - 140	104
		m/p-xylene	mg/kg	0.2	10	10	60 - 140	104
		o-xylene	mg/kg	0.1	5.2	5	60 - 140	103
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.2	10	70 - 130	92
		d8-toluene (Surrogate)	mg/kg	-	9.2	10	70 - 130	92
		Bromofluorobenzene (Surrogate)	mg/kg	-	7.8	10	70 - 130	78

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204439.002	Monocyclic	Benzene	µg/L	0.5	45	45.45	60 - 140	100
	Aromatic	Toluene	µg/L	0.5	47	45.45	60 - 140	104
		Ethylbenzene	µg/L	0.5	47	45.45	60 - 140	103
		m/p-xylene	µg/L	1	94	90.9	60 - 140	103
		o-xylene	µg/L	0.5	48	45.45	60 - 140	107
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.5	10	60 - 140	95
		d8-toluene (Surrogate)	µg/L	-	9.9	10	70 - 130	99
		Bromofluorobenzene (Surrogate)	µg/L	-	10.0	10	70 - 130	100

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204339.002		TRH C6-C10	mg/kg	25	67	92.5	60 - 140	72
		TRH C6-C9	mg/kg	20	58	80	60 - 140	72
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.1	10	70 - 130	91
		Bromofluorobenzene (Surrogate)	mg/kg	-	7.1	10	70 - 130	71
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	44	62.5	60 - 140	70
LB204340.002		TRH C6-C10	mg/kg	25	72	92.5	60 - 140	78
		TRH C6-C9	mg/kg	20	62	80	60 - 140	78
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.2	10	70 - 130	92
		Bromofluorobenzene (Surrogate)	mg/kg	-	7.8	10	70 - 130	78
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	41	62.5	60 - 140	65

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204439.002		TRH C6-C10	µg/L	50	920	946.63	60 - 140	98
		TRH C6-C9	µg/L	40	830	818.71	60 - 140	102
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.5	10	60 - 140	95
		d8-toluene (Surrogate)	µg/L	-	9.9	10	70 - 130	99
		Bromofluorobenzene (Surrogate)	µg/L	-	10.0	10	70 - 130	100
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	640	639.67	60 - 140	100

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208589.037	LB204300.004	Mercury	mg/L	0.0001	0.0082	<0.0001	0.008	102

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208655.001	LB204384.004	Mercury	mg/kg	0.05	0.22	<0.05	0.2	104
SE208714.001	LB204386.004	Mercury	mg/kg	0.05	0.22	<0.05	0.2	105

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208655.001	LB204342.004		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	102
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	97
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	95
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	<0.2	<0.2	0.2	96
			Endrin	mg/kg	0.2	<0.2	<0.2	0.2	99
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	86
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	<0.1	-	-
			Total CLP OC Pesticides	mg/kg	1	1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	-	101

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208655.001	LB204342.004		Dichlorvos	mg/kg	0.5	1.5	<0.5	2	73
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	1.8	<0.5	2	89
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.8	<0.2	2	88
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	1.3	<0.2	2	63
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
			Total OP Pesticides*	mg/kg	1.7	6.3	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	83
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	80

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208655.001	LB204342.004		Naphthalene	mg/kg	0.1	4.1	<0.1	4	101
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	4.0	<0.1	4	100
			Acenaphthene	mg/kg	0.1	4.0	<0.1	4	101
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	3.9	<0.1	4	97
			Anthracene	mg/kg	0.1	4.1	<0.1	4	101
			Fluoranthene	mg/kg	0.1	4.1	<0.1	4	100
			Pyrene	mg/kg	0.1	4.2	<0.1	4	104
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	3.9	<0.1	4	97
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	3.9	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.0	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	4.0	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	32	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	-	86
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	83
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	80

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208655.001	LB204342.004		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1260	mg/kg	0.2	0.3	<0.2	0.4	84
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	-	101

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208655.001	LB204380.004	Arsenic, As	mg/kg	1	51	4	50	95
		Cadmium, Cd	mg/kg	0.3	43	<0.3	50	86
		Chromium, Cr	mg/kg	0.5	64	11	50	106
		Copper, Cu	mg/kg	0.5	69	24	50	90
		Nickel, Ni	mg/kg	0.5	59	13	50	92
		Lead, Pb	mg/kg	1	56	12	50	89
		Zinc, Zn	mg/kg	2	180	34	50	287 ④
SE208714.001	LB204381.005	Arsenic, As	mg/kg	1		3	50	83
		Cadmium, Cd	mg/kg	0.3		<0.3	50	78
		Chromium, Cr	mg/kg	0.5		4.1	50	86
		Copper, Cu	mg/kg	0.5		11	50	83
		Nickel, Ni	mg/kg	0.5		4.0	50	87
		Lead, Pb	mg/kg	1	53	19	50	67 †
		Zinc, Zn	mg/kg	2		26	50	80

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208484A.00	LB204402.004	Arsenic, As	µg/L	1	21	<1	20	104
1		Cadmium, Cd	µg/L	0.1	21	<0.1	20	106
		Chromium, Cr	µg/L	1	22	<1	20	110

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Trace Metals (Dissolved) in Water by ICPMS (continued)

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208484A.00	LB204402.004		Copper, Cu	µg/L	1	26	4	20	110
1			Lead, Pb	µg/L	1	21	<1	20	105
			Zinc, Zn	µg/L	5	81	61	20	102

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208655.001	LB204342.004		TRH C10-C14	mg/kg	20	43	<20	40	108
			TRH C15-C28	mg/kg	45	<45	<45	40	85
			TRH C29-C36	mg/kg	45	<45	<45	40	93
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	<110	-	-
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	40	<25	40	100
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	40	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	88
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208655.001	LB204339.004	Monocyclic	Benzene	mg/kg	0.1	3.4	<0.1	5	68
		Aromatic	Toluene	mg/kg	0.1	3.4	<0.1	5	68
			Ethylbenzene	mg/kg	0.1	4.2	<0.1	5	84
			m/p-xylene	mg/kg	0.2	8.5	<0.2	10	85
			o-xylene	mg/kg	0.1	4.2	<0.1	5	85
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.5	8.3	10	85
			d8-toluene (Surrogate)	mg/kg	-	7.9	8.0	10	79
			Bromofluorobenzene (Surrogate)	mg/kg	-	6.5	7.1	10	65 ①
		Totals	Total Xylenes	mg/kg	0.3	13	<0.3	-	-
			Total BTEX	mg/kg	0.6	24	<0.6	-	-
SE208655.017	LB204340.004	Monocyclic	Benzene	mg/kg	0.1	4.4	<0.1	5	89
		Aromatic	Toluene	mg/kg	0.1	4.4	<0.1	5	88
			Ethylbenzene	mg/kg	0.1	4.5	<0.1	5	91
			m/p-xylene	mg/kg	0.2	9.1	<0.2	10	91
			o-xylene	mg/kg	0.1	4.5	<0.1	5	90
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.9	8.7	10	79
			d8-toluene (Surrogate)	mg/kg	-	7.9	8.4	10	79
			Bromofluorobenzene (Surrogate)	mg/kg	-	6.7	7.1	10	67 ①
		Totals	Total Xylenes	mg/kg	0.3	14	<0.3	-	-
			Total BTEX	mg/kg	0.6	27	<0.6	-	-

VOCs in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208484A.00	LB204439.023	Monocyclic	Benzene	µg/L	0.5	48	<0.5	45.45	106
9		Aromatic	Toluene	µg/L	0.5	47	<0.5	45.45	103
			Ethylbenzene	µg/L	0.5	47	<0.5	45.45	104
			m/p-xylene	µg/L	1	95	<1	90.9	105
			o-xylene	µg/L	0.5	47	<0.5	45.45	103
		Polycyclic	Naphthalene	µg/L	0.5	43	<0.5	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.5	11.1	-	105
			d8-toluene (Surrogate)	µg/L	-	10.3	9.7	-	103
			Bromofluorobenzene (Surrogate)	µg/L	-	9.9	9.9	-	99

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208655.001	LB204339.004		TRH C6-C10	mg/kg	25	68	<25	92.5	73
			TRH C6-C9	mg/kg	20	62	<20	80	77
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.5	8.3	10	85
			d8-toluene (Surrogate)	mg/kg	-	7.9	8.0	10	79
			Bromofluorobenzene (Surrogate)	mg/kg	-	6.5	7.1	-	65
		VPH F	Benzene (F0)	mg/kg	0.1	3.4	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	44	<25	62.5	70

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued)

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208655.017	LB204340.004		TRH C6-C10	mg/kg	25	66	<25	92.5	71
			TRH C6-C9	mg/kg	20	57	<20	80	72
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.9	8.7	10	79
			d8-toluene (Surrogate)	mg/kg	-	7.9	8.4	10	79
			Bromofluorobenzene (Surrogate)	mg/kg	-	6.7	7.1	-	67
		VPH F	Benzene (F0)	mg/kg	0.1	4.4	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	38	<25	62.5	62

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208484A.00	LB204439.023		TRH C6-C10	µg/L	50	930	<50	946.63	98
9			TRH C6-C9	µg/L	40	800	<40	818.71	98
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	0.0	11.1	-	105
			d8-toluene (Surrogate)	µg/L	-	0.0	9.7	-	103
			Bromofluorobenzene (Surrogate)	µg/L	-	0.0	9.9	-	99
		VPH F	Benzene (F0)	µg/L	0.5	48	<0.5	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	640	<50	639.67	101

MATRIX SPIKE DUPLICATES

SE208655 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

STATEMENT OF QA/QC PERFORMANCE

SE208846 R0

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 Mandala Parade, Castle Hill**
Order Number	**E24724.E02**
Samples	14

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE208846 R0**
Date Received	17 Jul 2020
Date Reported	24 Jul 2020

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

HOLDING TIME SUMMARY

SE208846 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.1-0.2	SE208846.001	LB205004	09 Jul 2020	17 Jul 2020	09 Jul 2021	23 Jul 2020	09 Jul 2021	24 Jul 2020
BH2_1.6-1.7	SE208846.003	LB205004	09 Jul 2020	17 Jul 2020	09 Jul 2021	23 Jul 2020	09 Jul 2021	24 Jul 2020
BH3M_0.1-0.2	SE208846.004	LB205004	13 Jul 2020	17 Jul 2020	13 Jul 2021	23 Jul 2020	13 Jul 2021	24 Jul 2020
BH3M_0.7-0.8	SE208846.005	LB205004	13 Jul 2020	17 Jul 2020	13 Jul 2021	23 Jul 2020	13 Jul 2021	24 Jul 2020
BH3M_1.7-1.8	SE208846.006	LB205004	13 Jul 2020	17 Jul 2020	13 Jul 2021	23 Jul 2020	13 Jul 2021	24 Jul 2020
BH3M_2.8-2.9	SE208846.007	LB205004	13 Jul 2020	17 Jul 2020	13 Jul 2021	23 Jul 2020	13 Jul 2021	24 Jul 2020
BH4M_0.3-0.5	SE208846.008	LB205004	14 Jul 2020	17 Jul 2020	14 Jul 2021	23 Jul 2020	14 Jul 2021	24 Jul 2020
BH4M_2.9-3.0	SE208846.010	LB205004	14 Jul 2020	17 Jul 2020	14 Jul 2021	23 Jul 2020	14 Jul 2021	24 Jul 2020
BH5M_0.1-0.2	SE208846.012	LB205004	16 Jul 2020	17 Jul 2020	16 Jul 2021	23 Jul 2020	16 Jul 2021	24 Jul 2020
BH5M_1.9-2.0	SE208846.014	LB205004	16 Jul 2020	17 Jul 2020	16 Jul 2021	23 Jul 2020	16 Jul 2021	24 Jul 2020

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.1-0.2	SE208846.001	LB204774	09 Jul 2020	17 Jul 2020	06 Aug 2020	21 Jul 2020	06 Aug 2020	23 Jul 2020
BH2_1.2-1.3	SE208846.002	LB204774	09 Jul 2020	17 Jul 2020	06 Aug 2020	21 Jul 2020	06 Aug 2020	23 Jul 2020
BH2_1.6-1.7	SE208846.003	LB204774	09 Jul 2020	17 Jul 2020	06 Aug 2020	21 Jul 2020	06 Aug 2020	23 Jul 2020
BH3M_0.1-0.2	SE208846.004	LB204774	13 Jul 2020	17 Jul 2020	10 Aug 2020	21 Jul 2020	10 Aug 2020	23 Jul 2020
BH3M_0.7-0.8	SE208846.005	LB204774	13 Jul 2020	17 Jul 2020	10 Aug 2020	21 Jul 2020	10 Aug 2020	23 Jul 2020
BH3M_1.7-1.8	SE208846.006	LB204774	13 Jul 2020	17 Jul 2020	10 Aug 2020	21 Jul 2020	10 Aug 2020	23 Jul 2020
BH3M_2.8-2.9	SE208846.007	LB204774	13 Jul 2020	17 Jul 2020	10 Aug 2020	21 Jul 2020	10 Aug 2020	23 Jul 2020
BH4M_0.3-0.5	SE208846.008	LB204774	14 Jul 2020	17 Jul 2020	11 Aug 2020	21 Jul 2020	11 Aug 2020	23 Jul 2020
BH4M_1.4-1.5	SE208846.009	LB204774	14 Jul 2020	17 Jul 2020	11 Aug 2020	21 Jul 2020	11 Aug 2020	23 Jul 2020
BH4M_2.9-3.0	SE208846.010	LB204774	14 Jul 2020	17 Jul 2020	11 Aug 2020	21 Jul 2020	11 Aug 2020	23 Jul 2020
BH4M_4.9-5.0	SE208846.011	LB204774	14 Jul 2020	17 Jul 2020	11 Aug 2020	21 Jul 2020	11 Aug 2020	23 Jul 2020
BH5M_0.1-0.2	SE208846.012	LB204774	16 Jul 2020	17 Jul 2020	13 Aug 2020	21 Jul 2020	13 Aug 2020	23 Jul 2020
BH5M_1.5-1.6	SE208846.013	LB204774	16 Jul 2020	17 Jul 2020	13 Aug 2020	21 Jul 2020	13 Aug 2020	23 Jul 2020
BH5M_1.9-2.0	SE208846.014	LB204774	16 Jul 2020	17 Jul 2020	13 Aug 2020	21 Jul 2020	13 Aug 2020	23 Jul 2020

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.1-0.2	SE208846.001	LB204739	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	26 Jul 2020	22 Jul 2020
BH2_1.2-1.3	SE208846.002	LB204739	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	26 Jul 2020	22 Jul 2020
BH2_1.6-1.7	SE208846.003	LB204739	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	26 Jul 2020	22 Jul 2020
BH3M_0.1-0.2	SE208846.004	LB204739	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	26 Jul 2020	22 Jul 2020
BH3M_0.7-0.8	SE208846.005	LB204739	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	26 Jul 2020	22 Jul 2020
BH3M_1.7-1.8	SE208846.006	LB204739	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	26 Jul 2020	22 Jul 2020
BH3M_2.8-2.9	SE208846.007	LB204739	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	26 Jul 2020	22 Jul 2020
BH4M_0.3-0.5	SE208846.008	LB204739	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	26 Jul 2020	22 Jul 2020
BH4M_1.4-1.5	SE208846.009	LB204739	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	26 Jul 2020	22 Jul 2020
BH4M_2.9-3.0	SE208846.010	LB204739	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	26 Jul 2020	22 Jul 2020
BH4M_4.9-5.0	SE208846.011	LB204739	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	26 Jul 2020	22 Jul 2020
BH5M_0.1-0.2	SE208846.012	LB204739	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	26 Jul 2020	22 Jul 2020
BH5M_1.5-1.6	SE208846.013	LB204739	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	26 Jul 2020	22 Jul 2020
BH5M_1.9-2.0	SE208846.014	LB204739	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	26 Jul 2020	22 Jul 2020

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.1-0.2	SE208846.001	LB204738	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH2_1.2-1.3	SE208846.002	LB204738	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH2_1.6-1.7	SE208846.003	LB204738	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH3M_0.7-0.8	SE208846.005	LB204738	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH3M_1.7-1.8	SE208846.006	LB204738	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH3M_2.8-2.9	SE208846.007	LB204738	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH4M_0.3-0.5	SE208846.008	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH4M_1.4-1.5	SE208846.009	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH4M_2.9-3.0	SE208846.010	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH4M_4.9-5.0	SE208846.011	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH5M_0.1-0.2	SE208846.012	LB204738	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH5M_1.5-1.6	SE208846.013	LB204738	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH5M_1.9-2.0	SE208846.014	LB204738	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020

HOLDING TIME SUMMARY

SE208846 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.1-0.2	SE208846.001	LB204738	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH2_1.2-1.3	SE208846.002	LB204738	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH2_1.6-1.7	SE208846.003	LB204738	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH3M_0.7-0.8	SE208846.005	LB204738	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH3M_1.7-1.8	SE208846.006	LB204738	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH3M_2.8-2.9	SE208846.007	LB204738	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH4M_0.3-0.5	SE208846.008	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH4M_1.4-1.5	SE208846.009	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH4M_2.9-3.0	SE208846.010	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH4M_4.9-5.0	SE208846.011	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH5M_0.1-0.2	SE208846.012	LB204738	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH5M_1.5-1.6	SE208846.013	LB204738	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH5M_1.9-2.0	SE208846.014	LB204738	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.1-0.2	SE208846.001	LB204738	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH2_1.2-1.3	SE208846.002	LB204738	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH2_1.6-1.7	SE208846.003	LB204738	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH3M_0.7-0.8	SE208846.005	LB204738	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH3M_1.7-1.8	SE208846.006	LB204738	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH3M_2.8-2.9	SE208846.007	LB204738	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH4M_0.3-0.5	SE208846.008	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH4M_1.4-1.5	SE208846.009	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH4M_2.9-3.0	SE208846.010	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH4M_4.9-5.0	SE208846.011	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH5M_0.1-0.2	SE208846.012	LB204738	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH5M_1.5-1.6	SE208846.013	LB204738	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020
BH5M_1.9-2.0	SE208846.014	LB204738	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	24 Jul 2020

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.1-0.2	SE208846.001	LB204738	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH2_1.2-1.3	SE208846.002	LB204738	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH2_1.6-1.7	SE208846.003	LB204738	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH3M_0.7-0.8	SE208846.005	LB204738	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH3M_1.7-1.8	SE208846.006	LB204738	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH3M_2.8-2.9	SE208846.007	LB204738	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH4M_0.3-0.5	SE208846.008	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH4M_1.4-1.5	SE208846.009	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH4M_2.9-3.0	SE208846.010	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH4M_4.9-5.0	SE208846.011	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH5M_0.1-0.2	SE208846.012	LB204738	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH5M_1.5-1.6	SE208846.013	LB204738	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH5M_1.9-2.0	SE208846.014	LB204738	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.1-0.2	SE208846.001	LB204772	09 Jul 2020	17 Jul 2020	05 Jan 2021	21 Jul 2020	05 Jan 2021	22 Jul 2020
BH2_1.2-1.3	SE208846.002	LB204772	09 Jul 2020	17 Jul 2020	05 Jan 2021	21 Jul 2020	05 Jan 2021	22 Jul 2020
BH2_1.6-1.7	SE208846.003	LB204772	09 Jul 2020	17 Jul 2020	05 Jan 2021	21 Jul 2020	05 Jan 2021	22 Jul 2020
BH3M_0.1-0.2	SE208846.004	LB204772	13 Jul 2020	17 Jul 2020	09 Jan 2021	21 Jul 2020	09 Jan 2021	22 Jul 2020
BH3M_0.7-0.8	SE208846.005	LB204772	13 Jul 2020	17 Jul 2020	09 Jan 2021	21 Jul 2020	09 Jan 2021	22 Jul 2020
BH3M_1.7-1.8	SE208846.006	LB204772	13 Jul 2020	17 Jul 2020	09 Jan 2021	21 Jul 2020	09 Jan 2021	22 Jul 2020
BH3M_2.8-2.9	SE208846.007	LB204772	13 Jul 2020	17 Jul 2020	09 Jan 2021	21 Jul 2020	09 Jan 2021	22 Jul 2020
BH4M_0.3-0.5	SE208846.008	LB204772	14 Jul 2020	17 Jul 2020	10 Jan 2021	21 Jul 2020	10 Jan 2021	22 Jul 2020
BH4M_1.4-1.5	SE208846.009	LB204772	14 Jul 2020	17 Jul 2020	10 Jan 2021	21 Jul 2020	10 Jan 2021	22 Jul 2020
BH4M_2.9-3.0	SE208846.010	LB204772	14 Jul 2020	17 Jul 2020	10 Jan 2021	21 Jul 2020	10 Jan 2021	22 Jul 2020
BH4M_4.9-5.0	SE208846.011	LB204772	14 Jul 2020	17 Jul 2020	10 Jan 2021	21 Jul 2020	10 Jan 2021	22 Jul 2020
BH5M_0.1-0.2	SE208846.012	LB204772	16 Jul 2020	17 Jul 2020	12 Jan 2021	21 Jul 2020	12 Jan 2021	22 Jul 2020
BH5M_1.5-1.6	SE208846.013	LB204772	16 Jul 2020	17 Jul 2020	12 Jan 2021	21 Jul 2020	12 Jan 2021	22 Jul 2020

HOLDING TIME SUMMARY

SE208846 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH5M_1.9-2.0	SE208846.014	LB204772	16 Jul 2020	17 Jul 2020	12 Jan 2021	21 Jul 2020	12 Jan 2021	22 Jul 2020

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.1-0.2	SE208846.001	LB204738	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	22 Jul 2020
BH2_1.2-1.3	SE208846.002	LB204738	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	22 Jul 2020
BH2_1.6-1.7	SE208846.003	LB204738	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	22 Jul 2020
BH3M_0.7-0.8	SE208846.005	LB204738	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH3M_1.7-1.8	SE208846.006	LB204738	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH3M_2.8-2.9	SE208846.007	LB204738	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	22 Jul 2020
BH4M_0.3-0.5	SE208846.008	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	22 Jul 2020
BH4M_1.4-1.5	SE208846.009	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	22 Jul 2020
BH4M_2.9-3.0	SE208846.010	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	22 Jul 2020
BH4M_4.9-5.0	SE208846.011	LB204738	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	22 Jul 2020
BH5M_0.1-0.2	SE208846.012	LB204738	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	22 Jul 2020
BH5M_1.5-1.6	SE208846.013	LB204738	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH5M_1.9-2.0	SE208846.014	LB204738	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.1-0.2	SE208846.001	LB204737	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH2_1.2-1.3	SE208846.002	LB204737	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH2_1.6-1.7	SE208846.003	LB204737	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH3M_0.7-0.8	SE208846.005	LB204737	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH3M_1.7-1.8	SE208846.006	LB204737	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH3M_2.8-2.9	SE208846.007	LB204737	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH4M_0.3-0.5	SE208846.008	LB204737	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH4M_1.4-1.5	SE208846.009	LB204737	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH4M_2.9-3.0	SE208846.010	LB204737	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH4M_4.9-5.0	SE208846.011	LB204737	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH5M_0.1-0.2	SE208846.012	LB204737	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH5M_1.5-1.6	SE208846.013	LB204737	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH5M_1.9-2.0	SE208846.014	LB204737	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.1-0.2	SE208846.001	LB204737	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH2_1.2-1.3	SE208846.002	LB204737	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH2_1.6-1.7	SE208846.003	LB204737	09 Jul 2020	17 Jul 2020	23 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH3M_0.7-0.8	SE208846.005	LB204737	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH3M_1.7-1.8	SE208846.006	LB204737	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH3M_2.8-2.9	SE208846.007	LB204737	13 Jul 2020	17 Jul 2020	27 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH4M_0.3-0.5	SE208846.008	LB204737	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH4M_1.4-1.5	SE208846.009	LB204737	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH4M_2.9-3.0	SE208846.010	LB204737	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH4M_4.9-5.0	SE208846.011	LB204737	14 Jul 2020	17 Jul 2020	28 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH5M_0.1-0.2	SE208846.012	LB204737	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH5M_1.5-1.6	SE208846.013	LB204737	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020
BH5M_1.9-2.0	SE208846.014	LB204737	16 Jul 2020	17 Jul 2020	30 Jul 2020	21 Jul 2020	30 Aug 2020	23 Jul 2020

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH2_0.1-0.2	SE208846.001	%	60 - 130%	89
	BH2_1.6-1.7	SE208846.003	%	60 - 130%	95
	BH3M_0.7-0.8	SE208846.005	%	60 - 130%	89
	BH3M_1.7-1.8	SE208846.006	%	60 - 130%	91
	BH3M_2.8-2.9	SE208846.007	%	60 - 130%	93
	BH4M_0.3-0.5	SE208846.008	%	60 - 130%	89
	BH4M_2.9-3.0	SE208846.010	%	60 - 130%	92
	BH5M_0.1-0.2	SE208846.012	%	60 - 130%	88
	BH5M_1.9-2.0	SE208846.014	%	60 - 130%	95

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH2_0.1-0.2	SE208846.001	%	60 - 130%	85
	BH2_1.6-1.7	SE208846.003	%	60 - 130%	83
	BH3M_0.7-0.8	SE208846.005	%	60 - 130%	80
	BH3M_1.7-1.8	SE208846.006	%	60 - 130%	85
	BH3M_2.8-2.9	SE208846.007	%	60 - 130%	80
	BH4M_0.3-0.5	SE208846.008	%	60 - 130%	84
	BH4M_2.9-3.0	SE208846.010	%	60 - 130%	81
	BH5M_0.1-0.2	SE208846.012	%	60 - 130%	84
	BH5M_1.9-2.0	SE208846.014	%	60 - 130%	80
d14-p-terphenyl (Surrogate)	BH2_0.1-0.2	SE208846.001	%	60 - 130%	89
	BH2_1.6-1.7	SE208846.003	%	60 - 130%	83
	BH3M_0.7-0.8	SE208846.005	%	60 - 130%	84
	BH3M_1.7-1.8	SE208846.006	%	60 - 130%	91
	BH3M_2.8-2.9	SE208846.007	%	60 - 130%	88
	BH4M_0.3-0.5	SE208846.008	%	60 - 130%	89
	BH4M_2.9-3.0	SE208846.010	%	60 - 130%	87
	BH5M_0.1-0.2	SE208846.012	%	60 - 130%	87
	BH5M_1.9-2.0	SE208846.014	%	60 - 130%	86

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH2_0.1-0.2	SE208846.001	%	70 - 130%	85
	BH2_1.2-1.3	SE208846.002	%	70 - 130%	86
	BH2_1.6-1.7	SE208846.003	%	70 - 130%	83
	BH3M_0.7-0.8	SE208846.005	%	70 - 130%	80
	BH3M_1.7-1.8	SE208846.006	%	70 - 130%	85
	BH3M_2.8-2.9	SE208846.007	%	70 - 130%	80
	BH4M_0.3-0.5	SE208846.008	%	70 - 130%	84
	BH4M_1.4-1.5	SE208846.009	%	70 - 130%	85
	BH4M_2.9-3.0	SE208846.010	%	70 - 130%	81
	BH4M_4.9-5.0	SE208846.011	%	70 - 130%	78
	BH5M_0.1-0.2	SE208846.012	%	70 - 130%	84
	BH5M_1.5-1.6	SE208846.013	%	70 - 130%	80
	BH5M_1.9-2.0	SE208846.014	%	70 - 130%	80
d14-p-terphenyl (Surrogate)	BH2_0.1-0.2	SE208846.001	%	70 - 130%	89
	BH2_1.2-1.3	SE208846.002	%	70 - 130%	89
	BH2_1.6-1.7	SE208846.003	%	70 - 130%	83
	BH3M_0.7-0.8	SE208846.005	%	70 - 130%	84
	BH3M_1.7-1.8	SE208846.006	%	70 - 130%	91
	BH3M_2.8-2.9	SE208846.007	%	70 - 130%	88
	BH4M_0.3-0.5	SE208846.008	%	70 - 130%	89
	BH4M_1.4-1.5	SE208846.009	%	70 - 130%	82
	BH4M_2.9-3.0	SE208846.010	%	70 - 130%	87
	BH4M_4.9-5.0	SE208846.011	%	70 - 130%	86
	BH5M_0.1-0.2	SE208846.012	%	70 - 130%	87
	BH5M_1.5-1.6	SE208846.013	%	70 - 130%	85
	BH5M_1.9-2.0	SE208846.014	%	70 - 130%	86
d5-nitrobenzene (Surrogate)	BH2_0.1-0.2	SE208846.001	%	70 - 130%	84
	BH2_1.2-1.3	SE208846.002	%	70 - 130%	86
	BH2_1.6-1.7	SE208846.003	%	70 - 130%	86

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d5-nitrobenzene (Surrogate)	BH3M_0.7-0.8	SE208846.005	%	70 - 130%	80
	BH3M_1.7-1.8	SE208846.006	%	70 - 130%	82
	BH3M_2.8-2.9	SE208846.007	%	70 - 130%	83
	BH4M_0.3-0.5	SE208846.008	%	70 - 130%	82
	BH4M_1.4-1.5	SE208846.009	%	70 - 130%	78
	BH4M_2.9-3.0	SE208846.010	%	70 - 130%	79
	BH4M_4.9-5.0	SE208846.011	%	70 - 130%	79
	BH5M_0.1-0.2	SE208846.012	%	70 - 130%	77
	BH5M_1.5-1.6	SE208846.013	%	70 - 130%	80
	BH5M_1.9-2.0	SE208846.014	%	70 - 130%	78

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH2_0.1-0.2	SE208846.001	%	60 - 130%	89
	BH2_1.6-1.7	SE208846.003	%	60 - 130%	95
	BH3M_0.7-0.8	SE208846.005	%	60 - 130%	89
	BH3M_1.7-1.8	SE208846.006	%	60 - 130%	91
	BH3M_2.8-2.9	SE208846.007	%	60 - 130%	93
	BH4M_0.3-0.5	SE208846.008	%	60 - 130%	89
	BH4M_2.9-3.0	SE208846.010	%	60 - 130%	92
	BH5M_0.1-0.2	SE208846.012	%	60 - 130%	88
	BH5M_1.9-2.0	SE208846.014	%	60 - 130%	95

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH2_0.1-0.2	SE208846.001	%	60 - 130%	78
	BH2_1.2-1.3	SE208846.002	%	60 - 130%	71
	BH2_1.6-1.7	SE208846.003	%	60 - 130%	85
	BH3M_0.7-0.8	SE208846.005	%	60 - 130%	75
	BH3M_1.7-1.8	SE208846.006	%	60 - 130%	87
	BH3M_2.8-2.9	SE208846.007	%	60 - 130%	79
	BH4M_0.3-0.5	SE208846.008	%	60 - 130%	78
	BH4M_1.4-1.5	SE208846.009	%	60 - 130%	77
	BH4M_2.9-3.0	SE208846.010	%	60 - 130%	77
	BH4M_4.9-5.0	SE208846.011	%	60 - 130%	75
	BH5M_0.1-0.2	SE208846.012	%	60 - 130%	76
	BH5M_1.5-1.6	SE208846.013	%	60 - 130%	82
	BH5M_1.9-2.0	SE208846.014	%	60 - 130%	74
d4-1,2-dichloroethane (Surrogate)	BH2_0.1-0.2	SE208846.001	%	60 - 130%	78
	BH2_1.2-1.3	SE208846.002	%	60 - 130%	71
	BH2_1.6-1.7	SE208846.003	%	60 - 130%	79
	BH3M_0.7-0.8	SE208846.005	%	60 - 130%	79
	BH3M_1.7-1.8	SE208846.006	%	60 - 130%	82
	BH3M_2.8-2.9	SE208846.007	%	60 - 130%	78
	BH4M_0.3-0.5	SE208846.008	%	60 - 130%	87
	BH4M_1.4-1.5	SE208846.009	%	60 - 130%	84
	BH4M_2.9-3.0	SE208846.010	%	60 - 130%	76
	BH4M_4.9-5.0	SE208846.011	%	60 - 130%	81
	BH5M_0.1-0.2	SE208846.012	%	60 - 130%	77
	BH5M_1.5-1.6	SE208846.013	%	60 - 130%	79
	BH5M_1.9-2.0	SE208846.014	%	60 - 130%	77
d8-toluene (Surrogate)	BH2_0.1-0.2	SE208846.001	%	60 - 130%	72
	BH2_1.2-1.3	SE208846.002	%	60 - 130%	61
	BH2_1.6-1.7	SE208846.003	%	60 - 130%	75
	BH3M_0.7-0.8	SE208846.005	%	60 - 130%	71
	BH3M_1.7-1.8	SE208846.006	%	60 - 130%	74
	BH3M_2.8-2.9	SE208846.007	%	60 - 130%	71
	BH4M_0.3-0.5	SE208846.008	%	60 - 130%	76
	BH4M_1.4-1.5	SE208846.009	%	60 - 130%	77
	BH4M_2.9-3.0	SE208846.010	%	60 - 130%	74
	BH4M_4.9-5.0	SE208846.011	%	60 - 130%	75
	BH5M_0.1-0.2	SE208846.012	%	60 - 130%	74

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	BH5M_1.5-1.6	SE208846.013	%	60 - 130%	76
	BH5M_1.9-2.0	SE208846.014	%	60 - 130%	75

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH2_0.1-0.2	SE208846.001	%	60 - 130%	78
	BH2_1.2-1.3	SE208846.002	%	60 - 130%	71
	BH2_1.6-1.7	SE208846.003	%	60 - 130%	85
	BH3M_0.7-0.8	SE208846.005	%	60 - 130%	75
	BH3M_1.7-1.8	SE208846.006	%	60 - 130%	87
	BH3M_2.8-2.9	SE208846.007	%	60 - 130%	79
	BH4M_0.3-0.5	SE208846.008	%	60 - 130%	78
	BH4M_1.4-1.5	SE208846.009	%	60 - 130%	77
	BH4M_2.9-3.0	SE208846.010	%	60 - 130%	77
	BH4M_4.9-5.0	SE208846.011	%	60 - 130%	75
	BH5M_0.1-0.2	SE208846.012	%	60 - 130%	76
	BH5M_1.5-1.6	SE208846.013	%	60 - 130%	82
	BH5M_1.9-2.0	SE208846.014	%	60 - 130%	74
d4-1,2-dichloroethane (Surrogate)	BH2_0.1-0.2	SE208846.001	%	60 - 130%	78
	BH2_1.2-1.3	SE208846.002	%	60 - 130%	71
	BH2_1.6-1.7	SE208846.003	%	60 - 130%	79
	BH3M_0.7-0.8	SE208846.005	%	60 - 130%	79
	BH3M_1.7-1.8	SE208846.006	%	60 - 130%	82
	BH3M_2.8-2.9	SE208846.007	%	60 - 130%	78
	BH4M_0.3-0.5	SE208846.008	%	60 - 130%	87
	BH4M_1.4-1.5	SE208846.009	%	60 - 130%	84
	BH4M_2.9-3.0	SE208846.010	%	60 - 130%	76
	BH4M_4.9-5.0	SE208846.011	%	60 - 130%	81
	BH5M_0.1-0.2	SE208846.012	%	60 - 130%	77
	BH5M_1.5-1.6	SE208846.013	%	60 - 130%	79
	BH5M_1.9-2.0	SE208846.014	%	60 - 130%	77
d8-toluene (Surrogate)	BH2_0.1-0.2	SE208846.001	%	60 - 130%	72
	BH2_1.2-1.3	SE208846.002	%	60 - 130%	61
	BH2_1.6-1.7	SE208846.003	%	60 - 130%	75
	BH3M_0.7-0.8	SE208846.005	%	60 - 130%	71
	BH3M_1.7-1.8	SE208846.006	%	60 - 130%	74
	BH3M_2.8-2.9	SE208846.007	%	60 - 130%	71
	BH4M_0.3-0.5	SE208846.008	%	60 - 130%	76
	BH4M_1.4-1.5	SE208846.009	%	60 - 130%	77
	BH4M_2.9-3.0	SE208846.010	%	60 - 130%	74
	BH4M_4.9-5.0	SE208846.011	%	60 - 130%	75
	BH5M_0.1-0.2	SE208846.012	%	60 - 130%	74
	BH5M_1.5-1.6	SE208846.013	%	60 - 130%	76
	BH5M_1.9-2.0	SE208846.014	%	60 - 130%	75

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB204774.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB204738.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	97

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB204738.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	99
		d14-p-terphenyl (Surrogate)	%	-	99

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB204738.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB204738.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	84
		2-fluorobiphenyl (Surrogate)	%	-	87
		d14-p-terphenyl (Surrogate)	%	-	90

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB204738.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	97

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number		Parameter	Units	LOR	Result
LB204772.001		Arsenic, As	mg/kg	1	<1
		Cadmium, Cd	mg/kg	0.3	<0.3
		Chromium, Cr	mg/kg	0.5	<0.5
		Copper, Cu	mg/kg	0.5	<0.5
		Nickel, Ni	mg/kg	0.5	<0.5
		Lead, Pb	mg/kg	1	<1
		Zinc, Zn	mg/kg	2	<2.0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result
LB204738.001		TRH C10-C14	mg/kg	20	<20
		TRH C15-C28	mg/kg	45	<45
		TRH C29-C36	mg/kg	45	<45
		TRH C37-C40	mg/kg	100	<100
		TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB204737.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	76
		d8-toluene (Surrogate)	%	-	84
		Bromofluorobenzene (Surrogate)	%	-	88
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB204737.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	76

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208846.007	LB204774.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE208846.014	LB204774.022	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208846.014	LB204739.020	% Moisture	%w/w	1	9.1	8.1	42	12

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208846.014	LB204738.022		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.13	30	6

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208846.007	LB204738.014		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208846.014	LB204738.022		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	6

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208846.007	LB204772.014		Arsenic, As	mg/kg	1	2	3	66	46
			Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
			Chromium, Cr	mg/kg	0.5	13	16	34	23
			Copper, Cu	mg/kg	0.5	14	12	34	12
			Nickel, Ni	mg/kg	0.5	3.5	4.1	43	16
			Lead, Pb	mg/kg	1	5	6	47	25
			Zinc, Zn	mg/kg	2	17	22	40	24
SE208846.014	LB204772.022		Arsenic, As	mg/kg	1	4	4	53	3
			Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
			Chromium, Cr	mg/kg	0.5	15	11	34	28
			Copper, Cu	mg/kg	0.5	3.8	3.6	43	5
			Nickel, Ni	mg/kg	0.5	2.3	2.3	52	1
			Lead, Pb	mg/kg	1	8	8	42	4
			Zinc, Zn	mg/kg	2	6.8	6.4	60	6

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208846.007	LB204738.014		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE208846.014	LB204738.022		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208846.007	LB204737.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	194	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.8	7.5	50	3
			d8-toluene (Surrogate)	mg/kg	-	7.1	7.4	50	4

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208846.007	LB204737.014	Surrogates	Bromofluorobenzene (Surrogate)	mg/kg	-	7.9	7.0	50	12
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE208846.014	LB204737.022	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.7	8.1	50	6
			d8-toluene (Surrogate)	mg/kg	-	7.5	7.6	50	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.4	8.5	50	14
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208846.007	LB204737.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.8	7.5	30	3
			d8-toluene (Surrogate)	mg/kg	-	7.1	7.4	30	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.9	7.0	30	12
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE208846.014	LB204737.022		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.7	8.1	30	6
			d8-toluene (Surrogate)	mg/kg	-	7.5	7.6	30	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.4	8.5	30	14
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204774.002	Mercury	mg/kg	0.05	0.20	0.2	70 - 130	98

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204738.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	83
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	88
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	82
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	88
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	83
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	76
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.15	40 - 130	89

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204738.002		Dichlorvos	mg/kg	0.5	1.7	2	60 - 140	86
		Diazinon (Dimpylate)	mg/kg	0.5	1.8	2	60 - 140	91
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.9	2	60 - 140	95
		Ethion	mg/kg	0.2	1.3	2	60 - 140	63
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	88
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204738.002		Naphthalene	mg/kg	0.1	4.2	4	60 - 140	105
		Acenaphthylene	mg/kg	0.1	4.2	4	60 - 140	106
		Acenaphthene	mg/kg	0.1	4.4	4	60 - 140	110
		Phenanthrene	mg/kg	0.1	4.4	4	60 - 140	109
		Anthracene	mg/kg	0.1	4.2	4	60 - 140	106
		Fluoranthene	mg/kg	0.1	4.3	4	60 - 140	106
		Pyrene	mg/kg	0.1	4.4	4	60 - 140	110
		Benzo(a)pyrene	mg/kg	0.1	4.6	4	60 - 140	116
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	88
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	86

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204738.002	Arochlor 1260	mg/kg	0.2	0.5	0.4	60 - 140	118

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204772.002	Arsenic, As	mg/kg	1	330	318.22	80 - 120	103
	Cadmium, Cd	mg/kg	0.3	5.6	5.41	80 - 120	103
	Chromium, Cr	mg/kg	0.5	39	38.31	80 - 120	103
	Copper, Cu	mg/kg	0.5	300	290	80 - 120	105
	Nickel, Ni	mg/kg	0.5	190	187	80 - 120	102
	Lead, Pb	mg/kg	1	93	89.9	80 - 120	104
	Zinc, Zn	mg/kg	2	280	273	80 - 120	102

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204738.002		TRH C10-C14	mg/kg	20	37	40	60 - 140	93
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	83
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	93
	TRH F Bands	TRH >C10-C16	mg/kg	25	36	40	60 - 140	90
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	83
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	100

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204737.002	Monocyclic	Benzene	mg/kg	0.1	3.3	5	60 - 140	66
	Aromatic	Toluene	mg/kg	0.1	3.8	5	60 - 140	77
		Ethylbenzene	mg/kg	0.1	3.7	5	60 - 140	75
		m/p-xylene	mg/kg	0.2	7.5	10	60 - 140	75
		o-xylene	mg/kg	0.1	3.7	5	60 - 140	74
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.6	10	70 - 130	76
		d8-toluene (Surrogate)	mg/kg	-	8.7	10	70 - 130	87
		Bromofluorobenzene (Surrogate)	mg/kg	-	8.6	10	70 - 130	86

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204737.002		TRH C6-C10	mg/kg	25	74	92.5	60 - 140	80
		TRH C6-C9	mg/kg	20	67	80	60 - 140	84
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.6	10	70 - 130	76
		Bromofluorobenzene (Surrogate)	mg/kg	-	8.6	10	70 - 130	86
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	52	62.5	60 - 140	83

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208918.001	LB204774.004	Mercury	mg/kg	0.05	0.18	0.00314649167	0.2	89

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE208846.001	LB204738.024		Dichlorvos	mg/kg	0.5	<0.5	2	82
			Dimethoate	mg/kg	0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	2	90
			Fenitrothion	mg/kg	0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	2	94
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	-	-
			Ethion	mg/kg	0.2	<0.2	2	86
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	-
			Total OP Pesticides*	mg/kg	1.7	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	88
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	-	89

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE208846.001	LB204738.024		Naphthalene	mg/kg	0.1	<0.1	4	97
			2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	<0.1	4	100
			Acenaphthene	mg/kg	0.1	<0.1	4	106
			Fluorene	mg/kg	0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	<0.1	4	101
			Anthracene	mg/kg	0.1	<0.1	4	101
			Fluoranthene	mg/kg	0.1	0.1	4	106
			Pyrene	mg/kg	0.1	0.1	4	97
			Benzo(a)anthracene	mg/kg	0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	<0.1	4	108
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	-	87
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	88
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	-	89
SE208895.001	LB204738.023		Naphthalene	mg/kg	0.1	<0.1	4	98
			2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	<0.1	4	111
			Acenaphthene	mg/kg	0.1	<0.1	4	104
			Fluorene	mg/kg	0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	<0.1	4	96
			Anthracene	mg/kg	0.1	<0.1	4	97
			Fluoranthene	mg/kg	0.1	<0.1	4	108
			Pyrene	mg/kg	0.1	<0.1	4	107
			Benzo(a)anthracene	mg/kg	0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	-	-

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE208895.001	LB204738.023		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	<0.1	4	106
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.38	-	80
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.60	-	78
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.52	-	78

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208918.001	LB204772.004	Arsenic, As	mg/kg	1	47	0.89521870892	50	92
		Cadmium, Cd	mg/kg	0.3	42	-0.00744851759	50	84
		Chromium, Cr	mg/kg	0.5	50	2.24852125018	50	96
		Copper, Cu	mg/kg	0.5	47	-0.11452095808	50	94
		Nickel, Ni	mg/kg	0.5	47	0.07960603183	50	95
		Lead, Pb	mg/kg	1	54	4.05059697677	50	100
		Zinc, Zn	mg/kg	2	48	0.24859427486	50	95

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE208895.001	LB204738.023		TRH C10-C14	mg/kg	20	<20	40	100
			TRH C15-C28	mg/kg	45	<45	40	85
			TRH C29-C36	mg/kg	45	<45	40	68
			TRH C37-C40	mg/kg	100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	-	-
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	40	98
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	40	60
			TRH >C34-C40 (F4)	mg/kg	120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE208846.001	LB204737.023	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	5	70
			Toluene	mg/kg	0.1	<0.1	5	68
			Ethylbenzene	mg/kg	0.1	<0.1	5	71
			m/p-xylene	mg/kg	0.2	<0.2	10	72
			o-xylene	mg/kg	0.1	<0.1	5	71
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.8	10	83
			d8-toluene (Surrogate)	mg/kg	-	7.2	10	73
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.8	10	81
		Totals	Total Xylenes	mg/kg	0.3	<0.3	-	-
			Total BTEX	mg/kg	0.6	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE208846.001	LB204737.023		TRH C6-C10	mg/kg	25	<25	92.5	69
			TRH C6-C9	mg/kg	20	<20	80	71
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.8	10	83
			d8-toluene (Surrogate)	mg/kg	-	7.2	10	73
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.8	-	81
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	-	-
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	62.5	68

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

STATEMENT OF QA/QC PERFORMANCE

SE209082 R0

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 Mandala Parade, Castle Hill**
Order Number	**E24724.E02**
Samples	4

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE209082 R0**
Date Received	23 Jul 2020
Date Reported	30 Jul 2020

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	2 items
Matrix Spike	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	2 items

SAMPLE SUMMARY

HOLDING TIME SUMMARY

SE209082 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH6_0.1-0.2	SE209082.001	LB205491	20 Jul 2020	23 Jul 2020	20 Jul 2021	29 Jul 2020	20 Jul 2021	30 Jul 2020
BH6_1.4-1.5	SE209082.004	LB205491	20 Jul 2020	23 Jul 2020	20 Jul 2021	29 Jul 2020	20 Jul 2021	30 Jul 2020

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH6_0.1-0.2	SE209082.001	LB205314	20 Jul 2020	23 Jul 2020	17 Aug 2020	27 Jul 2020	17 Aug 2020	30 Jul 2020
BH6_1.4-1.5	SE209082.004	LB205314	20 Jul 2020	23 Jul 2020	17 Aug 2020	27 Jul 2020	17 Aug 2020	30 Jul 2020

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH6_0.1-0.2	SE209082.001	LB205135	20 Jul 2020	23 Jul 2020	03 Aug 2020	24 Jul 2020	29 Jul 2020	29 Jul 2020
BH6_1.4-1.5	SE209082.004	LB205135	20 Jul 2020	23 Jul 2020	03 Aug 2020	24 Jul 2020	29 Jul 2020	29 Jul 2020

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH6_0.1-0.2	SE209082.001	LB205134	20 Jul 2020	23 Jul 2020	03 Aug 2020	24 Jul 2020	02 Sep 2020	29 Jul 2020
BH6_1.4-1.5	SE209082.004	LB205134	20 Jul 2020	23 Jul 2020	03 Aug 2020	24 Jul 2020	02 Sep 2020	29 Jul 2020

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH6_0.1-0.2	SE209082.001	LB205134	20 Jul 2020	23 Jul 2020	03 Aug 2020	24 Jul 2020	02 Sep 2020	29 Jul 2020
BH6_1.4-1.5	SE209082.004	LB205134	20 Jul 2020	23 Jul 2020	03 Aug 2020	24 Jul 2020	02 Sep 2020	30 Jul 2020

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH6_0.1-0.2	SE209082.001	LB205134	20 Jul 2020	23 Jul 2020	03 Aug 2020	24 Jul 2020	02 Sep 2020	29 Jul 2020
BH6_1.4-1.5	SE209082.004	LB205134	20 Jul 2020	23 Jul 2020	03 Aug 2020	24 Jul 2020	02 Sep 2020	30 Jul 2020

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH6_0.1-0.2	SE209082.001	LB205134	20 Jul 2020	23 Jul 2020	03 Aug 2020	24 Jul 2020	02 Sep 2020	29 Jul 2020
BH6_1.4-1.5	SE209082.004	LB205134	20 Jul 2020	23 Jul 2020	03 Aug 2020	24 Jul 2020	02 Sep 2020	29 Jul 2020

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH6_0.1-0.2	SE209082.001	LB205303	20 Jul 2020	23 Jul 2020	16 Jan 2021	27 Jul 2020	16 Jan 2021	29 Jul 2020
BH6_1.4-1.5	SE209082.004	LB205303	20 Jul 2020	23 Jul 2020	16 Jan 2021	27 Jul 2020	16 Jan 2021	29 Jul 2020

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH6_0.1-0.2	SE209082.001	LB205134	20 Jul 2020	23 Jul 2020	03 Aug 2020	24 Jul 2020	02 Sep 2020	29 Jul 2020
BH6_1.4-1.5	SE209082.004	LB205134	20 Jul 2020	23 Jul 2020	03 Aug 2020	24 Jul 2020	02 Sep 2020	29 Jul 2020

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH6_0.1-0.2	SE209082.001	LB205133	20 Jul 2020	23 Jul 2020	03 Aug 2020	24 Jul 2020	02 Sep 2020	29 Jul 2020
BH6_1.4-1.5	SE209082.004	LB205133	20 Jul 2020	23 Jul 2020	03 Aug 2020	24 Jul 2020	02 Sep 2020	29 Jul 2020

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH6_0.1-0.2	SE209082.001	LB205133	20 Jul 2020	23 Jul 2020	03 Aug 2020	24 Jul 2020	02 Sep 2020	29 Jul 2020
BH6_1.4-1.5	SE209082.004	LB205133	20 Jul 2020	23 Jul 2020	03 Aug 2020	24 Jul 2020	02 Sep 2020	29 Jul 2020

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH6_0.1-0.2	SE209082.001	%	60 - 130%	106
	BH6_1.4-1.5	SE209082.004	%	60 - 130%	97

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH6_0.1-0.2	SE209082.001	%	60 - 130%	87
	BH6_1.4-1.5	SE209082.004	%	60 - 130%	87
d14-p-terphenyl (Surrogate)	BH6_0.1-0.2	SE209082.001	%	60 - 130%	85
	BH6_1.4-1.5	SE209082.004	%	60 - 130%	84

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH6_0.1-0.2	SE209082.001	%	70 - 130%	87
	BH6_1.4-1.5	SE209082.004	%	70 - 130%	87
d14-p-terphenyl (Surrogate)	BH6_0.1-0.2	SE209082.001	%	70 - 130%	85
	BH6_1.4-1.5	SE209082.004	%	70 - 130%	84
d5-nitrobenzene (Surrogate)	BH6_0.1-0.2	SE209082.001	%	70 - 130%	79
	BH6_1.4-1.5	SE209082.004	%	70 - 130%	81

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH6_0.1-0.2	SE209082.001	%	60 - 130%	106
	BH6_1.4-1.5	SE209082.004	%	60 - 130%	97

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH6_0.1-0.2	SE209082.001	%	60 - 130%	88
	BH6_1.4-1.5	SE209082.004	%	60 - 130%	97
d4-1,2-dichloroethane (Surrogate)	BH6_0.1-0.2	SE209082.001	%	60 - 130%	79
	BH6_1.4-1.5	SE209082.004	%	60 - 130%	91
d8-toluene (Surrogate)	BH6_0.1-0.2	SE209082.001	%	60 - 130%	77
	BH6_1.4-1.5	SE209082.004	%	60 - 130%	87

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH6_0.1-0.2	SE209082.001	%	60 - 130%	88
	BH6_1.4-1.5	SE209082.004	%	60 - 130%	97
d4-1,2-dichloroethane (Surrogate)	BH6_0.1-0.2	SE209082.001	%	60 - 130%	79
	BH6_1.4-1.5	SE209082.004	%	60 - 130%	91
d8-toluene (Surrogate)	BH6_0.1-0.2	SE209082.001	%	60 - 130%	77
	BH6_1.4-1.5	SE209082.004	%	60 - 130%	87

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB205314.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB205134.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	102

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB205134.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	85
		d14-p-terphenyl (Surrogate)	%	-	90

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB205134.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB205134.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	85
		2-fluorobiphenyl (Surrogate)	%	-	85
		d14-p-terphenyl (Surrogate)	%	-	90

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB205134.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	102

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number		Parameter	Units	LOR	Result
LB205303.001		Arsenic, As	mg/kg	1	<1
		Cadmium, Cd	mg/kg	0.3	<0.3
		Chromium, Cr	mg/kg	0.5	<0.5
		Copper, Cu	mg/kg	0.5	<0.5
		Nickel, Ni	mg/kg	0.5	<0.5
		Lead, Pb	mg/kg	1	<1
		Zinc, Zn	mg/kg	2	<2.0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result
LB205134.001		TRH C10-C14	mg/kg	20	<20
		TRH C15-C28	mg/kg	45	<45
		TRH C29-C36	mg/kg	45	<45
		TRH C37-C40	mg/kg	100	<100
		TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB205133.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	73
		d8-toluene (Surrogate)	%	-	76
		Bromofluorobenzene (Surrogate)	%	-	78
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB205133.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	73

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209074.025	LB205314.014	Mercury	mg/kg	0.05	0.012532888	0.0095890066	200	0
SE209082.004	LB205314.024	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209085.003	LB205135.011	% Moisture	%w/w	1	25	25.878003696	34	3
SE209109.003	LB205135.018	% Moisture	%w/w	1	7.318789584	7.6669527896	44	6

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209085.004	LB205134.023		Hexachlorobenzene (HCB)	mg/kg	0.1	0	0	200	0
			Alpha BHC	mg/kg	0.1	0	0	200	0
			Lindane	mg/kg	0.1	0	0	200	0
			Heptachlor	mg/kg	0.1	0	0	200	0
			Aldrin	mg/kg	0.1	0	0	200	0
			Beta BHC	mg/kg	0.1	0	0	200	0
			Delta BHC	mg/kg	0.1	0	0	200	0
			Heptachlor epoxide	mg/kg	0.1	0	0	200	0
			o,p'-DDE	mg/kg	0.1	0	0	200	0
			Alpha Endosulfan	mg/kg	0.2	0	0	200	0
			Gamma Chlordane	mg/kg	0.1	0	0	200	0
			Alpha Chlordane	mg/kg	0.1	0	0	200	0
			trans-Nonachlor	mg/kg	0.1	0	0	200	0
			p,p'-DDE	mg/kg	0.1	0	0	200	0
			Dieldrin	mg/kg	0.2	0	0	200	0
			Endrin	mg/kg	0.2	0	0	200	0
			o,p'-DDD	mg/kg	0.1	0	0	200	0
			o,p'-DDT	mg/kg	0.1	0	0	200	0
			Beta Endosulfan	mg/kg	0.2	0	0	200	0
			p,p'-DDD	mg/kg	0.1	0	0	200	0
			p,p'-DDT	mg/kg	0.1	0	0	200	0
			Endosulfan sulphate	mg/kg	0.1	0	0	200	0
			Endrin Aldehyde	mg/kg	0.1	0	0	200	0
			Methoxychlor	mg/kg	0.1	0	0	200	0
			Endrin Ketone	mg/kg	0.1	0	0	200	0
			Isodrin	mg/kg	0.1	0	0	200	0
			Mirex	mg/kg	0.1	0	0	200	0
			Total CLP OC Pesticides	mg/kg	1	0	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.149	0.158	30	6
SE209109.003	LB205134.021		Hexachlorobenzene (HCB)	mg/kg	0.1	0	0	200	0
			Alpha BHC	mg/kg	0.1	0	0	200	0
			Lindane	mg/kg	0.1	0	0	200	0
			Heptachlor	mg/kg	0.1	0	0	200	0
			Aldrin	mg/kg	0.1	0	0	200	0
			Beta BHC	mg/kg	0.1	0	0	200	0
			Delta BHC	mg/kg	0.1	0	0	200	0
			Heptachlor epoxide	mg/kg	0.1	0	0	200	0
			o,p'-DDE	mg/kg	0.1	0	0	200	0
			Alpha Endosulfan	mg/kg	0.2	0	0	200	0
			Gamma Chlordane	mg/kg	0.1	0	0	200	0
			Alpha Chlordane	mg/kg	0.1	0	0	200	0
			trans-Nonachlor	mg/kg	0.1	0	0	200	0
			p,p'-DDE	mg/kg	0.1	0	0	200	0
			Dieldrin	mg/kg	0.2	0	0	200	0
			Endrin	mg/kg	0.2	0	0	200	0
			o,p'-DDD	mg/kg	0.1	0	0	200	0
			o,p'-DDT	mg/kg	0.1	0	0	200	0
			Beta Endosulfan	mg/kg	0.2	0	0	200	0
			p,p'-DDD	mg/kg	0.1	0	0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209109.003	LB205134.021		p,p'-DDT	mg/kg	0.1	0	0	200	0
			Endosulfan sulphate	mg/kg	0.1	0	0	200	0
			Endrin Aldehyde	mg/kg	0.1	0	0	200	0
			Methoxychlor	mg/kg	0.1	0	0	200	0
			Endrin Ketone	mg/kg	0.1	0	0	200	0
			Isodrin	mg/kg	0.1	0	0	200	0
			Mirex	mg/kg	0.1	0	0	200	0
			Total CLP OC Pesticides	mg/kg	1	0	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.143	0.164	30	14

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209085.004	LB205134.024		Dichlorvos	mg/kg	0.5	0	0	200	0
			Dimethoate	mg/kg	0.5	0.004240866	90.0007399367	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	0.002605671	30.0031591239	200	0
			Fenitrothion	mg/kg	0.2	0.014219979	60.0054469187	200	0
			Malathion	mg/kg	0.2	0.001217404	30.0026907261	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	0	0.0038273496	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	0.032940722	30.0310769340	200	0
			Bromophos Ethyl	mg/kg	0.2	0	0	200	0
			Methidathion	mg/kg	0.5	0.004489881	30.0042651391	200	0
			Ethion	mg/kg	0.2	0	0	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	0	0	200	0
			Total OP Pesticides*	mg/kg	1.7	0	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.393079911	50.4290622642	30	9
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.431343589	10.4324566911	30	0
SE209109.003	LB205134.021		Dichlorvos	mg/kg	0.5	0	0	200	0
			Dimethoate	mg/kg	0.5	0	0.0010708014	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	0.082053098	50.0547835416	200	0
			Fenitrothion	mg/kg	0.2	0.014633211	80.0159853971	200	0
			Malathion	mg/kg	0.2	0	0	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	0	0	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	0.005867497	3 0	200	0
			Bromophos Ethyl	mg/kg	0.2	0	0	200	0
			Methidathion	mg/kg	0.5	0	0	200	0
			Ethion	mg/kg	0.2	0	0	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	0	0	200	0
			Total OP Pesticides*	mg/kg	1.7	0	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.437282264	80.4591740867	30	5
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.418619466	60.4468671377	30	7

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209085.004	LB205134.025	Naphthalene	mg/kg	0.1	0.004711142	50.0045554485	200	0
		2-methylnaphthalene	mg/kg	0.1	0.003770301	90.0034989812	200	0
		1-methylnaphthalene	mg/kg	0.1	0.004649747	60.0041428135	200	0
		Acenaphthylene	mg/kg	0.1	0.012257460	90.0105192714	200	0
		Acenaphthene	mg/kg	0.1	0.000898090	40.0020889373	200	0
		Fluorene	mg/kg	0.1	0.004571187	30.0048799317	200	0
		Phenanthrene	mg/kg	0.1	0.030591025	70.0316800365	200	0
		Anthracene	mg/kg	0.1	0.029505271	50.0307607271	200	0
		Fluoranthene	mg/kg	0.1	0.060019840	00.0615229958	195	0
		Pyrene	mg/kg	0.1	0.063489954	00.0688400504	181	0
		Benzo(a)anthracene	mg/kg	0.1	0.045608107	20.0443854118	200	0
		Chrysene	mg/kg	0.1	0.046908659	00.0441725778	200	0
		Benzo(b&j)fluoranthene	mg/kg	0.1	0.046933549	70.0465952389	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	0.044069901	50.0415789494	200	0
		Benzo(a)pyrene	mg/kg	0.1	0.044580178	90.0406396296	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.009647147	20.0076009934	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	0.001009009	40.0011030046	200	0
		Benzo(ghi)perylene	mg/kg	0.1	0.013329558	40.0104231458	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	0	0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209085.004	LB205134.025		Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	0.242	0.242	134	0
				TEQ (mg/kg)	0.3	0.242	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	0.121	0.121	175	0
				TEQ (mg/kg)	0.2	0.121	0.121	175	0
			Total PAH (18)	mg/kg	0.8	0	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.410021620	5.4119841301	30	0
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.393079911	5.4290622642	30	9
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.431343589	1.4324566911	30	0
SE209109.003	LB205134.021		Naphthalene	mg/kg	0.1	0.002464278	50.0025605444	200	0
			2-methylnaphthalene	mg/kg	0.1	0.002255807	00.0019982427	200	0
			1-methylnaphthalene	mg/kg	0.1	0.002213777	10.0021734018	200	0
			Acenaphthylene	mg/kg	0.1	0.006964354	80.0079629951	200	0
			Acenaphthene	mg/kg	0.1	0.001530994	40.0009583908	200	0
			Fluorene	mg/kg	0.1	0.002436713	00.0025694366	200	0
			Phenanthrene	mg/kg	0.1	0.066429579	40.0611684949	187	0
			Anthracene	mg/kg	0.1	0.063924216	20.0592682563	192	0
			Fluoranthene	mg/kg	0.1	0.081005717	10.0932778389	145	0
			Pyrene	mg/kg	0.1	0.078911913	40.0919432731	147	0
			Benzo(a)anthracene	mg/kg	0.1	0.041902343	50.0710096433	200	0
			Chrysene	mg/kg	0.1	0.041312280	90.0724695351	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.038362544	30.0360520412	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	0.034232559	50.0337905870	200	0
			Benzo(a)pyrene	mg/kg	0.1	0.036669362	20.0174637909	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.005438222	60.0059330114	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	0.0009342371	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0.006673190	20.0065755355	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	0	0	200	0
				TEQ (mg/kg)	0.2	0	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	0.242	0.242	134	0
				TEQ (mg/kg)	0.3	0.242	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	0.121	0.121	175	0
				TEQ (mg/kg)	0.2	0.121	0.121	175	0
			Total PAH (18)	mg/kg	0.8	0	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.387304695	80.4205878005	30	8
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.437282264	80.4591740867	30	5
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.418619466	60.4468671377	30	7

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209085.003	LB205134.014		Arochlor 1016	mg/kg	0.2	0	0	200	0
			Arochlor 1221	mg/kg	0.2	0	0	200	0
			Arochlor 1232	mg/kg	0.2	0	0	200	0
			Arochlor 1242	mg/kg	0.2	0	0	200	0
			Arochlor 1248	mg/kg	0.2	0	0	200	0
			Arochlor 1254	mg/kg	0.2	0	0	200	0
			Arochlor 1260	mg/kg	0.2	0	0	200	0
			Arochlor 1262	mg/kg	0.2	0	0	200	0
			Arochlor 1268	mg/kg	0.2	0	0	200	0
			Total PCBs (Arochlors)	mg/kg	1	0	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.154	0.149	30	3
SE209085.004	LB205134.022		Arochlor 1016	mg/kg	0.2	0	0	200	0
			Arochlor 1221	mg/kg	0.2	0	0	200	0
			Arochlor 1232	mg/kg	0.2	0	0	200	0
			Arochlor 1242	mg/kg	0.2	0	0	200	0
			Arochlor 1248	mg/kg	0.2	0	0	200	0
			Arochlor 1254	mg/kg	0.2	0	0	200	0
			Arochlor 1260	mg/kg	0.2	0	0	200	0
			Arochlor 1262	mg/kg	0.2	0	0	200	0
			Arochlor 1268	mg/kg	0.2	0	0	200	0
			Total PCBs (Arochlors)	mg/kg	1	0	0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209085.004	LB205134.022	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.149	0.158	30	6
SE209109.003	LB205134.021		Arochlor 1016	mg/kg	0.2	0	0	200	0
			Arochlor 1221	mg/kg	0.2	0	0	200	0
			Arochlor 1232	mg/kg	0.2	0	0	200	0
			Arochlor 1242	mg/kg	0.2	0	0	200	0
			Arochlor 1248	mg/kg	0.2	0	0	200	0
			Arochlor 1254	mg/kg	0.2	0	0	200	0
			Arochlor 1260	mg/kg	0.2	0	0	200	0
			Arochlor 1262	mg/kg	0.2	0	0	200	0
			Arochlor 1268	mg/kg	0.2	0	0	200	0
			Total PCBs (Arochlors)	mg/kg	1	0	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.143	0.164	30	14

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209074.025	LB205303.014		Arsenic, As	mg/kg	1	2.4097339183	3.3128235	65	32
			Cadmium, Cd	mg/kg	0.3	0.0280522459	0.0320535	200	0
			Chromium, Cr	mg/kg	0.5	16.303873398	23.565450375	33	36 ②
			Copper, Cu	mg/kg	0.5	4.5794141905	6.418242	39	33
			Nickel, Ni	mg/kg	0.5	5.6950658099	7.605635625	38	29
			Lead, Pb	mg/kg	1	13.185015490	17.734541625	36	29
			Zinc, Zn	mg/kg	2	38.189683876	47.013528375	35	21
SE209082.004	LB205303.024		Arsenic, As	mg/kg	1	1	2	103	40
			Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
			Chromium, Cr	mg/kg	0.5	2.5	5.1	43	68 ②
			Copper, Cu	mg/kg	0.5	0.6	1.0	91	46
			Nickel, Ni	mg/kg	0.5	<0.5	<0.5	177	0
			Lead, Pb	mg/kg	1	2	3	71	14
			Zinc, Zn	mg/kg	2	<2.0	<2.0	200	0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209085.005	LB205134.023		TRH C10-C14	mg/kg	20	0	0	200	0
			TRH C15-C28	mg/kg	45	0	0	200	0
			TRH C29-C36	mg/kg	45	0	0	200	0
			TRH C37-C40	mg/kg	100	0	0	200	0
			TRH C10-C36 Total	mg/kg	110	0	0	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	0	0	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	0	0	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	0	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	0	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	0	0	200	0
SE209109.003	LB205134.021		TRH C10-C14	mg/kg	20	0	0	200	0
			TRH C15-C28	mg/kg	45	0	0	200	0
			TRH C29-C36	mg/kg	45	0	0	200	0
			TRH C37-C40	mg/kg	100	0	0	200	0
			TRH C10-C36 Total	mg/kg	110	0	0	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	0	0	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	0	0	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	0	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	0	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	0	0	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209085.003	LB205133.014	Monocyclic	Benzene	mg/kg	0.1	0	0	200	0
		Aromatic	Toluene	mg/kg	0.1	0	0.0035787128	200	0
			Ethylbenzene	mg/kg	0.1	0	0	200	0
			m/p-xylene	mg/kg	0.2	0	0	200	0
			o-xylene	mg/kg	0.1	0	0	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	0	0	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.03383713258	.0450481542	50	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209085.003	LB205133.014	Surrogates	d8-toluene (Surrogate)	mg/kg	-	8.337696858	4.2968818156	50	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.130132374	99.5474623847	50	4
		Totals	Total Xylenes	mg/kg	0.3	0	0	200	0
			Total BTEX	mg/kg	0.6	0	0	200	0
SE209109.003	LB205133.021	Monocyclic	Benzene	mg/kg	0.1	0	0	200	0
		Aromatic	Toluene	mg/kg	0.1	0	0	200	0
			Ethylbenzene	mg/kg	0.1	0	0	200	0
			m/p-xylene	mg/kg	0.2	0	0	200	0
			o-xylene	mg/kg	0.1	0	0	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	0	0.0078369713	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.987709214	17.9836679811	50	12
			d8-toluene (Surrogate)	mg/kg	-	8.965289204	78.4201984616	50	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.139326144	78.4892651971	50	7
		Totals	Total Xylenes	mg/kg	0.3	0	0	200	0
			Total BTEX	mg/kg	0.6	0	0	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209085.003	LB205133.014		TRH C6-C10	mg/kg	25	2.393649539	83.2936722459	200	0
			TRH C6-C9	mg/kg	20	2.015036294	92.8682323629	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.033837132	58.0450481542	30	0
			d8-toluene (Surrogate)	mg/kg	-	8.337696858	4.2968818156	30	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.130132374	99.5474623847	30	4
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0	0	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	2.393649539	83.2936722459	200	0
SE209109.003	LB205133.021		TRH C6-C10	mg/kg	25	2.335233678	62.2624015683	200	0
			TRH C6-C9	mg/kg	20	1.969055757	11.8914265323	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.987709214	17.9836679811	30	12
			d8-toluene (Surrogate)	mg/kg	-	8.965289204	78.4201984616	30	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.139326144	78.4892651971	30	7
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0	0	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	2.335233678	62.2624015683	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205314.002	Mercury	mg/kg	0.05	0.20	0.2	70 - 130	98

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205134.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	121
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	125
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	119
		Dieldrin	mg/kg	0.2	0.3	0.2	60 - 140	126
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	121
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	78
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	40 - 130	98

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205134.002		Dichlorvos	mg/kg	0.5	1.6	2	60 - 140	78
		Diazinon (Dimpylate)	mg/kg	0.5	1.6	2	60 - 140	78
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.6	2	60 - 140	81
		Ethion	mg/kg	0.2	1.4	2	60 - 140	68
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205134.002		Naphthalene	mg/kg	0.1	4.4	4	60 - 140	109
		Acenaphthylene	mg/kg	0.1	4.4	4	60 - 140	111
		Acenaphthene	mg/kg	0.1	4.3	4	60 - 140	107
		Phenanthrene	mg/kg	0.1	4.5	4	60 - 140	112
		Anthracene	mg/kg	0.1	4.2	4	60 - 140	104
		Fluoranthene	mg/kg	0.1	4.6	4	60 - 140	114
		Pyrene	mg/kg	0.1	4.4	4	60 - 140	110
		Benzo(a)pyrene	mg/kg	0.1	4.1	4	60 - 140	102
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	77
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	85
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	80

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205134.002	Arochlor 1260	mg/kg	0.2	0.5	0.4	60 - 140	126

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205303.002	Arsenic, As	mg/kg	1	320	318.22	80 - 120	100
	Cadmium, Cd	mg/kg	0.3	4.9	5.41	80 - 120	90
	Chromium, Cr	mg/kg	0.5	37	38.31	80 - 120	96
	Copper, Cu	mg/kg	0.5	290	290	80 - 120	102
	Nickel, Ni	mg/kg	0.5	180	187	80 - 120	99
	Lead, Pb	mg/kg	1	92	89.9	80 - 120	102
	Zinc, Zn	mg/kg	2	270	273	80 - 120	99

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205134.002		TRH C10-C14	mg/kg	20	33	40	60 - 140	83
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	95
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	75
	TRH F Bands	TRH >C10-C16	mg/kg	25	31	40	60 - 140	78
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	83
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	120

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205133.002	Monocyclic	Benzene	mg/kg	0.1	4.3	5	60 - 140	86
	Aromatic	Toluene	mg/kg	0.1	4.3	5	60 - 140	87
		Ethylbenzene	mg/kg	0.1	4.4	5	60 - 140	89
		m/p-xylene	mg/kg	0.2	8.6	10	60 - 140	86
		o-xylene	mg/kg	0.1	4.4	5	60 - 140	88
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.0	10	70 - 130	90
		d8-toluene (Surrogate)	mg/kg	-	8.8	10	70 - 130	88
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.4	10	70 - 130	94

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205133.002		TRH C6-C10	mg/kg	25	66	92.5	60 - 140	72
		TRH C6-C9	mg/kg	20	60	80	60 - 140	75
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.0	10	70 - 130	90
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.4	10	70 - 130	94
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	40	62.5	60 - 140	64

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE209064.001	LB205314.004	Mercury	mg/kg	0.05	0.25	0.07	0.2	91

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE209082.001	LB205134.022		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	<0.1	0.2	130
			Aldrin	mg/kg	0.1	<0.1	0.2	131
			Beta BHC	mg/kg	0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	<0.1	0.2	126
			Heptachlor epoxide	mg/kg	0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	<0.2	0.2	135
			Endrin	mg/kg	0.2	<0.2	0.2	131
			o,p'-DDD	mg/kg	0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	<0.1	0.2	87
			Endosulfan sulphate	mg/kg	0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	-	-
			Total CLP OC Pesticides	mg/kg	1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	-	104

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE209082.001	LB205134.023		Dichlorvos	mg/kg	0.5	<0.5	2	113
			Dimethoate	mg/kg	0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	2	100
			Fenitrothion	mg/kg	0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	2	108
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	-	-
			Ethion	mg/kg	0.2	<0.2	2	75
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	-
			Total OP Pesticides*	mg/kg	1.7	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	82
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	-	88

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE209082.001	LB205134.023	Naphthalene	mg/kg	0.1	<0.1	4	129
		2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	<0.1	4	132
		Acenaphthene	mg/kg	0.1	<0.1	4	124
		Fluorene	mg/kg	0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	<0.1	4	128

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE209082.001	LB205134.023		Anthracene	mg/kg	0.1	<0.1	4	126
			Fluoranthene	mg/kg	0.1	0.2	4	129
			Pyrene	mg/kg	0.1	0.2	4	134
			Benzo(a)anthracene	mg/kg	0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	<0.1	4	123
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	-	78
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	82
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	-	88

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE209082.001	LB205134.023		Arochlor 1016	mg/kg	0.2	<0.2	-	-
			Arochlor 1221	mg/kg	0.2	<0.2	-	-
			Arochlor 1232	mg/kg	0.2	<0.2	-	-
			Arochlor 1242	mg/kg	0.2	<0.2	-	-
			Arochlor 1248	mg/kg	0.2	<0.2	-	-
			Arochlor 1254	mg/kg	0.2	<0.2	-	-
			Arochlor 1260	mg/kg	0.2	<0.2	0.4	136
			Arochlor 1262	mg/kg	0.2	<0.2	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	-	105

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE209064.001	LB205303.004	Arsenic, As	mg/kg	1	44	7	50	74
		Cadmium, Cd	mg/kg	0.3	36	<0.3	50	72
		Chromium, Cr	mg/kg	0.5	56	24	50	64 ④
		Copper, Cu	mg/kg	0.5	78	44	50	67 ④
		Nickel, Ni	mg/kg	0.5	46	6.2	50	79
		Lead, Pb	mg/kg	1	55	19	50	72
		Zinc, Zn	mg/kg	2	68	32	50	71

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE209082.001	LB205134.022		TRH C10-C14	mg/kg	20	64	<20	40	128
			TRH C15-C28	mg/kg	45	<45	<45	40	85
			TRH C29-C36	mg/kg	45	<45	<45	40	88
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	<110	-	-
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	68	<25	40	135
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	68	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	85
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE209055.001	LB205133.004	Monocyclic	Benzene	mg/kg	0.1	3.6	<0.1	5	73
		Aromatic	Toluene	mg/kg	0.1	3.9	<0.1	5	79
			Ethylbenzene	mg/kg	0.1	4.1	<0.1	5	81
			m/p-xylene	mg/kg	0.2	7.9	<0.2	10	79
			o-xylene	mg/kg	0.1	4.0	<0.1	5	79

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE209055.001	LB205133.004	Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.1	7.8	10	81
			d8-toluene (Surrogate)	mg/kg	-	8.2	8.4	10	82
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.4	9.3	10	84
		Totals	Total Xylenes	mg/kg	0.3	12	<0.3	-	-
			Total BTEX	mg/kg	0.6	24	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE209055.001	LB205133.004		TRH C6-C10	mg/kg	25	62	<25	92.5	67
			TRH C6-C9	mg/kg	20	56	<20	80	70
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.1	7.8	10	81
			d8-toluene (Surrogate)	mg/kg	-	8.2	8.4	10	82
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.4	9.3	-	84
		VPH F	Benzene (F0)	mg/kg	0.1	3.6	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	39	<25	62.5	62

MATRIX SPIKE DUPLICATES

SE209082 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

STATEMENT OF QA/QC PERFORMANCE

SE208846A R0

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 Mandala Parade, Castle Hill**
Order Number	**E24724.E02**
Samples	17

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE208846A R0**
Date Received	21 Jul 2020
Date Reported	28 Jul 2020

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Extraction Date	Alkalinity in Soil	2 items
	Conductivity and TDS by Calculation - Soil	5 items
	pH in soil (1:5)	5 items
	Soluble Anions (1:5) in Soil by Ion Chromatography	5 items
Analysis Date	Conductivity and TDS by Calculation - Soil	5 items
Matrix Spike	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	3 items

SAMPLE SUMMARY

HOLDING TIME SUMMARY

SE208846A R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Alkalinity in Soil

Method: ME-(AU)-[ENV]AN002/AN135

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M_2.8-2.9	SE208846A.007	LB204996	13 Jul 2020	21 Jul 2020	20 Jul 2020	23 Jul 2020†	06 Aug 2020	27 Jul 2020
BH4M_4.9-5.0	SE208846A.011	LB204996	14 Jul 2020	21 Jul 2020	21 Jul 2020	23 Jul 2020†	06 Aug 2020	27 Jul 2020
BH2_1.9-2.0	SE208846A.015	LB204996	16 Jul 2020	21 Jul 2020	23 Jul 2020	23 Jul 2020	06 Aug 2020	27 Jul 2020
BH2_2.9-3.0	SE208846A.016	LB204996	16 Jul 2020	21 Jul 2020	23 Jul 2020	23 Jul 2020	06 Aug 2020	27 Jul 2020
BH4M_4.4-4.5	SE208846A.017	LB204996	16 Jul 2020	21 Jul 2020	23 Jul 2020	23 Jul 2020	06 Aug 2020	27 Jul 2020

Conductivity and TDS by Calculation - Soil

Method: ME-(AU)-[ENV]AN106

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M_2.8-2.9	SE208846A.007	LB205068	13 Jul 2020	21 Jul 2020	20 Jul 2020	24 Jul 2020†	20 Jul 2020	27 Jul 2020†
BH4M_4.9-5.0	SE208846A.011	LB205068	14 Jul 2020	21 Jul 2020	21 Jul 2020	24 Jul 2020†	21 Jul 2020	27 Jul 2020†
BH2_1.9-2.0	SE208846A.015	LB205068	16 Jul 2020	21 Jul 2020	23 Jul 2020	24 Jul 2020†	23 Jul 2020	27 Jul 2020†
BH2_2.9-3.0	SE208846A.016	LB205068	16 Jul 2020	21 Jul 2020	23 Jul 2020	24 Jul 2020†	23 Jul 2020	27 Jul 2020†
BH4M_4.4-4.5	SE208846A.017	LB205068	16 Jul 2020	21 Jul 2020	23 Jul 2020	24 Jul 2020†	23 Jul 2020	27 Jul 2020†

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR)

Method: ME-(AU)-[ENV]AN122

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M_2.8-2.9	SE208846A.007	LB205095	13 Jul 2020	21 Jul 2020	10 Aug 2020	24 Jul 2020	10 Aug 2020	27 Jul 2020
BH4M_4.9-5.0	SE208846A.011	LB205095	14 Jul 2020	21 Jul 2020	11 Aug 2020	24 Jul 2020	11 Aug 2020	27 Jul 2020
BH2_1.9-2.0	SE208846A.015	LB205095	16 Jul 2020	21 Jul 2020	13 Aug 2020	24 Jul 2020	13 Aug 2020	27 Jul 2020
BH2_2.9-3.0	SE208846A.016	LB205095	16 Jul 2020	21 Jul 2020	13 Aug 2020	24 Jul 2020	13 Aug 2020	27 Jul 2020
BH4M_4.4-4.5	SE208846A.017	LB205095	16 Jul 2020	21 Jul 2020	13 Aug 2020	24 Jul 2020	13 Aug 2020	27 Jul 2020

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_1.9-2.0	SE208846A.015	LB205093	16 Jul 2020	21 Jul 2020	30 Jul 2020	24 Jul 2020	29 Jul 2020	27 Jul 2020
BH2_2.9-3.0	SE208846A.016	LB205093	16 Jul 2020	21 Jul 2020	30 Jul 2020	24 Jul 2020	29 Jul 2020	27 Jul 2020
BH4M_4.4-4.5	SE208846A.017	LB205093	16 Jul 2020	21 Jul 2020	30 Jul 2020	24 Jul 2020	29 Jul 2020	27 Jul 2020

pH in soil (1:5)

Method: ME-(AU)-[ENV]AN101

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M_2.8-2.9	SE208846A.007	LB205068	13 Jul 2020	21 Jul 2020	20 Jul 2020	24 Jul 2020†	25 Jul 2020	24 Jul 2020
BH4M_4.9-5.0	SE208846A.011	LB205068	14 Jul 2020	21 Jul 2020	21 Jul 2020	24 Jul 2020†	25 Jul 2020	24 Jul 2020
BH2_1.9-2.0	SE208846A.015	LB205068	16 Jul 2020	21 Jul 2020	23 Jul 2020	24 Jul 2020†	25 Jul 2020	24 Jul 2020
BH2_2.9-3.0	SE208846A.016	LB205068	16 Jul 2020	21 Jul 2020	23 Jul 2020	24 Jul 2020†	25 Jul 2020	24 Jul 2020
BH4M_4.4-4.5	SE208846A.017	LB205068	16 Jul 2020	21 Jul 2020	23 Jul 2020	24 Jul 2020†	25 Jul 2020	24 Jul 2020

Soil Texture (AS4419)

Method: ME-(AU)-[ENV]AN051

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M_2.8-2.9	SE208846A.007	LB205036	13 Jul 2020	21 Jul 2020	09 Jan 2021	23 Jul 2020	09 Jan 2021	28 Jul 2020
BH4M_4.9-5.0	SE208846A.011	LB205036	14 Jul 2020	21 Jul 2020	10 Jan 2021	23 Jul 2020	10 Jan 2021	28 Jul 2020
BH2_1.9-2.0	SE208846A.015	LB205036	16 Jul 2020	21 Jul 2020	12 Jan 2021	23 Jul 2020	12 Jan 2021	28 Jul 2020
BH2_2.9-3.0	SE208846A.016	LB205036	16 Jul 2020	21 Jul 2020	12 Jan 2021	23 Jul 2020	12 Jan 2021	28 Jul 2020
BH4M_4.4-4.5	SE208846A.017	LB205036	16 Jul 2020	21 Jul 2020	12 Jan 2021	23 Jul 2020	12 Jan 2021	28 Jul 2020

Soluble Anions (1:5) in Soil by Ion Chromatography

Method: ME-(AU)-[ENV]AN245

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M_2.8-2.9	SE208846A.007	LB205060	13 Jul 2020	21 Jul 2020	20 Jul 2020	24 Jul 2020†	21 Aug 2020	27 Jul 2020
BH4M_4.9-5.0	SE208846A.011	LB205060	14 Jul 2020	21 Jul 2020	21 Jul 2020	24 Jul 2020†	21 Aug 2020	27 Jul 2020
BH2_1.9-2.0	SE208846A.015	LB205060	16 Jul 2020	21 Jul 2020	23 Jul 2020	24 Jul 2020†	21 Aug 2020	27 Jul 2020
BH2_2.9-3.0	SE208846A.016	LB205060	16 Jul 2020	21 Jul 2020	23 Jul 2020	24 Jul 2020†	21 Aug 2020	27 Jul 2020
BH4M_4.4-4.5	SE208846A.017	LB205060	16 Jul 2020	21 Jul 2020	23 Jul 2020	24 Jul 2020†	21 Aug 2020	27 Jul 2020

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M_2.8-2.9	SE208846A.007	LB205033	13 Jul 2020	21 Jul 2020	09 Jan 2021	23 Jul 2020	09 Jan 2021	28 Jul 2020
BH4M_4.9-5.0	SE208846A.011	LB205033	14 Jul 2020	21 Jul 2020	10 Jan 2021	23 Jul 2020	10 Jan 2021	28 Jul 2020
BH2_1.9-2.0	SE208846A.015	LB205033	16 Jul 2020	21 Jul 2020	12 Jan 2021	23 Jul 2020	12 Jan 2021	28 Jul 2020
BH2_2.9-3.0	SE208846A.016	LB205033	16 Jul 2020	21 Jul 2020	12 Jan 2021	23 Jul 2020	12 Jan 2021	28 Jul 2020
BH4M_4.4-4.5	SE208846A.017	LB205033	16 Jul 2020	21 Jul 2020	12 Jan 2021	23 Jul 2020	12 Jan 2021	28 Jul 2020

SURROGATES

SE208846A R0

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No surrogates were required for this job.

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Alkalinity in Soil

Method: ME-(AU)-[ENV]AN002/AN135

Sample Number	Parameter	Units	LOR	Result
LB204996.001	Total Alkalinity as CaCO3 in Soil*	mg/kg	25	<25

Conductivity and TDS by Calculation - Soil

Method: ME-(AU)-[ENV]AN106

Sample Number	Parameter	Units	LOR	Result
LB205068.001	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	0

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR)

Method: ME-(AU)-[ENV]AN122

Sample Number	Parameter	Units	LOR	Result
LB205095.001	Exchangeable Sodium, Na	mg/kg	2	0
	Exchangeable Potassium, K	mg/kg	2	0
	Exchangeable Calcium, Ca	mg/kg	2	0
	Exchangeable Magnesium, Mg	mg/kg	2	0

Soluble Anions (1:5) in Soil by Ion Chromatography

Method: ME-(AU)-[ENV]AN245

Sample Number	Parameter	Units	LOR	Result
LB205060.001	Chloride	mg/kg	0.25	<0.25
	Sulfate	mg/kg	5	<5.0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB205033.001	Calcium, Ca	mg/kg	5	<5
	Potassium, K	mg/kg	10	<10
	Magnesium, Mg	mg/kg	5	<5
	Manganese, Mn	mg/kg	1	<1
	Sodium, Na	mg/kg	5	<5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Alkalinity in Soil

Method: ME-(AU)-[ENV]AN002/AN135

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208846A.017	LB204996.008	Total Alkalinity as CaCO3 in Soil*	mg/kg	25	44	40	75	10

Conductivity and TDS by Calculation - Soil

Method: ME-(AU)-[ENV]AN106

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208978.002	LB205068.011	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	24	23.6936959208	38	2

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208978.002	LB205093.011	% Moisture	%w/w	1	12.6	12.9	38	2

pH in soil (1:5)

Method: ME-(AU)-[ENV]AN101

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208978.002	LB205068.011	pH	pH Units	0.1	6.6	6.6	32	0

Soluble Anions (1:5) in Soil by Ion Chromatography

Method: ME-(AU)-[ENV]AN245

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE208978.002	LB205060.015	Chloride	mg/kg	0.25	5.0	5.0	35	1
		Sulfate	mg/kg	5	14	14	66	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Alkalinity in Soil

Method: ME-(AU)-[ENV]AN002/AN135

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB204996.002	Total Alkalinity as CaCO3 in Soil*	mg/kg	25	300	297.5	80 - 120	99

Conductivity and TDS by Calculation - Soil

Method: ME-(AU)-[ENV]AN106

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205068.002	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	NA	303	85 - 115	103

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR)

Method: ME-(AU)-[ENV]AN122

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205095.002	Exchangeable Sodium, Na	meq/100g	0.01	0.20	0.194	80 - 120	102
	Exchangeable Potassium, K	meq/100g	0.01	0.62	0.63	80 - 120	98
	Exchangeable Calcium, Ca	meq/100g	0.01	6.6	6.3	80 - 120	105
	Exchangeable Magnesium, Mg	meq/100g	0.02	1.1	1.11	80 - 120	101

pH in soil (1:5)

Method: ME-(AU)-[ENV]AN101

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205068.003	pH	pH Units	0.1	7.4	7.415	98 - 102	99

Soluble Anions (1:5) in Soil by Ion Chromatography

Method: ME-(AU)-[ENV]AN245

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205060.002	Chloride	mg/kg	0.25	95	100	70 - 130	95
	Sulfate	mg/kg	5	94	100	70 - 130	94

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205033.002	Calcium, Ca	mg/kg	5	11000	10367	80 - 120	109
	Potassium, K	mg/kg	10	1500	1348	80 - 120	111
	Magnesium, Mg	mg/kg	5	11000	10422	80 - 120	104
	Manganese, Mn	mg/kg	1	730	660	80 - 120	111
	Sodium, Na	mg/kg	5	880	756	80 - 120	116

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES — **Method: ME-(AU)-[ENV]AN040/AN320**

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE208846A.00	LB205033.004	Calcium, Ca	mg/kg	5	3000	3400	50	-881 ④
7		Potassium, K	mg/kg	10	820	240	500	115
		Magnesium, Mg	mg/kg	5	620	650	50	-68 ④
		Manganese, Mn	mg/kg	1	98	47	50	101
		Sodium, Na	mg/kg	5	250	130	50	225 ④

MATRIX SPIKE DUPLICATES

SE208846A R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

STATEMENT OF QA/QC PERFORMANCE

SE209379 R0

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 Mandala Parade, Castle Hill**
Order Number	**E24724.E02**
Samples	7

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE209379 R0**
Date Received	30 Jul 2020
Date Reported	06 Aug 2020

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	7 Water
Date documentation received	30/7/2020	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	5.4°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

HOLDING TIME SUMMARY

SE209379 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M-a	SE209379.001	LB205652	29 Jul 2020	30 Jul 2020	26 Aug 2020	30 Jul 2020	26 Aug 2020	30 Jul 2020
BH4M-a	SE209379.002	LB205652	29 Jul 2020	30 Jul 2020	26 Aug 2020	30 Jul 2020	26 Aug 2020	30 Jul 2020
BH5M	SE209379.003	LB205652	29 Jul 2020	30 Jul 2020	26 Aug 2020	30 Jul 2020	26 Aug 2020	30 Jul 2020

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M-a	SE209379.001	LB205681	29 Jul 2020	30 Jul 2020	26 Aug 2020	31 Jul 2020	26 Aug 2020	04 Aug 2020
BH4M-a	SE209379.002	LB205681	29 Jul 2020	30 Jul 2020	26 Aug 2020	31 Jul 2020	26 Aug 2020	04 Aug 2020
BH5M	SE209379.003	LB205681	29 Jul 2020	30 Jul 2020	26 Aug 2020	31 Jul 2020	26 Aug 2020	04 Aug 2020
GWQD 1	SE209379.004	LB205681	29 Jul 2020	30 Jul 2020	26 Aug 2020	31 Jul 2020	26 Aug 2020	04 Aug 2020
GWQR 1	SE209379.005	LB205681	29 Jul 2020	30 Jul 2020	26 Aug 2020	31 Jul 2020	26 Aug 2020	04 Aug 2020

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M-a	SE209379.001	LB205665	29 Jul 2020	30 Jul 2020	05 Aug 2020	31 Jul 2020	09 Sep 2020	06 Aug 2020
BH4M-a	SE209379.002	LB205665	29 Jul 2020	30 Jul 2020	05 Aug 2020	31 Jul 2020	09 Sep 2020	06 Aug 2020
BH5M	SE209379.003	LB205665	29 Jul 2020	30 Jul 2020	05 Aug 2020	31 Jul 2020	09 Sep 2020	06 Aug 2020
GWQD 1	SE209379.004	LB205665	29 Jul 2020	30 Jul 2020	05 Aug 2020	31 Jul 2020	09 Sep 2020	06 Aug 2020
GWQR 1	SE209379.005	LB205665	29 Jul 2020	30 Jul 2020	05 Aug 2020	31 Jul 2020	09 Sep 2020	06 Aug 2020

pH in water

Method: ME-(AU)-[ENV]AN101

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M-a	SE209379.001	LB205652	29 Jul 2020	30 Jul 2020	30 Jul 2020	30 Jul 2020	30 Jul 2020	30 Jul 2020
BH4M-a	SE209379.002	LB205652	29 Jul 2020	30 Jul 2020	30 Jul 2020	30 Jul 2020	30 Jul 2020	30 Jul 2020
BH5M	SE209379.003	LB205652	29 Jul 2020	30 Jul 2020	30 Jul 2020	30 Jul 2020	30 Jul 2020	30 Jul 2020

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M-a	SE209379.001	LB205820	29 Jul 2020	30 Jul 2020	25 Jan 2021	03 Aug 2020	25 Jan 2021	04 Aug 2020
BH4M-a	SE209379.002	LB205820	29 Jul 2020	30 Jul 2020	25 Jan 2021	03 Aug 2020	25 Jan 2021	04 Aug 2020
BH5M	SE209379.003	LB205820	29 Jul 2020	30 Jul 2020	25 Jan 2021	03 Aug 2020	25 Jan 2021	04 Aug 2020
GWQD 1	SE209379.004	LB205820	29 Jul 2020	30 Jul 2020	25 Jan 2021	03 Aug 2020	25 Jan 2021	04 Aug 2020
GWQR 1	SE209379.005	LB205820	29 Jul 2020	30 Jul 2020	25 Jan 2021	03 Aug 2020	25 Jan 2021	04 Aug 2020

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M-a	SE209379.001	LB205665	29 Jul 2020	30 Jul 2020	05 Aug 2020	31 Jul 2020	09 Sep 2020	05 Aug 2020
BH4M-a	SE209379.002	LB205665	29 Jul 2020	30 Jul 2020	05 Aug 2020	31 Jul 2020	09 Sep 2020	05 Aug 2020
BH5M	SE209379.003	LB205665	29 Jul 2020	30 Jul 2020	05 Aug 2020	31 Jul 2020	09 Sep 2020	05 Aug 2020
GWQD 1	SE209379.004	LB205665	29 Jul 2020	30 Jul 2020	05 Aug 2020	31 Jul 2020	09 Sep 2020	05 Aug 2020
GWQR 1	SE209379.005	LB205665	29 Jul 2020	30 Jul 2020	05 Aug 2020	31 Jul 2020	09 Sep 2020	05 Aug 2020

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M-a	SE209379.001	LB205796	29 Jul 2020	30 Jul 2020	05 Aug 2020	03 Aug 2020	12 Sep 2020	05 Aug 2020
BH4M-a	SE209379.002	LB205796	29 Jul 2020	30 Jul 2020	05 Aug 2020	03 Aug 2020	12 Sep 2020	05 Aug 2020
BH5M	SE209379.003	LB205796	29 Jul 2020	30 Jul 2020	05 Aug 2020	03 Aug 2020	12 Sep 2020	05 Aug 2020
GWQD 1	SE209379.004	LB205796	29 Jul 2020	30 Jul 2020	05 Aug 2020	03 Aug 2020	12 Sep 2020	05 Aug 2020
GWQR 1	SE209379.005	LB205796	29 Jul 2020	30 Jul 2020	05 Aug 2020	03 Aug 2020	12 Sep 2020	05 Aug 2020
GWTB 1	SE209379.006	LB205796	29 Jul 2020	30 Jul 2020	05 Aug 2020	03 Aug 2020	12 Sep 2020	05 Aug 2020
GWTS 1	SE209379.007	LB205796	29 Jul 2020	30 Jul 2020	05 Aug 2020	03 Aug 2020	12 Sep 2020	05 Aug 2020

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M-a	SE209379.001	LB205796	29 Jul 2020	30 Jul 2020	05 Aug 2020	03 Aug 2020	12 Sep 2020	05 Aug 2020
BH4M-a	SE209379.002	LB205796	29 Jul 2020	30 Jul 2020	05 Aug 2020	03 Aug 2020	12 Sep 2020	05 Aug 2020
BH5M	SE209379.003	LB205796	29 Jul 2020	30 Jul 2020	05 Aug 2020	03 Aug 2020	12 Sep 2020	05 Aug 2020
GWQD 1	SE209379.004	LB205796	29 Jul 2020	30 Jul 2020	05 Aug 2020	03 Aug 2020	12 Sep 2020	05 Aug 2020
GWQR 1	SE209379.005	LB205796	29 Jul 2020	30 Jul 2020	05 Aug 2020	03 Aug 2020	12 Sep 2020	05 Aug 2020
GWTB 1	SE209379.006	LB205796	29 Jul 2020	30 Jul 2020	05 Aug 2020	03 Aug 2020	12 Sep 2020	06 Aug 2020
GWTS 1	SE209379.007	LB205796	29 Jul 2020	30 Jul 2020	05 Aug 2020	03 Aug 2020	12 Sep 2020	06 Aug 2020

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH3M-a	SE209379.001	%	40 - 130%	76
	BH4M-a	SE209379.002	%	40 - 130%	76
	BH5M	SE209379.003	%	40 - 130%	64
d14-p-terphenyl (Surrogate)	BH3M-a	SE209379.001	%	40 - 130%	106
	BH4M-a	SE209379.002	%	40 - 130%	108
	BH5M	SE209379.003	%	40 - 130%	98
d5-nitrobenzene (Surrogate)	BH3M-a	SE209379.001	%	40 - 130%	58
	BH4M-a	SE209379.002	%	40 - 130%	64
	BH5M	SE209379.003	%	40 - 130%	54

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH3M-a	SE209379.001	%	40 - 130%	101
	BH4M-a	SE209379.002	%	40 - 130%	102
	BH5M	SE209379.003	%	40 - 130%	102
	GWQD 1	SE209379.004	%	40 - 130%	101
	GWQR 1	SE209379.005	%	40 - 130%	100
	GWTB 1	SE209379.006	%	40 - 130%	99
	GWTS 1	SE209379.007	%	40 - 130%	97
d4-1,2-dichloroethane (Surrogate)	BH3M-a	SE209379.001	%	40 - 130%	101
	BH4M-a	SE209379.002	%	40 - 130%	101
	BH5M	SE209379.003	%	40 - 130%	102
	GWQD 1	SE209379.004	%	40 - 130%	102
	GWQR 1	SE209379.005	%	40 - 130%	104
	GWTB 1	SE209379.006	%	40 - 130%	101
	GWTS 1	SE209379.007	%	40 - 130%	101
d8-toluene (Surrogate)	BH3M-a	SE209379.001	%	40 - 130%	98
	BH4M-a	SE209379.002	%	40 - 130%	100
	BH5M	SE209379.003	%	40 - 130%	99
	GWQD 1	SE209379.004	%	40 - 130%	99
	GWQR 1	SE209379.005	%	40 - 130%	103
	GWTB 1	SE209379.006	%	40 - 130%	98
	GWTS 1	SE209379.007	%	40 - 130%	98

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH3M-a	SE209379.001	%	40 - 130%	101
	BH4M-a	SE209379.002	%	40 - 130%	102
	BH5M	SE209379.003	%	40 - 130%	102
	GWQD 1	SE209379.004	%	40 - 130%	101
	GWQR 1	SE209379.005	%	40 - 130%	100
d4-1,2-dichloroethane (Surrogate)	BH3M-a	SE209379.001	%	60 - 130%	101
	BH4M-a	SE209379.002	%	60 - 130%	101
	BH5M	SE209379.003	%	60 - 130%	102
	GWQD 1	SE209379.004	%	60 - 130%	102
	GWQR 1	SE209379.005	%	60 - 130%	104
d8-toluene (Surrogate)	BH3M-a	SE209379.001	%	40 - 130%	98
	BH4M-a	SE209379.002	%	40 - 130%	100
	BH5M	SE209379.003	%	40 - 130%	99
	GWQD 1	SE209379.004	%	40 - 130%	99
	GWQR 1	SE209379.005	%	40 - 130%	103

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Sample Number	Parameter	Units	LOR	Result
LB205652.001	Conductivity @ 25 C	µS/cm	2	<2

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB205681.001	Mercury	mg/L	0.0001	<0.0001

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB205665.001		Naphthalene	µg/L	0.1	<0.1
		2-methylnaphthalene	µg/L	0.1	<0.1
		1-methylnaphthalene	µg/L	0.1	<0.1
		Acenaphthylene	µg/L	0.1	<0.1
		Acenaphthene	µg/L	0.1	<0.1
		Fluorene	µg/L	0.1	<0.1
		Phenanthrene	µg/L	0.1	<0.1
		Anthracene	µg/L	0.1	<0.1
		Fluoranthene	µg/L	0.1	<0.1
		Pyrene	µg/L	0.1	<0.1
		Benzo(a)anthracene	µg/L	0.1	<0.1
		Chrysene	µg/L	0.1	<0.1
		Benzo(a)pyrene	µg/L	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
		Dibenzo(ah)anthracene	µg/L	0.1	<0.1
		Benzo(ghi)perylene	µg/L	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	66
		2-fluorobiphenyl (Surrogate)	%	-	74
		d14-p-terphenyl (Surrogate)	%	-	98

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB205820.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB205665.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB205796.001	Fumigants	2,2-dichloropropane	µg/L	0.5	<0.5
		1,2-dichloropropane	µg/L	0.5	<0.5
		cis-1,3-dichloropropene	µg/L	0.5	<0.5
		trans-1,3-dichloropropene	µg/L	0.5	<0.5
		1,2-dibromoethane (EDB)	µg/L	0.5	<0.5
	Halogenated Aliphatics	Dichlorodifluoromethane (CFC-12)	µg/L	5	<5
		Chloromethane	µg/L	5	<5
		Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3
		Bromomethane	µg/L	10	<10
		Chloroethane	µg/L	5	<5
		Trichlorofluoromethane	µg/L	1	<1
		Iodomethane	µg/L	5	<5

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB205796.001	Halogenated Aliphatics	1,1-dichloroethene	µg/L	0.5	<0.5
		Dichloromethane (Methylene chloride)	µg/L	5	<5
		Allyl chloride	µg/L	2	<2
		trans-1,2-dichloroethene	µg/L	0.5	<0.5
		1,1-dichloroethane	µg/L	0.5	<0.5
		cis-1,2-dichloroethene	µg/L	0.5	<0.5
		Bromochloromethane	µg/L	0.5	<0.5
		1,2-dichloroethane	µg/L	0.5	<0.5
		1,1,1-trichloroethane	µg/L	0.5	<0.5
		1,1-dichloropropene	µg/L	0.5	<0.5
		Carbon tetrachloride	µg/L	0.5	<0.5
		Dibromomethane	µg/L	0.5	<0.5
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5
		1,1,2-trichloroethane	µg/L	0.5	<0.5
		1,3-dichloropropane	µg/L	0.5	<0.5
		Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5
		1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5
		cis-1,4-dichloro-2-butene	µg/L	1	<1
		1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5
		1,2,3-trichloropropane	µg/L	0.5	<0.5
		trans-1,4-dichloro-2-butene	µg/L	1	<1
		1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5
		Hexachlorobutadiene	µg/L	0.5	<0.5
	Halogenated Aromatics	Chlorobenzene	µg/L	0.5	<0.5
		Bromobenzene	µg/L	0.5	<0.5
		2-chlorotoluene	µg/L	0.5	<0.5
		4-chlorotoluene	µg/L	0.5	<0.5
		1,3-dichlorobenzene	µg/L	0.5	<0.5
		1,4-dichlorobenzene	µg/L	0.3	<0.3
		1,2-dichlorobenzene	µg/L	0.5	<0.5
		1,2,4-trichlorobenzene	µg/L	0.5	<0.5
		1,2,3-trichlorobenzene	µg/L	0.5	<0.5
	Monocyclic Aromatic Hydrocarbons	Benzene	µg/L	0.5	<0.5
		Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
		Styrene (Vinyl benzene)	µg/L	0.5	<0.5
		Isopropylbenzene (Cumene)	µg/L	0.5	<0.5
		n-propylbenzene	µg/L	0.5	<0.5
		1,3,5-trimethylbenzene	µg/L	0.5	<0.5
		tert-butylbenzene	µg/L	0.5	<0.5
		1,2,4-trimethylbenzene	µg/L	0.5	<0.5
		sec-butylbenzene	µg/L	0.5	<0.5
		p-isopropyltoluene	µg/L	0.5	<0.5
		n-butylbenzene	µg/L	0.5	<0.5
	Nitrogenous Compounds	Acrylonitrile	µg/L	0.5	<0.5
	Oxygenated Compounds	Acetone (2-propanone)	µg/L	10	<10
		MtBE (Methyl-tert-butyl ether)	µg/L	2	<2
		Vinyl acetate	µg/L	10	<10
		MEK (2-butanone)	µg/L	10	<10
		MIBK (4-methyl-2-pentanone)	µg/L	5	<5
		2-hexanone (MBK)	µg/L	5	<5
	Polycyclic VOCs	Naphthalene	µg/L	0.5	<0.5
	Sulphonated	Carbon disulfide	µg/L	2	<2
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	96
		d8-toluene (Surrogate)	%	-	95
		Bromofluorobenzene (Surrogate)	%	-	97
	Trihalomethanes	Chloroform (THM)	µg/L	0.5	<0.5
		Bromodichloromethane (THM)	µg/L	0.5	<0.5
		Dibromochloromethane (THM)	µg/L	0.5	<0.5

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOCs in Water (continued) — Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB205796.001	Trihalomethanes	Bromoform (THM)	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water — Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB205796.001		TRH C6-C9	µg/L	40	<40
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	96
		d8-toluene (Surrogate)	%	-	95
		Bromofluorobenzene (Surrogate)	%	-	97

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209379.003	LB205652.007	Conductivity @ 25 C	µS/cm	2	4100	4200	15	3

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209400.008	LB205681.011	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209384.010	LB205665.025		Naphthalene	µg/L	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	200	0
			Acenaphthylene	µg/L	0.1	<0.1	<0.1	200	0
			Acenaphthene	µg/L	0.1	<0.1	<0.1	200	0
			Fluorene	µg/L	0.1	<0.1	<0.1	200	0
			Phenanthrene	µg/L	0.1	<0.1	<0.1	200	0
			Anthracene	µg/L	0.1	<0.1	<0.1	200	0
			Fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
			Pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	200	0
			Chrysene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.3	30	3
			2-fluorobiphenyl (Surrogate)	µg/L	-	0.4	0.4	30	5
			d14-p-terphenyl (Surrogate)	µg/L	-	0.5	0.5	30	4

pH in water

Method: ME-(AU)-[ENV]AN101

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209379.003	LB205652.007	pH**	pH Units	-	4.6	4.5	17	1

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209379.001	LB205820.014	Arsenic, As	µg/L	1	<1	1	117	7
		Cadmium, Cd	µg/L	0.1	<0.1	<0.1	118	0
		Chromium, Cr	µg/L	1	1	1	104	2
		Copper, Cu	µg/L	1	22	21	20	0
		Lead, Pb	µg/L	1	<1	<1	136	0
		Nickel, Ni	µg/L	1	26	26	19	0
		Zinc, Zn	µg/L	5	74	72	22	2
SE209418.001	LB205820.028	Arsenic, As	µg/L	1	2	2	57	8
		Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
		Chromium, Cr	µg/L	1	<1	<1	200	0
		Copper, Cu	µg/L	1	5	5	36	5
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	11	12	24	7
		Zinc, Zn	µg/L	5	23	25	36	10

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209384.010	LB205665.025	TRH C10-C14	µg/L	50	<50	<50	200	0
		TRH C15-C28	µg/L	200	<200	<200	200	0
		TRH C29-C36	µg/L	200	<200	<200	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Water (continued)

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209384.010	LB205665.025		TRH C37-C40	µg/L	200	<200	<200	200	0
			TRH C10-C40	µg/L	320	<650	<650	200	0
		TRH F Bands	TRH >C10-C16	µg/L	60	<60	<60	200	0
			TRH >C16-C34 (F3)	µg/L	500	<500	<500	200	0
			TRH >C34-C40 (F4)	µg/L	500	<500	<500	200	0

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209379.003	LB205796.021	Fumigants	2,2-dichloropropane	µg/L	0.5	<0.5	0	200	0
			1,2-dichloropropane	µg/L	0.5	<0.5	0	200	0
			cis-1,3-dichloropropene	µg/L	0.5	<0.5	0	200	0
			trans-1,3-dichloropropene	µg/L	0.5	<0.5	0	200	0
			1,2-dibromoethane (EDB)	µg/L	0.5	<0.5	0	200	0
		Halogenated	Dichlorodifluoromethane (CFC-12)	µg/L	5	<5	0.0218575576	200	0
		Aliphatics	Chloromethane	µg/L	5	<5	0.0969633034	200	0
			Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3	0.0341861876	200	0
			Bromomethane	µg/L	10	<10	0.0712268014	200	0
			Chloroethane	µg/L	5	<5	0.0581350986	200	0
			Trichlorofluoromethane	µg/L	1	<1	0.0224520922	200	0
			Iodomethane	µg/L	5	<5	0.0912541609	200	0
			1,1-dichloroethene	µg/L	0.5	<0.5	0.0646659091	200	0
			Dichloromethane (Methylene chloride)	µg/L	5	<5	0.3123674567	200	0
			Allyl chloride	µg/L	2	<2	0.0050668673	200	0
			trans-1,2-dichloroethene	µg/L	0.5	<0.5	0.0082382690	200	0
			1,1-dichloroethane	µg/L	0.5	<0.5	0.0110715919	200	0
			cis-1,2-dichloroethene	µg/L	0.5	<0.5	0.0043680382	200	0
			Bromochloromethane	µg/L	0.5	<0.5	0.0114186058	200	0
			1,2-dichloroethane	µg/L	0.5	<0.5	0.0381769395	200	0
			1,1,1-trichloroethane	µg/L	0.5	<0.5	0	200	0
			1,1-dichloropropene	µg/L	0.5	<0.5	0	200	0
			Carbon tetrachloride	µg/L	0.5	<0.5	0	200	0
			Dibromomethane	µg/L	0.5	<0.5	0	200	0
			Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5	0.0410149357	200	0
			1,1,2-trichloroethane	µg/L	0.5	<0.5	0	200	0
			1,3-dichloropropane	µg/L	0.5	<0.5	0	200	0
			Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5	0.0046824291	200	0
			1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	0	200	0
			cis-1,4-dichloro-2-butene	µg/L	1	<1	0.0198120819	200	0
			1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	0	200	0
			1,2,3-trichloropropane	µg/L	0.5	<0.5	0.0044901235	200	0
			trans-1,4-dichloro-2-butene	µg/L	1	<1	0	200	0
			1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	0	200	0
			Hexachlorobutadiene	µg/L	0.5	<0.5	0	200	0
		Halogenated	Chlorobenzene	µg/L	0.5	<0.5	0.0778610047	200	0
		Aromatics	Bromobenzene	µg/L	0.5	<0.5	0.0041340121	200	0
			2-chlorotoluene	µg/L	0.5	<0.5	0	200	0
			4-chlorotoluene	µg/L	0.5	<0.5	0.0035778758	200	0
			1,3-dichlorobenzene	µg/L	0.5	<0.5	0.0082028814	200	0
			1,4-dichlorobenzene	µg/L	0.3	<0.3	0.0075575162	200	0
			1,2-dichlorobenzene	µg/L	0.5	<0.5	0.0481516141	200	0
			1,2,4-trichlorobenzene	µg/L	0.5	<0.5	0.0022831751	200	0
			1,2,3-trichlorobenzene	µg/L	0.5	<0.5	0	200	0
		Monocyclic	Benzene	µg/L	0.5	<0.5	0.0709953161	200	0
		Aromatic	Toluene	µg/L	0.5	<0.5	0.1342329676	200	0
			Ethylbenzene	µg/L	0.5	<0.5	0.0867650901	200	0
			m/p-xylene	µg/L	1	<1	0.2428947107	200	0
			o-xylene	µg/L	0.5	<0.5	0.1008486267	200	0
			Styrene (Vinyl benzene)	µg/L	0.5	<0.5	0	200	0
			Isopropylbenzene (Cumene)	µg/L	0.5	<0.5	0.0094876380	200	0
			n-propylbenzene	µg/L	0.5	<0.5	0.0056860456	200	0
			1,3,5-trimethylbenzene	µg/L	0.5	<0.5	0.0191567003	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209379.003	LB205796.021	Monocyclic	tert-butylbenzene	µg/L	0.5	<0.5	0	200	0
		Aromatic	1,2,4-trimethylbenzene	µg/L	0.5	<0.5	0.0270376485	200	0
			sec-butylbenzene	µg/L	0.5	<0.5	0	200	0
			p-isopropyltoluene	µg/L	0.5	<0.5	0.0051470435	200	0
			n-butylbenzene	µg/L	0.5	<0.5	0.0063218082	200	0
		Nitrogenous	Acrylonitrile	µg/L	0.5	<0.5	0.0263664343	200	0
		Oxygenated	Acetone (2-propanone)	µg/L	10	<10	1.0732291652	200	0
		Compounds	MtBE (Methyl-tert-butyl ether)	µg/L	2	<2	0.0173552770	200	0
			Vinyl acetate	µg/L	10	<10	0	200	0
			MEK (2-butanone)	µg/L	10	<10	0	200	0
			MIBK (4-methyl-2-pentanone)	µg/L	5	<5	0.0373521892	200	0
			2-hexanone (MBK)	µg/L	5	<5	0	200	0
		Polycyclic	Naphthalene	µg/L	0.5	<0.5	0.0531855954	200	0
		Sulphonated	Carbon disulfide	µg/L	2	<2	0	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.2	9.7366507160	30	4
			d8-toluene (Surrogate)	µg/L	-	9.9	10.0420551341	30	1
			Bromofluorobenzene (Surrogate)	µg/L	-	10.2	9.7133245346	30	5
		Trihalomethan	Chloroform (THM)	µg/L	0.5	1.7	1.7385182683	59	4
		es	Bromodichloromethane (THM)	µg/L	0.5	<0.5	0.2446066136	200	0
			Dibromochloromethane (THM)	µg/L	0.5	<0.5	0.0452746342	200	0
			Bromoform (THM)	µg/L	0.5	<0.5	0	200	0

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209379.003	LB205796.021		TRH C6-C10	µg/L	50	<50	4.7611052356	200	0
			TRH C6-C9	µg/L	40	<40	4.3329901351	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.2	9.7366507160	30	4
			d8-toluene (Surrogate)	µg/L	-	9.9	10.0420551341	30	1
			Bromofluorobenzene (Surrogate)	µg/L	-	10.2	9.7133245346	30	5
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	0.0709953161	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	4.7611052356	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205652.002	Conductivity @ 25 C	µS/cm	2	310	303	90 - 110	101

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205665.002		Naphthalene	µg/L	0.1	31	40	60 - 140	77
		Acenaphthylene	µg/L	0.1	35	40	60 - 140	87
		Acenaphthene	µg/L	0.1	36	40	60 - 140	91
		Phenanthrene	µg/L	0.1	39	40	60 - 140	96
		Anthracene	µg/L	0.1	36	40	60 - 140	91
		Fluoranthene	µg/L	0.1	38	40	60 - 140	96
		Pyrene	µg/L	0.1	36	40	60 - 140	91
		Benzo(a)pyrene	µg/L	0.1	36	40	60 - 140	89
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.5	40 - 130	62
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	78
		d14-p-terphenyl (Surrogate)	µg/L	-	0.5	0.5	40 - 130	92

pH in water

Method: ME-(AU)-[ENV]AN101

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205652.003	pH**	No unit	-	7.4	7.415	98 - 102	99

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205820.002	Arsenic, As	µg/L	1	19	20	80 - 120	93
	Cadmium, Cd	µg/L	0.1	21	20	80 - 120	107
	Chromium, Cr	µg/L	1	22	20	80 - 120	109
	Copper, Cu	µg/L	1	22	20	80 - 120	112
	Lead, Pb	µg/L	1	22	20	80 - 120	112
	Nickel, Ni	µg/L	1	21	20	80 - 120	103
	Zinc, Zn	µg/L	5	22	20	80 - 120	109

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205665.002		TRH C10-C14	µg/L	50	960	1200	60 - 140	80
		TRH C15-C28	µg/L	200	1200	1200	60 - 140	104
		TRH C29-C36	µg/L	200	1200	1200	60 - 140	103
	TRH F Bands	TRH >C10-C16	µg/L	60	1100	1200	60 - 140	88
		TRH >C16-C34 (F3)	µg/L	500	1400	1200	60 - 140	114
		TRH >C34-C40 (F4)	µg/L	500	590	600	60 - 140	99

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205796.002	Halogenated	1,1-dichloroethene	µg/L	0.5	45	45.45	60 - 140	99
	Aliphatics	1,2-dichloroethane	µg/L	0.5	51	45.45	60 - 140	111
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	48	45.45	60 - 140	106
	Halogenated	Chlorobenzene	µg/L	0.5	56	45.45	60 - 140	123
	Monocyclic	Benzene	µg/L	0.5	53	45.45	60 - 140	118
	Aromatic	Toluene	µg/L	0.5	52	45.45	60 - 140	114
		Ethylbenzene	µg/L	0.5	51	45.45	60 - 140	112
		m/p-xylene	µg/L	1	100	90.9	60 - 140	112
		o-xylene	µg/L	0.5	52	45.45	60 - 140	114
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.2	10	60 - 140	102
		d8-toluene (Surrogate)	µg/L	-	10.1	10	70 - 130	101
		Bromofluorobenzene (Surrogate)	µg/L	-	9.8	10	70 - 130	98
	Trihalomethan	Chloroform (THM)	µg/L	0.5	54	45.45	60 - 140	118

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205796.002		TRH C6-C10	µg/L	50	950	946.63	60 - 140	100
		TRH C6-C9	µg/L	40	820	818.71	60 - 140	100
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.2	10	60 - 140	102

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Volatile Petroleum Hydrocarbons in Water (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB205796.002	Surrogates	d8-toluene (Surrogate)	µg/L	-	10.1	10	70 - 130	101
		Bromofluorobenzene (Surrogate)	µg/L	-	9.8	10	70 - 130	98
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	640	639.67	60 - 140	100

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE209359.018	LB205681.004	Mercury	mg/L	0.0001	0.0072	<0.0001	0.008	89

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE209279.018	LB205820.004	Arsenic, As	µg/L	1	21	<1	20	103
		Cadmium, Cd	µg/L	0.1	22	<0.1	20	112
		Chromium, Cr	µg/L	1	22	<1	20	111
		Copper, Cu	µg/L	1	23	<1	20	115
		Lead, Pb	µg/L	1	23	<1	20	113
		Nickel, Ni	µg/L	1	21	<1	20	104
		Zinc, Zn	µg/L	5	23	<5	20	115

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE209379.003	LB205665.026		TRH C10-C14	µg/L	50	1200	76	1200	97
			TRH C15-C28	µg/L	200	1400	<200	1200	119
			TRH C29-C36	µg/L	200	1300	<200	1200	109
			TRH C37-C40	µg/L	200	<200	<200	-	-
			TRH C10-C40	µg/L	320	4000	<320	-	-
		TRH F Bands	TRH >C10-C16	µg/L	60	1300	76	1200	104
			TRH >C10-C16 - Naphthalene (F2)	µg/L	60	1300	76	-	-
			TRH >C16-C34 (F3)	µg/L	500	1600	<500	1200	131
			TRH >C34-C40 (F4)	µg/L	500	550	<500	600	91

VOCs in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE209471.001	LB205796.022	Monocyclic	Benzene	µg/L	0.5	0	45.45	101
		Aromatic	Toluene	µg/L	0.5	0.01469679013	45.45	102
			Ethylbenzene	µg/L	0.5	0.00785238680	45.45	101
			m/p-xylene	µg/L	1	0.03775908721	90.9	101
			o-xylene	µg/L	0.5	0.00695269748	45.45	99
		Polycyclic	Naphthalene	µg/L	0.5	0.02685191580	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.1990400926	-	104
			d8-toluene (Surrogate)	µg/L	-	9.83622750120	-	103
			Bromofluorobenzene (Surrogate)	µg/L	-	10.0040379614	-	98

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE209471.001	LB205796.022		TRH C6-C10	µg/L	50	0	946.63	103
			TRH C6-C9	µg/L	40	0	818.71	103
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.1990400926	-	104
			d8-toluene (Surrogate)	µg/L	-	9.83622750120	-	103
			Bromofluorobenzene (Surrogate)	µg/L	-	10.0040379614	-	98
		VPH F	Benzene (F0)	µg/L	0.5	0	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	0	639.67	110

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

STATEMENT OF QA/QC PERFORMANCE

SE210081 R1

CLIENT DETAILS

Contact	Li Wei
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	li.wei@eiaustralia.com.au
Project	**E24724.E02 2 mandala pole, castle hill**
Order Number	**E24724.E02**
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE210081 R1**
Date Received	18 Aug 2020
Date Reported	20 Aug 2020

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	1 Water
Date documentation received	18/8/2020	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	12°C	Sufficient sample for analysis	Yes
Turnaround time requested	Two Days		

HOLDING TIME SUMMARY

SE210081 R1

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Mercury (dissolved) in Water — Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4M-a	SE210081.001	LB206983	18 Aug 2020	18 Aug 2020	15 Sep 2020	19 Aug 2020	15 Sep 2020	19 Aug 2020

Trace Metals (Dissolved) in Water by ICPMS — Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4M-a	SE210081.001	LB206994	18 Aug 2020	18 Aug 2020	14 Feb 2021	19 Aug 2020	14 Feb 2021	19 Aug 2020

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No surrogates were required for this job.

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB206983.001	Mercury	mg/L	0.0001	<0.0001

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB206994.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water — Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE210081.001	LB206983.014	Mercury	µg/L	0.0001	<0.0001	0.0000	200	65
SE210105.002	LB206983.018	Mercury	µg/L	0.0001	-0.00472	-0.01744	200	0

Trace Metals (Dissolved) in Water by ICPMS — Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE210081.001	LB206994.011	Arsenic, As	µg/L	1	2	2	69	1
		Cadmium, Cd	µg/L	0.1	0.2	0.2	59	0
		Chromium, Cr	µg/L	1	1	1	84	1
		Copper, Cu	µg/L	1	22	22	20	2
		Lead, Pb	µg/L	1	30	30	18	0
		Nickel, Ni	µg/L	1	38	37	18	3
		Zinc, Zn	µg/L	5	240	230	17	4

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Trace Metals (Dissolved) in Water by ICPMS — **Method: ME-(AU)-[ENV]AN318**

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB206994.002	Arsenic, As	µg/L	1	19	20	80 - 120	95
	Cadmium, Cd	µg/L	0.1	21	20	80 - 120	104
	Chromium, Cr	µg/L	1	21	20	80 - 120	105
	Copper, Cu	µg/L	1	21	20	80 - 120	106
	Lead, Pb	µg/L	1	21	20	80 - 120	107
	Nickel, Ni	µg/L	1	21	20	80 - 120	103
	Zinc, Zn	µg/L	5	21	20	80 - 120	103

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water — **Method: ME-(AU)-[ENV]AN311(Perth)/AN312**

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE210001.008	LB206983.004	Mercury	mg/L	0.0001	0.0077	-0.01506	0.008	96

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

SGS Environmental Services is accredited by NATA for Chemical Testing (Reg.No.2562) and Quality System compliance to ISO/IEC 17025. The QC parameters contained within are designed to meet NEPM 1999 requirements.

Quality Control samples included in any analytical run are listed below.

Reagent/Analysis Blank (BLK) **Method Blank (MB)**	Sample free reagents carried through the preparation/extraction/digestion procedure and analysed at the beginning of every sample batch analysis. A reagent blank is prepared and analysed with every batch of samples plus with each new batch of solvent prior to use.
Sample Matrix Spike (MS) & Matrix Spike Duplicate (MSD)	Sample replicates spiked with identical concentrations of target analyte(s). The spiking occurs during the sample preparation and prior to the extraction/digestion procedure. They are used to document the precision and bias of a method in a given sample matrix. Where there is not enough sample available to prepare a spiked sample, another known soil/sand or water may be used. A duplicate spiked sample is analysed at least every 20 samples.
Surrogate Spike (SS)	At least one but up to three surrogate compounds are added to all samples requiring analysis for organics prior to extraction. Used to determine the extraction efficiency. They are organic compounds which are similar to the target analyte(s) in chemical composition and behaviour in the analytical process, but which are not normally found in environmental samples. Where possible they are surrogate compounds recommended by the USEPA.
Control Matrix Spike (CMS)	To ensure spike recoveries can be determined for every batch of samples a control matrix is spiked with identical concentrations of target analyte(s) and then analysed. These results allow recoveries to be determined in the event that the matrix spikes are unusable (eg. matrix spikes performed on heavily contaminated samples). These are analysed at least every 20 samples.
Internal Standard (IS)	Added to all samples requiring analysis for organics (where relevant) after the extraction process; the compounds serve to give a standard of retention time and response, which is invariant from run-to-run with the instruments. Where possible they are standard compounds recommended by the USEPA.
Lab Duplicates (D)	A separate portion of a sample being analysed that is treated the same as the other samples in the batch. One duplicate is processed at least every 10 samples.
Lab Control Standards/Samples (LCS)	Prepared from a source independent of the calibration standards. At least one control standard is included in each run to confirm calibration validity. Thereafter they are analysed at least every one in 20 samples plus at the end of each analytical run. This data is not reported.
Continuous Calibration Verification (CCV) or **Calibration Check Standard & Blank**	A calibration check standard or CCV and blank are run after every 20 samples of an instrumental analysis run to assess analytical drift. Calibration Standards are checked old versus new with a criteria of ±10%

Quality Assurance Programs are listed below:

Statistical analysis of Quality Control data (SQC)	Quality control data is plotted on control charts using the APHA procedure with warning and control limits at 2 and 3 standard deviations respectively. See also QMS Procedure "Statistical Quality Control".
Certified Reference Materials (CRM/SRM)	Certified Reference Materials and Standards are regularly analysed. These materials/standards have certified reference values for various parameters.
Proficiency Testing	Regular proficiency test samples are analysed by our laboratories. SGS Environmental participates in a number of programs. Results and proficiency status are compiled and sent to participating laboratory post data interpretation. Failure to comply with acceptable values result in further investigations.
Inter-laboratory & Intra-laboratory Testing	SGS Environmental Services has schedules in the Quality Systems to participate in Inter/Intra laboratory testing conducted internally and by other parties.
Data Acceptance Criteria Unless otherwise specified in the method or method manual the following general criteria apply to all inorganic tests. All recoveries are to be reported to 3 significant figures.	Failure to meet the internal acceptance criteria will result in sample batch repeats dependent upon investigation outcomes. For data to be accepted: <u>Inorganics (water samples)</u> • For all inorganic analytes the Reagent & Method Blanks must be less than the LOR. • The Calibration Check Standards or Continuous Calibration Verification (CCV) must be within ±15%. • Control Standards must be 80-120% of the accepted value. • The Calibration Check Blanks must be less than the LOR. • Lab Duplicates RPD to be <15%*. Note: If client <u>field</u> duplicates do not meet this criteria it may indicate heterogeneity and shall be noted on the data reports for QC samples. • Sample (and if applicable Control) Matrix Spike♬ Duplicate recovery RPD to be <30%. • Where CRMs are used, results to be within ± 2 standard deviations of the expected value. <u>Inorganics (soil samples)</u> • For all inorganic analytes the Reagent & Method Blanks must be less than the LOR. • The Calibration Check Standards or Continuous Calibration Verification (CCV) must be within ±15%. • Control Standards must be 80-120% of the accepted value. • The Calibration Check Blanks must be less than the LOR. • Lab duplicate RPD to be <30%* for sample results greater than 10 times LOR. • Sample Matrix Spike Duplicate (MS♬/MSD) recovery RPD to be <30%. In the event that the matrix spike has been applied to samples whose matrix or contamination is problematic to the method then these acceptance criteria apply to the Control Matrix Spike (CMS/D). • Where CRMs are used, results to be within ± 2 standard deviations of the expected value.

Data Acceptance Criteria Unless otherwise specified in the method or method manual the following general criteria apply to all organic tests. All recoveries are to be reported to 3 significant figures.	Organics • Volatile & extractable Reagent & Method Blanks must contain levels less than or equal to LOR. • The Calibration Check Standards or Continuous Calibration Verification (CCV) must be within ±25%. Some analytes may have specific criteria. • Control Standards (LCS/CMS) and Certified Reference Materials (CRM) recoveries are to be within established control limits or as a default 60-140% unless compound specific limits apply. • Retention times are to vary by no more than 0.2 min. • **At least two of three** routine level soil sample Surrogate Spike (SS) recoveries are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as acceptance criterion. Any recoveries outside these limits will have comment. • Water sample Surrogates Spike (SS) recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion. Any recoveries outside these limits will have comment. • Lab Duplicates (D) must have a RPD <30%*. • Sample Matrix Spike Duplicate (MS♬/MSD) recovery RPD to be <30%. In the event that the matrix spike has been applied to samples whose matrix or contamination is problematic to the method then these acceptance criteria apply to the Control Matrix Spike (CMS/D).

*Only if results are at least 10 times the LOR otherwise no acceptance criteria for RPD's apply. Application of more stringent criteria shall be applied for clean water sample from water boards and any other nominated client contracts. Nominal 10xLOR criteria are dropped to 5xLOR where specified.
♬Matrix do not readily equate to definitive recovery due to inherent matrix interferences and thus do not have recovery compliance values set. As a guide inorganic recoveries should be between 70-130% and for organics 60-130%

Batch Structure Summary

An analytical batch is nominally considered as 20 samples or smaller. As a standard template the following should be **used as a guide** according to the above Quality Control Types:

1	MB	16	UNK_DUP
2	STD1	17	MS
3	STD2	18	MS_DUP
4	STD3	19	UNK 11
5	LCS	20	UNK 12
6	BLK	21	UNK 13
7	UNK 1	22	UNK 14
8	UNK 2	23	UNK 15
9	UNK 3	24	UNK 16
10	UNK 4	25	UNK 17
11	UNK 5	26	UNK 18
12	UNK 6	27	UNK 19
13	UNK 7	28	UNK 20 (SS if applicable)
14	UNK 8	29	UNK_DUP
15	UNK 9	30	CCV
16	UNK 10 (SS if applicable)	31	CRM / SRM / CMS / LCS

Table QC1 - Containers, Preservation Requirements and Holding Times - Soil			
Parameter	Container	Preservation	Maximum Holding Time
Acid digestible metals and metalloids - Total and TCLP (As,Cd.,Cu,Cr,Ni,Pb,Zn)	Glass with Teflon Lid	Nil	6 months
Mercury	Glass with Teflon Lid	Nil	28 days
TPH / BTEX / VOC / SVOC / CHC	Glass with Teflon Lid	4^oC, zero headspace	14 days
PAHs (total and TCLP)	Glass with Teflon Lid	4^oC [1]	14 days
Phenols	Glass with Teflon Lid	4^oC [1]	14 days
OCPs, OPPs and total PCBs	Glass with Teflon Lid	4^oC [1]	14 days
Asbestos	Sealed Plastic Bag	Nil	N/A

Table QC2 - Containers, Preservation Requirements and Holding Times - Water			
Parameter	Container Volume (mL)	Preservation	Maximum Holding Time
Heavy Metals	125mL Plastic	Field filtration 0.45μm HNO_3 / 4^oC	6 months
Cyanide	125mL Amber Glass	pH > 12 NaOH / 4^oC	6 months
TPH (C6-C9) / BTEX / VOCs SVOCs / CHCs	4 x 43mL Glass	HCl / 4^oC [1]	14 days
TPH (C10-C36) / PAH / Phenolics OCP / OPP / TDS / pH	3 x 1L Amber Glass	None / 4^oC [1]	28 days

Notes: [1] = Extraction within 14 days, Analysis within 40 days.

Table QC3 - Analytical Parameters, PQLs and Methods - Soil			
Parameter	**Unit**	**PQL**	**Method Reference**
Metals in Soil			
Arsenic - As[1]	mg / kg	1	USEPA 200.7
Cadmium - Cd[1]	mg / kg	0.5	USEPA 200.7
Chromium - Cr[1]	mg / kg	1	USEPA 200.7
Copper - Cu[1]	mg / kg	1	USEPA 200.7
Lead - Pb[1]	mg / kg	1	USEPA 200.7
Mercury - Hg[2]	mg / kg	0.1	USEPA 7471A
Nickel - Ni[1]	mg / kg	1	USEPA 200.7
Zinc - Zn[1]	mg / kg	1	USEPA 200.7
Total Petroleum Hydrocarbons (TPHs) in Soil			
C_6-C_9 fraction	mg / kg	25	USEPA 8260
C_{10}-C_{14} fraction	mg / kg	50	USEPA 8000
C_{15}-C_{28} fraction	mg / kg	100	USEPA 8000
C_{29}-C_{36} fraction	mg / kg	100	USEPA 8000
BTEX in Soil			
Benzene	mg / kg	1	USEPA 8260
Toluene	mg / kg	1	USEPA 8260
Ethylbenzene	mg / kg	1	USEPA 8260
m & p Xylene	mg / kg	2	USEPA 8260
o- Xylene	mg / kg	1	USEPA 8260
Other Organic Contaminants in Soil			
PAHs	mg / kg	0.05-0.2	USEPA 8270
CHCs	mg / kg	1	USEPA 8260
VOCs	mg / kg	1	USEPA 8260
SVOCs	mg / kg	1	USEPA 8260
OCPs	mg / kg	0.1	USEPA 8140, 8080
OPPs	mg / kg	0.1	USEPA 8140, 8080
PCBs	mg / kg	0.1	USEPA 8080
Phenolics	mg / kg	5	APHA 5530
Asbestos			
Asbestos	mg / kg	Presence / Absence	AS4964-2004

Notes:

1. Acid Soluble Metals by ICP-AES
2. Total Recoverable Mercury

Table QC4 - Analytical Parameters, PQLs and Methods - Groundwater

Parameter	Unit	PQL	Method
Heavy Metals			
Antimony - Sb	µg/L	1	USEPA 200.8
Arsenic - As	µg/L	1	USEPA 200.8
Beryllium - Be	µg/L	0.5	USEPA 200.8
Cadmium - Cd	µg/L	0.1	USEPA 200.8
Chromium - Cr	µg/L	1	USEPA 200.8
Cobalt - Co	µg/L	1	USEPA 200.8
Copper - Cu	µg/L	1	USEPA 200.8
Lead - Pb	µg/L	1	USEPA 200.8
Mercury - Hg	µg/L	0.5	USEPA 7471A
Molybdenum - Mo	µg/L	1	USEPA 200.8
Nickel - Ni	µg/L	1	USEPA 200.8
Selenium - Se	µg/L	1	USEPA 200.8
Silver - Ag	µg/L	1	USEPA 200.8
Tin (inorg.) - Sn	µg/L	1	USEPA 200.8
Nickel - Ni	µg/L	1	USEPA 200.8
Zinc - Zn	µg/L	1	USEPA 200.8
Total Petroleum Hydrocarbons (TPHs)			
C_6-C_9 fraction	µg/L	10	USEPA 8220A / 8000
C_{10}-C_{14} fraction	µg/L	50	USEPA 8000
C_{15}-C_{28} fraction	µg/L	100	USEPA 8000
C_{29}-C_{36} fraction	µg/L	100	USEPA 8000
BTEX			
Benzene	µg/L	1	USEPA 8220A
Toluene	µg/L	1	USEPA 8220A
Ethylbenzene	µg/L	1	USEPA 8220A
m- & p-Xylene	µg/L	2	USEPA 8220A
o-Xylene	µg/L	1	USEPA 8220A
Polyciclic Aromatic Hydrocarbons (PAHs)			
PAHs	µg/L	0.1	USEPA 8270
Benzo(a)pyrene	µg/L	0.01	USEPA 8270
OrganoChlorine Pesticides (OCPs)			
Aldrin	µg/L	0.001	USEPA 8081
Chlordane	µg/L	0.001	USEPA 8081
DDT	µg/L	0.001	USEPA 8081
Dieldrin	µg/L	0.001	USEPA 8081
Endosulfan	µg/L	0.001	USEPA 8081
Endrin	µg/L	0.001	USEPA 8081
Heptachlor	µg/L	0.001	USEPA 8081
Lindane	µg/L	0.001	USEPA 8081
Toxaphene	µg/L	0.001	USEPA 8081

Parameter	Unit	PQL	Method
Chlorinated Hydrocarbons (CHCs)			
1,2-dichlorobenzene	µg/L	1	USEPA 8260B
1,3-dichlorobenzene	µg/L	1	USEPA 8260B
1,4-dichlorobenzene	µg/L	1	USEPA 8260B
1,2,3-trichlorobenzene	µg/L	1	USEPA 8260B
1,2,4-trichlorobenzene	µg/L	1	USEPA 8260B
Hexachlorobutadeine	µg/L	1	USEPA 8260B
1,1,2-trichloroethane	µg/L	1	USEPA 8260B
Hexachloroethane	µg/L	10	USEPA 8270D
Other CHCs	µg/L	1	USEPA 8260B
Volatile Organic Compounds (VOCs)			
Aniline	µg/L	10	USEPA 8260B
2,4-dichloroaniline	µg/L	10	USEPA 8260B
3,4-dichloroaniline	µg/L	10	USEPA 8260B
Nitrobenzene	µg/L	50	USEPA 8260B
2,4-dinitrotoluene	µg/L	50	USEPA 8260B
2,4,6-trinitrotoluene	µg/L	50	USEPA 8260B
Phenolic Compounds			
Phenol	µg/L	10	USEPA 8041
2-chlorophenol	µg/L	10	USEPA 8041
4-chlorophenol	µg/L	10	USEPA 8041
2, 4-dichlorophenol	µg/L	10	USEPA 8041
2,4,6-trichlorophenol	µg/L	10	USEPA 8041
2,3,4,6-tetrachlorophenol	µg/L	10	USEPA 8041
Pentachlorophenol	µg/L	10	USEPA 8041
2,4-dinitrophenol	µg/L	10	USEPA 8041
Miscellaneous Parameters			
Total Cyanide	µg/L	5	APHA 4500C&E-CN
Fluoride	µg/L	10	APHA 4500 F-C
Salinity (TDS)	mg/L	1	APHA 2510
pH	units	0.1	APHA 4500H+
OrganoPhosphate Pesticides (OPPs)			
Azinphos Methyl	µg/L	0.01	USEPA 8141
Chloropyrifos	µg/L	0.01	USEPA 8141
Diazinon	µg/L	0.01	USEPA 8141
Dimethoate	µg/L	0.01	USEPA 8141
Fenitrothion	µg/L	0.01	USEPA 8141
Malathion	µg/L	0.01	USEPA 8141
Parathion	µg/L	0.01	USEPA 8141
Temephos	µg/L	0.01	USEPA 8141
Polychlorinated Biphenyls (PCBs)			
Individual PCBs	µg/L	0.01	USEPA 8081

Table QC5 - QC Sample Data Acceptance Criteria

QC Sample Type	Method of Assessment	Acceptable Range
Field QC		
Blind Duplicates and Split Samples	The assessment of split duplicate is undertaken by calculating the Relative Percent Difference (RPD) of the duplicate concentration compared with the primary sample concentration. The RPD is defined as: $RPD = 100 \times \frac{\lvert X_1 - X_2 \rvert}{\text{mean}(X1, X2)}$ Where: X_1 and X_2 are the concentrations of the primary and duplicate samples.	The acceptable range depends upon the levels detected: - 0-150% RPD (when the average concentration is <5 times the LOR/PQL) - 0-75% RPD (when the average concentration is 5 to 10 times the LOR/PQL) - 0-50% RPD (when the average concentration is >10 times the LOR/PQL)
Rinsate & Trip Blanks	Each blank is analysed as per the original samples.	Analytical Result <LOR/PQL
Laboratory prepared Trip Spike	The Trip Spike is analysed after returning from the field and the % recovery of the known spike is calculated.	70 - 130%
Laboratory QC		
Laboratory Duplicates	Assessment of Lab Duplicate RPD as per Blind Duplicates and Split Samples.	Lab Duplicate RPD < 15% (Inorganics) Lab Duplicate RPD < 30% (Organics) for sample results > 10 LOR
Surrogates	Assessment is undertaken by determining the percent recovery of the known surrogate spike (SS) or addition to the sample.	at least 2 SS recoveries to be within 70-130% subject to matrix effects (Organics)
Matrix Spikes Laboratory Control Samples	$\%\ Recovery = 100 \times \frac{C - A}{B}$ Where: A = Concentration of analyte determined in the original sample; B = Added Concentration; and C = Calculated Concentration.	80-120% (Inorganics / Metals) 60-140% (Organics) 10-140% (SVOC and Speciated Phenols) If the result is outside the above ranges, the result must be <3x Standard Deviation of the Historical Mean (calculated over the past 12 months).
Sample Matrix Spike Duplicates	Recovery RPD	<30% (Inorganics & Organics)
Calibration Check Standards	Continuous Calibration Verification (CCV)	CCV must be within ±15% (inorganics) CCV must be within ±25% (inorganics)
Reagent, Method & Calibration Check Blanks	Each blank is analysed as per the original samples.	Analytical Result <LOR/PQL

Note: PQL - Laboratory Practical Quantitation Limit (PQL) or the minimum detection limit for a particular analyte.
LOR = Limit of Reporting