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STOCKLAND PTY LTD



Detailed Site Investigation

2 Murray Rose Avenue, Sydney Olympic Park NSW

Report E23603.E02.Rev0

13 December 2017

REPORT DISTRIBUTION

Detailed Site Investigation
2 Murray Rose Avenue, Sydney Olympic Park NSW

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EXECUTIVE SUMMARY

Background

Stockland Pty Ltd engaged EI Australia (EI) to conduct a Detailed Site Investigation for the property located at 2 Murray Rose Avenue, Sydney Olympic Park NSW ('the site'). This DSI was completed for the purpose of enabling the developer meet its obligations under the *Contaminated Land Management Act 1997* (CLM Act), for the assessment and management of contaminated soil and/or groundwater.

The site has been designated for the construction of fifteen (15) level apartment building plus rooftop, plant room; over five levels of basement car parking.

This investigation follows on from previous investigations completed at the site by JK Geotechnics and Environmental Investigation Services Pty Ltd (EIS), entitled:

- JK (2017). *Report to Austino Properties on Geotechnical Investigation for Proposed Residential Development at 2 Murray Rose Avenue, Sydney Olympic Park, NSW.* Project No. 30809YFrpt, dated 17 October 2017; and
- EIS (2017). *Waste Classification Assessment Proposed Residential Development 2 Murray Rose Avenue, Sydney Olympic Park, NSW.* Project No. E30809Klet-WC, dated 13 October 2017.

Objectives

The main objectives of the assessment were to:

- Evaluate the potential for site contamination on the basis of historical land uses, anecdotal and documentary evidence of possible pollutant sources;
- To investigate the degree of any potential contamination by means of limited intrusive sampling and laboratory analysis, for relevant contaminants; and
- Where site contamination is confirmed, make recommendations for the appropriate management of any contaminated soils and/or groundwater.

Findings

The work was conducted with reference to the regulatory framework outlined in **Section 1.3** of this report and assessment findings indicated the following:

- The site is located approximately 12.5 km north-west of the Sydney Central Business District (**Figure 1**). The site, which covers a total area of approximately 2,521 m^2, comprises of Lot 2 DP 1185060 and is situated within the Local Government Area of the Parramatta City Council (**Figure 2**).
- According to the site history, the site appeared to have been used for agricultural/industrial and later commercial purposes either by ownership or through leasing, since the start of the study period (1930's). Commercial use has continued until current date. This information correlated with the preliminary investigation completed by EIS (2017); where it was noted that aerial photography review indicated site appeared to be vacant in 1943; with the immediate surrounds also appearing to be developed for agricultural and grazing purposes from 1943 with an open brick pit located approximately 250 m north of the site;
- The subject site was free from notices issued by NSW EPA;

- SafeWork NSW records relating to 2 Murray Rose Avenue, Sydney Olympic Park NSW did not identify records pertaining to the site. This information aligned with the site observations made during the site inspection;

- Soil sampling and analysis were conducted at eight test bore locations. The sampling regime was considered to be appropriate for the required investigation and comprised judgemental and systematic (triangular grid) sampling patterns;

- The sub-surface layers comprised anthropogenic filling overlying silty clay/clayey silt and shale bedrock;

- Results of soil samples collected from soil test boreholes indicated the following:

    - The reported concentrations of priority metals were below the adopted heath-based criteria (NEPM 2013 HIL-B and HIL-C).

    - The reported concentrations of priority metals in natural soil were low and did not exceed adopted health investigation levels.

    - The reported concentration of carcinogenic PAHs exceeded the adopted health based investigation levels (3 mg/kg) in one fill soil sample analysed during this investigation. However, statistical analysis of all fill data available to date for the site (14 locations, 18 samples overall); found that the 95%UCL of the mean carcinogenic PAH concentration was 1.54 mg/kg, which was well below the adopted criteria, and consequently not considered to be a cause for environmental concern.

    - Benzo(α)pyrene exceeded ESL (0.7 mg/kg) in two fill samples tested in this investigation.

    - All other PAHs were below adopted human health and environmental criteria.

    - TRH and BTEX were reported below the adopted human health and ecological criteria.

    - OCPs, OPPs or PCBs were not reported in any of the tested fill soil samples.

    - Asbestos was not detected in any of the tested fill soil samples.

- The chemical characteristics of the soil are consistent with general solid waste (non-putrescible). These findings align with the characteristics given by EIS during their 2017 investigation;

- Groundwater was encountered during this intrusive investigation at approximately 6.8 mBGL. Groundwater flow direction was not calculated during this investigation, however it is inferred to flow towards Powells creek located east of the site; and

- On review of the Preliminary Conceptual Site Model (CSM) developed as part of this DSI, it was concluded that the model remains valid for the proposed development. However, characterisation of the soil in the south/south-west side of the site which was not sampled during this investigation requires further assessment.

Conclusions and Recommendations

Based on the findings from this DSI conducted in accordance with the investigation scope agreed with the Client, and with consideration of the Statement of Limitations (**Section 13**), EI conclude that the site can be made suitable provided the recommendations detailed below are implemented:

- Address the data gaps identified within this report through means of additional soil investigations. This data gap closure will address the waste classification required in the south/south west side of the site which was not completed during this investigation.

- Provide the requirements and procedures for waste classification assessment including further sampling, in order to enable formal classification of site soils to be excavated and disposed off-site or reused during the proposed basement excavation, in accordance with the EPA (2014) *Waste Classification Guidelines.* This process will address the nickel and benzo(α)pyrene exceedance found in fill at locations identified in **Table T1** and **Figure 2**.

- Validation of natural soil and preparation of site validation report.

- Any material being imported to the site (i.e. for landscaping purposes) should be assessed for potential contamination in accordance with NSW EPA guidelines as being suitable for the intended use or be classified as VENM.

It is further recommended to implement an unexpected finds protocol during the basement excavation works to ensure any potential groundwater contamination is identified and managed in accordance with the NSW EPA legislation and guidelines.

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1. INTRODUCTION

1.1 BACKGROUND AND PURPOSE

Stockland Pty Ltd engaged EI Australia Pty Ltd (EI) to conduct a Detailed Site Investigation Report (DSI) for site characterisation purposes within the development application stage, located at 2 Murray Rose Avenue, Sydney Olympic Park ('the site').

The site is currently vacant.

The site is located approximately 12.5km north-west of the Sydney Central Business District (**Figure 1**). The site, which covers a total area of approximately 2,521 m^2, comprises of Lot 2 DP 1185060 and is situated within the Local Government Area of the Parramatta City Council (**Figure 2**).

This assessment was conducted as part of a Development Application (DA) to the Council of the Parramatta City Council (Council) and for the purpose of enabling the developer to meet its obligations under the *Contaminated Land Management Act 1997* (CLM Act), for the assessment and management of contaminated soil and/or groundwater.

1.2 PROPOSED DEVELOPMENT

Based on the preliminary sketch plans provided by the client (Ref. Project. *Homebush 1-2 Murray Rose Road Avenue Scheme D,* drawing No. B100 Rev M, and B103 to B111 Rev M; dated 17 November 2017), the site has been designated for the construction of a fifteen (15) level apartment building plus rooftop plant room, over five levels of basement car parking. A finished floor level (FFL) for the basement has been specified as RL -5.031 mAHD. The Client has also indicated that all fill across the site will be excavated, and during basement excavation, the borrow pit method will be adapted.

Copies of selected development drawings are provided in **Appendix A**.

1.3 REGULATORY FRAMEWORK

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

- ANZECC & ARMCANZ (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*;
- DEC (2007) *Guidelines for the Assessment and Management of Groundwater Contamination*;
- EPA (1995) *Sampling Design Guidelines*;
- EPA (2017) *Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme*
- NEPC (2013) *Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater*;
- NEPC (2013) *Schedule B(2) Guideline on Site Characterisation*;
- *Contaminated Land Management Act 1997*;
- State Environment Protection Policy 55 (SEPP 55) – *Remediation of Land*, and
- OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites*.

1.4 PROJECT OBJECTIVES

The primary objectives of this investigation were therefore to:

- Evaluate the potential for site contamination on the basis of historical land uses, anecdotal and documentary evidence of possible pollutant sources;
- To investigate the degree of any potential contamination by means of limited intrusive sampling and laboratory analysis, for relevant contaminants; and
- Where site contamination is confirmed, make recommendations for the appropriate management of any contaminated soils and/or groundwater.

1.5 SCOPE OF WORKS

In accordance with EI proposal P15115.3 (dated 25 October 2017), in order to achieve the project objectives, the scope of works was as follows:

1.5.1 Desktop Study

- A review of relevant topographical, geological, hydrogeological and soil landscape maps for the project area;
- Search of historical aerial photographs archived at NSW Land and Property Information to review previous site use and the historical sequence of land development in the neighbouring area;
- A land titles search, also conducted through NSW Land and Property Information for information relating to historical ownership of the site;
- A search of Parramatta City Council records for information relating to operational site history and/or relevant environmental incidents;
- A search of NSW EPA Land Information records under the *Contaminated Land Management Act 1997* and *Protection of the Environment Operations Act 1997*;
- A search of the Stored Chemical Information Database (SCID) and microfiche records held by WorkCover NSW (SafeWork NSW) relating to possible underground tank approvals and locations;
- A review of existing underground services on site; and
- Review of all previous reports.

1.5.2 Field Work & Laboratory Analysis

- A detailed site walkover inspection;
- Drilling of boreholes at eight (8) locations across accessible areas of the site;
- Installation of three (3) groundwater monitoring well to a maximum depth of 9 m (or prior refusal), 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 well; and

- 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.

1.5.3 Data Analysis and Reporting

A DSI report would also be prepared to document desk study findings, the conceptual site model, data quality objectives, investigation methodologies and results. The report would also provide a record of observations made during the detailed site walkover inspection, borehole and monitoring well construction 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**.

Table 2-1 Site Identification, Location and Zoning

Attribute	Description
Street Address	2 Murray Rose Avenue, Sydney Olympic Park NSW
Location Description	Approx. 13 km north west of Sydney CBD, bound by: North: Murray Rose Avenue, followed by vacant land and recreational parkland East: Bennelong Parkway followed by Badu Mangroves South: Parkview Drive, followed by commercial site West: Commercial properties
Site Coordinates	Coordinates of the northern corner of site (under GDA94-MGA56): Easting: 321961.939 Northing: 6253480.949 (Source: https://maps.six.nsw.gov.au/)
Site Area	2,521 m^2 (Ref. project name: *Homebush 1-2 Murray Road Avenue Scheme D*, *drawing* no. B103 Rev M, dated 17/11/2017).
Lot and Deposited Plan (DP)	Lot 2 DP 1185060
State Survey Marks	Three State Survey Marks (SSM) were situated in close proximity (<100 m) to the site: • SS40841D on Brickpit Park, approximately 107 m NE of the site; • PM44196F on Badu Mangroves approximately 35 m ENE of the site; and • SS87238F on Parkview Drive, approximately 45 m west of the site. (Source: https://maps.six.nsw.gov.au/)
Local Government Authority	Parramatta City Council
Parish	Concord Parish
County	Cumberland County
Current Zoning	B4 – Mixed Use (State Environmental Planning Policy (State Significant Precincts) 2005 Sydney Olympic Park – Sheet_LZN_001

2.2 SURROUNDING LAND USE

The site is situated within an area of mixed land uses and current uses. Current uses of surrounding land are described in **Table 2-2**.

Table 2-2 Surrounding Land Uses

Direction Relative to Site	Land Use Description	Sensitive Receptors (Distance from Site)
North	Murray Rose Avenue, vacant land, followed by recreational parkland.	Brickpit Park (<100 m)
East	Bennelong Parkway, followed by Bennelong Pond and Badu Mangroves.	Badu Mangroves (<100 m)
South	Parkview Drive, followed by commercial properties. Bicentennial Park is located to the south east of the site.	Bicentennial Park (SSE, approx. 250 m) Australian College of Physical Education (SW, approx. 100 m)
West	Land under development.	-

2.3 REGIONAL SETTING

Regional topography, geology, soil landscape and hydrogeological information are summarised in **Table 2-3**.

Table 2-3 Regional Setting Information

Attribute	Description
Topography	Level to gently undulating alluvial floodplains with local relief <5m and slope gradients <3%. Broad concave valleys. Most drainage lines have been converted to lined concrete and brick channels.
Site Drainage	Consistent with the general slope of the site, stormwater is assumed to flow east/south east towards Bennelong Pond/Powells Creek which flow into Parramatta River, via drainage systems discharging to various stormwater easements and the municipal stormwater system.
Regional Geology	The site is likely to be underlain by Ashfield Shale (Rwa) which comprises of black to dark grey shale and laminite. Ref. *Sydney 1:100,000 scale Geological Series Sheet 9130* (1985).
Soil Landscapes	The Soil Conservation Service of NSW Soil Landscapes of the Sydney 1:100,000 Sheet (Chapman and Murphy, 1989) indicates that the site overlies the *Birrong* (bg) Erosional Landscape. This is characterised by level to gently undulating alluvial floodplain draining Wianamatta Group shales; with local relief to 5 m, slopes <3%, broad valley flats, and extensively cleared tall open-forest and woodland.
Acid Sulfate Soil Risk	With reference to the 1:25 000 scale Prospect Parramatta Acid Sulfate Soil Risk Map – Edition Two (Ref. Murphy, 1997), the subject land lies within the map class description of *No Known Occurrences*. In such cases, land management activities are not likely to be affected by acid sulfate soil materials. State Environmental Planning Policy (Major Development) 2005 Sydney Olympic Park Acid Sulfate Soils Map (Sheet ASS _001; 1:15,000 scale) indicates that the site is not classified for acid sulfate soils. Whilst the proposed development scope includes a three level basement with a FFL of RL -5.036 mAHD; given the aforementioned information it can be deducted that the potential of encountering acid sulfate soils is low and an ASS management plan is not warranted.

Attribute	Description
Likelihood & Depth of Filling	Based on observations during previous investigations carried out by JK, EIS and EI's investigation; the average fill depth across the site is approximately 1.4 metres below ground level (mBGL) and at a maximum fill depth of approximately 2.1 mBGL (at BH102 and BH106M. The fill comprises of clayey sand/sand silty clay/silty clay.
Typical Soil Profile	**Fill** – Clayey sand; fine to medium grained, brown, low to medium plasticity, no odour (approximate average thickness 0.8m); **Fill** – Sandy silty clay/clayey silt; low to medium plasticity, brown, fine to medium grain, with sub angular to angular gravels, no odour (approximate average thickness 0.9m); **Fill** – Silty clay; black/dark grey/brown/orange, with sub angular to angular gravels, low to medium plasticity with iron stone bands, no odour (approximate average thickness 1.0m) overlying; **Natural** – Clay; low to high plasticity orange/dark brown, mottled yellow/red/light grey, no odour (approximate average thickness 0.8m) overlying; **Bedrock** – Shale; light grey/grey/brown, extremely weathered, with clay bands, no odour.
Depth to Groundwater	Groundwater was encountered during the intrusive investigation at approximately 6.8 mBGL. Onsite groundwater conditions, including groundwater flow direction, are discussed in **Section 9.2**.
Nearest Surface Water Feature	Bennelong Pond approximately 70 m east, followed by Powells Creek approximately 390 m east. Powells Creek flows into Parramatta River which is located approximately 700 m to the north east of the site. Parramatta River is considered tidally influenced and therefore classed as a marine water ecosystem for impact assessment purposes.
Groundwater Flow Direction	Groundwater flow direction in the vicinity of the site is inferred to be towards Powells Creek which is located approximately 390m east of the site.

2.4 GROUNDWATER BORE RECORDS AND GROUNDWATER USE

An online search of registered groundwater bores was conducted by EI on 15 November 2017 through the NSW Office of Water (Ref. http://allwaterdata.water.nsw.gov.au/water.stm). There are four registered bore within a 500 m radius of the site, as summarised in **Table 2-4**. A groundwater bore location plan and detailed information regarding the available listed bore is attached in **Appendix B.**

Table 2-4 Summary of Registered Water Bores within 500 m of the site

Bore No.	Date Drilled	Approx. Distance & Direction	Drilled Depth (m)	SWL*/Salinity/ Yield	Bore Purpose
GW102550	01/01/1996	350 m SSE	4.0	1.80/ - / -	Monitoring
GW102553	01/01/1996	330 SE	4.0	1.83/ - / -	Monitoring
GW102554	01/01/1996	436 SE	4.0	1.83/ - / -	Monitoring
GW102555	01/01/1996	370 SE	4.0	1.83/ - / -	Monitoring

Notes: - Data not recorded; * SWL – Standing water level measured in m BGL, Salinity – units unspecified, Yield – measured in L/s.

This active registered bores have been registered for monitoring purposes and thus are not considered to represent a cause for environmental concern.

2.5 SITE WALKOVER INSPECTION

Site observations were recorded during a site walkover inspection of the site on 19 November 2017. A summary of site observations is detailed below and site photographs taken during the inspection are present in **Appendix C**.

2.5.1 General Site Observations

Site observations indicated that:

- The site is currently occupied by Lend Lease, photographs C1 to C8 of **Appendix C** illustrate how the site comprises of construction sheds, bitumen driveway which is in fair condition and associated parking.
- Site access was tight in the western half of the site as this area is fully occupied by construction sheds, machinery, consumables (i.e. pallets of GP cement bags) and concrete barriers.
- Large trees and vegetation occupy part of the southern area of the site. No apparent dieback was observed.
- Two monitoring wells were observed at the site. These were finished flashed with a gatic cover.
- Gross contamination was not observed.
- No suspicious odours were observed in any part of the site.
- No rubbish was observed at the site. Rubbish is maintained in industrial bins.
- No evidence indicative of underground petroleum storage systems (UPSS) or aboveground storage tanks (AST) was observed on any parts of the site.
- Site topography includes moderately steep slopes extending from a westerly direction to the east. The centre of the site is relatively flat.

The location of site buildings discussed above is presented in **Figure 2**.

3. PREVIOUS INVESTIGATIONS

3.1 AVAILABLE DOCUMENTS

This investigation follows on from previous investigations completed at the site, including

- JK (2017). *Report to Austino Properties on Geotechnical Investigation for Proposed Residential Development at 2 Murray Rose Avenue, Sydney Olympic Park, NSW.* Project No. 30809YFrpt, dated 17 October 2017; and
- EIS (2017). *Waste Classification Assessment Proposed Residential Development 2 Murray Rose Avenue, Sydney Olympic Park, NSW.* Project No. E30809Klet-WC, dated 13 October 2017.

The findings of the reports above are summarised in **Table 3-1** below.

Table 3-1 Summary of Previous Investigation Works and Findings

Assessment Details	Project Tasks and Findings
Geotechnical Investigation (JK, 2017)	
Work Objectives	To obtain geotechnical information on subsurface conditions as a basis for comments and recommendations on excavation conditions, retention systems, footings, basement slabs, hydrogeological considerations and earthquake design parameters.
Conclusions & Recommendations	Results from the field work which included four cored boreholes, two of which were converted into monitoring wells; and laboratory work which included the completion of Standard Penetration Test (SPT) on the SPT tube samples, revealed the following: - Subsurface soil profile comprises of fill, natural clays and predominantly shale/laminate bedrock of medium and high strength, with possibly some bands of very high strength. - Site soils and bedrock are of relatively low permeability, thus seepage rates throughout the excavation works are expected to be manageable using conventional sump and pump methods. - The retention systems may comprise of a full depth soldier pile wall with shotcrete infill panels socketed not less than 0.5m below the Bulk Excavation Level. However, alternative retention systems may need to be considered to address hydrogeological issues.
Waste Classification Assessment (EIS, 2017)*	
Work Objectives	To provide a waste classification for the off-site disposal of the material in accordance with the NSW EPA Waste Classification Guidelines - Part 1: Classifying Waste (2014).
Conclusions & Recommendations	Based on the results of the assessment which comprised of soil sampling and laboratory testing for selected analytes, it was concluded that: - Aerial photography review indicated site was used for agricultural purposes from sometime prior to 1943; with the immediate surrounds also appearing to be developed for agricultural and grazing purposes from 1943. - NSW EPA contaminated land register did not hold any records for the site. - Nickel concentrations exceeded the CT1 criterion in two fill samples collected from BH2 (0.05-0.1m) and BH3 (0.1-0.2m); however TCLP tests run on these samples revealed results were below TCLP1 criteria for nickel. - Fill material classified as General Solid Waste (non- putrescible). - Natural soil and shale bedrock at the site may meet the definition of VENM for off-site or re-use purposes. Furthermore, the following recommendation were also made:

Assessment Details	Project Tasks and Findings
	- Surplus fill should be disposed of to a suitably licensed facility. - Additional testing should be conducted on the natural soil and bedrock following the removal of the fill material. - A member of the Australian Contaminated Land Consultants Association should be contacted in the event that an unexpected find is encountered.

Notes:
* EI note that the sample ID on the COCs for the samples obtained on the 4/9/2017 (laboratory job number 175151, do not match the sample ID shown on the Enviro Laboratory results. Dates, sample depths shown on the COC and laboratory analytical results match.

3.2 SUMMARY OF CONTAMINATION

EI considers that the potential for contamination to exist onsite largely relates to the following:

- Anthropogenic fill which may include pesticides, PAHs and other contamination.
- Leakages from cars in the car parking area and where construction machinery is maintained.

4. SITE HISTORY

4.1 LAND TITLES INFORMATION / HISTORIC AERIAL REVIEW

A historical land titles search was conducted through Scott Ashwood Pty Ltd. Copies of relevant documents resulting from this search are presented in **Appendix D**. A summary of all the previous and current registered proprietors along with information obtained from the available historical aerial photographs, in relation to past potential land uses are presented in **Table 4-1**.

The historical aerial photographs reviewed as part of this DSI included:

- 1943: 1943, Six Maps Imagery, source: https://maps.six.nsw.gov.au/.
- 1951: May 1951, B/W, Sydney, Run 11 – Lands Photo.
- 1961: 1961, B/W, NSW, 1068 5025 – Lands Photo.
- 1986: 1986, NSW, 3528 82 – Lands Photo.
- 1994: 04 October 1994, Sydney, 153 164, Run 11 – Lands Photo.
- 2007: 11 March 2007, Google Earth Imagery.
- 2015: 27 April 2015, Google Earth Imagery.

Table 4-1 Summary of Owners and Historical Aerial Photography

Period	Ownership Summary	Site description based on historical aerial photographs	Potential Land Uses
Lot 1 D.P. 1185060			
23.11.1910 (1910 to 1929)	The Minister for Public Works of the State of New South Wales	-	Unknown
11.03.1929 (1929 to 1980)	Metropolitan Meat Industry Board *Then* The Metropolitan Meat Industry Commissioner *Now* The Metropolitan Meat Industry Board	**1943**: The north western quadrant and a small strip at the eastern boundary of the site appear grassy. Some shrubs are also observed in the north western quadrant. Railway tracks occupy the remainder of the side. These tracks extended diagonally from the North boundary to the south west quadrant of the site. A pathway is also noted in front of the tracks. This pathway leads to a large shed which was observed as being outside of the cadastral boundaries of 2 Murray Rose Av, Sydney Olympic Park. **1951 & 1961**: Site remains predominantly unchanged from 1943 aerial photograph.	Agricultural/ Industrial

Period	Ownership Summary	Site description based on historical aerial photographs	Potential Land Uses
26.09.1980 (1980 to 1992)	Homebush Abattoir Corporation	**1986**: The railway tracks that were extending from the north of the site to the south west quadrant of the site are no longer observed. In the north east quadrant of the site a concrete area was observed; and the pathway that had been noted in previous aerials was observed in fair condition, with some vegetation growing in between what is assumed to be cracks and gaps. The grassy area in the north west quadrant remains in place.	Agricultural/ Industrial
03.08.1992 (1992 to 1993)	Homebush Bay Ministerial Corporation	-	Agricultural/ Industrial
22.09.1993 (1993 to 1995)	Homebush Bay Development Corporation	**1994:** Site is vacant. A large concrete patch is observed on the north western quadrant of the site. Grassy areas are noted throughout the site. Some apparent die back was observed.	Commercial
08.12.1995 (1995 to 2002)	Olympic Co-Ordination Authority	-	Commercial
25.01.2002 (2002 to date)	# Sydney Olympic Park Authority	**2007**: Site appears to be partly occupied by a bitumen car park and part of a large building also occupies the western side of the site. **2015**: Site appears vacant, with concrete pavement covering the majority of the site. Trees and other vegetation were observed on the south west boundary of the site.	Commercial

# Denotes Current Registered Proprietor

Easements: -

- Numerous Easements were found on the early titles, these early titles comprise lands in excess of 900 acres – we have not investigated these early easements

Leases: -

- During the investigation of the early title of this land, which forms part of a much larger parcel, numerous leases were found which we could not determine if they affect or not – These leases have since expired or have been surrendered. We have not investigated these leases
- Numerous Leases and Sub Leases were found from 20.03.1998 to 02.12.2013 – – These leases have since expired or have been surrendered. We have not investigated these leases
- 22.09.2014 (AI777013) – GPT Re Limited – expires 29.10.2096
- Lessee then Haisheng Olympus Holding Pty Limited now Austino Sydney Olympic Park Pty Ltd

Overall, the site appeared to have been used for agricultural/ industrial and commercial purposes either by ownership or through leasing, since at least the beginning of the study period – 1930. Evidence obtained through the historical aerial photography and land title review indicate that the commercial nature of the site was established in the 1980's and has continued to date.

4.2 SURROUNDING LAND USE

As part of the Site Land Titles Information / Historic Aerial Photography Review, an assessment of surrounding land uses using aerial photographs sourced from NSW Land and Property Information was carried out. A summary of the pertinent information identified as surrounding land parcels from the reviewed photographs is presented in **Table 4-2**

Table 4-2 Summary of Aerial Photography & Surrounding Land Uses

Aerial Photograph	Surrounding land uses based on historical aerial photographs
1943, Six Maps Imagery, source: https://maps.six.nsw.gov.au/.	Land uses appear to be agricultural and industrial in nature. To the north of the site the land is vacant and beyond a large crater hole is noted. Further investigation indicates this hole was a brick pit. The land surrounding the site is predominantly vacant. Only structure noted are industrial buildings to the west of the site.
May 1951, B/W, Sydney, Run 11 – Lands Photo	Land use remains predominantly unchanged from previous aerial photograph.
1961, B/W, NSW, 1068 5025 – Lands Photo	Land use remains primarily unchanged from the previous aerial photograph.
1986, NSW, 3528 82 – Lands Photo	Land to the west, beyond previously outlined industrial building; is observed to have being developed. Various large building with multiple carparks are observed. Land to the south-west, south, south-east and north-west (beyond brick pit area) of the site appears to be under redevelopment.
1994, 0223 – Lands Photo	Surrounding land use appears to be under redevelopment in all directions. Number of recreational areas and building have increased. Works for the 2000 Olympics are noted and brick pit remains. Roadway to the west of the site is observed.
11 March 2007, Google Earth Imagery	Large commercial buildings are observed to the north west of the site. All previously outlined developments have been completed. Land parcel to the south-south-east of site appears to have been developed into what is now known as Bicentennial Park. Land to the north of site was observed to be vacant.
27 April 2015, Google Earth Imagery	Surrounding land use appears to remain primarily unchanged from the previous aerial photograph. The carpark to the north of the site has been partially demolished and a roadway has been established. Buildings to the north-west have been demolished and two large commercial structures have been erected. A road has also being built to the south of the site.

4.3 COUNCIL INFORMATION

A search of site history records held by Parramatta Council in relation to the site, was initiated on the 7 November 2017; however, a response was still pending as at the time of report writing. Should pertinent information be identified upon receipt of the Council records, an addendum to the DSI will be prepared and issued.

4.4 SAFEWORK NSW DANGEROUS GOODS DATABASE SEARCH

A search of SafeWork NSW records relating to 2 Murray Rose Avenue, Sydney Olympic Park NSW did not identify records pertaining to the site (Ref. **Appendix D**).

4.5 NSW EPA DATABASES

4.5.1 Contaminated Land - Record of Notices under Section 58 of CLM Act 1997

An on-line search of the contaminated land public record of EPA Notices was conducted on 15 November 2017.

The contaminated land public record is a searchable database of:

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

The search confirmed that the site known as 2 Murray Rose Avenue, Sydney Olympic Park was not subject to any regulatory notices issued by the NSW EPA. However, a land in its close proximity (within 500 m), is subject to regulatory notices issued by the EPA. This is listed below.

- *Bicentennial Park* – Bicentennial Drive; (approx. 300 m south of the site) – has one current notice (notice No. 28040) and two former notices (notice No. 555 & No. 226).

4.5.2 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 15 November 2017. This list is maintained by NSW EPA and includes properties on which contamination has been identified. Not all notified land is deemed to be impacted significantly enough to warrant regulation by the NSW EPA. The search confirmed that the site known as 2 Murray Rose Avenue, Sydney Olympic Park was not identified on the List of NSW Contaminated Sites notified to the EPA. However, the following land in its close proximity (within 500 m), has been notified to the EPA and ongoing maintenance is required to manage residual contamination as per the CLM Act:

- *Bicentennial Park* – Bicentennial Drive; (approx. 300 m south of the site).

4.5.3 POEO Public Register

A search of the Protection of the Environment Operations (POEO) Act public register was conducted on 15 November 2017. The public register contains records related to environmental protection licences, applications, notices, audits, pollution studies, and reduction programmes. The search identified that there are no records under the POEO public register for the site known as 2 Murray Rose Avenue, Sydney Olympic Park and lands in its close proximity (within 500 m).

5. CONCEPTUAL SITE MODEL

In accordance with NEPM (2013) *Schedule B2 – Guideline on Site Characterisation* and to aid in the assessment of data collection for the site, EI developed a preliminary conceptual site model (CSM) assessing plausible pollutant 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 data gaps in the existing site characterisation.

5.1 SUBSURFACE CONDITIONS

The intrusive investigations carried out on the 19 November 2017, revealed that the subsurface soils comprised of reworked natural silty clay/sandy silty clay/clayey sand fill overlying clay soil and shale bedrock. The natural soil layer, correlates with the regional geology identified in **Section 2.3**.

5.2 POTENTIAL CONTAMINATION SOURCES

On the basis of site history and search findings (described in **Section 3**) and site inspection EI consider potential chemical hazards and onsite contamination sources to be as follows:

- Potential use of imported fill materials of unknown origin and quality;
- Potential contamination associated from historical commercial/industrial use of the site (i.e. rail corridor);
- Potential use of pesticides across the site;
- Leakage of petroleum hydrocarbons from vehicles in the car parking area; and
- Potential contamination of soils and groundwater from properties within close proximity of subject site (i.e. current development site to the west of the site).

5.3 CHEMICALS OF CONCERN

Based on the findings of the site contamination appraisal the chemicals of concern (COC) at the site are considered to be:

- Soil - heavy metals (HM), total recoverable hydrocarbons (TRH), the monocyclic aromatic hydrocarbon compounds *benzene, toluene, ethyl-benzene* and *xylenes* (BTEX), volatile organic compounds (VOC), polycyclic aromatic hydrocarbons (PAH), organochlorine and organophosphorus pesticides (OCP/ OPP), polychlorinated biphenyls (PCB), and asbestos.
- Groundwater - HM, TRH, BTEX, PAH, phenols and volatile organic compounds (VOC), including chlorinated VOC

5.4 POTENTIAL SOURCES, EXPOSURE PATHWAYS AND RECEPTORS

Potential contamination sources, exposure pathways and human and environmental receptors that were considered relevant for this assessment are summarised along with a qualitative assessment of the potential risks posed by complete exposure pathways in **Table 5-1**.

Table 5-1 Conceptual Site Model

Impacted Media	Chemicals of Potential Concern	Transport mechanism	Exposure pathway	Potential receptor
Soil	HM, TRH, PAH, BTEXN, OCP, OPP, PCB, VOC, asbestos	Disturbance of surficial and subsurface soils during site redevelopment, future site maintenance and future use of the site post redevelopment	▪ Ingestion; ▪ Dermal contact; ▪ Inhalation of dust particulates	▪ Construction and maintenance workers ▪ End users of the site post redevelopment
		Atmospheric dispersion from soil throughout the site	▪ Inhalation dust particulates	
	F1 and F2 TRH, BTEXN and VOCs	Volatilisation of contamination from soil and diffusion to indoor air spaces	▪ Inhalation of vapours from impacted soil.	
	HM, TRH, PAH, OCP, BTEXN	Plant uptake of contamination present in root zone	▪ Plant uptake	▪ Future ecological receptors (e.g. site vegetation in landscaped areas post redevelopment)
Groundwater	HMs, TRH, BTEXN, and VOCs	Interception of water table during excavation Potential seepage into basement intercepting water table (both on site and off site)	▪ Dermal contact; ▪ Ingestion; ▪ Inhalation of vapours	▪ Construction and maintenance workers ▪ Basement users post redevelopment ▪ Offsite users of constructed basements that are not water tight
		Migration of dissolved phase impacts in groundwater	▪ Contaminants arriving at receiving surface water bodies could lead to ingestion and dermal contact	▪ Aquatic ecosystems ▪ Recreational water users
	F1 and F2 TRH, BTEXN and VOCs	Volatilisation of contamination from groundwater to indoor or outdoor air spaces	▪ Contact with groundwater if extracted beneficial -uses	▪ Offsite unregistered groundwater bore users

Notes:
Metals – *Arsenic*, *cadmium*, *chromium*, *copper*, *lead*, *mercury*, *nickel* and *zinc* (typical metals tested in urban/industrial Sydney)
TRH – Total recoverable hydrocarbons (generally petroleum hydrocarbons)
BTEXN – The monocyclic aromatic hydrocarbons *benzene*, *toluene*, *ethyl-benzene,* and *xylenes, including the PAH naphthalene.*
PAH – Polycyclic aromatic hydrocarbons (includes the carcinogenic compound *benzo(a)pyrene*)
OC/OP Pesticides – Organochlorine and organophosphate pesticides
VOCs – Volatile organic compounds
ACM – Asbestos-containing materials
PCBs – Polychlorinated biphenyls

5.5 DATA GAPS

Based on information from the site walkover inspection and site history review, EI considered a programme of intrusive investigation is warranted to existing data gaps that relate to potential sources of contamination (as listed in **Section 5.2**).

6. SAMPLING, ANALYTICAL AND QUALITY PLAN (SAQP)

The SAQP for this additional investigation plays a crucial role in ensuring that the data collected as part of this environmental assessment are representative and provide a robust basis for site assessment decisions. The SAQP for the site includes:

- Data quality objectives, including a summary of the objectives of the this additional environmental investigation;
- 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;
- Analysis methods;
- Sample handling, preservation and storage; and
- Analytical quality assurance and quality control (QA/QC).

6.1 DATA QUALITY OBJECTIVES (DQO)

In accordance with US EPA (2006) *Data Quality Assessment: A Reviewer's Guide* and the DEC (2006) *Guidelines for the NSW Site Auditor Scheme*, the process of developing Data Quality Objectives (DQO) was used by the EI assessment 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 (NSW DEC, 2006)	Details	Comments (changes made 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 as outlined in **Section 1.2**. The works include construction of fifteen level apartment building with associated rooftop plant room, over a five level basement car parking (see **Appendix A** for concept drawings). All fill will be excavated and the borrow pit method will be adapted during the works for the basement. The proposed land uses are: - Multi-storey residential apartment building with common landscaped areas; and - Five level of basement car parking. • Historical information and site inspection observations identified the potential for soil contamination due to various, possible sources, are listed in **Section 5.2**. A preliminary conceptual site model has been developed (**Table 5-1**); and • 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 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?	-

DQO Steps (NSW DEC, 2006)	Details	Comments (changes made during investigation)
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; • Findings from previous site investigations by EIS (2017) and J&K(2017); • Aerial photographs, historical land title records, council records; • Areas of concern identified during the site inspection, prior to intrusive investigations; • National (NEPC 2013) and State-based (NSW EPA, various) environmental guidelines; • Soil and groundwater samples and observations obtained from an intrusive investigation in locations, and to depths deemed appropriate for detailed investigation purposes (or prior auger refusal); • Investigation sampling to verify the presence of onsite contamination and to evaluate the potential risks to sensitive receptors; and • Laboratory analysis of selected soil and groundwater samples for COPCs presented in **Section 5.2**. At the end of the assessment, a decision must be made regarding whether the environmental conditions are suitable for the proposed redevelopment, or if additional investigation or remedial works are required to make the site suitable.	-
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 site boundaries, which define the extent of the investigation, and is indicated on **Figure 2**. • Vertical – Investigations will be advanced to the depth of natural soils or rock, and underlying water-bearing zones. • Temporal – The findings of this assessment will hold true for as long as the site use remains passive in nature; that is, for as long as the site is used for the proposed use and there are no activities taking place onsite or on immediately adjacent (upgrading) properties that may compromise onsite environmental conditions.	Lateral – No testing was possible in the south west quadrant and south area of the site due to the construction sheds and concrete blocks limiting the access to this area of the site. Vertical - Borehole BH101M hit refusal on shale bedrock at 5.2mBGL.

DQO Steps (NSW DEC, 2006)	Details	Comments (changes made during investigation)
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 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 6-2.**	-
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	Specific limits for this project are to be in accordance with the National and NSW EPA guidance, and appropriate indicators of data quality and standard procedures for field sampling and handling. This should include the following points to quantify tolerable limits: • The null hypothesis for the investigation is that: – The 95% Upper Confidence Limits (UCL) of the mean for contaminants of concern exceed relevant land use criteria across the site • Sampling will be completed on a 17.5 m grid for the detection of a contamination hotspot of 20.5 m diameter with 95 % confidence; • The acceptance of the site will be based on the probability that – The 95% UCL of the mean of the data will satisfy the given site criteria. Therefore a limit on the decision error will be 5% that a conclusive statement may be incorrect; and – The standard deviation of the results is less than 50% of the relevant remediation acceptance criterion; and – No single results exceeds the remediation acceptance criteria by 250% or more; and – Soil concentrations for chemicals of concern that are below investigation criteria made or approved by the NSW EPA will be treated as acceptable and indicative of suitability for the proposed land use(s).	-

DQO Steps (NSW DEC, 2006)	Details	Comments (changes made during investigation)
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	• Eight soil sampling locations, placed in targeted spots across accessible areas of site. • An upper soil profile sample will be collected at each borehole location and tested for chemicals of concern, to assess the environmental condition of a fill layer (if present), and for potential impacts from historical, above-ground activities. • Further sampling will also be performed in deeper soil layers. These samples would be selected for testing based on field observations (including visual and olfactory evidence, as well as soil vapour screening in headspace samples), and will also be used to characterise subsurface stratigraphy. • Field screening for potential VOC contamination will be carried out with a portable Photo-Ionisation Detector (PID); • Three groundwater wells will be installed during intrusive investigations to allow collection of groundwater samples from water-bearing zones underlying the site and to characterise the quality of background groundwater quality migrating onto the site. • Representative soil samples will be collected from the site and analysed to allow characterisation of soils; and • Review of the results will be undertaken to determine if further excavation and additional sampling is warranted. Additional investigations would be considered to be warranted where soil concentrations are found to exceed remediation criteria endorsed by the NSW EPA, relevant to the proposed land use(s).	Sampling area was limited by the construction sheds, construction machinery and consumables found at the site. The site is being currently used as place to house the site offices, restrooms, lunch rooms, consumables, and construction machinery. Site is also used as a vehicle parking area. This use is associated with the constructions works that are occurring on the adjoining land to the west of the site. Groundwater was not encountered in monitoring well BH101M. Water was encountered in monitoring wells BH104M and BH106M at approximately 7.5 mBGL and 6.8 mBGL respectively. No groundwater sample was obtained for monitoring well BH101M due to the well not having sufficient water for sample collection.

6.2 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 8**.

Table 6-2 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; and • Laboratory control 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: • 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 Chain-of-Custody (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 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.

7. ASSESSMENT METHODOLOGY

7.1 SAMPLING RATIONALE

With reference to the preliminary CSM described in **Section 5**, soil and groundwater investigation works were planned in accordance with the following rationale:

- Site characterisation in relation to soil would be based on intrusive soil investigations involving sampling and analysis of fill and natural soils from eight borehole (BH101 to BH108);
- Installation of three groundwater monitoring wells and sampling groundwater during a single groundwater monitoring event (GME) at the monitoring wells, to assess for potential groundwater impacts; and
- Laboratory analysis of representative soil and groundwater samples for the identified contaminants of concern.

7.2 INVESTIGATION CONSTRAINTS

The number of test bores drilled and monitoring wells installed during the investigation phase achieved the planned investigation scope described in **Section 7.1**, however due to a number of physical obstructions investigations were limited by the following constraint:

- No testing was possible in the south west quadrant and south area of the site due to the construction sheds and concrete blocks limiting the access to this area of the site.
- Sampling from monitoring well BH101M located at the north west side of the site was not possible due to the well containing <1.0L water.

7.3 ASSESSMENT CRITERIA

The assessment criteria proposed for this project are outlined in **Table 7-1**. 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.

It should be note that the site specific criteria tabulated in **Table 7-1**, was drafted by taking into account the sketch plans provided by the Client (**Appendix A**) and the following assumptions:

- Ground floor will be used for residential purposes.
- No private gardens on the ground floor level.
- All deep soil areas are for recreational purposes and/or designated footpaths/pathways.

Should the proposed development deviate from the sketch plans available at the time of this report, the assessment criteria must be reassessed and if need be, modified to reflect the changes made to the proposed development layout.

Table 7-1 Adopted Investigation Levels for Soil and Groundwater

Environmental Media	Adopted Guidelines	Rationale
Soil	NEPM, 2013 Soil HILs, EILs, HSLs, ESLs & Management Limits for TPHs	**Soil Health-based Investigation Levels (HILs)** Building footprint: NEPM (2013) HIL-B for residential settings with limited soils access. Open space/footpath areas: NEPM (2013) HIL-C for public open spaces. **Soil Health-based Screening Levels (HSLs)** Building footprint: NEPM (2013) HSL- D for commercial/industrial premises. Open space/footpath areas: NEPM (2013) HIL-C for public open spaces. Asbestos HSLs: Presence / absence of asbestos (not-detected) were adopted for preliminary screening purposes. **Ecological Investigation Levels (EILs)** Open space areas: NEPM (2013) Urban residential and public open space. EILs only apply to the top 2 m (root zone) **Ecological Screening Levels (ESLs)** Open space areas: NEPM (2013) Urban residential and public open space. ESLs only apply to the top 2 m (root zone). **Management Limits for Petroleum Hydrocarbons** Should the ESLs and HSLs be exceeded for petroleum hydrocarbons, soil samples will 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
Groundwater	NEPM, 2013 GILs for Marine Waters	**Groundwater Investigation Levels (GILs) for Marine 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 marine criteria were considered relevant as the closest, potential surface water receptor was Powells Creek which flows into Parramatta River, a tidally influence water body, located <1km north east of the site.
	NEPM, 2013 Groundwater HSLs for Vapour Intrusion	**Health-based Screening Levels (HSLs)** The NEPM 2013 groundwater HSLs for vapour intrusion were used to assess for potential human health impacts from residual vapours resulting from petroleum, BTEX and naphthalene impacts. The *HSL A* and *HSL B* thresholds for low and medium-density residential sites were applied for groundwater.
	NEPM, 2013 GILs for Recreational & Drinking purposes	**Recreational & Drinking Water GILs** Recreational Water quality criteria in NEPM (2013), based on the Australian Drinking Water Guidelines (Ref. NHMRC, 2011), were applied to reflect potential contact with groundwater in non-watertight basements.

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 the Groundwater Investigation Levels (GILs). GILs are presented alongside the analytical results in the corresponding summary tables, which are discussed in **Section 9**.

7.4 SOIL INVESTIGATION

The soil investigation works conducted at the site are described in **Table 7-2**. Test bore locations are illustrated in **Figure 2**.

Table 7-2 Summary of Soil Investigation Methodology

Activity/Item	Details
Fieldwork	The site investigation was conducted on 19 November 2017. The works were completed as follow; - Test bores BH101M – BH108 were completed to natural soil.
Drilling Method & Investigation Depth	All boreholes BH101M to BH108 were completed using a Hanjin D&B track mounted rig, employing solid flight augers for soil drilling. Final bore depths ranged between 2.5 – 9 mBGL (BH101 to BH108). Borehole logs are presented in **Appendix E**.
Soil Logging	Drilled 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 the Unified Soil Classification System (USCS) and Australian Standard (AS) 4482.1-2005. Borehole logs are presented in **Appendix E**.
Field Observations (including visual and olfactory signs of potential contamination)	A summary of field observations is provided, as follows: • A slight hydrocarbon odour was noted in BH103 and BH107; • Potential olfactory evidence of acid sulfate soils (H_2S odour) was not observed in boreholes; and, • Fibre cement sheet fragments were not observed in any drilling cuttings.
Soil Sampling	• Soil samples were collected by dry grab method (using unused, dedicated nitrile gloves) and placed into laboratory-supplied, acid-washed, solvent-rinsed glass jars; • Blind field QC duplicates were separated from the primary samples and placed into glass jars; • A small amount of duplicate sample was separated from primary samples and placed in a zip-lock bag for soil vapour screening (see below); and • A small amount of duplicate sample (up to 150 g) was separated from all fill samples and placed into a zip-lock bag for Asbestos analysis.
Soil Vapour Screening	Screening for potential VOCs from collected samples was conducted using a Photo-ionisation Detector (PID) which was calibrated immediately prior to sampling. PID readings of individual samples are presented in the bore logs attached in **Appendix E**. The PID calibration certificate is also included in **Appendix F**.
Decontamination Procedures	Drilling Equipment – The augers used were decontaminated between sampling locations until augers were free of all residual material. Sampling Equipment – Nitrile gloves were dedicated to each sample (i.e. used gloves were discarded before collecting each new sample).
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.

Activity/Item	Details
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 8**.

7.5 GROUNDWATER INVESTIGATION

The groundwater investigation works conducted at the site are described in **Table 7-3**. Monitoring well locations are illustrated in **Figure 2**.

Table 7-3 Summary of Groundwater Investigation Methodology

Activity/Item	Details
Fieldwork	Groundwater monitoring wells were installed on the 19 November 2017. Water level gauging, well purging, field testing and groundwater sampling for all three wells (BH103M, BH107M and BH109M) was conducted on 06 December 2017.
Well Construction	Test bores were converted to groundwater monitoring wells as follows: • One, 4.8 m deep, onsite, well identified as BH101M; • One, 8.1 m deep, onsite, well identified as BH104M; and • One, 7.5 m deep, onsite, well identified as BH106M. Well construction details are tabulated in **Section 9.2** and documented in the borehole logs presented in **Appendix E**. Well construction carried out by EI 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, with slotted intervals in shallow wells set to screen to at least 500 mm above the standing water level to allow sampling of phase-separated hydrocarbon product, if present. • The base of each well was sealed with a uPVC cap. • Annular, graded sand filter was used to at least 300 mm above top of screen interval. • Granular bentonite was applied above the annular filter pack to seal the screened interval. • Cement slurry was used to back fill the bore annulus to just below ground level for boreholes BH101M, BH104M and BH106M. Surface completion comprised a steel road box cover set in neat cement and finished flush with the ground level.
Well Development	Monitoring well BH101M was dry at the time of development. Monitoring wells identified as BH104M and BH106M were develop until dry on the date of installation.
Well Gauging & Groundwater Flow Direction	Monitoring wells BH101M, BH104M and BH106M were gauged for standing water level (SWL, depth to groundwater) prior to well purging at the commencement of the GME on 06 November 2017. All measured SWLs are shown in **Table 9-3**. The gauging was conducted with a water level meter probe. A transparent HDPE bailer was used to visually assess for the presence PSH prior to the commencement of well purging. PSH was not detected in any of the wells.
Well Purging & Field Testing	The groundwater monitoring wells BH104M and BH106M were purged and sampled using low-flow/minimal draw-down sampling method with a MicroPurge kit (MP15) and a portable MicroPurge pump following well gauging.

Activity/Item	Details
	The MicroPurge system incorporates a low density poly-ethylene (LDPE) pump bladder, and a Teflon-lined LDPE sample delivery tube. The system used for this investigation employed pressurised carbon dioxide gas to regulate groundwater flow. Pump pressure and pumping cycles were adjusted accordingly to regulate extraction flow rate, and to avoid causing excessive drawdown of water level during the sampling process. Field measurement of water quality parameters was conducted continuously on purged groundwater with a water quality meter (Hanna Multi Parameter 9829) positioned within an open flow-through cell. Groundwater parameters tested in the field were dissolved oxygen (DO), electrical conductivity (EC), oxidation reduction potential (Redox), temperature and pH. The measured parameters were recorded onto a field data sheet (**Appendix F**), along with the purged water volume at the time of measurement. Groundwater sampling was performed when three consecutive readings of groundwater parameter indicated stabilisation; as per the specified ranges detailed below: • Electrical conductivity: ± 3% of the read value; • Redox: ± 20 mV; • DO: ± 20% of the read value; • pH: ± 0.2 pH unit; and • Temperature: ± 0.2^{o}C Total water volume purged and stabilised groundwater parameters at each groundwater monitoring well are summarised in **Table 9-3.**
Decontamination Procedure	• The water level probe, water quality kit probes, MicroPurge and HDPE bailers were washed in a solution of potable water and Decon 90 and then rinsed with potable water between measurements/wells. • All sample containers were supplied by the laboratory for the particular project and only opened once immediately prior to sampling. • Ice was used to keep the samples chilled. All melt water was continuously drained from the sample chest to prevent cross-contamination of samples.
Sample Preservation	The following sample containers supplied by the laboratory were used to store groundwater samples: • TRHs and semi-volatile organic compounds: amber glass, acid-washed and solvent-rinsed bottle; • Volatile organic compounds: 40 ml amber glass vials, pre-preserved with dilute hydrochloric acid, Teflon-sealed; and • Metals: 250 mL, HDPE bottle, pre-preserved with dilute nitric acid (1 mL). Samples collected for heavy metal 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.
Quality Control & Laboratory Analysis	All groundwater samples were submitted for analysis of previously-identified chemicals of concern by SGS Laboratories (SGS). QA/QC testing comprised testing of rinsate blank and trip blank samples. All samples were transported under strict Chain-of-Custody (COC) conditions. COC certificates and laboratory sample receipt documentation were provided to EI for confirmation purposes.
Sample Transport	After sampling, chilled sample chests were transported to SGS Australia Pty Ltd using strict 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 G**; and all laboratory results are presented in **Appendix H**.

8. DATA QUALITY ASSESSMENT

The assessment of data quality is defined as the scientific and statistical evaluation of environmental data to determine if the data meet the objectives of the project (Ref. US EPA, 2006). Data quality assessment involves an evaluation of the compliance of the field sampling and laboratory analytical procedures and an assessment of the accuracy and precision of these data from the laboratory quality control measurements obtained.

The data quality assessment process for this assessment included a review of analytical procedures to confirm compliance with established laboratory protocols and an assessment of the accuracy and precision of analytical data from a range of quality control measurements. The QC measures generated from the field sampling and analytical program were as follows:

- Suitable records of fieldwork observations including borehole logs;
- Relevant and appropriate sampling plan (density, type, and location);
- Use of approved and appropriate sampling methods;
- Preservation and storage of samples upon collection and during transport to the laboratory;
- Complete field and analytical laboratory sample COC procedures and documentation;
- Sample holding times within acceptable limits;
- Use of appropriate analytical procedures and NATA-accredited laboratories; and
- Required LOR (to allow for comparison with adopted IL);
- Frequency of conducting quality control measurements;
- Laboratory blanks;
- Field duplicates;
- Laboratory duplicates;
- Matrix spike/matrix spike duplicates (MS/MSDs);
- Surrogates (or System Monitoring Compounds);
- Analytical results for replicated samples, including field and laboratory duplicates and inter-laboratory duplicates, expressed as Relative Percentage Difference (RPD); and
- Checking for the occurrence of apparently unusual or anomalous results, e.g. laboratory results that appear to be inconsistent with field observations or measurements.

The findings of the data quality assessment in relation to the soil and groundwater investigations at the site are discussed in detail in **Appendix I**. Laboratory QA/QC policies and DQOs are presented in **Appendix J**.

9. RESULTS

9.1 SOIL INVESTIGATION RESULTS

9.1.1 Site Geology and Subsurface Conditions

The general site geology encountered during the drilling investigations was a layer of topsoil overlying residual clays followed by shale bedrock. The geological information obtained during the investigation is summarised in **Table 9-1** and borehole logs from these works are presented in **Appendix E**.

Table 9-1 Generalised Subsurface Profile

Layer	Description	Average Approximate Depth to Top & Bottom of Layer (mBGL)	
		Top	Bottom
Asphalt	-	0.0	0.07
Fill	Clayey sand; fine to medium grained, brown, low to medium plasticity, no odour. (BH105).	0.07	0.9
	Sandy silty clay/clayey silt; low to medium plasticity, brown, fine to medium grain, with sub angular to angular gravels, no odour. (BH104M and BH106M).	0.07	1.0
	Silty clay; black/dark grey/brown/orange, with sub angular to angular gravels, low to medium plasticity with iron stone bands, no odour*. (BH101M to BH103, BH107 and BH108).	0.07	1.4
Natural Soil	Clay; low to high plasticity orange/dark brown, mottled yellow/red/light grey, no odour. (BH101M, BH102, BH107, BH108)	1.3	2.1
Bedrock	Shale; light grey/grey/brown, extremely weathered, with clay bands, no odour. (BH101M to BH107).	1.8	5.1+

Note:
***** - Slight hydrocarbon odour was noted in BH103 and BH107.
+ - Hole terminated.

9.1.2 Field Observations and PID Results

Soil samples were obtained from the test bores at various depths ranging between 0.2 and 7.8 mBGL. All examined soil samples were evaluated on a qualitative basis for odour and visual signs of contamination and the following observations were noted:

- No staining, charcoal, ash or slag were detected within soils;
- Slight hydrocarbon odour was noted in boreholes BH103 and BH107.

- No bonded or fibrous material (suspected to be ACM) was observed within soils recovered from the sub-surface during drilling; and
- No elevated PID results (>10 ppm) were detected.

9.2 GROUNDWATER INVESTIGATION RESULTS

9.2.1 Monitoring Well Construction

A total of three groundwater monitoring wells were installed across the site. Well construction details for the installed groundwater monitoring wells are summarised in **Table 9-2**.

Table 9-2 Monitoring Well Construction Details

Well ID	Bore Depth (mBGL)	Volume Developed (L)	Screen Interval (mBGL)	Lithology Screened
BH101M	4.8	Dry well	2.8 – 4.8	Shale
BH104M	8.1	18	5.1 – 8.1	Shale
BH106M	7.5	13	4.5 – 7.5	Shale

Notes:
mBGL - metres below ground level.
L - Litres.

9.2.2 Field Observations and Water Test Results

A single GME was conducted on all wells in 6 December 2017. On this date, standing water levels (SWLs) were measured within each well and the results of which were recorded with well purge volumes and field-based water test results. A summary of the recorded field data is presented in **Table 9-3** and copies of the completed Field Data Sheets are included in **Appendix F**.

Table 9-3 Groundwater Field Data

Well ID	SWL (mBGL)	Purge Volume (L)	Depth of pump inlet (mBGL)	DO (mg/L)	Field pH	Field EC (µS/cm)	Temp (ºC)	Redox (mV)	Comments
BH101M	4.24	-	-	-	-	-	-	-	Dry well, no recharge.
BH105M	5.25	1.05	7.0	0.27	7.40	6499	21.39	276.7	Light brown/grey, low to medium turbidity, no odour, no sheen.
BH106M	5.49	1.05	6.5	0.58	6.40	796	21.19	344.2	Light grey, low turbidity, no odour, no sheen.

Notes:
GME – Groundwater monitoring event.
SWL – Standing Water Levels corrected to mBGL.
L – Litres (referring to volume of water purged from the well prior to groundwater sample collection).
EC – groundwater electrical conductivity as measured onsite using portable EC meter.
µS/cm – micro Siemens per centimetre (EC units).

DO – Dissolved Oxygen in units of milligrams per litre (mg/L)
All groundwater parameters (pH, EC and DO) were tested on site.
Field Redox (mV) readings adjusted to Standard Hydrogen Electrode (SHE) by adding field electrode potential (205mV)

With reference to **Table 9-3**, the field pH data indicated that the groundwater was neutral (average pH 7.0) while redox conditions were oxidising. The electrical conductivity (EC) measurement recorded at an average of 3,648 µS/cm indicating that the groundwater was brackish in terms of water salinity. The water was also somewhat turbid and no odour or sheen was observed.

We noted that whilst a standing water level for BH101M was obtained, the depth of the well was 4.8 mBTOC which gave a water column of <1 m, and sampling could not be completed.

9.3 LABORATORY ANALYTICAL RESULTS

9.3.1 Soil Analytical Results

A summary of laboratory results from this investigation showing test sample quantities, minimum/maximum analyte concentrations for primary samples and samples found to exceed the adopted guidelines, is presented in **Table 9-4**. More detailed tabulations of results showing the tested concentrations for individual samples alongside the adopted soil criteria is presented in **Table T1** at the end of this report. Completed documentation used to track soil sample movements and laboratory receipt (i.e. COC and SRA forms) are copied in **Appendix G** and all laboratory analytical reports for tested soil samples are presented in **Appendix H**.

Table 9-4 Summary of Soil Analytical Results

No. of Primary Samples	Analyte	Min. Conc. (mg/kg)	Max. Conc. (mg/kg)	Sample Locations Exceeding Investigation Levels
Priority Metals				
12	Arsenic	4	110	None*
12	Cadmium	<0.3	0.4	None
12	Chromium (Total)	4.2	21	None
12	Copper	20	53	None
12	Lead	9	43	None
12	Nickel	1.6	52	BH104M_0.25-0.35 exceeds the EIL criteria of 35 mg/kg
1	TCLP – Nickel (mg/L)			
12	Zinc	10	63	None
12	Mercury	<0.05	0.08	None
PAHs				
12	Benzo(α)pyrene	<0.1	2.8	2/19 fill samples exceed the EIL criteria of 0.7 mg/kg
2	TCLP – Benzo(α)pyrene (mg/L)	<0.0001	<0.0001	-
12	Carcinogenic PAHs	<0.3	3.9	None*
12	Naphthalene	<0.1	2.4	None
12	Total PAHs	<0.8	50	None

No. of Primary Samples	Analyte	Min. Conc. (mg/kg)	Max. Conc. (mg/kg)	Sample Locations Exceeding Investigation Levels
TRHs (including BTEX)				
12	TRH C_6-C_{10} minus BTEX (F1)	<25	<25	None
12	TRH >C_{10}-C_{16} (F2) minus Naphthalene	<25	<25	None
12	TRH >C_{16}-C_{34} (F3)	<90	180	None
12	TRH >C_{34}-C_{40} (F4)	<120	<120	None
12	TPH >C_6-C_9	<20	<20	None
12	TPH >C_{10}-C_{36}	<110	<170	None
12	Benzene	<0.1	<0.1	None
12	Toluene	<0.1	<0.1	None
12	Ethylbenzene	<0.1	<0.1	None
12	Total Xylenes	<0.3	<0.3	None
OCPs				
12	OCPs	<1	<1	None
OPPs				
12	OPPs	<1.7	<1.7	None
PCBs				
12	PCBs	<1	<1	None
Asbestos (presence/absence)				
12	Asbestos	No	No	None

Notes:
* - Refer to **Section 10.1.1** for further details.

With reference to **Table T1** and **Table 9-4**, the following observations were made;

Priority Metals

All priority metals concentrations were below the corresponding SILs (**Section 7.3**). Soil sample BH104M_0.25-0.35 (50 mg/kg) reported a value that exceeded the ecological health criteria of 35mg/kg.

PAHs

PAHs were reported below the adopted human and ecological health criteria (**Section 7.3**), with the exception of the carcinogenic PAHs and benzo(α)pyrene in fill soil of BH105; and benzo(α)pyrene in fill soil of BH102, the respective ecological criteria for these analytes was exceeded.

TRHs and BTEX

All TRH and BTEX concentrations were reported below the adopted human and ecological health based criteria (**Section 7.3**).

Asbestos

No detectable asbestos concentrations or traces of respirable fibres were identified in any of the tested soil samples.

OCPs, OPPs and PCBs

No detectable concentration of any of the screened OCP, OPP and PCB compounds were identified in any of the tested samples. All laboratory PQLs were also within the corresponding SILs.

9.3.2 Groundwater Analytical Results

Laboratory analytical results for groundwater samples are summarised in **Tables T2**, which also include the adopted GILs. Completed documentation used to track groundwater sample movements and laboratory receipt (COC and SRA forms) are copied in **Appendix G**. Copies of the laboratory analytical reports are attached in **Appendix H**.

A summary of laboratory results showing test sample quantities, minimum/maximum analyte concentrations and samples found to exceed the GILs, is presented in **Table 9-5**. More detailed tabulations of results showing the tested concentrations for individual samples alongside the adopted groundwater criteria are presented in **Table T2** at the end of this report. Completed documentation used to track groundwater sample movements and laboratory receipt (i.e. COC and SRA forms) are copied in **Appendix G** and all laboratory analytical reports for tested groundwater samples are presented in **Appendix H**.

Table 9-5 Summary of Groundwater Analytical Results

No. of primary samples	Analyte	Min. Conc. (µg/L)	Max. Conc. (µg/L)	Sample locations exceeding investigation levels
Priority Metals				
2	Arsenic	<1	4	ANZECC criteria exceeded at BH104M
2	Cadmium	<0.1	<0.1	None
2	Chromium (Total)	<1	<1	None
2	Copper	<1	<1	None
2	Lead	<1	<1	None
2	Mercury	<0.1	<0.1	None
2	Nickel	13	34	ANZECC criteria exceeded at BH104M and BH106M
2	Zinc	88	170	ANZECC criteria exceeded at BH104M and BH106M
PAHs				
2	Benzo(α)pyrene	<0.1	<0.1	None
2	Naphthalene	<0.1	<0.1	None
2	Total PAHs	<1	<1	None
Hydrocarbons				
2	TRH C_6-C_{10} minus BTEX (F1)	<50	<50	None
2	TRH >C_{10}-C_{16} (F2) minus Naphthalene	<60	<60	None
2	TRH >C_{16}-C_{34} (F3)	<500	<500	None
2	TRH >C_{34}-C_{40} (F4)	<500	<500	None

No. of primary samples	Analyte	Min. Conc. (µg/L)	Max. Conc. (µg/L)	Sample locations exceeding investigation levels
2	Benzene	<0.5	<0.5	None
2	Toluene	<0.5	<0.5	None
2	Ethylbenzene	<0.5	<0.5	None
2	Total xylenes	<1.5	<1.5	None
Phenols				
2	Total	<10	<10	None
VOCs				
2	Total	<10	<10	None

With reference to **Table T2** and **Table 9-5**, the following observations were made;

Priority Metals

All priority metals concentrations were below the corresponding GILs (**Section 7.3**), with the exception of the following:

- Arsenic in BH104M (4 µg/L) exceeded the adopted marine water GIL (2.3 µg/L).
- Copper, nickel and zinc in each of the groundwater monitoring wells exceeded the marine water GILs for these metals.

TRHs and BTEX

All concentrations of TRH and BTEX were reported below the laboratory PQL and subsequently the adopted GILs.

PAHs & Phenols

All concentrations of PAHs and total phenols were reported below the laboratory PQL and subsequently the adopted GILs.

VOCs

All concentrations of PAHs and total phenols were reported below the laboratory PQL and subsequently the adopted GILs.

10. SITE CHARACTERISATION

10.1 SOIL IMPACTS

Soil quality was assessed for COPC at eight borehole locations during this investigation; and at six borehole locations during EIS (2017) investigation. The borehole locations for both assessments are shown in **Figure 2**, and reported concentrations including exceedances are tabulated in **Table T1**.

10.1.1 Priority Metals

The reported concentration for priority metals for all fill and natural soil samples in the EI assessment locations (BH100 series) were within the adopted health based SIL, with the exception of arsenic and nickel.

- Arsenic exceeded the ecological based SIL of 100 mg/kg in fill at one location in this investigation. Statistical analysis of all fill data, which included the EIS (2017) investigation data and the current investigation data, (14 locations, 18 samples overall); found that the 95%UCL of the mean arsenic concentration was 38.47 mg/kg, below the adopted EIL of 100 mg/kg.

- Nickel exceeded the ecological based SIL of 35 mg/kg (EIL/ESL) in fill at one location in this investigation and at two locations in the EIS (2017) investigation. Statistical analysis of all fill data, which included the EIS (2017) investigation data and the current investigation data, (14 locations, 18 samples overall); found that the 95%UCL of the mean nickel concentration was 43.53 mg/kg. While the calculated value exceeds the adopted EIL criteria, the exceedance is marginal and is expected to be tolerable to most plant species, with only more sensitive plants species likely to be affected.

The concentration of metals including arsenic and nickel in underlying natural soil were low.

Statistical data analysis has been provided in **Appendix I** at the end of this report.

10.1.2 PAHs

PAHs were reported below the adopted human and ecological health criteria (**Section 7.3**), with the exception of carcinogenic PAHs and benzo(α)pyrene.

- Carcinogenic PAHs exceeded the health based SIL of 3 mg/kg (HIL-C) in fill at one EI location (BH105) of eight assessed. Statistical analysis of all fill data available to date for the site (14 locations, 18 samples overall); found that the 95%UCL of the mean carcinogenic PAH concentration was 1.54 mg/kg, which was well below the adopted criteria.

- Benzo(α)pyrene exceeded the ecological based SIL of 0.7 mg/kg in fill at two EI locations (BH102 and BH105) of eight assessed. Statistical analysis of all fill data available to date for the site (14 locations, 18 samples overall); found that the 95%UCL of the mean benzo(α)pyrene concentration was 1.05 mg/kg. This value remained slightly above the ecological based criteria.

Overall, the contamination identified at the site could be best remediated by removing all fill surrounding BH105 from site. This approach would align with the proposed development, which includes the removal of all fill from site and deeper soil excavation for five levels of basement (in this process the soil surrounding BH105 will be removed); and it will ensure any potential effects to plants in proposed landscape and to future site users are minimised.

10.1.3 Preliminary In-Situ Soil Classification

The fill soils examined during this investigation were further assessed for site suitability and preliminary offsite waste classification against NSW EPA (2014) Waste Classification Guidelines. This assessment revealed the following:

- Nickel exceeded CT1 in fill at one EI location and at two EIS (2017) locations. Leachate testing on the EI sample with the highest nickel concentration did not exceed TCLP1. This result coupled with the 95%UCL of the mean concentration of nickel in fill for all EI and EIS data was less than SCC1. Furthermore, EIS run leachate testing on the two samples that exceeded the criteria, and it was found that they did not exceed TCLP1.

- Benzo(α)pyrene exceeded CT1 in fill at two EI locations. Leachate testing on these samples did not exceed TCLP1.

Given the aforementioned results, chemical characteristics of the soil are consistent with general solid waste (non-putrescible). These findings align with the characteristics given by EIS during their 2017 investigation.

10.2 GROUNDWATER IMPACTS

Three (3) groundwater monitoring wells were installed at the site; however, only two (2) monitoring wells could be sampled; as at the time of sampling, groundwater monitoring well BH101M contained <1.0L water. We note that two groundwater monitoring wells previously installed at the site by J&K (2017), were not serviceable for groundwater assessment due to the installation not meeting the environmental standards required for installation.

Laboratory analytical results for the sample collected from BH104M and BH106M reported TRH, BTEX, PAH, total phenols and VOC below adopted investigation criteria. Priority metals were also below adopted criteria, except for arsenic (4 µg/L) in BH104M; copper (7µg/L and 5 µg/L), nickel (13 µg/L and 34 µg/L) and zinc (88 µg/L and 170 µg/L) in BH104M and BH106M respectively. It was noted that arsenic concentrations reported in groundwater marginal exceeding the adopted criteria (2 x criteria value of 2.3 µg/L), however, the concentrations are unlikely to pose an ecological risk. Elevated concentrations of copper and zinc reported in groundwater do not appear to correspond with reported soil concentrations, with copper and zinc at generally low levels, and thus not considered to be a cause of environmental concern. Similarly the elevated nickel concentrations reported in the groundwater do not appear to correspond with reported soil concentrations. Whilst the nickel concentrations in fill were reported to exceed the SIL criteria, the leachability of the nickel was low and unlikely to be a source of contamination for the site. Furthermore, the underlying natural soil (shale layer) at the site, which was the layer that was screened (Ref. **Section 9.2.1**) for groundwater sampling; reported low levels of nickel.

Overall the low levels of the priority metals reported are ubiquitous in urban environments such as the Sydney Olympic Park area, and it is likely that the priority metals reported in groundwater represent background conditions.

10.3 REVIEW OF CONCEPTUAL SITE MODEL

On the basis of investigation findings, the CSM discussed in **Section 5** was considered to appropriately identify contamination sources, migration mechanisms and exposure pathways, as well

as potential onsite and offsite receptors. We note that previously known data gaps, as outlined in **Section 5.5** have largely been addressed, however, the following data gaps remain:

- Characterisation of the soil in the south/south west side of the site which was not sampled during this investigation.

11. CONCLUSIONS

The property located at 2 Murray Rose Avenue, Sydney Olympic Park NSW was the subject of a detailed site investigation that 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 assessment it was concluded that:

- The site is located approximately 12.5 km north-west of the Sydney Central Business District (**Figure 1**). The site, which covers a total area of approximately 2,521 m^2, comprises of Lot 2 DP 1185060 and is situated within the Local Government Area of the Parramatta City Council (**Figure 2**).
- According to the site history, the site appeared to have been used for agricultural/industrial and later commercial purposes either by ownership or through leasing, since the start of the study period (1930's). Commercial use has continued until current date. This information correlated with the preliminary investigation completed by EIS (2017); where it was noted that aerial photography review indicated site appeared to be vacant in 1943; with the immediate surrounds also appearing to be developed for agricultural and grazing purposes from 1943 with an open brick pit located approximately 250 m north of the site;
- The subject site was free from notices issued by NSW EPA;
- SafeWork NSW records relating to 2 Murray Rose Avenue, Sydney Olympic Park NSW did not identify records pertaining to the site. This information aligned with the site observations made during the site inspection;
- Soil sampling and analysis were conducted at eight test bore locations. The sampling regime was considered to be appropriate for the required investigation and comprised judgemental and systematic (triangular grid) sampling patterns;
- The sub-surface layers comprised anthropogenic filling overlying silty clay/clayey silt and shale bedrock;
- Results of soil samples collected from soil test boreholes indicated the following:
    - The reported concentrations of priority metals were below the adopted heath-based criteria (NEPM 2013 HIL-B and HIL-C).
    - The reported concentrations of priority metals in natural soil were low and did not exceed adopted health investigation levels.
    - The reported concentration of carcinogenic PAHs exceeded the adopted health based investigation levels (3 mg/kg) in one fill soil sample analysed during this investigation. However, statistical analysis of all fill data available to date for the site (14 locations, 18 samples overall); found that the 95%UCL of the mean carcinogenic PAH concentration was 1.54 mg/kg, which was well below the adopted criteria, and consequently not considered to be a cause for environmental concern.
    - Benzo(α)pyrene exceeded ESL (0.7 mg/kg) in two fill samples tested in this investigation.
    - All other PAHs were below adopted human health and environmental criteria.

  - TRH and BTEX were reported below the adopted human health and ecological criteria.
  - OCPs, OPPs or PCBs were not reported in any of the tested fill soil samples.
  - Asbestos was not detected in any of the tested fill soil samples.

- The chemical characteristics of the soil are consistent with general solid waste (non-putrescible). These findings align with the characteristics given by EIS during their 2017 investigation;
- Groundwater was encountered during this intrusive investigation at approximately 6.8 mBGL. Groundwater flow direction was not calculated during this investigation, however it is inferred to flow towards Powells creek located east of the site; and
- On review of the Preliminary Conceptual Site Model (CSM) developed as part of this DSI, it was concluded that the model remains valid for the proposed development. However, characterisation of the soil in the south/south-west side of the site which was not sampled during this investigation requires further assessment.

Based on the findings from this DSI conducted in accordance with the investigation scope agreed with the Client, and with consideration of the Statement of Limitations (**Section 13**), EI conclude that the site can be made suitable provided the recommendations detailed in **Section 12** are implemented.

EI note that the site contamination issues can be managed through the development application process in accordance with the *State Environmental Planning Policy 55 (SEPP 55) – Remediation of Land*, with the requirements for remediation and validation incorporated into conditions of development consent.

12. RECOMMENDATIONS

Based on the findings of this DSI, the site can be made suitable provided the following recommendations are implemented:

- Address the data gaps identified within this report through means of additional soil investigations. This data gap closure will address the waste classification required in the south/south west side of the site which was not completed during this investigation.

- Provide the requirements and procedures for waste classification assessment including further sampling, in order to enable formal classification of site soils to be excavated and disposed off-site or reused during the proposed basement excavation, in accordance with the EPA (2014) *Waste Classification Guidelines.* This process will address the nickel and benzo(α)pyrene exceedance found in fill at locations identified in **Table T1** and **Figure 2**.

- Validation of natural soil and preparation of site validation report.

- Any material being imported to the site (i.e. for landscaping purposes) should be assessed for potential contamination in accordance with NSW EPA guidelines as being suitable for the intended use or be classified as VENM.

It is further recommended to implement an unexpected finds protocol during the basement excavation works to ensure any potential groundwater contamination is identified and managed in accordance with the NSW EPA legislation and guidelines.

13. STATEMENT OF LIMITATIONS

This report has been prepared for the exclusive use of Stockland Pty Ltd ("Client") who are the only intended beneficiary of EI's work. The scope of the investigations carried out for the purpose of this report is limited to those agreed with the Client on 1 November 2017.

No other party should rely on the document without the prior written consent of EI, and EI undertakes no duty, or accepts any responsibility or liability, to any third party who purports to rely upon this document without EI's approval.

EI has used a degree of care and skill ordinarily exercised in similar investigations by reputable members of the environmental industry in Australia as at the date of this document. No other warranty, expressed or implied, is made or intended. Each section of this report must be read in conjunction with the whole of this report, including its appendices and attachments.

The conclusions presented in this report are based on a limited assessment of historical site use and current use of the site. Due to the preliminary nature of this assessment, findings are not based on actual samples collected or testing conducted. EI has relied upon information provided by the Client and other third parties to prepare this document, some of which could not be verified by EI due to the anecdotal or historical nature of the information.

EI's professional opinions are reasonable and based on its professional judgment, experience and training.

EI's professional opinions contained in this document are subject to modification if additional information is obtained through the data searches that have been initiated with government authorities, but for which the requested information is still pending.

Technical opinions may also be amended in the light of further investigation, observations, or validation testing and analysis during remedial activities. In some cases, further testing and analysis may be required, which may result in a further report with different conclusions.

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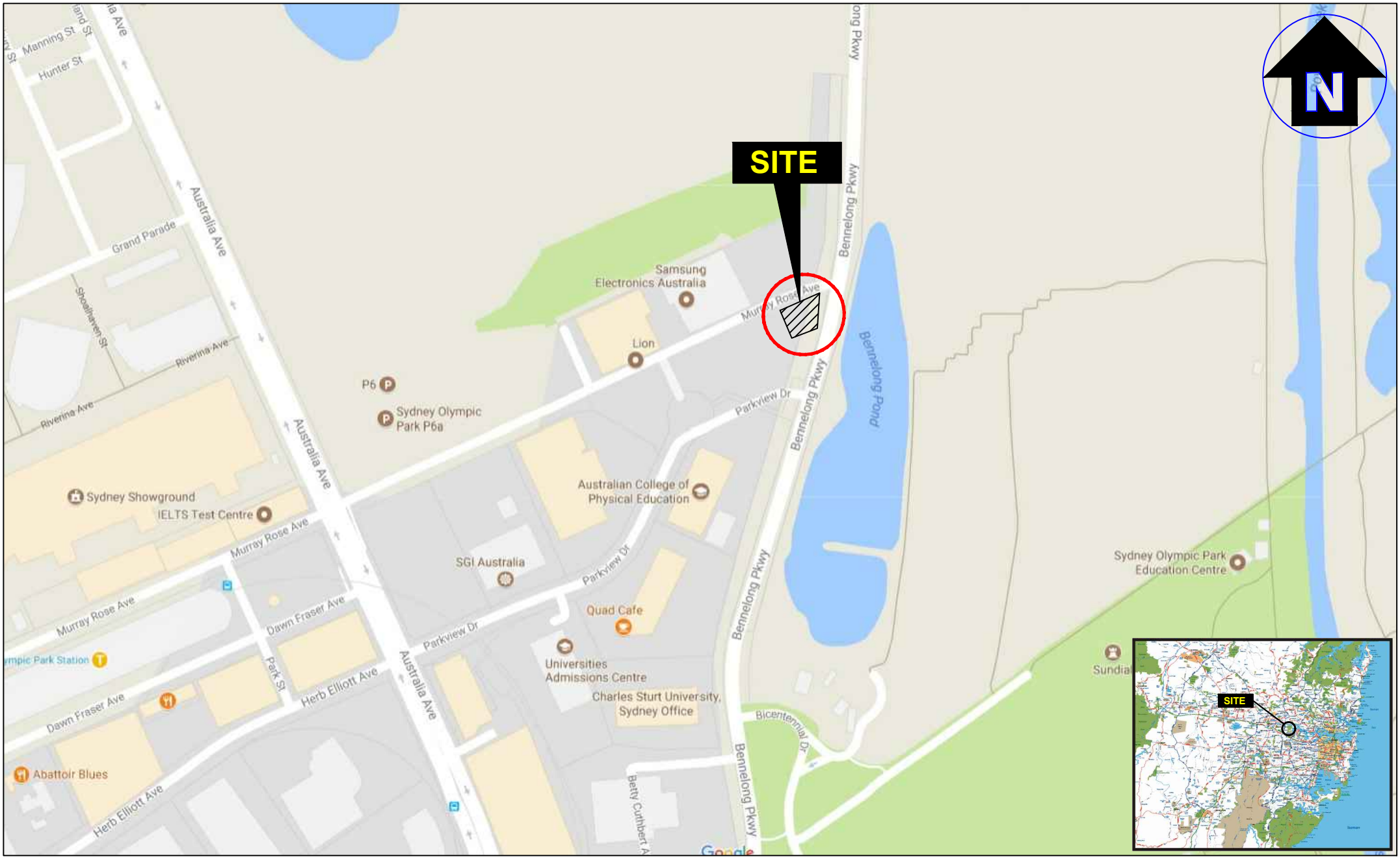
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ABBREVIATIONS

ACM	Asbestos-containing materials
ASS	Acid sulfate soils
ANZECC	Australian and New Zealand Environment Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
B(α)P	Benzo(α)Pyrene (a PAH compound), - B(α)P TEQ Toxicity Equivalent Quotient
BH	Borehole
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
COC	Chain of Custody
cVOCs	Chlorinated Volatile Organic Compounds (a sub-set of the VOC analysis suite)
DEC	Department of Environment and Conservation, NSW (see OEH)
DECC	Department of Environment and Climate Change, NSW (see OEH)
DECCW	Department of Environment, Climate Change and Water, NSW (see OEH)
DA	Development Application
DO	Dissolved Oxygen
DP	Deposited Plan
EC	Electrical Conductivity
Eh	Redox potential
EPA	Environment Protection Authority
EMP	Environmental Management Plan
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)
GIL	Groundwater Investigation Level
GME	Groundwater Monitoring Event
HIL	Health-based Investigation Level
HSL	Health-based Screening Level
km	Kilometres
LNAPL	Light, non-aqueous phase liquid (also referred to as PSH)
DNAPL	Dense, non-aqueous phase liquid
EIL	Ecological Investigation Level
ESL	Ecological Screening Level
m	Metres
m AHD	Metres Australian Height Datum
m BGL	Metres Below Ground Level
mg/m^3	Milligrams per cubic metre
mg/L	Milligrams per litre
µg/L	Micrograms per litre
mV	Millivolts
MW	Monitoring well
NATA	National Association of Testing Authorities, Australia
NEPC	National Environmental Protection Council
NSW	New South Wales
OEH	Office of Environment and Heritage, NSW (formerly DEC, DECC, DECCW)
PAHs	Polycyclic Aromatic Hydrocarbons
pH	Measure of the acidity or basicity of an aqueous solution
PSH	Phase-separated hydrocarbons (also referred to as LNAPL)
PQL	Practical Quantitation Limit (limit of detection for respective laboratory instruments)
QA/QC	Quality Assurance / Quality Control

RAP	Remediation Action Plan
SRA	Sample receipt advice (document confirming laboratory receipt of samples)
SWL	Standing Water Level
TDS	Total dissolved solids (a measure of water salinity)
TCLP	Toxicity Characteristics Leaching Procedure
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
USEPA	United States Environmental Protection Agency
UPSS	Underground Petroleum Storage System
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds (specific organic compounds which are volatile)

FIGURES



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Ph (02) 9516 0722 Fax (02) 9518 5088

Drawn:	A.B.
Approved:	N.F.
Date:	15-11-17
Scale:	Not To Scale

Stockland Pty Ltd
Detailed Site Investigation
2 Murray Rose Avenue, Sydney Olympic Park NSW

Site Locality Plan

Figure: 1

Project: E23603.E02



LEGEND

- Approximate site boundary
- Approximate areas that could not be sampled
- Approximate borehole locations (EIS, 2017)
- Approximate borehole locations (current investigation)
- Approximate monitoring well location (current investigation)

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Approved:	N.F.
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Stockland Pty Ltd
Detailed Site Investigation
2 Murray Rose Avenue, Sydney Olympic Park NSW
Sampling Location Plan

Figure: 2

Project: E23603.E02

TABLES

Table T1 - Summary of Soil Analytical results **E23603 - Sydney Olympic Park**

Sample ID	Material	Date	PID Reading	Heavy Metals									PAHs					BTEX				TRH				TPH		Pesticides		PCBs	Asbestos
				As	Cd	Cr	Cu	Pb	Hg	Ni	$TCLP_{Ni}$ (mg/L)	Zn	Carcinogenic PAHs (as B(a)P TEQ)	Benzo(a)pyrene	TCLP_Benzo(a)pyrene (mg/L)	Total PAH (NEPM/WHO 16)	Naphthalene	Benzene	Toluene	Ethylbenzene	Total Xylenes	F1	F2	F3	F4	C_6-C_9	C_{10}-C_{36}	Total OCPs	Total OPPs	Total	Presence / absence
Fill soils EIS (2017)																															
BH1_0.1-1.0	Fill	10-09-17	-	7	LPQL	13	28	18	LPQL	11	NA	31	LPQL	0.1	NA	0.9	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No
BH2_0.05-0.1	Fill	10-09-17	-	LPQL	LPQL	12	58	2	LPQL	100	0.1	35	0.3	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No
BH3_0.1-0.2	Fill	09-09-17	-	LPQL	LPQL	11	58	2	LPQL	110	0.2	35	LPQL	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No
BH4_0.5-0.65	Fill	09-09-17	-	9	LPQL	16	39	19	LPQL	28	NA	39	LPQL	0.3	NA	2.3	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No
BH5_0.0-0.2	Fill	04-09-17	-	9	LPQL	14	31	21	LPQL	35	NA	57	LPQL	0.2	NA	1.4	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No
BH6_0.9-1.1	Fill	04-09-17	-	18	LPQL	13	34	34	LPQL	6	NA	27	LPQL	0.1	NA	0.8	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No
Fill Soils EI Australia (Current Investigation)																															
BH101M_0.2-0.3	Fill	19-11-17	4.3	4	<0.3	4.2	54	9	<0.05	2.4	NA	20	<0.3	<0.1	NA	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH102_0.2-0.3	Fill	19-11-17	3.7	7	0.4	15	33	28	<0.05	11	NA	63	1.6	1.1	<0.0001	12	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH103_0.2-0.3	Fill	19-11-17	4.5	9	<0.3	14	24	17	<0.05	25	NA	31	<0.3	<0.1	NA	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH104M_0.25-0.35	Fill	19-11-17	2.7	5	<0.3	12	34	13	<0.05	50	0.064	50	0.8	0.5	NA	4.7	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH104M_1.0-1.1	Fill	19-11-17	1.5	9	0.5	16	29	41	<0.05	7.2	NA	52	0.3	0.2	NA	1.9	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH105_0.2-0.3	Fill	19-11-17	4.7	10	<0.3	8.9	24	17	<0.05	13	NA	45	3.9	2.8	<0.0001	50	2.4	<0.1	<0.1	<0.1	<0.3	<25	<25	180	<120	<20	170	<1	<1.7	<1	No
BH106M_0.25-0.35	Fill	19-11-17	5.4	11	0.3	14	27	27	<0.05	20	NA	42	0.5	0.3	NA	2.1	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH106M_0.8-0.9	Fill	19-11-17	6.6	110	<0.3	5.7	74	43	0.08	9.7	NA	46	<0.3	0.1	NA	2.1	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH107_0.2-0.3	Fill	19-11-17	5.3	6	0.4	11	25	21	<0.05	7.2	NA	26	0.7	0.4	NA	4.2	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH107_0.8-0.9	Fill	19-11-17	7.4	7	<0.3	6.6	36	23	<0.05	7.7	NA	38	0.3	0.2	NA	1.4	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH108_0.2-0.3	Fill	19-11-17	2.7	6	<0.3	9.7	23	15	<0.05	13	NA	26	<0.3	<0.1	NA	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH108_0.9-1.0	Fill	19-11-17	1.3	8	<0.3	12	28	15	<0.05	30	NA	39	<0.3	<0.1	NA	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
Fill Soils - Statistical Analysis																															
Maximum Concentration				110	0.5	16	74	43	0.08	110.00	0.2	63	3.9	2.8	<0.0001	50.0	2.4	<0.1	<0.1	<0.1	<0.3	<25	<25	180	<120	<20	170.0	<1	<1.7	<1	No
Mean				13.5	NA	NA	NA	NA	NA	27.01	NA	NA	0.63	0.38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
95% UCL				38.47	NA	NA	NA	NA	NA	43.53	NA	NA	1.54	1.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Natural Soils EIS (2017)																															
BH3_1.5-1.8	Natural	09-09-17	-	20	LPQL	10	46	43	LPQL	11	NA	50	LPQL	0.06	NA	0.2	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	NA	NA	NA
BH4_1.3-1.5	Natural	09-09-17	-	9	LPQL	18	45	24	LPQL	4	NA	15	LPQL	LPQL	NA	0.4	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	NA	NA	NA
BH5_1.0-1.2	Natural	04-09-17	-	5	LPQL	22	21	24	LPQL	7	NA	15	LPQL	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	NA	NA	NA
Natural Soils EI Australia (Current Investigation)																															
BH101M_0.8-0.9	Natural	19-11-17	5.8	4	<0.3	9.6	15	25	<0.05	1.0	NA	11	<0.3	<0.1	NA	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	NA	NA	NA	NA
BH104M_1.5-1.6	Natural	19-11-17	2.9	6	<0.3	7.3	43	28	<0.05	13	NA	65	<0.3	<0.1	NA	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	NA	NA	NA	NA
BH105_1.7-1.8	Natural	19-11-17	3.6	5	<0.3	6.5	35	23	<0.05	6.3	NA	37	<0.3	<0.1	NA	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	NA	NA	NA	NA
BH106M_1.5-1.6	Natural	19-11-17	5.1	11	<0.3	11	35	93	<0.05	4.6	NA	25	0.7	0.4	NA	9.3	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	NA	NA	NA	NA
BH107_1.4-1.5	Natural	19-11-17	5.7	4	0.3	17	31	22	<0.05	1.9	NA	15	<0.3	<0.1	NA	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	NA	NA	NA	NA
Natural Soils - Statistical Analysis																															
Maximum Concentration				20	0.3	22	46	93	<0.05	13	NA	65	0.7	0.4	NA	9.3	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	NA	NA	NA	NA
Mean				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
95% UCL				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SILs																															
HIL B - *Residential*				500	150	500 Cr(VI)	30,000	1,200	120	1,200		60,000	4	NR		400	NR												NR	1	
HIL C - *Recreational*				300	90	300 Cr(VI)	17,000	600	80	1,200		30,000	3	NR		300	NR												NR	1	
HSL C - *Public/Open Spaces* Soil texture classification –Sand[1]				Source depths (0 m to <1 m. BGL)													NL	NL	NL	NL	NL	NL	NL								
				Source depths (1 m to <2 m. BGL)													NL	NL	NL	NL	NL	NL	NL								
				Source depths (2m to <4 m. BGL)													NL	NL	NL	NL	NL	NL	NL								
				Source depths (4 m+)													NL	NL	NL	NL	NL	NL	NL								
HSL D - *Commercial / Industrial* Soil texture classification –Sand[1]				Source depths (0 m to <1 m. BGL)													NL	3	NL	NL	230	260	NL								
				Source depths (1 m to <2 m. BGL)													NL	3	NL	NL	NL	370	NL								
				Source depths (2m to <4 m. BGL)													NL	3	NL	NL	NL	630	NL								
				Source depths (4 m+)													NL	3	NL	NL	NL	NL	NL								
EILs / ESLs - urban residential and public open space[1,2]				100	NR	205 Cr(III)	90	1,260	NR	35		190	NR	0.7	NR	NR	170	50	85	70	105	180 *	120 *	300	2,800			180			
Management Limits – *Residential, parkland and public open space* Coarse grained soil texture[2]																						700	1,000	3,500	10,000						
Asbestos contamination HSL – A&B *Residential* Bonded ACM (%w/w)																															Presence/ Absence
Asbestos contamination HSL – D *Commercial / Industrial* Bonded ACM (%w/w)																															Presence/ Absence
Asbestos contamination HSL for Non Bonded / Friable Asbestos (%w/w)																															Presence/ Absence
NSW EPA 2014 [2] General Solid Waste	CT1 (mg/kg)			100	20	100		100	4	40			0.8			200		10	288	600	1,000					650	10,000	<50			If detected, dispose as Special Waste- Asbestos Waste
	TCLP1 (mg/L) / SCC1 (mg/kg)			5.0 / 500	1.0 / 100	5 / 1,900		5 / 1,500	0.2 / 50	2 / 1,050			0.04 / 10			NA / 200		0.5 / 18	14.4 / 518	30 / 1,080	50 / 1,800					NA / 650	NA / 10,000	NA / <50			
NSW EPA 2014 [3] Restricted Solid Waste	CT2 (mg/kg)			400	80	400		400	16	160			3.2	3.2		800		40	1,152	2,400	4,000					2,600	40,000	NA			
	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	0.16 / 23		NA / 800		2 / 72	57.6 / 2,073	120 / 4,320	200 / 7,200					NA / 2,600	NA / 40,000	NA / <50			

Notes:

All results are recorded in mg/kg (unless otherwise stated)

Highlighted values indicates concentration exceeds EILs/ESLs and NSW EPA (2014) Waste Criteria

Highlighted indicates NEPM 2013 criteria exceeded OR NSW EPA (2014) waste criteria met

HIL B	NEPC 1999 Amendment 2013 'HIL B' Health Based Investigation Levels applicable for residential exposure settings with minimal opportunities for garden soil access.
HSL D	NEPC 1999 Amendment 2013 'HSL D' Health Based Screening Levels based on vapour intrusion values applicable for commercial / industrial settings.
NA	'Not Analysed' i.e. the sample was not analysed.
NC	Not Calculated'
ND	'Not detected' i.e. all concentrations of the compounds within the analyte group were found to be below the laboratory limits of detection.
NL	'Not Limiting' - The soil vapour limit exceeds the soil concentration at which the pore water phase cannot dissolve any more of the individual chemical.
NR	No current published criterion.
*	ESLs are of low reliability except where indicated by * which indicates that the ESL is of moderate reliability.
1	Strata was a mix of sand and clay. Therefore soil values for the more conservative matrix, sand, was applied (coarse grained).
2	As no physiochemical properties were analysed the most conservative values were adopted for EILs and ESLs.
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)

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Table T2 – Summary of Groundwater Investigation Results **E23603 - Sydney Olympic Park**

Sample Identification		Date	Metals								PAHs			BTEX					TRHs				Phenols	VOCs
			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	Total	Total
EI Australia - Current Investigation																								
BH104M		06-12-17	4	<0.1	<1	7	<1	<0.1	13	88	<1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	<10	<10
BH106M			<1	0.1	<1	5	<1	<0.1	34	170	<1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	<10	<10
Statistical Analysis																								
Maximum Concentration			4	0.1	<1	7	<1	<0.1	34	170	<1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	<10	<10
GILs																								
NEPM (2013) HSL - D Commercial / Industrial[5]													NL	5,000	NL	NL	NL		6,000	NL				
ANZECC / ARMCANZ (2000)	**Marine Water [4]**		2.3 (As III)[9], [10] 4.5 (AS V)[9]	0.7 [3]	27 (CR III) 4.4 (Cr IV)	1.3	4.4	0.1 [3]	7	15 [2]		0.2	50 [2]	500	180 [9]	5 [9]	350 [9]	275 [9]	50 [8]	60 [8]	500 [8]	500 [8]	320	370
	Fresh Water [4]		24 (AsIII) 13 (AsV)	0.2	1 (CR VI)	1.4	3.4	0.06 [3]	11	8 [2]		0.2	16	950		80 [9]							400	370
	Drinking Water [6]		10	2		2,000	10	1	20			0.01		1	800	300	600							250 (for THMs)
	Recreational Water [7]		100	20		20,000	100	10	200			0.1		10	8,000	3,000	6,000							250 (for THMs)

Notes:

All values are µg/L unless stated otherwise

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)

^ = Sample "S3GW1-3" was sampled from Monitoring Well location GW2

* = For EI (2010), TRH F1 to TRH F4 was not reported. C6 - C9, C10 - C14, C15 - C28 and C29 - C36 have been reported instead of TRH F1, TRH F2, TRH F3 and TRH F4, respectively.

= BH3M-2 was collected from the DP (2015a) monitoring well BH3.

2 = Figure may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance

3 = Chemical for which possible bioaccumulation and secondary poisoning effects should be considered, refer to ANZECC & ARMCANZ (2000) for further guidance

4 = NEPM (2013) Groundwater Investigation Levels for fresh and marine water quality, based on ANZECC & ARMCANZ (2000).

5 = NEPC (2013) Table 1A(4) Groundwater HSL A&B and HSL D for vapour intrusion at the contaminant source depth ranges in sand 2m to <4m, as a conservative approach.

6 = NEPM (2013) Groundwater Investigation Levels for drinking water quality, based on Australian Drinking Water Guidelines (NHMRC 2011).

7 = Drinking Water value has been used multiplied by a factor of 10 to address the secondary contact recreation (NHMRC, 2011).

8 = In lack of a criteria the laboratory PQL has been used (DEC, 2007).

9 = Low and moderate reliability toxicity data, refer to ANZECC & ARMCANZ (2000)

10 = As (III) was adopted as the assessment level

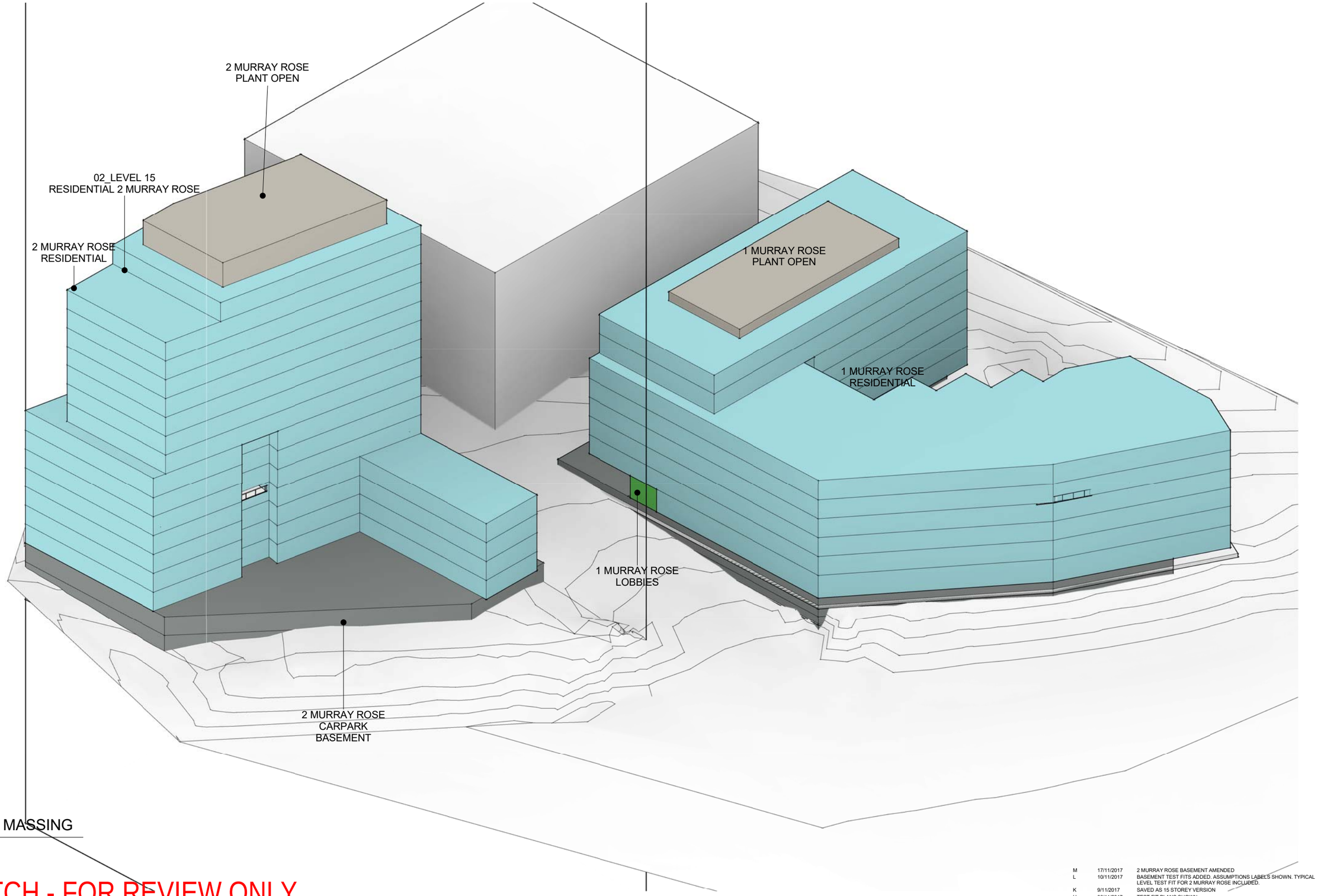
Highlighted indicates ecological criteria exceeded

Highlighted indicates criteria exceeded

eiaust
Contamination | Remediati

APPENDIX A
PROPOSED SKETCH PLANS

0 | 100mm | 200mm | 300mm



1 3D MASSING

SKETCH - FOR REVIEW ONLY

M	17/11/2017	2 MURRAY ROSE BASEMENT AMENDED
L	10/11/2017	BASEMENT TEST FITS ADDED. ASSUMPTIONS LABELS SHOWN. TYPICAL LEVEL TEST FIT FOR 2 MURRAY ROSE INCLUDED.
K	9/11/2017	SAVED AS 15 STOREY VERSION
H	06/11/2017	TEST FIT PLANS SHOWN
G	23/10/2017	APARTMENT SIZES AMENDED - ISSUED AS WEIGHTED AVERAGE APARTMWENT YIELD, BASEMENT ADJUSTED
E	25/05/2017	ISSUED FOR PRELIMINARY REVIEW AND COMMENT
D	23/06/2017	SAVED FROM SCHEME A (1 MURRAY ROSE AVE REDUCED TO 6-8 STOREY)

100mm | 200mm

K:\National Design\07 Business Development\02 Projects\Homebush_1 Murray Rose Avenue\Homebush_1-5 Murray Rose Avenue_Scheme D sketch_rev M_not yet issued.rvt

Project	Drawing	Scale @ A3	Drawing No	Printed	Rev
HOMEBUSH 1-2 MURRAY ROAD AVE 15 STOREY SCHEME	3D MASSING		B100	17/11/2017 5:25:14 PM	M

project	drawing		scale @ A3	drawing No	printed	rev
HOMEBUSH 1-2 MURRAY ROAD AVE 15 STOREY SCHEME	TYPE B LEVEL BY LEVEL YIELD SCHDEULE SUMMARY	CONFIDENTIAL		B101	17/11/2017 5:36:57 PM	M

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amendments

issue	date	notes
E	25/05/2017	ISSUED FOR PRELIMINARY REVIEW AND COMMENT
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M	17/11/2017	2 MURRAY ROSE BASEMENT AMENDED

SITE SUMMARY				DEEP SOIL REQUIRED (ADG 7.0%)	COMMUNAL OPEN SPACE REQUIRED (ADG 25%)
name	area	TARGET FSR (INC DESIGN COMP)	allowable GFA		
1 MURRAY ROSE AVENUE	3,930	3.3	12,968	275 m²	982 m²
2 MURRAY ROSE AVENUE	2,521	3.3	8,319	176 m²	630 m²
TOTAL	6,451		21,287		

B_SUMMARY OF LEVEL BY LEVEL YIELD SCHEDULE BASED ON ENVELOPES

		residential areas				residential areas		apt by mix		retail areas			car parking				car parking		plant		totals		
		apartment areas				common							required				measured						
	BEA	GBA (ex balc)	GFA	NSA	GBA + BALCONIES	GBA	GFA	AVE NSA	COUNT	GBA	GFA	NSA	RESI	RESI VISITORS	RETAIL (BASED ON NSA)	TOTAL PARKING REQUIRED	GBA	COUNT	BEA (OPEN PLANT)	GBA (ENCLOSED PLANT)	GBA (ex balc)	GFA	NSA
1 MURRAY ROSE	23,565	13,812	12,293	10,732	15,211	50	50	75.2	**142.7**	0	0	0	154.1	14.3	0.0	168.4	6,746	168.7	422	0	**20,609**	**12,343**	**10,732**
2 MURRAY ROSE	22,921	13,179	11,861	10,319	14,524	66	66	75.2	**137.2**	0	0	0	148.2	13.7	0.0	161.9	6,914	160.8	436	0	**20,159**	**11,927**	**10,319**
Grand total	46,485	26,991	24,154	21,051	29,734	116	116		279.9	0	0	0	302.3	28.0	0.0	330.3	13,660	329.4	859	0	40,767	24,270	21,051

BEA - Building Envelope Area:
The total building area measured to the outside face of exterior walls including open balconies and including any building articulation.

GBA - Gross Building Area:
The total building area measured to the outside face of exterior walls excluding open balconies and including the folowing areas calculated seperately:
- -basement area & car park
- -plant rooms
- -any areas having different cost rates

NSA - Net Saleable Area:
Strata Area (NSA) is area of dwelling measured from internal face of perimeter walls, including internal walls and balcony (measured separately) but excluding structural cubic space (ie. ducts, risers, structural columns, double height space) within the dwelling.
*unless otherwise noted NSA excludes balconies

GFA - Gross Floor Area (council definition):
"gross floor area" means the sum of the floor area of each floor of a building measured from the internal face of external walls, or from the internal face of walls separating the building from any other building, measured at a height of 1.4 metres above the floor, and includes:
(a) the area of a mezzanine, and
(b) habitable rooms in a basement or an attic, and
(c) any shop, auditorium, cinema, and the like, in a basement or attic,
but excludes:
(d) any area for common vertical circulation, such as lifts and stairs, and
(e) any basement:
(i) storage, and
(ii) vehicular access, loading areas, garbage and services, and
(f) plant rooms, lift towers and other areas used exclusively for mechanical services or ducting, and
(g) car parking to meet any requirements of the consent authority (including access to that car parking), and
(h) any space used for the loading or unloading of goods (including access to it), and
(i) terraces and balconies with outer walls less than 1.4 metres high, and
(j) voids above a floor at the level of a storey or storey above.

General Notes:
1. Area Calculations are based on preliminary concept sketch drawings and are approximate.
2. Plant room areas are estimates and will require confirmation based on consultant advice.
3. Apartment sizes may need to inccrease to account for LHA and adaptable requirements.
4. The apartment counts and yield areas shown here are derived from the mass areas and average apartment sizes. rounding errors and the like are inevitable.
5. In the absense of a survey the site area and envelope dimensions are approximate.
6. the ground levels have been assumed flat.
7. stebacks and street frontage height have been taken from the PTW compliant scheme - note compliance with the planning controls needs to be confirmed0
8. deep soil required taken from Greenb square DCP.

project	drawing		scale @ A3	drawing No	printed	rev
HOMEBUSH 1-2 MURRAY ROAD AVE 15 STOREY SCHEME	TYPE B LEVEL BY LEVEL YIELD SCHEDULE	CONFIDENTIAL		B102	17/11/2017 5:36:57 PM	M

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amendments

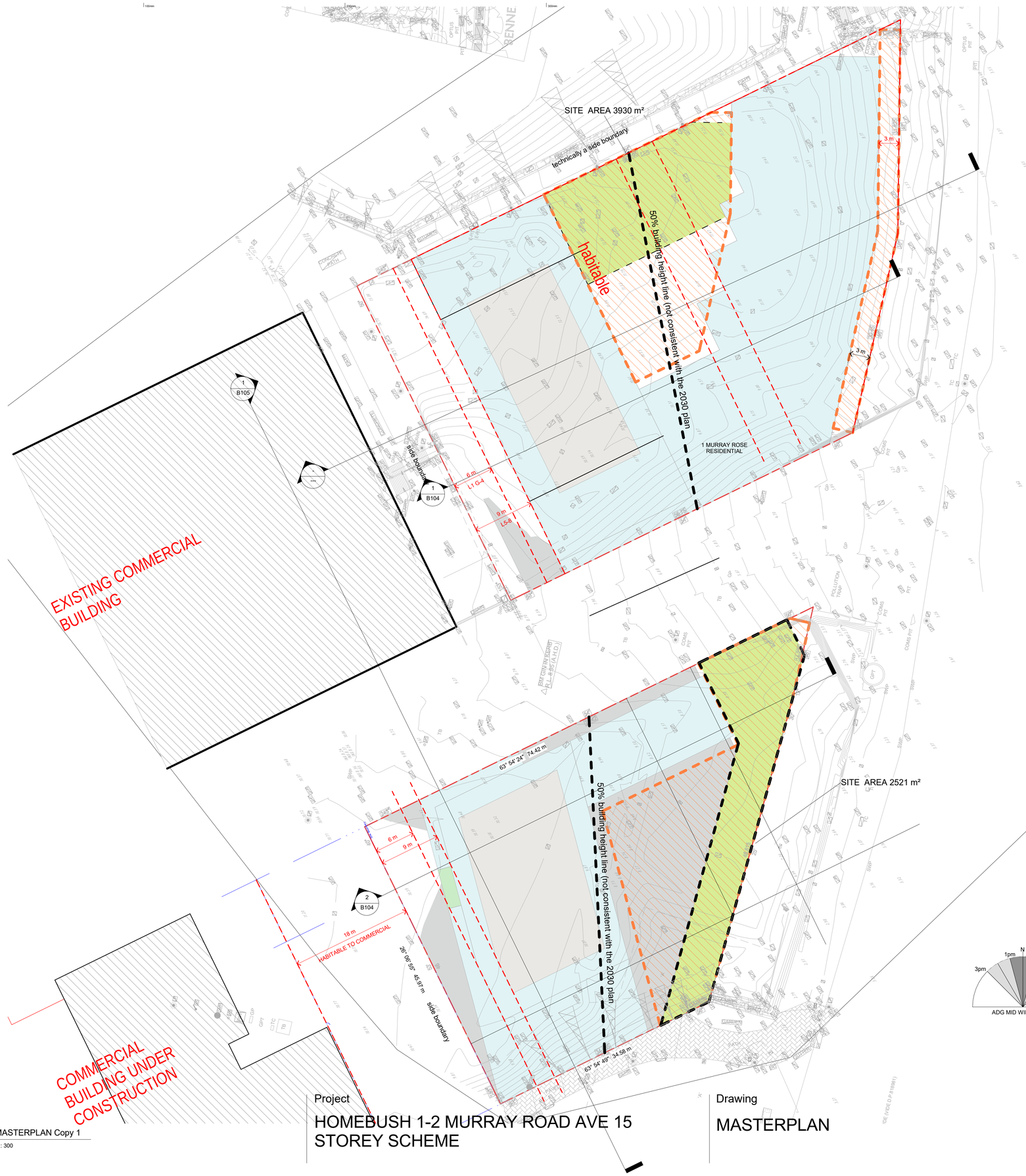
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B_LEVEL BY LEVEL YIELD SCHDEULE ASSUMPTIONS

	target efficiencies % **				apartment areas m²					target apartment mix %						balcony size m²						parking rates (per apt)					parking rates (misc)		
usage	BEA - GBA	GBA - GFA	GFA - NSA	GBA - NSA	STUDIO	1 BED	2 BED	3 BED	PENTHOUSE	STUDIO	1 BED	2 BED	3 BED	PENTHOUSE	MIX CHECK	STUDIO	1 BED	2 BED	3 BED	PENTHOUSE	AVE	STUDIO	1 BED	2 BED	3 BED	PENTHOUSE	RETAIL	VISITOR (per apt)	EFFICIENCY
CARPARK BASEMENT 1 MURRAY ROSE	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0	0	0	0	0	0.00	0	0	0	0	0	0 m²	0	40.0 m²
CARPARK BASEMENT 2 MURRAY ROSE	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0	0	0	0	0	0.00	0	0	0	0	0	0 m²	0	43.0 m²
LOBBIES	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0%	0	0	0	0	0	0.00	0	0	0	0	0	0 m²	0	0.0 m²
PLANT ENCLOSED	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0	0	0	0	0	0.00	0	0	0	0	0	0 m²	0	0.0 m²
PLANT OPEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0	0	0	0	0	0.00	0	0	0	0	0	0 m²	0	0.0 m²
RESIDENTIAL 1 MURRAY ROSE	84.5	89	87.3	77.7	0	54	78	98	0	0	20	70	10	0	100%	0	8	10	12	0	9.80	0	1.08	1.08	1.08	0	0 m²	0.1	0.0 m²
RESIDENTIAL 2 MURRAY ROSE	85	90	87	78.3	0	54	78	98	0	0	20	70	10	0	100%	0	8	10	12	0	9.80	0	1.08	1.08	1.08	0	0 m²	0.1	0.0 m²
RESIDENTIAL SINGLE SIDED	85	90	80	72	0	54	78	98	0	0	20	70	10	0	100%	0	8	10	12	0	9.80	0	1.08	1.08	1.08	0	0 m²	0.1	0.0 m²
RETAIL	100	95	100	95	0	0	0	0	0	0	0	0	0	0	0%	0	0	0	0	0	0.00	0	0	0	0	0	0 m²	0	0.0 m²

B_LEVEL BY LEVEL YIELD SCHEDULE BASED ON ENVELOPE

			residential areas				residential areas		apartments					apt by mix		ADG solar and cross-vent			car parking			car parking		plant		totals		
			apartment areas				common		by manual input										required			measured						
LEVEL	RL	BEA	GBA (ex balc)	GFA	NSA	BALCONIES	GBA	GFA	1 BED	2 BED	3 BED	TOTAL APT COUNT	CHECK NSA	AVE NSA	COUNT	Cross Vent	Solar >2hrs	No Sun	RESI	RESI VISITORS	TOTAL PARKING REQUIRED	GBA	COUNT	BEA (OPEN PLANT)	GBA (ENCLOSED PLANT)	GBA (ex balc)	GFA	NSA
01_LEVEL 09	35.500	422	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0.0	0.0	0.0	0	0.0	422	0	0	0	0
01_LEVEL 08	32.400	1,103	932	829	724	94	0	0	3	7	0	10	708	75.2	9.6	9	10	0	10.4	1.0	11.4	0	0.0	0	0	932	829	724
01_LEVEL 07	29.150	1,103	932	829	724	94	0	0	3	7	0	10	708	75.2	9.6	5	6	1	10.4	1.0	11.4	0	0.0	0	0	932	829	724
01_LEVEL 06	25.900	2,530	2,137	1,902	1,661	216	0	0	5	13	3	21	1,578	75.2	22.1	16	17	3	23.9	2.2	26.1	0	0.0	0	0	2,137	1,902	1,661
01_LEVEL 05	22.800	2,530	2,137	1,902	1,661	216	0	0	5	14	3	22	1,656	75.2	22.1	13	14	3	23.9	2.2	26.1	0	0.0	0	0	2,137	1,902	1,661
01_LEVEL 04	19.700	2,530	2,137	1,902	1,661	216	0	0	5	14	3	22	1,656	75.2	22.1	13	14	3	23.9	2.2	26.1	0	0.0	0	0	2,137	1,902	1,661
01_LEVEL 03	16.600	2,530	2,137	1,902	1,661	216	0	0	5	14	3	22	1,656	75.2	22.1	13	14	3	23.9	2.2	26.1	0	0.0	0	0	2,137	1,902	1,661
01_LEVEL 02	13.500	2,530	2,137	1,902	1,661	216	0	0	5	14	3	22	1,656	75.2	22.1	13	14	3	23.9	2.2	26.1	0	0.0	0	0	2,137	1,902	1,661
01_LEVEL 01 GROUND	9.800	2,418	1,262	1,123	980	128	50	50	3	7	3	13	1,002	75.2	13.0	6	10	3	14.1	1.3	15.4	875	21.9	0	0	2,187	1,173	980
01_LEVEL B1	6.700	2,936	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0.0	0.0	0.0	2,936	73.4	0	0	2,936	0	0
01_LEVEL B2	3.600	2,936	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0.0	0.0	0.0	2,936	73.4	0	0	2,936	0	0
1 MURRAY ROSE: 13		23,565	13,812	12,293	10,732	1,399	50	50	34	90	18	142	10,620		142.7	88	99	19	154.1	14.3	168.4	6,746	168.7	422	0	20,609	12,343	10,732
02_LEVEL 16	57.119	436	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0.0	0.0	0.0	0	0.0	436	0	0	0	0
02_LEVEL 15	54.019	731	621	559	487	63	0	0	0	1	4	5	470	75.2	6.5	0	4	1	7.0	0.6	7.6	0	0.0	0	0	621	559	487
02_LEVEL 14	50.919	909	772	695	605	79	0	0	0	4	3	7	606	75.2	8.0	0	5	1	8.7	0.8	9.5	0	0.0	0	0	772	695	605
02_LEVEL 13	47.819	909	772	695	605	79	0	0	0	4	3	7	606	75.2	8.0	0	5	1	8.7	0.8	9.5	0	0.0	0	0	772	695	605
02_LEVEL 12	44.719	909	772	695	605	79	0	0	0	4	3	7	606	75.2	8.0	0	5	1	8.7	0.8	9.5	0	0.0	0	0	772	695	605
02_LEVEL 11	41.619	909	772	695	605	79	0	0	1	7	0	8	600	75.2	8.0	0	6	1	8.7	0.8	9.5	0	0.0	0	0	772	695	605
02_LEVEL 10	38.519	909	772	695	605	79	0	0	1	7	0	8	600	75.2	8.0	0	6	1	8.7	0.8	9.5	0	0.0	0	0	772	695	605
02_LEVEL 09	35.419	909	772	695	605	79	0	0	1	7	0	8	600	75.2	8.0	6	6	1	8.7	0.8	9.5	0	0.0	0	0	772	695	605
02_LEVEL 08	32.319	909	772	695	605	79	0	0	1	7	0	8	600	75.2	8.0	6	6	1	8.7	0.8	9.5	0	0.0	0	0	772	695	605
02_LEVEL 07	29.069	1,085	922	830	722	94	0	0	3	7	0	10	708	75.2	9.6	6	8	2	10.4	1.0	11.3	0	0.0	0	0	922	830	722
02_LEVEL 06	25.969	1,085	922	830	722	94	0	0	3	7	0	10	708	75.2	9.6	6	8	2	10.4	1.0	11.3	0	0.0	0	0	922	830	722
02_LEVEL 05	22.869	1,085	922	830	722	94	0	0	3	7	0	10	708	75.2	9.6	6	8	2	10.4	1.0	11.3	0	0.0	0	0	922	830	722
02_LEVEL 04	19.769	1,317	1,120	1,008	877	114	0	0	3	9	0	12	864	75.2	11.7	6	9	2	12.6	1.2	13.8	0	0.0	0	0	1,120	1,008	877
02_LEVEL 03	16.669	1,317	1,120	1,008	877	114	0	0	3	9	0	12	864	75.2	11.7	6	9	2	12.6	1.2	13.8	0	0.0	0	0	1,120	1,008	877
02_LEVEL 02	13.569	1,263	1,073	966	840	110	0	0	4	8	0	12	840	75.2	11.2	6	9	2	12.1	1.1	13.2	0	0.0	0	0	1,073	966	840
02_LEVEL 01 GROUND	10.469	1,329	1,073	966	840	110	66	66	4	8	0	12	840	75.2	11.2	6	6	2	12.1	1.1	13.2	0	0.0	0	0	1,140	1,032	840
02_LEVEL B1	7.369	2,068	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0.0	0.0	0.0	2,068	48.1	0	0	2,068	0	0
02_LEVEL B2	4.269	2,068	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0.0	0.0	0.0	2,068	48.1	0	0	2,068	0	0
02_LEVEL B3	1.169	2,068	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0.0	0.0	0.0	2,068	48.1	0	0	2,068	0	0
02_LEVEL B4	-1.931	709	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0.0	0.0	0.0	709	16.5	0	0	709	0	0
2 MURRAY ROSE: 21		22,921	13,179	11,861	10,319	1,345	66	66	27	96	13	136	10,220		137.2	54	100	22	148.2	13.7	161.9	6,914	160.8	436	0	20,159	11,927	10,319
Grand total: 34		46,485	26,991	24,154	21,051	2,743	116	116	61	186	31	278	20,840		279.9	142	199	41	302.3	28.0	330.3	13,660	329.4	859	0	40,767	24,270	21,051



1 MASTERPLAN Copy 1
1 : 300

<u>1 Murray Rose Drive</u>
ADG communal open space
ex dedicated through site link
3,460m² x 0.25 = 865m²
hatched 181 + 683 = 864m²

Solar just ok - requires roof lights on the top level,
Cross-vent generally compliant (with workarounds etc..) -
- requires crossvent through non-habitable rooms.
- requires cross-vent through slots with depth to width ratio of 2:1
- requires drenchers on firstair glazing
- requires stack shafts for a number of apartments.
- may require another core.

building seperation:
a few windows/balconies in the courtyard will require screening.

deep soil required
ex dedicated through site link
3,460m² x 0.07 = 242m²
unencumbered deep soil shown 400m² or 11%

buildings poke out of the the LEP building heights - the sloping terrain make strict compliance while meeting the GFA very difficult.

<u>2 Murray Rose Avenue</u>
ADG communal open space
2,520m² x 0.25 = 630m²
hatched = 805m²

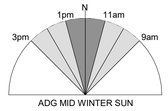
Solar to communal open space questionable
may have to provide roof terrace on southern leg

building seperation:
generally compliant, however assumes that we can build to the boundary on the west, due to tghe commercial building setback 18m to the boundary..
the building is 9 storeis tall by virtue of the sloping site but presents 8 storeis to the west
(this needs greater exploration as buildings above 8 storeis require a greater setbacks)
some windows in the courtyard will require screening to adress cro-viewing issues.

deep soil required
2,520m² x 0.07 = 176m²
unencumbered deep soil shown 187 + 271m² = 458M² or 13.2%
possible to provide additional deep soil on top of carpark

2 hours solar non-compliant with this arrangement.

buildings poke out of the the LEP building heights - the sloping terrain make strict compliance while meeting the GFA very difficult.



ADG MID WINTER SUN

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D	23/06/2017	SAVED FROM SCHEME A (1 MURRAY ROSE AVE REDUCED TO 6-8 STOREY)
C	22/06/2017	ISSUED FOR REVIEW AND COMMENT FOLLOWING MEETING WITH AUSTINO, NOTE ADDED TO GBA
B	21/06/2017	ISSUED FOR REVIEW

Project
HOMEBUSH 1-2 MURRAY ROAD AVE 15 STOREY SCHEME

Drawing
MASTERPLAN

Scale @ A1
1 : 300

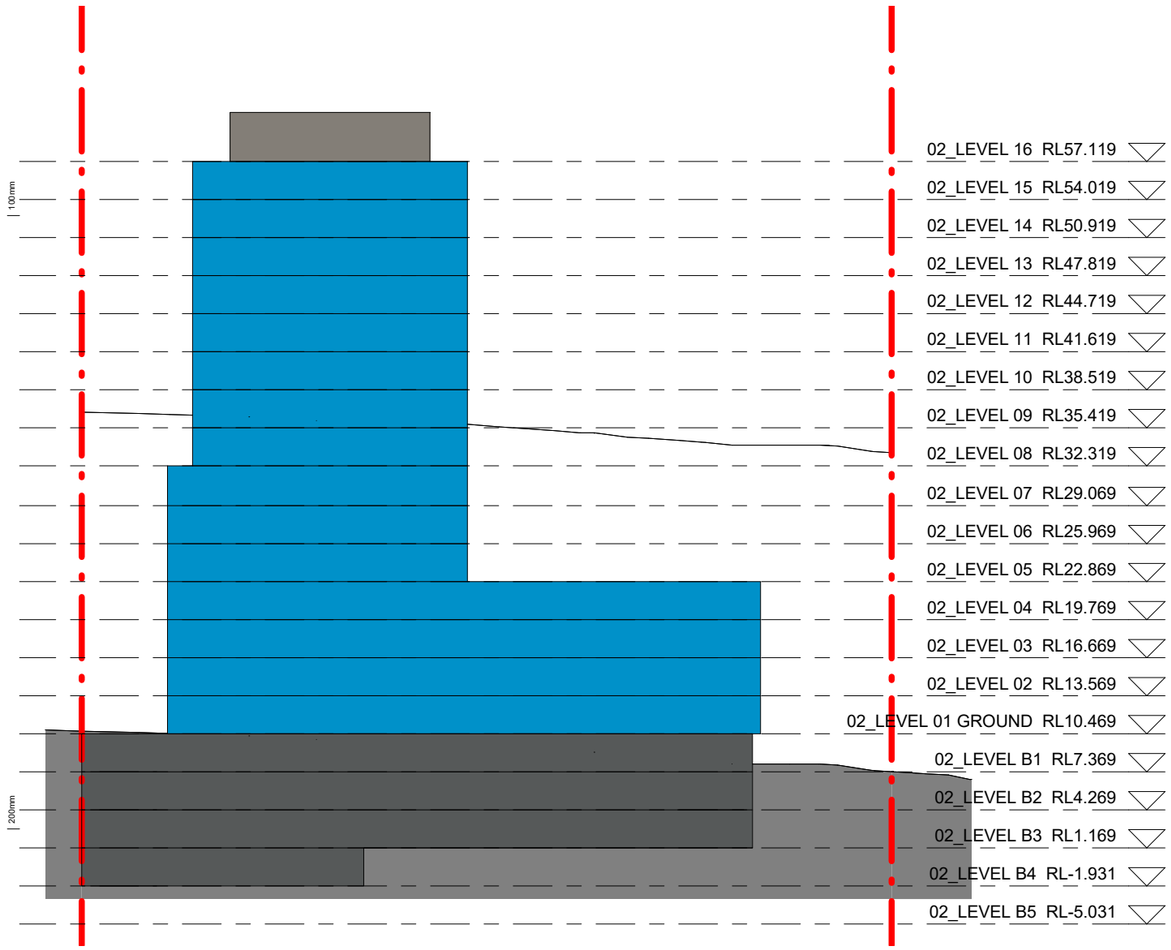
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Rev
M

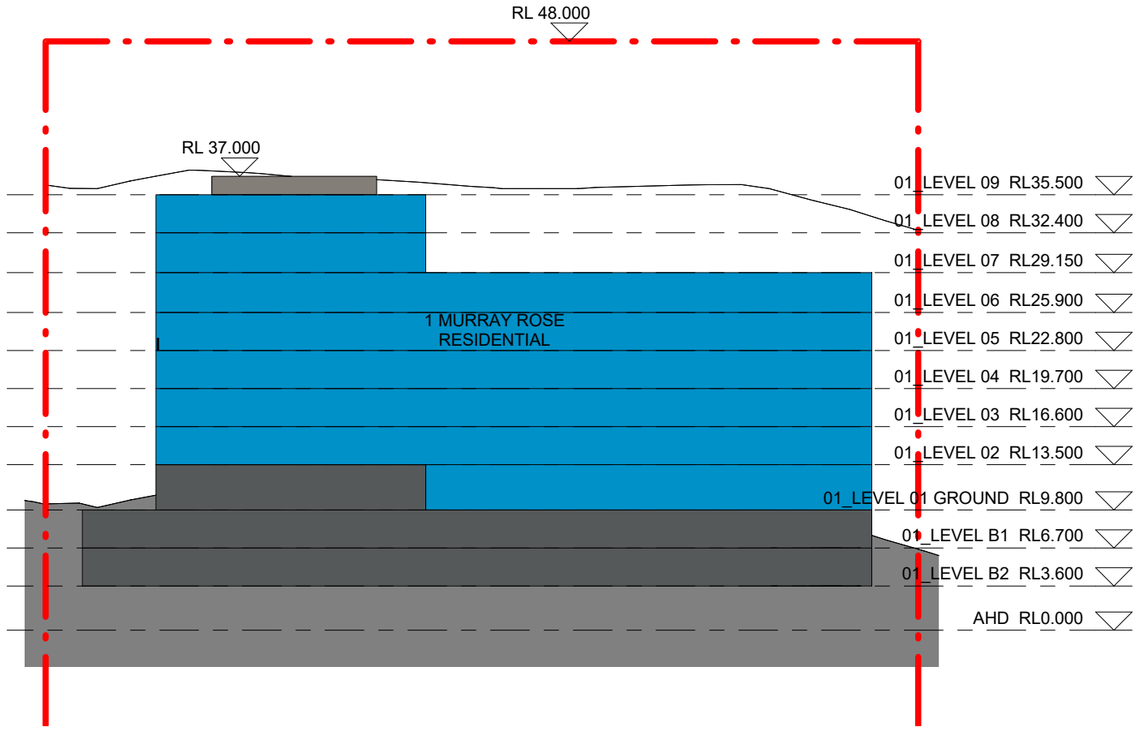
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0 | 100mm | 200mm | 300mm



2 2 MURRAY ROSE AVENUE MASS SECTION

1 : 500



1 1 MURRAY ROSE AVENUE MASS SECTION

1 : 500

M	17/11/2017	2 MURRAY ROSE BASEMENT AMENDED
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E	25/05/2017	ISSUED FOR PRELIMINARY REVIEW AND COMMENT
D	23/06/2017	SAVED FROM SCHEME A (1 MURRAY ROSE AVE REDUCED TO 6-8 STOREY)

K:\National Design\07 Business Development\02 Projects\Homebush_1 Murray Rose Avenue\Homebush_1-5 Murray Rose Avenue_Scheme D sketch_rev M_not yet issued.rvt

Project
HOMEBUSH 1-2 MURRAY ROAD AVE 15 STOREY SCHEME

Drawing
MASS SECTION SHEET 1 OF 2

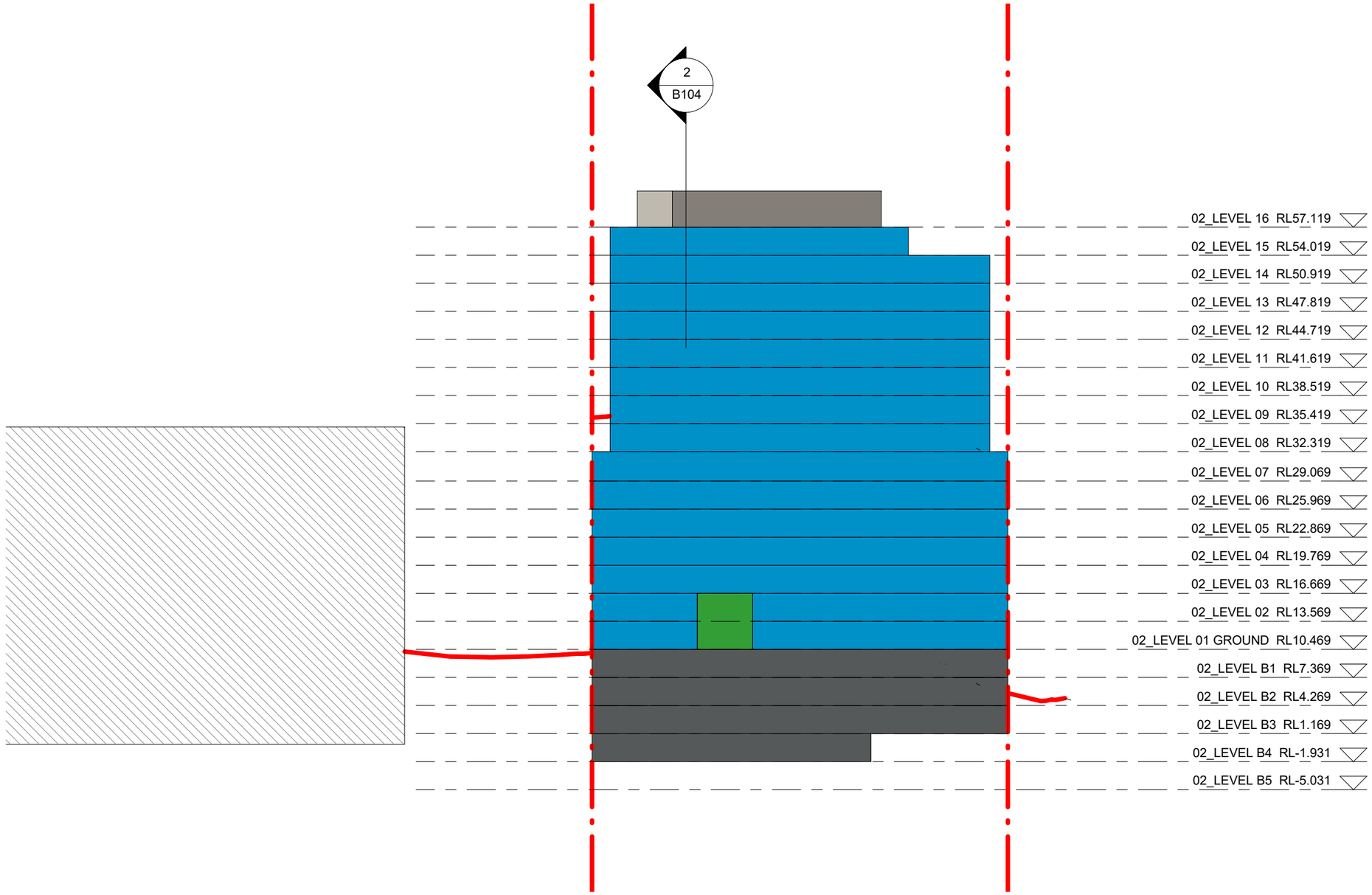
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Drawing No
B104

Printed
17/11/2017 5:25:18 PM

Rev
M

0 | 100mm | 200mm | 300mm



100mm

200mm

1 Section 5

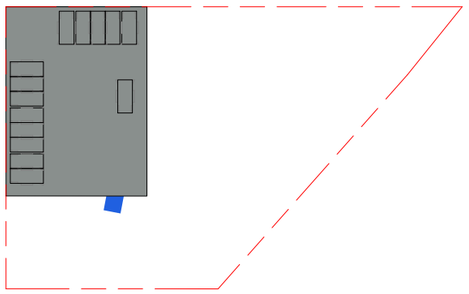
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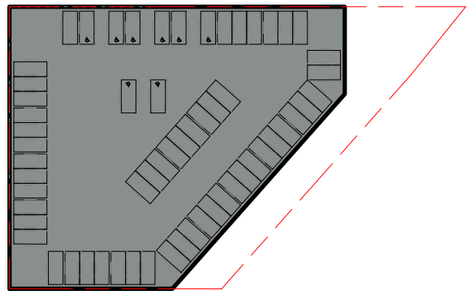
M	17/11/2017	2 MURRAY ROSE BASEMENT AMENDED
L	10/11/2017	BASEMENT TEST FITS ADDED. ASSUMPTIONS LABELS SHOWN. TYPICAL LEVEL TEST FIT FOR 2 MURRAY ROSE INCLUDED.
K	9/11/2017	SAVED AS 15 STOREY VERSION
H	06/11/2017	TEST FIT PLANS SHOWN

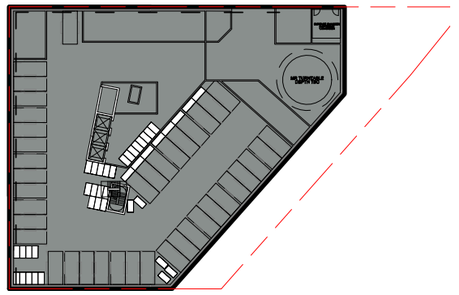
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Project	Drawing	Scale @ A3	Drawing No	Printed	Rev
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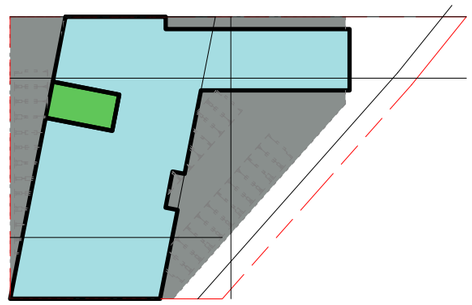
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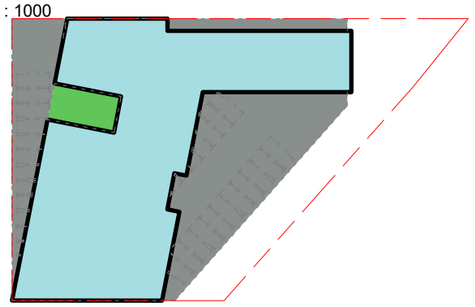


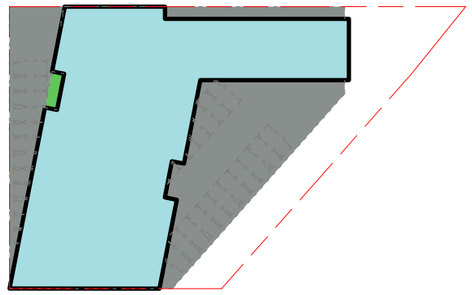
1 02_LEVEL 01 GROUND
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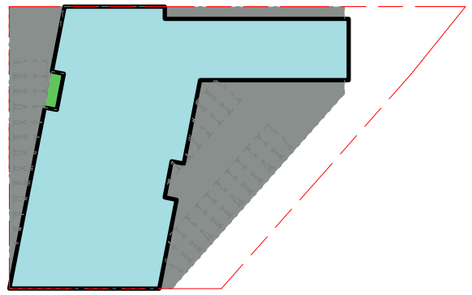
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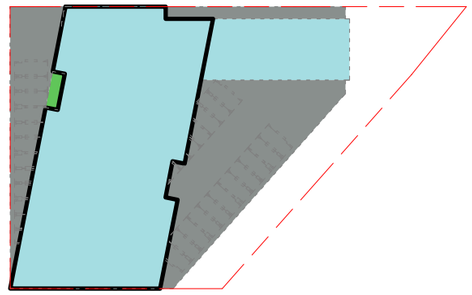
12 02_LEVEL B4_test fit Copy 2
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| 100mm









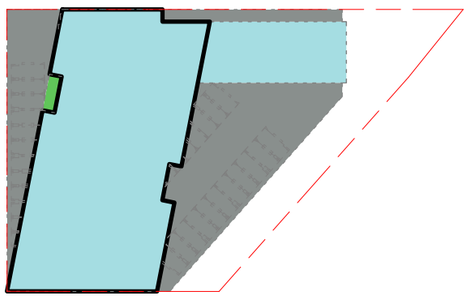
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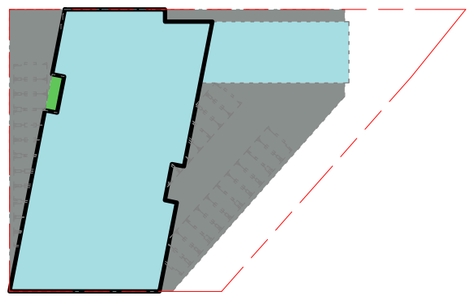
3 02_LEVEL 03
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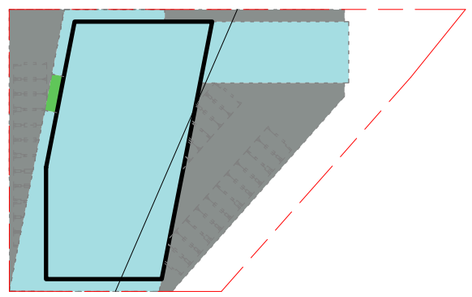
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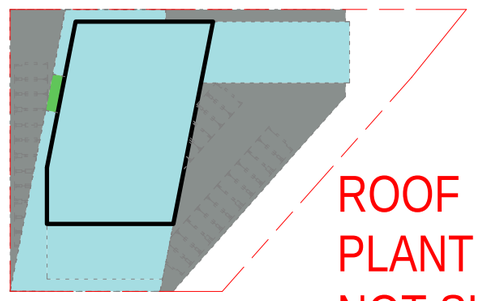
5 02_LEVEL 05
1 : 1000

| 200mm









ROOF
PLANT LEVEL
NOT SHOWN

6 02_LEVEL 06
1 : 1000

7 02_LEVEL 07
1 : 1000

8 02_LEVEL 08-14
1 : 1000

9 02_LEVEL 15
1 : 1000

Rev	Date	Description
M	17/11/2017	2 MURRAY ROSE BASEMENT AMENDED
L	10/11/2017	BASEMENT TEST FITS ADDED. ASSUMPTIONS LABELS SHOWN. TYPICAL LEVEL TEST FIT FOR 2 MURRAY ROSE INCLUDED.
K	9/11/2017	SAVED AS 15 STOREY VERSION
G	23/10/2017	APARTMENT SIZES AMENDED - ISSUED AS WEIGHTED AVERAGE APARTMWENT YIELD, BASEMENT ADJUSTED
E	25/05/2017	ISSUED FOR PRELIMINARY REVIEW AND COMMENT

SKETCH

Project
HOMEBUSH 1-2 MURRAY ROAD AVE 15 STOREY SCHEME

Drawing
2 MURRAY ROSE AVENUE BEA AREA PLANS

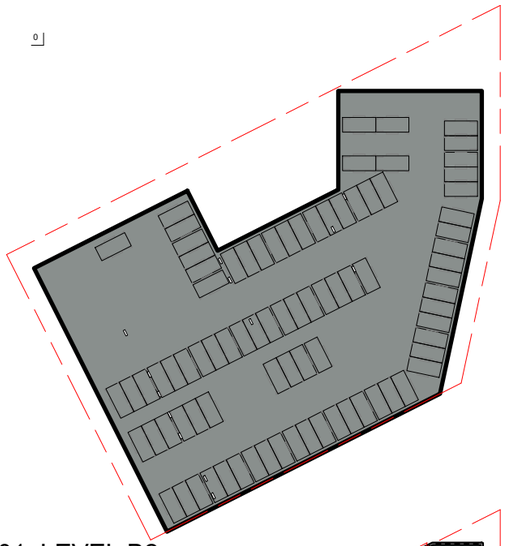
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Drawing No
B106

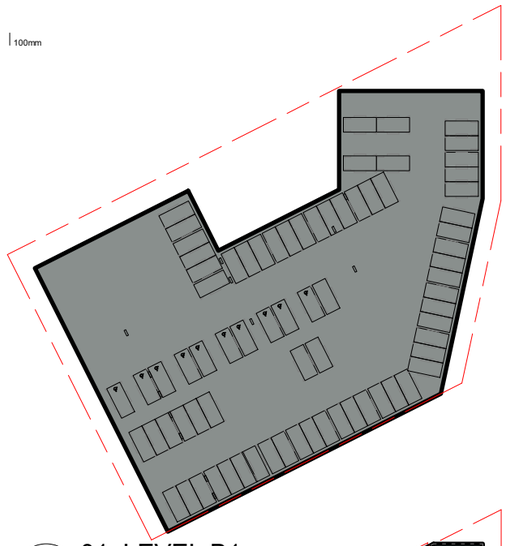
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17/11/2017 5:25:20 PM

Rev
M

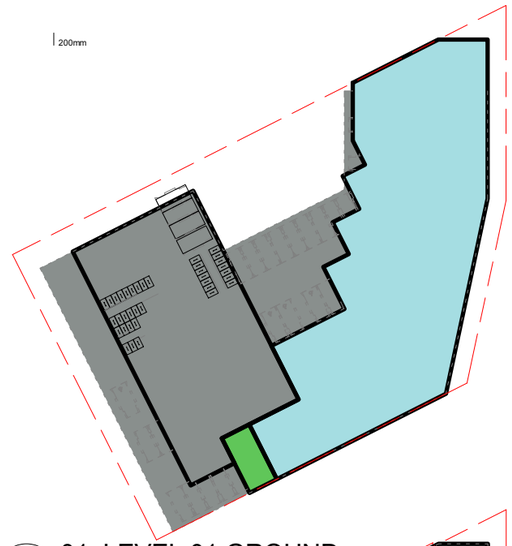
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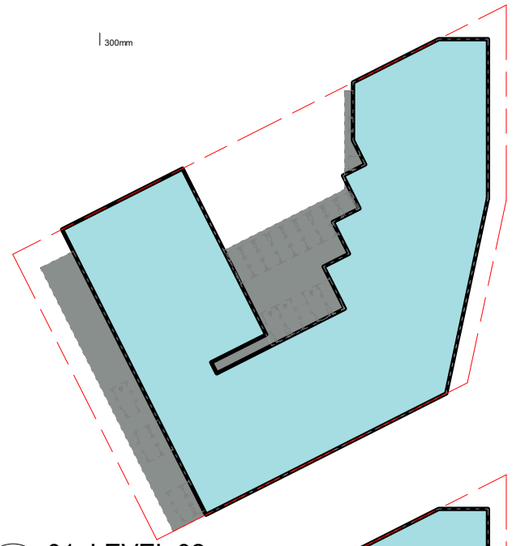
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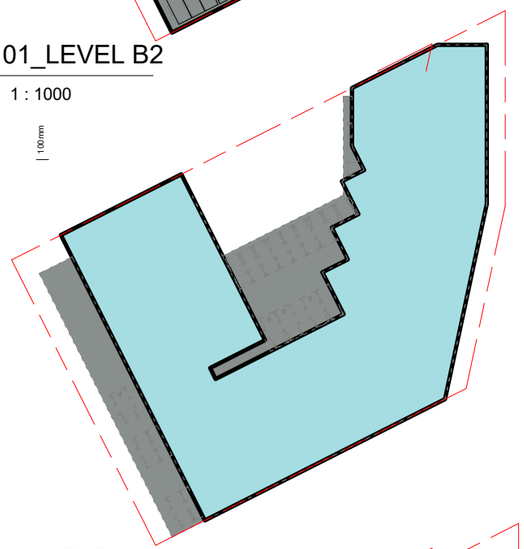
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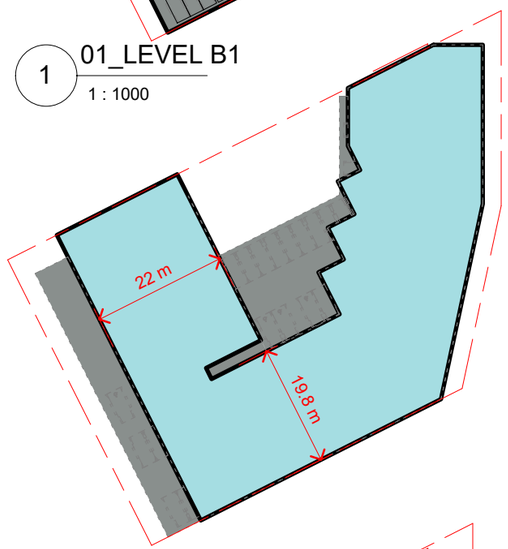
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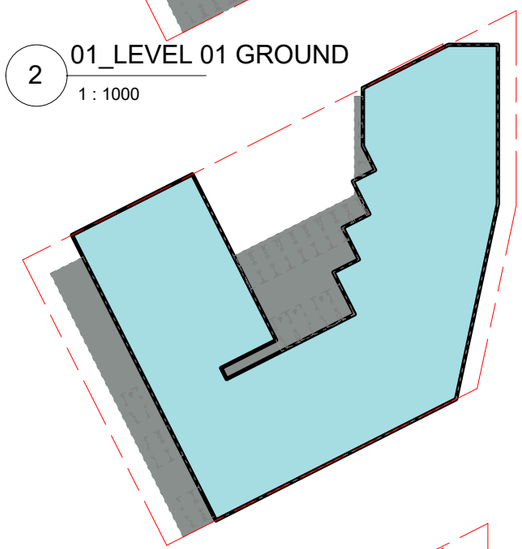
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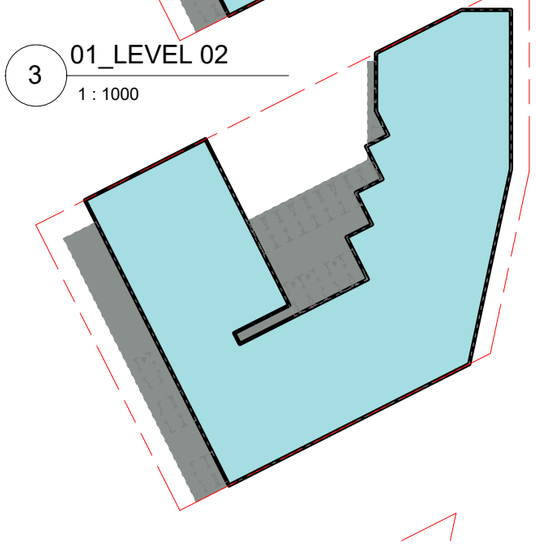
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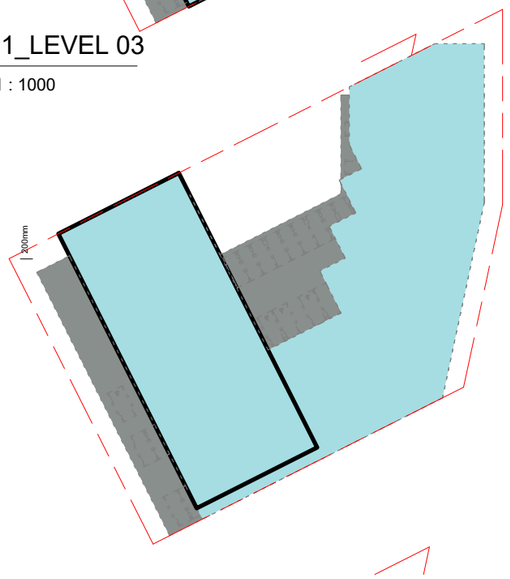
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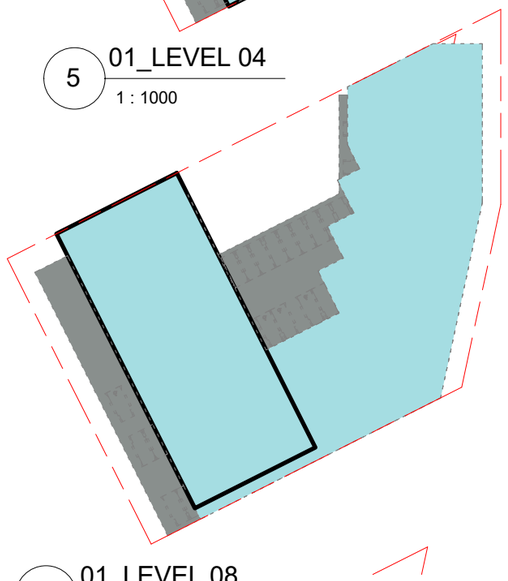
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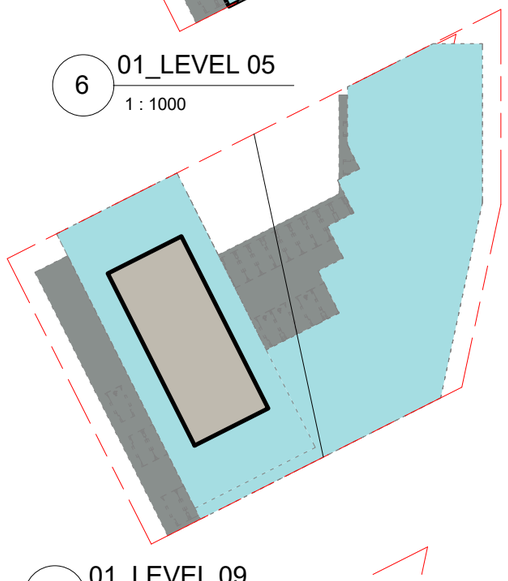
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1 : 1000



8 01_LEVEL 07
1 : 1000



9 01_LEVEL 08
1 : 1000



10 01_LEVEL 09
1 : 1000

M	17/11/2017	2 MURRAY ROSE BASEMENT AMENDED
L	10/11/2017	BASEMENT TEST FITS ADDED. ASSUMPTIONS LABELS SHOWN. TYPICAL LEVEL TEST FIT FOR 2 MURRAY ROSE INCLUDED.
K	9/11/2017	SAVED AS 15 STOREY VERSION
G	23/10/2017	APARTMENT SIZES AMENDED - ISSUED AS WEIGHTED AVERAGE APARTMWENT YIELD, BASEMENT ADJUSTED
E	25/05/2017	ISSUED FOR PRELIMINARY REVIEW AND COMMENT
B	21/06/2017	ISSUED FOR REVIEW

Project
HOMEBUSH 1-2 MURRAY ROAD AVE 15 STOREY SCHEME

Drawing
1 MURRAY ROSE AVENUE BEA AREA PLANS

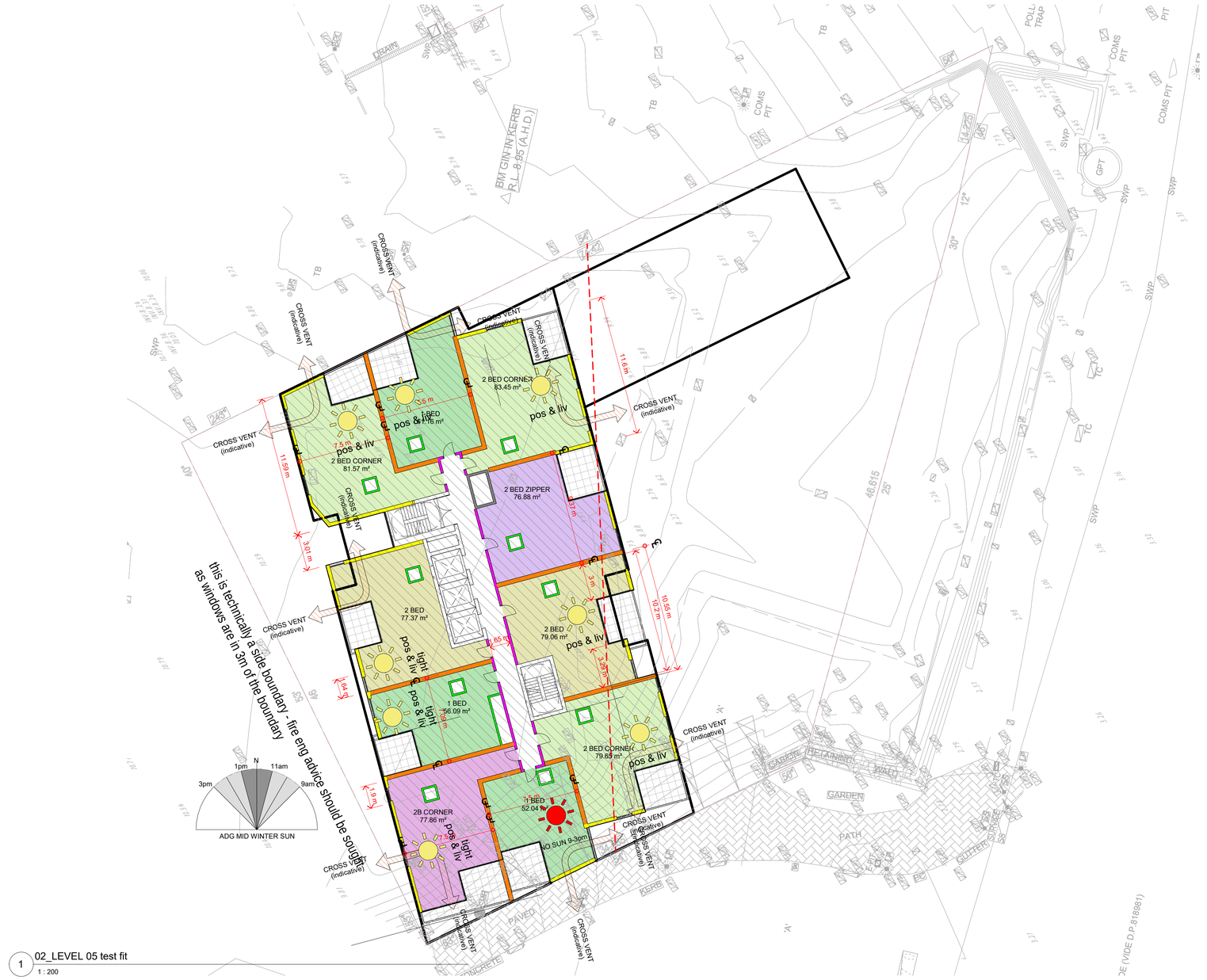
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Rev
M

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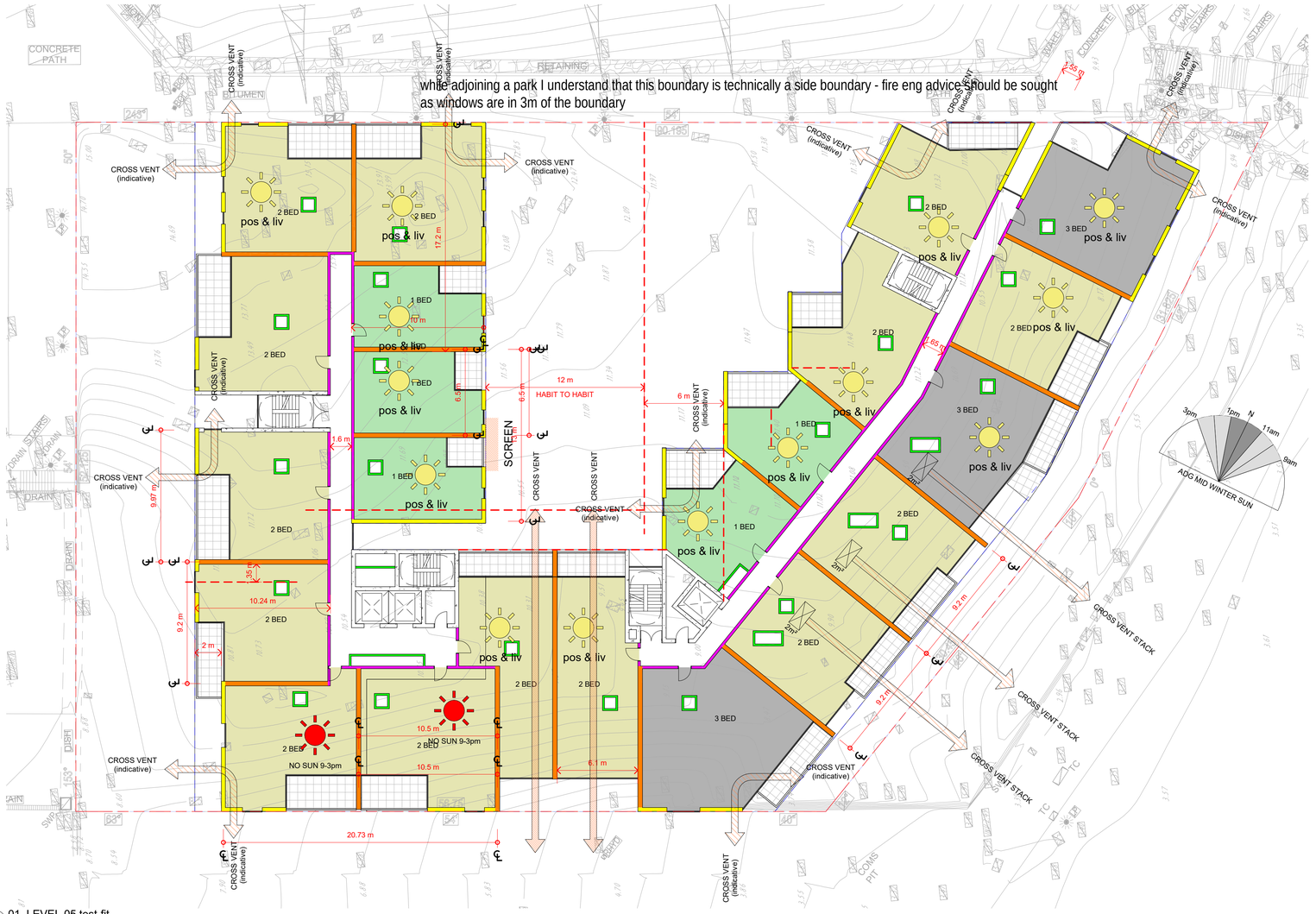
1 02_LEVEL 05 test fit
1 : 200

SKETCH PLAN

M	17/11/2017	2 MURRAY ROSE BASEMENT AMENDED
L	10/11/2017	BASEMENT TEST FITS ADDED. ASSUMPTIONS LABELS SHOWN. TYPICAL LEVEL TEST FIT FOR 2 MURRAY ROSE INCLUDED.
H	06/11/2017	TEST FIT PLANS SHOWN

Project	Drawing	Scale @ A1	Drawing No	Printed	Rev
HOMEBUSH 1-2 MURRAY ROAD AVE 15 STOREY SCHEME	2 MURRRY ROSE TEST FIT	1 : 200	B108	17/11/2017 5:31:36 PM	M

K:\National Design\07 Business Development\02 Projects\Homebush_1 Murray Rose Avenue\Homebush_1-5 Murray Rose Avenue_Scheme D sketch_rev M_not yet issued.rvt



1 01_LEVEL 05 test-fit
1 : 200

SKETCH PLAN

M	17/11/2017	2 MURRAY ROSE BASEMENT AMENDED
L	10/11/2017	BASEMENT TEST FITS ADDED. ASSUMPTIONS LABELS SHOWN. TYPICAL LEVEL TEST FIT FOR 2 MURRAY ROSE INCLUDED.
K	9/11/2017	SAVED AS 15 STOREY VERSION
H	06/11/2017	TEST FIT PLANS SHOWN

Project	Drawing	Scale @ A1	Drawing No	Printed	Rev
HOMEBUSH 1-2 MURRAY ROAD AVE 15 STOREY SCHEME	1 MURRAY ROSE TEST FIT	1 : 200	B109	17/11/2017 5:31:47 PM	M

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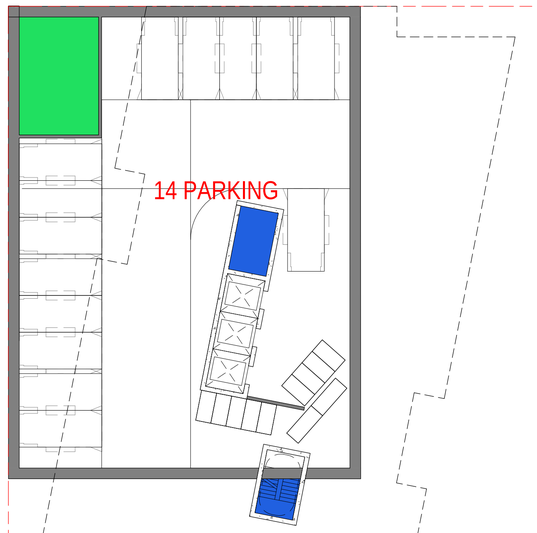
THROUGH LIFTS

1 02_LEVEL B1_TEST FIT
1 : 200



THROUGH LIFTS

2 02_LEVEL B3-2 _TEST FIT
1 : 200



SKETCH PLAN ONLY
SUBJECT TO COORDINATED REVIEW OF SPECIALIST CONSULTANT INPUTS.

GROUND LEVELS NEED COORDINATION

4 02_LEVEL B4_test fit
1 : 200

M	17/11/2017	2 MURRAY ROSE BASEMENT AMENDED
L	10/11/2017	BASEMENT TEST FITS ADDED. ASSUMPTIONS LABELS SHOWN. TYPICAL LEVEL TEST FIT FOR 2 MURRAY ROSE INCLUDED.

Project
HOMEBUSH 1-2 MURRAY ROAD AVE 15 STOREY SCHEME

Drawing
2 MURRAY ROSE BASEMENTS

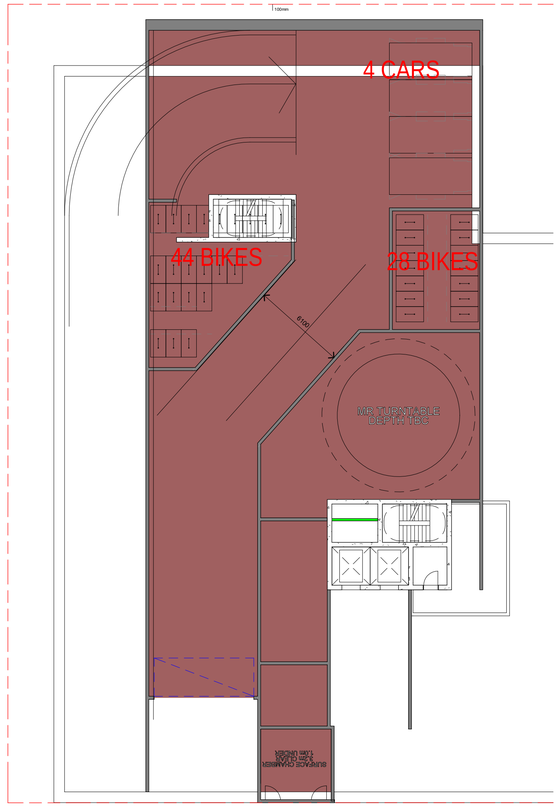
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Drawing No
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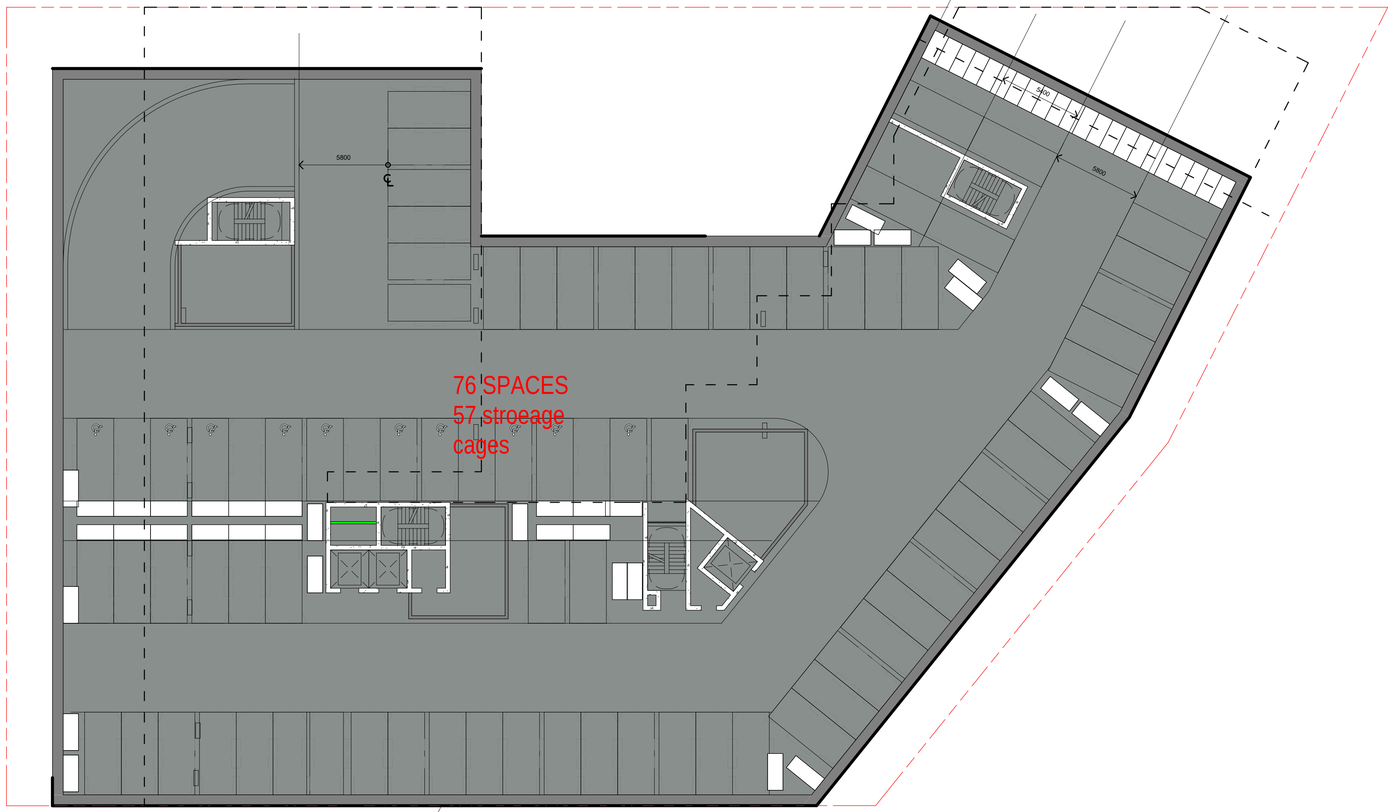
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Rev
M

K:\National Design\07 Business Development\02 Projects\Homebush_1 Murray Rose Avenue\Homebush_1-5 Murray Rose Avenue_Scheme D sketch_rev M_not yet issued.rvt



1 01_LEVEL 01_test fit
1 : 200



2 01_LEVEL B1 Copy 1
1 : 200



3 01_LEVEL B2_test fit
1 : 200

SKETCH PLAN ONLY
SUBJECT TO COORDINATED REVIEW OF SPECIALIST CONSULTANT INPUTS.

GROUND LEVELS NEED COORDINATION

M	17/11/2017	2 MURRAY ROSE BASEMENT AMENDED
L	10/11/2017	BASEMENT TEST FITS ADDED. ASSUMPTIONS LABELS SHOWN. TYPICAL LEVEL TEST FIT FOR 2 MURRAY ROSE INCLUDED.

Project	Drawing	Scale @ A1	Drawing No	Printed	Rev
HOMEBUSH 1-2 MURRAY ROAD AVE 15 STOREY SCHEME	1 MURRAY ROSE BASEMENT	1 : 200	B111	17/11/2017 5:31:54 PM	M

K:\National Design\07 Business Development\02 Projects\Homebush_1 Murray Rose Avenue\Homebush_1-5 Murray Rose Avenue_Scheme D sketch_rev M_not yet issued.rvt

APPENDIX B
NSW Office of Water Groundwater Bore Search

All Groundwater
find a site
All Groundwater Map

bandwidth (•) high ( ) low

glossary and metadata

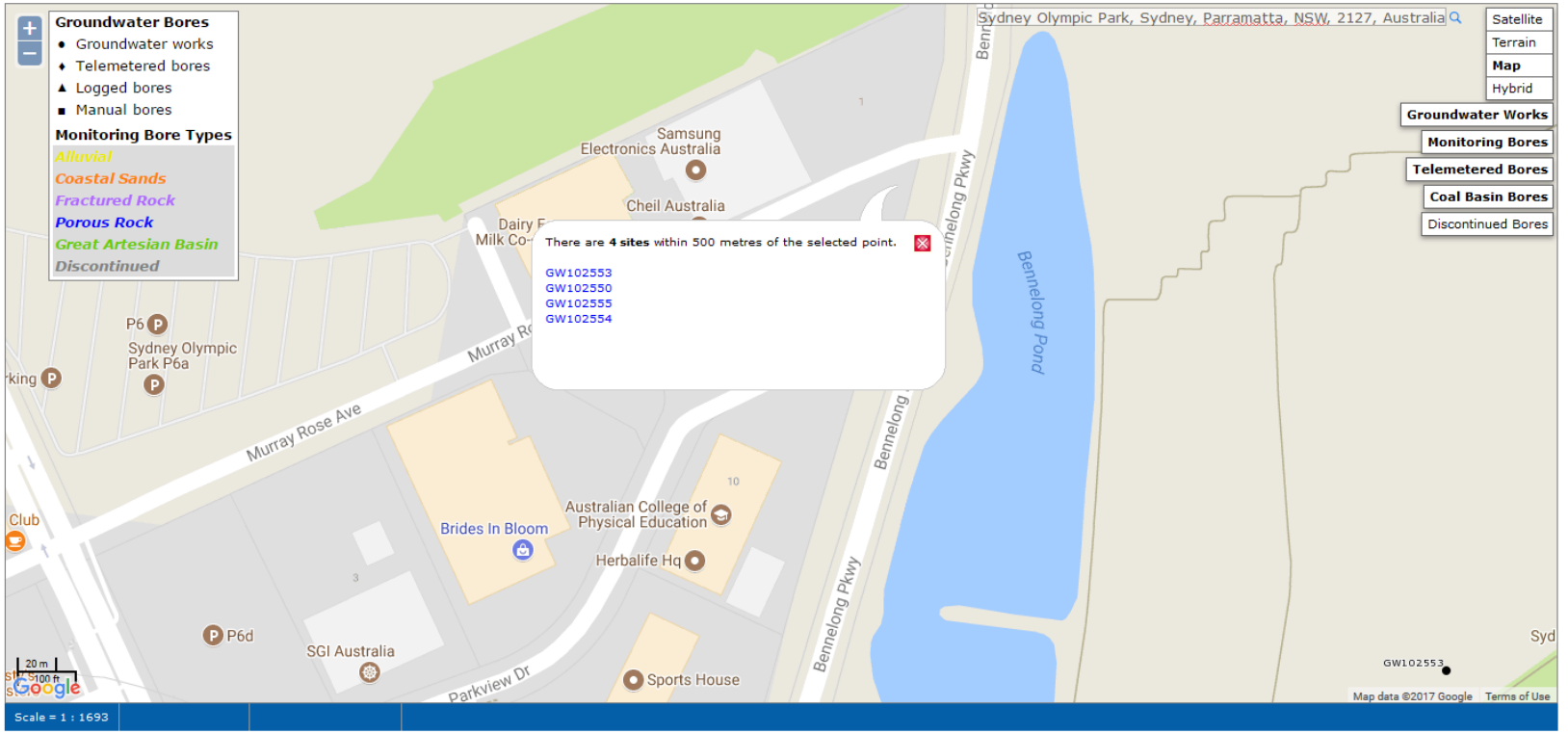
All Groundwater

All Groundwater Map

bookmark this page

All data times are Eastern Standard Time

Map | Info



NSW Office of Water

Work Summary

GW102550

Licence: 10BL157703 Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE

Intended Purpose(s): MONITORING BORE

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

Commenced Date:
Completion Date: 01/01/1996

Final Depth: 4.00 m
Drilled Depth:

Contractor Name: Macquarie Drilling
Driller:
Assistant Driller:

Property: N/A
GWMA: -
GW Zone: -

Standing Water Level: 1.800
Salinity:
Yield:

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:		.	
Licensed:	CUMBERLAND	CONCORD	Whole Lot //

Region: 10 - Sydney South Coast

CMA Map:

River Basin: - Unknown
Area/District:

Grid Zone:

Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown

Northing: 6253109.0
Easting: 322033.0

Latitude: 33°50'50.3"S
Longitude: 151°04'35.2"E

GS Map: -

MGA Zone: 0

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	4.00	0			Unknown
1	1	Casing	P.V.C.	0.00	0.00	50			

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

Remarks

01/01/1996: Form A Remarks:
DATA FROM AG APPLICATION ONLY

*** End of GW102550 ***

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water

Work Summary

GW102553

Licence: 10BL157703 Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE

Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status:

Construct.Method:

Owner Type:

Commenced Date:

Completion Date: 01/01/1996

Final Depth: 4.00 m

Drilled Depth:

Contractor Name:

Driller:

Assistant Driller:

Property: N/A

GWMA: -

GW Zone: -

Standing Water Level: 1.830

Salinity:

Yield:

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:		.	
Licensed:	CUMBERLAND	CONCORD	Whole Lot //

Region: 10 - Sydney South Coast

CMA Map:

River Basin: - Unknown
Area/District:

Grid Zone:

Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown

Northing: 6253267.0
Easting: 322210.0

Latitude: 33°50'45.3"S
Longitude: 151°04'42.2"E

GS Map: -

MGA Zone: 0

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	4.00	0			Unknown
1	1	Casing	P.V.C.	0.00	0.00	50			

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

Remarks

01/01/1996: Form A Remarks:
DATA FROM AG APPLICATION ONLY

*** End of GW102553 ***

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NSW Office of Water

Work Summary

GW102554

Licence: 10BL157703 Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE

Intended Purpose(s): MONITORING BORE

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

Commenced Date:
Completion Date: 01/01/1996

Final Depth: 4.00 m
Drilled Depth:

Contractor Name: Macquarie Drilling
Driller:
Assistant Driller:

Property: N/A

GWMA: -
GW Zone: -

Standing Water Level: 1.830
Salinity:
Yield:

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:		.	
Licensed:	CUMBERLAND	CONCORD	Whole Lot //

Region: 10 - Sydney South Coast

CMA Map:

River Basin: - Unknown
Area/District:

Grid Zone:

Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown

Northing: 6253239.0
Easting: 322365.0

Latitude: 33°50'46.3"S
Longitude: 151°04'48.2"E

GS Map: -

MGA Zone: 0

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	4.00	0			Unknown
1	1	Casing	P.V.C.	0.00	0.00	50			

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

Remarks

01/01/1996: Form A Remarks:
DATA FROM AG APPLICATION ONLY

*** End of GW102554 ***

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water

Work Summary

GW102555

Licence: 10BL157703 Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE

Intended Purpose(s): MONITORING BORE

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

Commenced Date:
Completion Date: 01/01/1996

Final Depth: 4.00 m
Drilled Depth:

Contractor Name: Macquarie Drilling
Driller:
Assistant Driller:

Property: N/A

GWMA: -
GW Zone: -

Standing Water Level: 1.830
Salinity:
Yield:

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:		.	
Licensed:	CUMBERLAND	CONCORD	Whole Lot //

Region: 10 - Sydney South Coast

CMA Map:

River Basin: - Unknown
Area/District:

Grid Zone:

Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown

Northing: 6253143.0
Easting: 322187.0

Latitude: 33°50'49.3"S
Longitude: 151°04'41.2"E

GS Map: -

MGA Zone: 0

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	4.00	0			Unknown
1	1	Casing	P.V.C.	0.00	0.00	50			

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

Remarks

01/01/1996: Form A Remarks:
DATA FROM AG APPLICATION ONLY

*** End of GW102555 ***

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APPENDIX C
Site Photographs



Photograph C1. Site entrance located on Murray Rose Avenue.



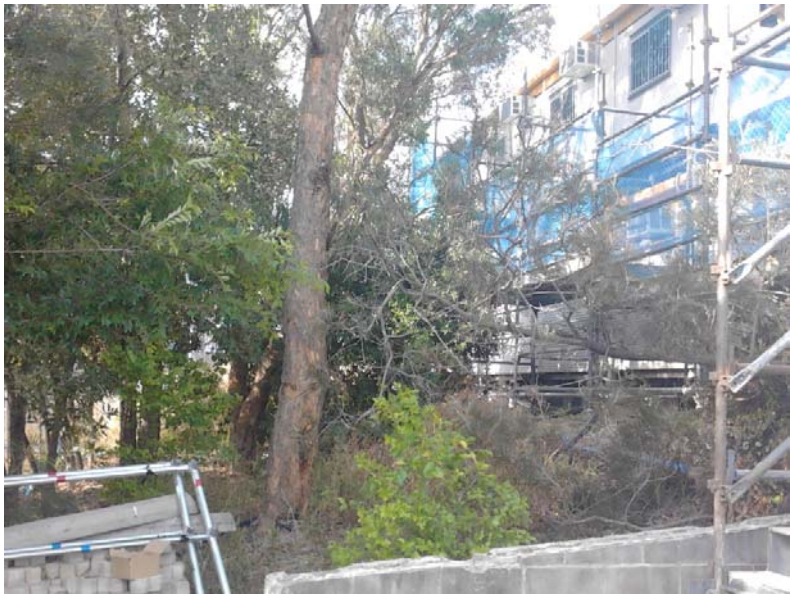
Photograph C2. Partial view of the south western quadrant of the site.



Photograph C3. Carparking area on the north eastern/eastern side of the site.



Photograph C4. Construction sheds located on the south/south east side of the site.



Photograph C5. Shrubs and trees on the southern side of the site.



Photograph C6. Construction sheds and concrete barriers located at the site.

APPENDIX D
Historical Property Titles Search & SafeWork NSW Database Search

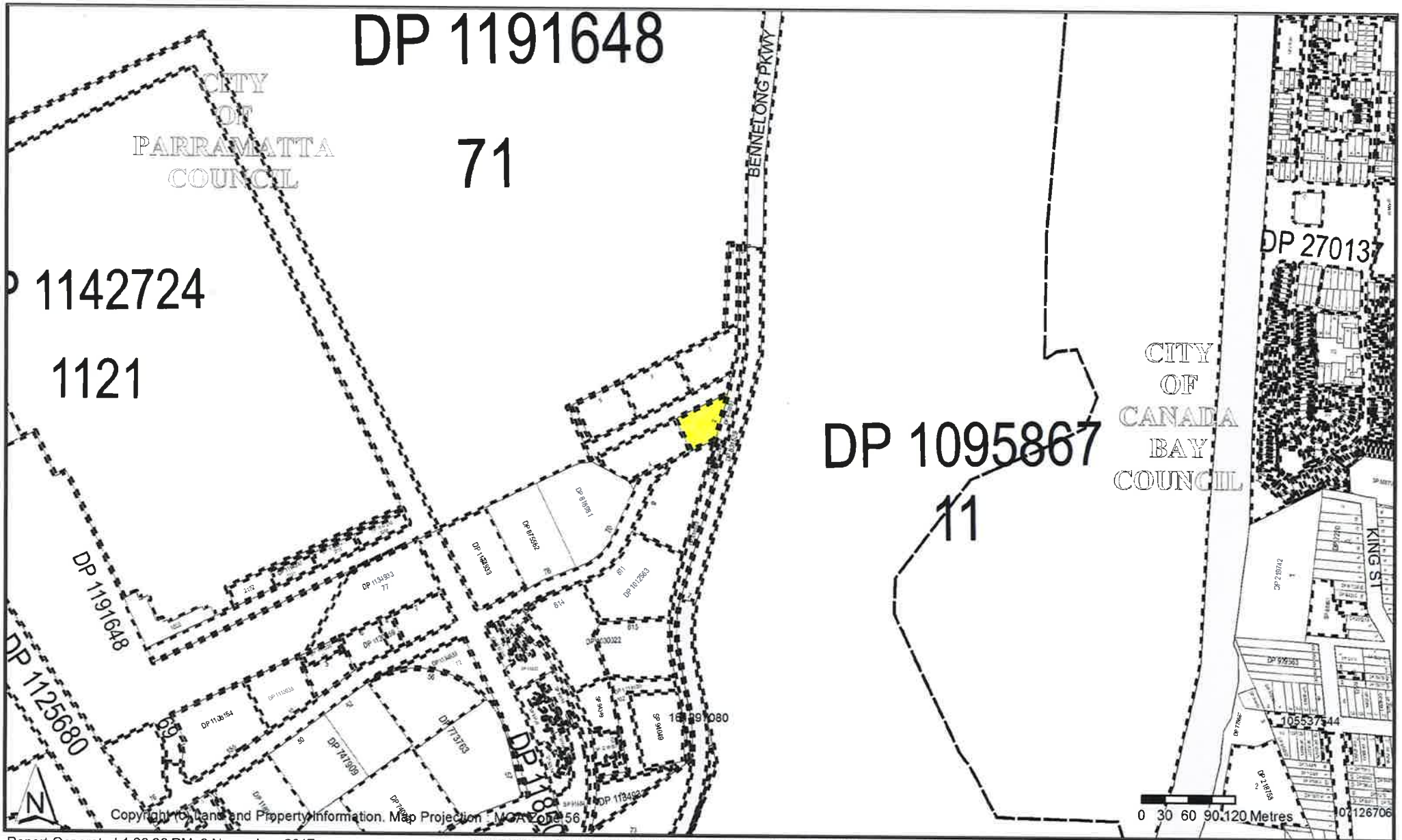
eiaustralia

NSW Land & Property Information

Cadastral Records Enquiry Report

Requested Parcel : Lot 2 DP 1185060 **Identified Parcel** : Lot 2 DP 1185060

Locality : SYDNEY OLYMPIC PARK **LGA** : PARRAMATTA **Parish** : CONCORD **County** : CUMBERLAND


DP 1191648
71
CITY OF PARRAMATTA COUNCIL
BENNELONG PKWY
DP 1142724
1121
DP 1095867
11
CITY OF CANADA BAY COUNCIL
DP 270137
KING ST
DP 1191648
DP 1125680
69
DP 1141909
DP 1173163
DP 1134933
DP 1130322
DP 1012563
DP 975362
DP 810961
DP 1130454
DP 1134933
DP 1134933
DP 1191648
DP 1173163
DP 1141909
DP 1125680
DP 1134933
DP 1130322
DP 1012563
DP 975362
DP 810961
DP 1130454
DP 1134933
DP 1191648
DP 1125680
DP 1173163
DP 1141909

PLAN FORM 2 (A2) DP1185060

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

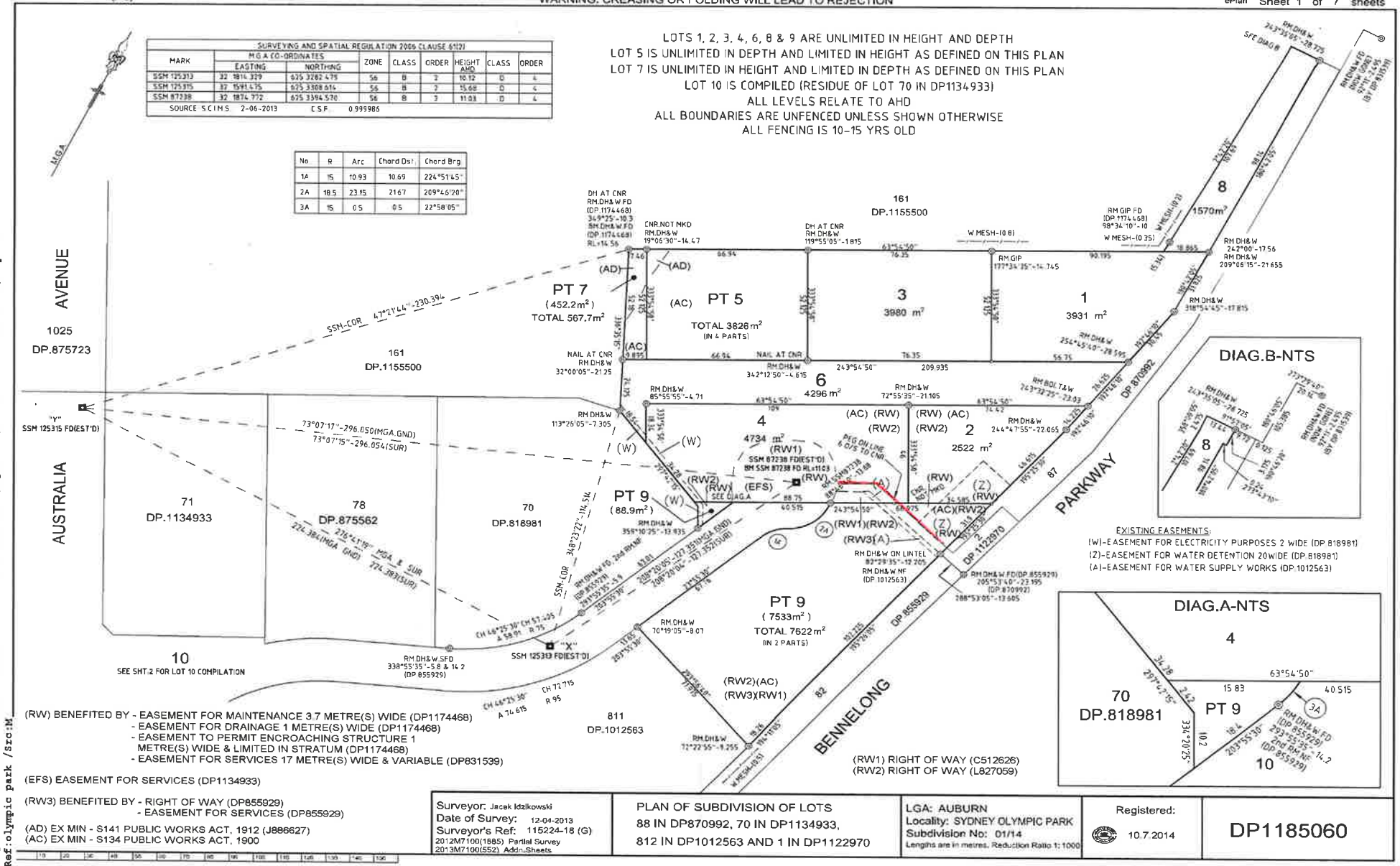
ePlan Sheet 1 of 7 sheets

SURVEYING AND SPATIAL REGULATION 2006 CLAUSE 6(1)(i)								
MARK	MGA CO-ORDINATES		ZONE	CLASS	ORDER	HEIGHT AHD	CLASS	ORDER
	EASTING	NORTHING						
SSM 125313	32 1814.329	625 3782.479	56	B	2	10.92	D	4
SSM 125315	32 1591.475	625 3308.614	56	B	2	15.68	D	4
SSM 87238	32 1874.772	625 3394.570	56	B	2	11.03	D	4

SOURCE SCIMS 2-06-2013 C.S.F. 0.999986

LOTS 1, 2, 3, 4, 6, 8 & 9 ARE UNLIMITED IN HEIGHT AND DEPTH
LOT 5 IS UNLIMITED IN DEPTH AND LIMITED IN HEIGHT AS DEFINED ON THIS PLAN
LOT 7 IS UNLIMITED IN HEIGHT AND LIMITED IN DEPTH AS DEFINED ON THIS PLAN
LOT 10 IS COMPILED (RESIDUE OF LOT 70 IN DP1134933)
ALL LEVELS RELATE TO AHD
ALL BOUNDARIES ARE UNFENCED UNLESS SHOWN OTHERWISE
ALL FENCING IS 10-15 YRS OLD

No	R	Arc	Chord Dst	Chord Brg
1A	15	10.93	10.69	224°51'45"
2A	18.5	23.15	21.67	209°46'20"
3A	15	0.5	0.5	22°58'05"



(RW) BENEFITED BY - EASEMENT FOR MAINTENANCE 3.7 METRE(S) WIDE (DP1174468)
- EASEMENT FOR DRAINAGE 1 METRE(S) WIDE (DP1174468)
- EASEMENT TO PERMIT ENCROACHING STRUCTURE 1 METRE(S) WIDE & LIMITED IN STRATUM (DP1174468)
- EASEMENT FOR SERVICES 17 METRE(S) WIDE & VARIABLE (DP831539)

(EFS) EASEMENT FOR SERVICES (DP1134933)

(RW3) BENEFITED BY - RIGHT OF WAY (DP855929)
- EASEMENT FOR SERVICES (DP855929)

(AD) EX MIN - S141 PUBLIC WORKS ACT, 1912 (J866627)
(AC) EX MIN - S134 PUBLIC WORKS ACT, 1900

(RW1) RIGHT OF WAY (C512626)
(RW2) RIGHT OF WAY (L827059)

Surveyor: Jacek Idzikowski Date of Survey: 12-04-2013 Surveyor's Ref: 115224-18 (G) 2012M7100(1885) Partial Survey 2013M7100(552) Addn.Sheets	PLAN OF SUBDIVISION OF LOTS 88 IN DP870992, 70 IN DP1134933, 812 IN DP1012563 AND 1 IN DP1122970	LGA: AUBURN Locality: SYDNEY OLYMPIC PARK Subdivision No: 01/14 Lengths are in metres. Reduction Ratio 1: 1000	Registered: 10.7.2014	DP1185060

Req:R621933 /Doc:DP 1185060 P /Rev:14-Jul-2014 /Sts:SC.OK /Pgs:ALL /Prt:01-Nov-2017 08:59 /Seq:1 of 10
Ref:olympic park /Src:M

PLAN FORM 2 (A2) DP1185060

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

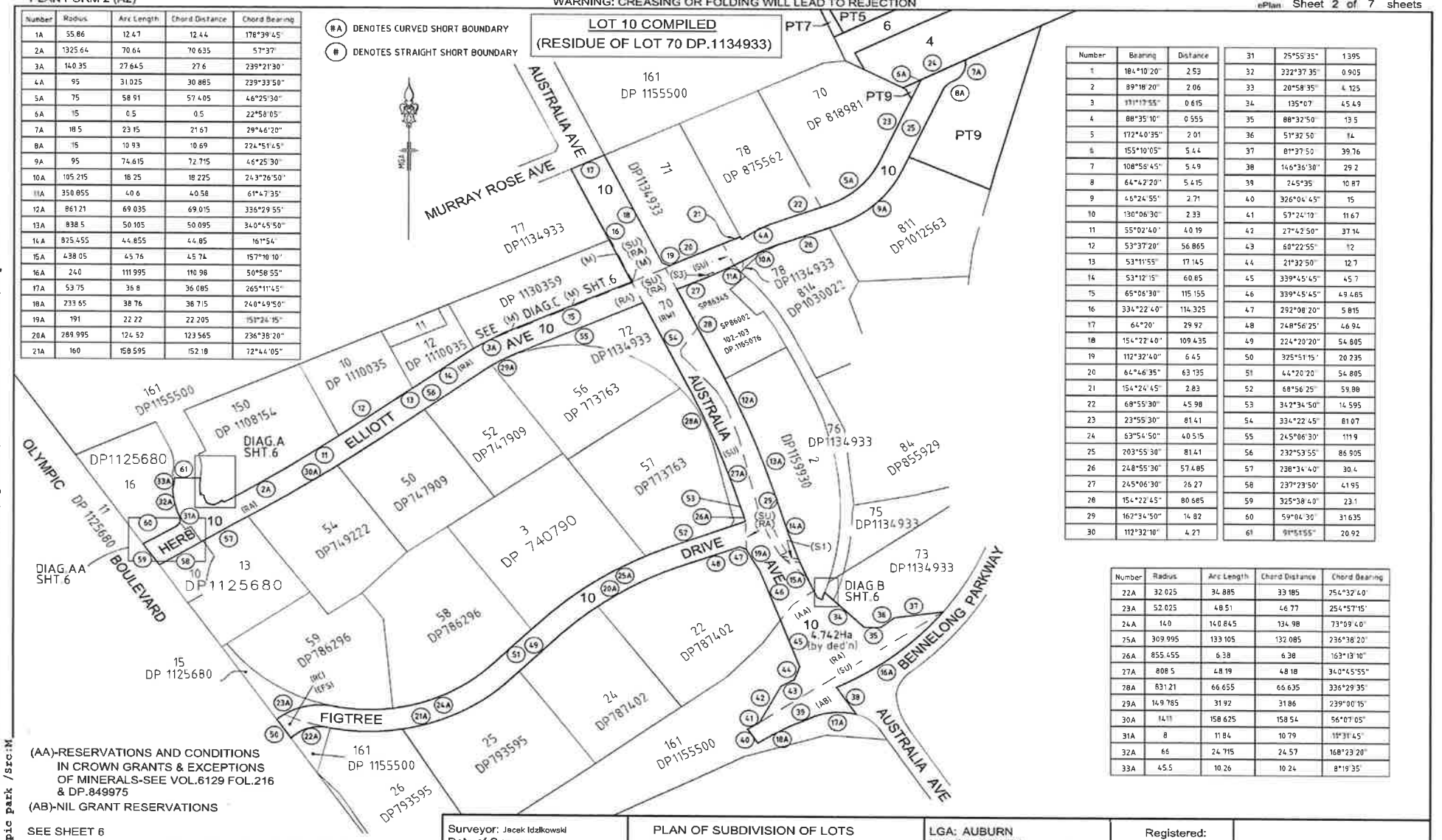
ePlan Sheet 2 of 7 sheets

Number	Radius	Arc Length	Chord Distance	Chord Bearing
1A	55.86	12.47	12.44	178°39'45"
2A	1325.64	70.64	70.635	57°37'
3A	140.35	27.645	27.6	239°21'30"
4A	95	31.025	30.885	239°33'50"
5A	75	58.91	57.405	46°25'30"
6A	15	0.5	0.5	22°58'05"
7A	18.5	23.15	21.67	29°46'20"
8A	15	10.93	10.69	224°51'45"
9A	95	74.615	72.715	46°25'30"
10A	105.215	18.25	18.225	243°26'50"
11A	350.855	40.6	40.58	61°47'35"
12A	861.21	69.035	69.015	336°29'55"
13A	838.5	50.105	50.095	340°45'50"
14A	825.455	44.855	44.85	161°54'
15A	438.05	45.76	45.74	157°10'10"
16A	240	111.995	110.98	50°58'55"
17A	53.75	36.8	36.085	265°11'45"
18A	233.65	38.76	38.715	240°49'50"
19A	191	22.22	22.205	151°24'35"
20A	289.995	124.52	123.565	238°38'20"
21A	160	158.595	152.18	72°44'05"

(#A) DENOTES CURVED SHORT BOUNDARY

(#) DENOTES STRAIGHT SHORT BOUNDARY

LOT 10 COMPILED
(RESIDUE OF LOT 70 DP.1134933)



Number	Bearing	Distance
1	184°10'20"	2.53
2	89°18'20"	2.06
3	171°17'55"	0.615
4	88°35'10"	0.555
5	172°40'35"	2.01
6	155°10'05"	5.44
7	108°56'45"	5.49
8	64°42'20"	5.415
9	46°24'55"	2.71
10	130°06'30"	2.33
11	55°02'40"	40.19
12	53°37'20"	56.865
13	53°11'55"	17.145
14	53°12'15"	60.85
15	65°06'30"	115.155
16	334°22'40"	114.325
17	64°20'	29.92
18	154°22'40"	109.435
19	112°32'40"	6.45
20	64°46'35"	63.135
21	154°24'45"	2.83
22	68°55'30"	45.98
23	23°55'30"	81.41
24	63°54'50"	40.515
25	203°55'30"	81.41
26	248°55'30"	57.485
27	245°06'30"	26.27
28	154°22'45"	80.685
29	162°34'50"	14.82
30	112°32'10"	4.27
31	25°55'35"	1.395
32	332°37'35"	0.905
33	20°58'35"	4.125
34	135°07'	45.49
35	88°32'50"	13.5
36	51°32'50"	14
37	81°37'50"	39.76
38	146°36'30"	29.2
39	245°35'	10.87
40	326°04'45"	15
41	57°24'10"	11.67
42	27°42'50"	37.14
43	60°22'55"	12
44	21°32'50"	12.7
45	339°45'45"	45.7
46	339°45'45"	49.485
47	292°08'20"	5.815
48	248°56'25"	46.94
49	224°20'20"	54.805
50	325°51'15"	20.235
51	44°20'20"	54.805
52	68°56'25"	59.88
53	342°34'50"	14.595
54	334°22'45"	81.07
55	245°06'30"	111.9
56	232°53'55"	86.905
57	238°34'40"	30.4
58	237°23'50"	41.95
59	325°38'40"	23.1
60	59°04'30"	31.635
61	91°51'55"	20.92

Number	Radius	Arc Length	Chord Distance	Chord Bearing
22A	32.025	34.885	33.185	254°32'40"
23A	52.025	48.51	46.77	254°57'15"
24A	14.0	14.045	134.98	73°09'40"
25A	309.995	133.105	132.085	236°38'20"
26A	855.455	6.38	6.38	163°13'10"
27A	808.5	48.19	48.18	340°45'55"
28A	831.21	66.655	66.635	336°29'35"
29A	149.785	31.92	31.86	239°00'15"
30A	14.11	158.625	158.54	56°07'05"
31A	8	11.84	10.79	15°31'45"
32A	66	24.715	24.57	168°23'20"
33A	45.5	10.26	10.24	8°19'35"

(AA)-RESERVATIONS AND CONDITIONS IN CROWN GRANTS & EXCEPTIONS OF MINERALS-SEE VOL.6129 FOL.216 & DP.849975

(AB)-NIL GRANT RESERVATIONS

SEE SHEET 6
FOR LIST OF EXISTING EASEMENTS AFFECTING LOT 10

EASEMENT (SJ) DRAWN NOT TO SCALE FOR CLARITY

Surveyor: Jacek Idzikowski
Date of Survey: 12-04-2013
Surveyor's Ref: 115224-18 (G)
2012M7100(1885) Partial Survey
2013M7100(552) Addn.Sheets

PLAN OF SUBDIVISION OF LOTS 88 IN DP870992, 70 IN DP1134933, 812 IN DP1012563 AND 1 IN DP1122970

LGA: AUBURN
Locality: SYDNEY OLYMPIC PARK
Subdivision No: 01/14
Lengths are in metres. Reduction Ratio 1:2000

Registered: 10.7.2014

DP1185060

Req:R621933 /Doc:DP 1185060 P /Rev:14-Jul-2014 /Sts:SC.OK /Pgs:ALL /Prt:01-Nov-2017 08:59 /Seq:2 of 10
Ref:olympic park /Src:M

Reg:R621933 /Doc:DP 1185060 P /Rev:14-Jul-2014 /Sts:SC.OR /Pgs:ALL /Prt:01-Nov-2017 08:59 /Seq:3 of 10
Ref:olympic park /Src:M

LOWER GROUND & BELOW

SEE SHEET 7 FOR SECTIONS

LEGEND

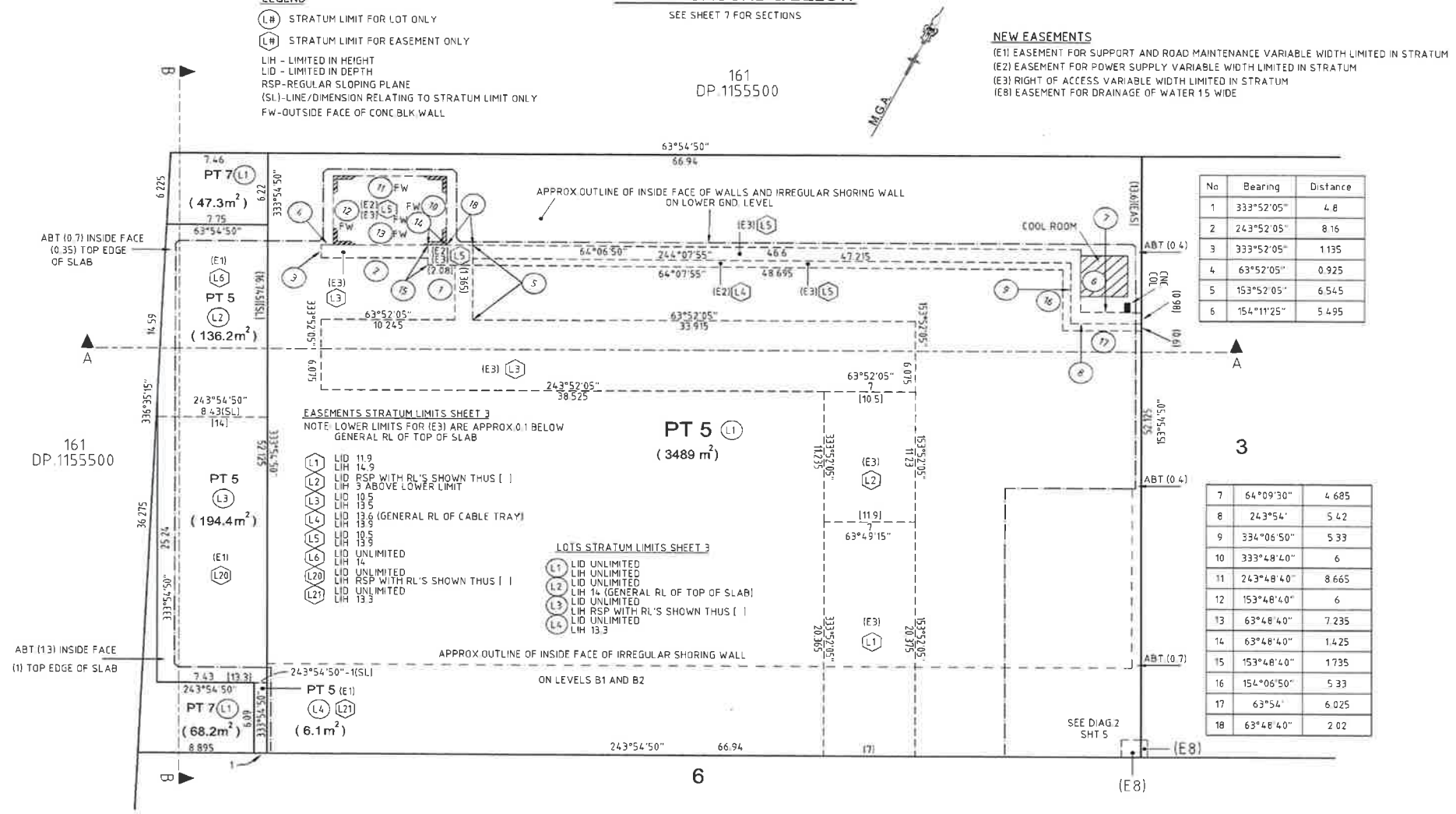
(L#) STRATUM LIMIT FOR LOT ONLY

(L#) STRATUM LIMIT FOR EASEMENT ONLY

LIH - LIMITED IN HEIGHT
LID - LIMITED IN DEPTH
RSP-REGULAR SLOPING PLANE
(SL)-LINE/DIMENSION RELATING TO STRATUM LIMIT ONLY
FW-OUTSIDE FACE OF CONC BLK WALL

NEW EASEMENTS

(E1) EASEMENT FOR SUPPORT AND ROAD MAINTENANCE VARIABLE WIDTH LIMITED IN STRATUM
(E2) EASEMENT FOR POWER SUPPLY VARIABLE WIDTH LIMITED IN STRATUM
(E3) RIGHT OF ACCESS VARIABLE WIDTH LIMITED IN STRATUM
(E8) EASEMENT FOR DRAINAGE OF WATER 1.5 WIDE



No	Bearing	Distance
1	333°52'05"	4.8
2	243°52'05"	8.16
3	333°52'05"	1.135
4	63°52'05"	0.925
5	153°52'05"	6.545
6	154°11'25"	5.495
7	64°09'30"	4.685
8	243°54'	5.42
9	334°06'50"	5.33
10	333°48'40"	6
11	243°48'40"	8.665
12	153°48'40"	6
13	63°48'40"	7.235
14	63°48'40"	1.425
15	153°48'40"	1.735
16	154°06'50"	5.33
17	63°54'	6.025
18	63°48'40"	2.02

Surveyor: Jacek Idzikowski Date of Survey: 12-04-2013 Surveyor's Ref: 115224-18 (G) 2012M7100(1885) Partial Survey 2013M7100(552) Addn.Sheets	PLAN OF SUBDIVISION OF LOTS 88 IN DP870992, 70 IN DP1134933, 812 IN DP1012563 AND 1 IN DP1122970	LGA: AUBURN Locality: SYDNEY OLYMPIC PARK Subdivision No: 01/14 Lengths are in metres. Reduction Ratio 1:250	Registered: 10.7.2014	DP1185060

Req:R621933 /Doc:DP 1185060 P /Rev:14-Jul-2014 /Sts:SC.OK /Pgs:ALL /Prt:01-Nov-2017 08:59 /Seq:4 of 10
Ref:olympic park /Src:M

UPPER GROUND & ABOVE

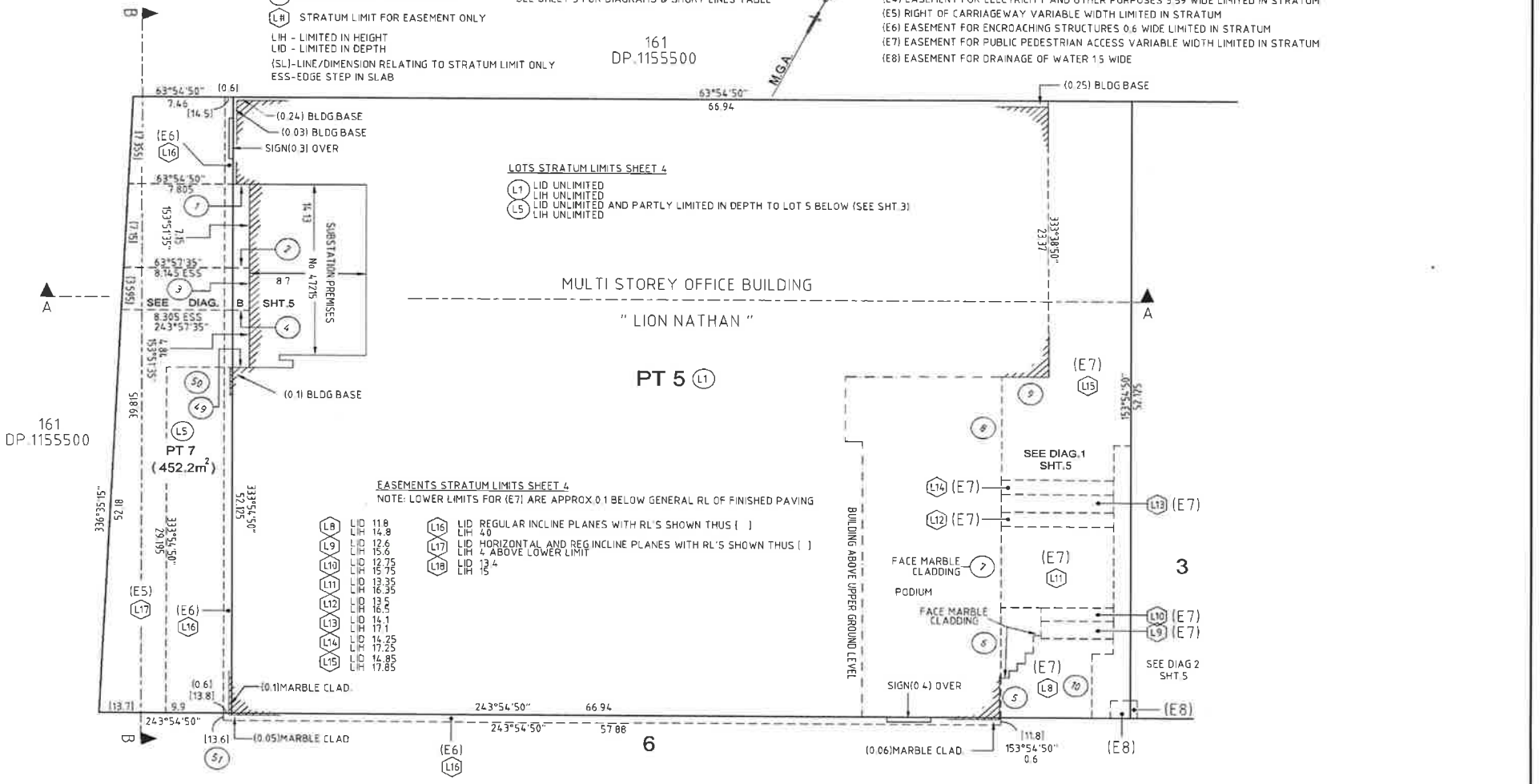
SEE SHEET 7 FOR SECTIONS
SEE SHEET 5 FOR DIAGRAMS & SHORT LINES TABLE

LEGEND

(LH) STRATUM LIMIT FOR LOT ONLY
(LH) STRATUM LIMIT FOR EASEMENT ONLY
LIH - LIMITED IN HEIGHT
LID - LIMITED IN DEPTH
(SL)-LINE/DIMENSION RELATING TO STRATUM LIMIT ONLY
ESS-EDGE STEP IN SLAB

NEW EASEMENTS

(E4) EASEMENT FOR ELECTRICITY AND OTHER PURPOSES 3.59 WIDE LIMITED IN STRATUM
(E5) RIGHT OF CARRIAGEWAY VARIABLE WIDTH LIMITED IN STRATUM
(E6) EASEMENT FOR ENCROACHING STRUCTURES 0.6 WIDE LIMITED IN STRATUM
(E7) EASEMENT FOR PUBLIC PEDESTRIAN ACCESS VARIABLE WIDTH LIMITED IN STRATUM
(E8) EASEMENT FOR DRAINAGE OF WATER 1.5 WIDE



Surveyor: Jacek Idzikowski Date of Survey: 12-04-2013 Surveyor's Ref: 115224-18 (G) 2012M7100(1865) Partial Survey 2013M7100(552) Addn.Sheets	PLAN OF SUBDIVISION OF LOTS 88 IN DP870992, 70 IN DP1134933, 812 IN DP1012563 AND 1 IN DP1122970	LGA: AUBURN Locality: SYDNEY OLYMPIC PARK Subdivision No: 01/14 Lengths are in metres. Reduction Ratio 1:250	Registered: 10.7.2014	DP1185060

Reg:R621933 /Doc:DP 1185060 P /Rev:14-Jul-2014 /Sts:SC.OK /Pgs:ALL /Prt:01-Nov-2017 08:59 /Seq:5 of 10
Ref:olympic park /Src:M

DIAGRAMS AND SHORT LINES TABLE FOR SHEET 4

SEE SHEET 4 FOR EASEMENTS DESCRIPTION

SHORT LINES TABLE FOR SHT 4

Number	Bearing	Distance
1	63°54'50"	1.245
2	63°57'35"	1.245
3	153°51'35"	3.59
4	243°57'35"	1.255
5	333°57'20"	3.355
6	333°57'20"	6
7	333°59'10"	6.86
8	333°59'10"	8.62
9	63°40'35"	3.485
10	154°06'50"	5.45
11	243°58'05"	1.27
12	154°09'	2.93
13	244°05'15"	8.355
14	153°59'10"	1.205
15	153°59'10"	1.5
16	153°59'10"	1.195
17	63°59'10"	8.37
18	333°20'10"	1.195
19	333°44'25"	1.5
20	334°08'45"	1.19
21	243°59'10"	8.35
22	243°59'10"	8.36
23	243°57'20"	5.365
24	243°57'20"	3.005
25	62°22'35"	0.625
26	334°15'15"	0.6
27	63°23'10"	0.595
28	334°17'20"	0.585
29	62°51'40"	0.6
30	333°49'55"	0.9
31	64°17'40"	0.585
32	334°17'40"	1.485
33	64°37'30"	0.59
34	333°57'20"	1.265
35	333°57'20"	1.14
36	154°00'25"	1.14
37	154°00'25"	1.505
38	154°00'25"	1.26
39	244°05'40"	1.58
40	243°57'20"	5.365
41	333°57'20"	0.24
42	63°57'20"	5.365
43	333°54'50"	1.5
44	63°54'50"	1.5
45	63°54'50"	0.5
46	153°54'50"	1.5
47	243°54'50"	0.5
48	333°57'20"	0.6
49	243°54'50"	1.26
50	243°54'50"	4.895
51	333°54'50"	0.6

DIAGRAM B 1 : 250
(FROM SHT.4)

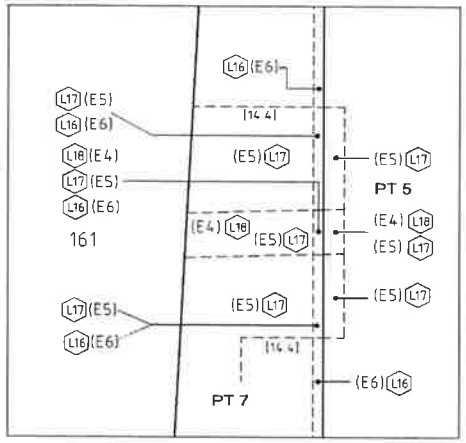


DIAGRAM 1-NTS
(FROM SHT.4)

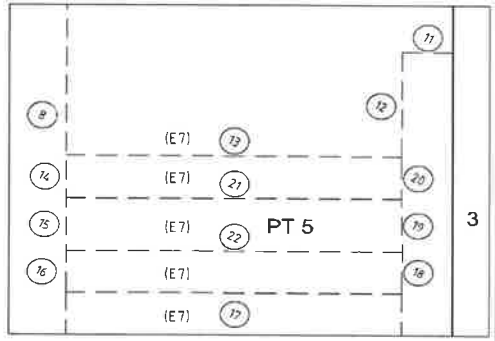
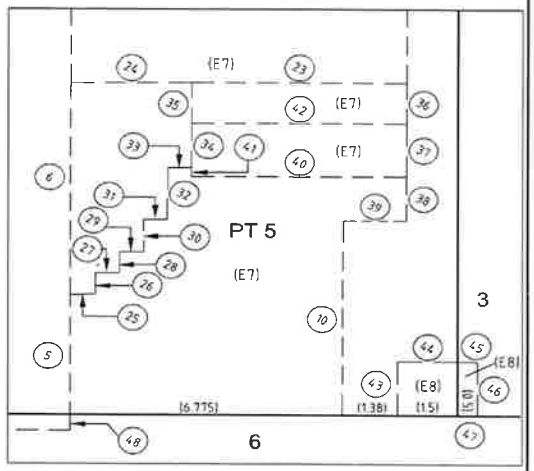


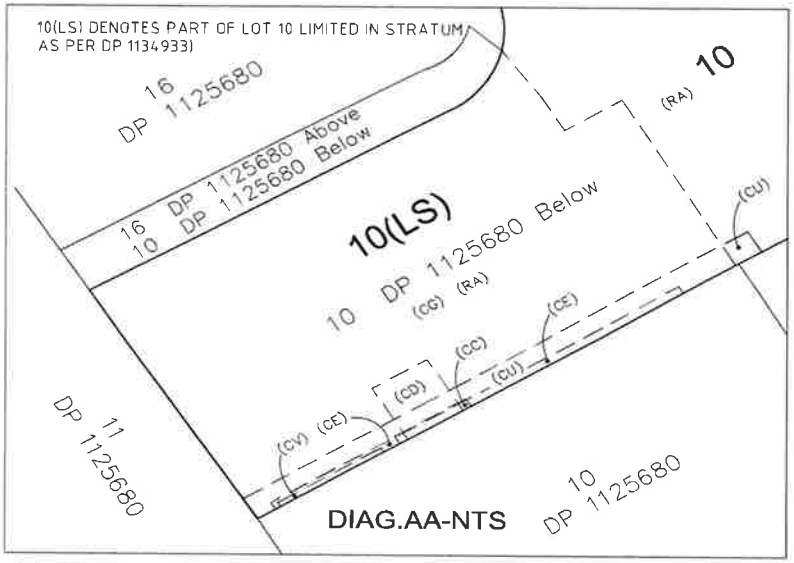
DIAGRAM 2-NTS
(FROM SHT.4)



Surveyor: Jacek Idzikowski Date of Survey: 12-04-2013 Surveyor's Ref: 115224-18 (G) 2012M7100(1885) Partial Survey 2013M7100(552) Addn.Sheets	PLAN OF SUBDIVISION OF LOTS 88 IN DP870992, 70 IN DP1134933, 812 IN DP1012563 AND 1 IN DP1122970	LGA: AUBURN Locality: SYDNEY OLYMPIC PARK Subdivision No: 01/14 Lengths are in metres. Reduction Ratio NTS	Registered: 10.7.2014	DP1185060

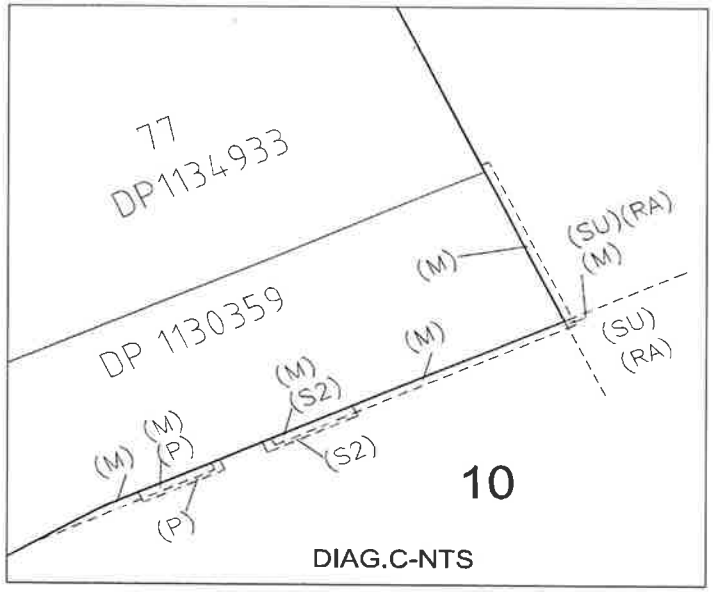
Req:R621933 /Doc:DP 1185060 P /Rev:14-Jul-2014 /Sts:SC.OK /Pgs:ALL /Prt:01-Nov-2017 08:59 /Seq:6 of 10
Ref:olympic park /Src:M

10(LS) DENOTES PART OF LOT 10 LIMITED IN STRATUM AS PER DP 1134933)



EASEMENTS AFFECTING LOT 10 & DIAGRAMS FROM SHT.2

SEE SHT.2 FOR SHORT LINES TABLE



EASEMENTS AND RESTRICTIONS AFFECTING LOT 10:

(S1) EASEMENT TO DRAIN WATER 7 & 3 METRES WIDE (DP 774130)-SEE SHT.2
RESTRICTIONS ON THE USE OF LAND (DP 740790)

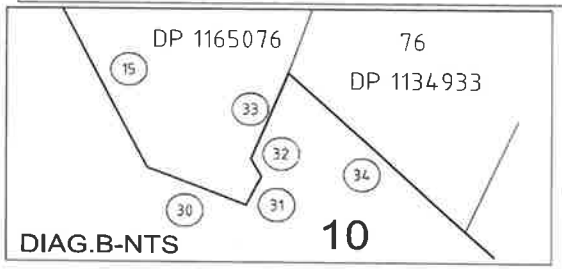
EASEMENTS CREATED BY DP 1125680:
(CC) EASEMENTS FOR OVERHANGING STRUCTURES 0.35, 0.7 AND VARIABLE WIDTH LIMITED IN STRATUM
(CD) EASEMENT FOR OVERHANGING STRUCTURES LIMITED IN STRATUM 5 WIDE
(CE) EASEMENT FOR OVERHANGING STRUCTURES LIMITED IN STRATUM 0.6 & VARIABLE WIDTH
(CU) EASEMENT FOR MAINTENANCE LIMITED IN STRATUM 2 WIDE
(CV) EASEMENT FOR OVERHANGING STRUCTURES LIMITED IN STRATUM 0.4 WIDE
(CG) ~~EASEMENT FOR SUPPORT VARIABLE WIDTH~~ BENEFITED BY EASEMENT FOR SUPPORT VARIABLE WIDTH (DP1125680)

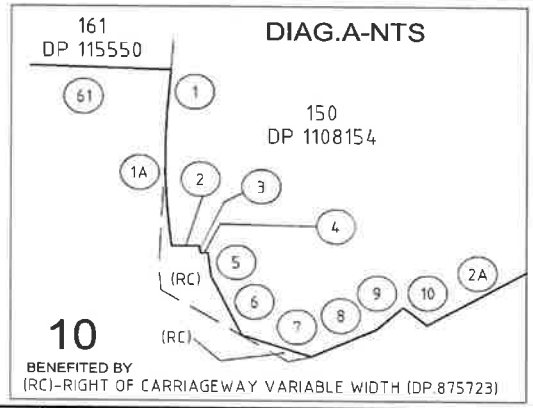
EASEMENTS CREATED BY DP 1134933:
(RA) RIGHT OF CARRIAGEWAY LIMITED IN STRATUM 21 WIDE AND VARIABLE WIDTH
(SU) RIGHT OF CARRIAGEWAY LIMITED IN STRATUM 21 WIDE AND VARIABLE WIDTH

EASEMENTS CREATED BY DP 1130359:
(M) EASEMENT FOR OVERHANG LIMITED IN STRATUM 0.9 METRES WIDE AND VARIABLE WIDTH
(P) EASEMENT FOR OVERHANGING AWNING LIMITED IN STRATUM VARIABLE WIDTH
(S2) EASEMENT FOR OVERHANGING AWNING LIMITED IN STRATUM VARIABLE WIDTH

EASEMENTS CREATED BY DP 1165076:
(S3) EASEMENT FOR OVERHANG 1 METRE WIDE LIMITED IN STRATUM-SEE SHT.2

SEE ALSO DIAG.A FOR AFFECTING EASEMENT



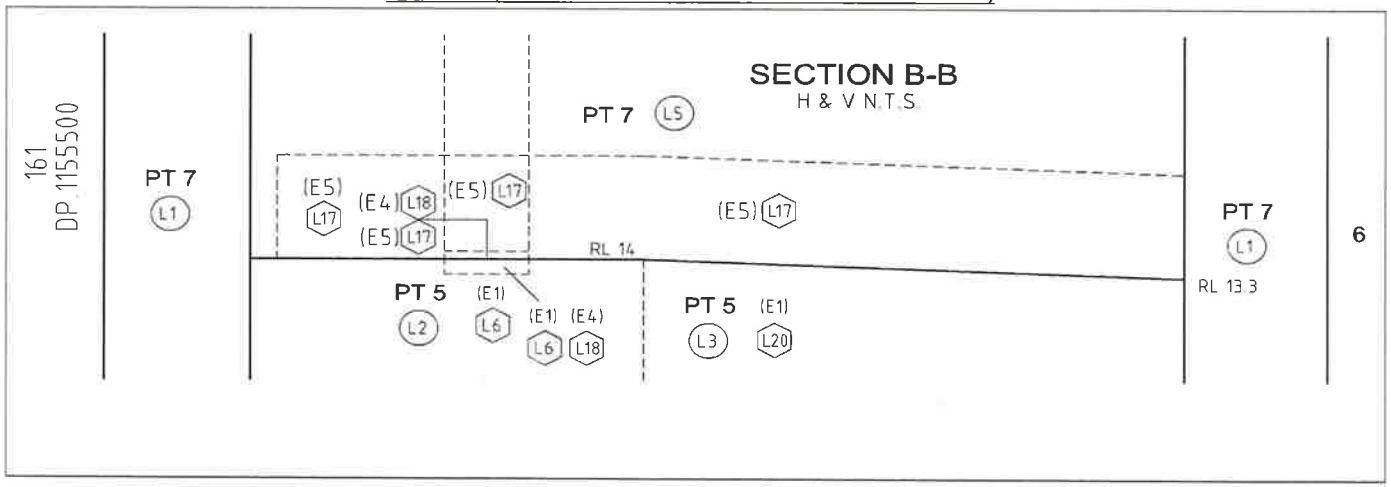


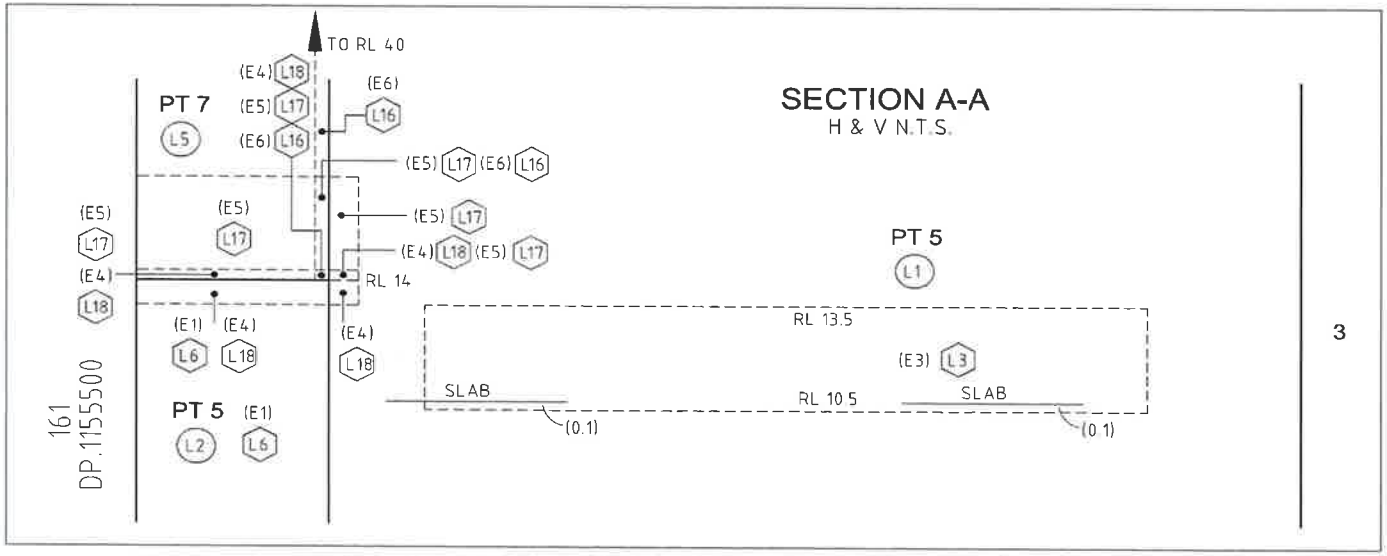
(#A) DENOTES CURVED SHORT BOUNDARY

(#) DENOTES STRAIGHT SHORT BOUNDARY

Surveyor: Jacek Idzikowski Date of Survey: 12-04-2013 Surveyor's Ref: 115224-18 (G) 2012M7100(1885) Partial Survey 2013M7100(552) Addn.Sheets	PLAN OF SUBDIVISION OF LOTS 88 IN DP870992, 70 IN DP1134933, 812 IN DP1012563 AND 1 IN DP1122970	LGA: AUBURN Locality: SYDNEY OLYMPIC PARK Subdivision No: 01/14 Lengths are in metres. Reduction Ratio NTS	Registered: 10.7.2014	DP1185060

SECTIONS (SEE SHEETS 3 & 4 FOR EASEMENTS DESCRIPTION)





Surveyor: Jacek Idzikowski Date of Survey: 12-04-2013 Surveyor's Ref: 115224-18 (G) 2012M7100(1885) Partial Survey 2013M7100(552) Addn.Sheets	PLAN OF SUBDIVISION OF LOTS 88 IN DP870992, 70 IN DP1134933, 812 IN DP1012563 AND 1 IN DP1122970	LGA: AUBURN Locality: SYDNEY OLYMPIC PARK Subdivision No: 01/14 Lengths are in metres. Reduction Ratio NTS	Registered: 10.7.2014	DP1185060

Req:R621933 /Doc:DP 1185060 P /Rev:14-Jul-2014 /Sts:SC.OK /Pgs:ALL /Prt:01-Nov-2017 08:59 /Seq:7 of 10
Ref:olympic park /Src:M

PLAN FORM 6 (2013) WARNING: Creasing or folding will lead to rejection ePlan

DEPOSITED PLAN ADMINISTRATION SHEET

Sheet 1 of 3 sheet(s)

Office Use Only

Registered: 10.7.2014

Title System: TORRENS

Purpose: SUBDIVISION

Office Use Only

DP1185060

PLAN OF SUBDIVISION OF LOTS
88 IN DP 870992, 70 IN DP 1134933,
812 IN DP 1012563 AND 1 IN DP 1122970

LGA: AUBURN

Locality: SYDNEY OLYMPIC PARK

Parish: CONCORD

County: CUMBERLAND

Crown Lands NSW/Western Lands Office Approval

I, ... (Authorised Officer) in approving this plan certify that all necessary approvals in regard to the allocation of the land shown herein have been given.

Signature: .....

Date: .....

File Number: .....

Office: .....

Subdivision Certificate

I, NICHOLAS HUBBLE

*Authorised Person/*General Manager/*~~Accredited Certifier~~, certify that the provisions of s.109J of the *Environmental Planning and Assessment Act 1979* have been satisfied in relation to the proposed subdivision, new road or reserve set out herein.

Signature: .....

Accreditation number: .....

Consent Authority: SYDNEY OLYMPIC PARK AUTHORITY

Date of endorsement: 27 MAY 2014

Subdivision Certificate number: 01/14

File number: F11/247

*Strike through if inapplicable.

Survey Certificate

I, Jacek Idzikowski .....

of Cardno Hard & Forester PO Box 175 Rockdale NSW 2216 .....

a surveyor registered under the *Surveying and Spatial Information Act 2002*, certify that:

*~~(a) The land shown in the plan was surveyed in accordance with the *Surveying and Spatial Information Regulation 2012*, is accurate and the survey was completed on .....~~

(b) The part of the land shown in the plan (~~being~~/*excluding ^ LOT 10) was surveyed in accordance with the *Surveying and Spatial Information Regulation 2012*, is accurate and the survey was completed on, 12 – 04 – 2013, the part not surveyed was compiled in accordance with that Regulation.

*~~(c) The land shown in this plan was compiled in accordance with the *Surveying and Spatial Information Regulation 2012*.~~

Signature: ..... Dated: 19-09-2013

Surveyor ID: 7255

Datum Line: X - Y

Type: *Urban/*~~Rural~~

The terrain is *Level-Undulating / *~~Steep-Mountainous~~.

*Strike through if inapplicable.

^Specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey.

Statements of intention to dedicate public roads create public reserves and drainage reserves, acquire/resume land.

Plans used in the preparation of survey/compilation.

DP 870992 DP 855929

DP1134933 DP 818981

DP1012563 DP 1125680

DP 1122970 DP 1130359

DP 1174468 DP 1165076

DP 831539

If space is insufficient continue on PLAN FORM 6A

Signatures, Seals and Section 88B Statements should appear on PLAN FORM 6A

Surveyor's Reference: 115224-18~~(D)~~ (G)

PLAN FORM 6A (2012) WARNING: Creasing or folding will lead to rejection ePlan

DEPOSITED PLAN ADMINISTRATION SHEET

Sheet 2 of 3 sheet(s)

Office Use Only

Registered: 10.7.2014

Office Use Only

DP1185060

PLAN OF SUBDIVISION OF LOTS 88 IN DP 870992, 70 IN DP 1134933, 812 IN DP 1012563 AND 1 IN DP 1122970

Subdivision Certificate number: 01/14

Date of Endorsement: 27.5.2014

This sheet is for the provision of the following information as required:

- A schedule of lots and addresses - See 60(c) *SSI Regulation 2012*
- Statements of intention to create and release affecting interests in accordance with section 88B *Conveyancing Act 1919*
- Signatures and seals- see 195D *Conveyancing Act 1919*
- Any information which cannot fit in the appropriate panel of sheet 1 of the administration sheets.

Pursuant to s.88B of the Conveyancing Act 1919 it is intended to create:

1. Easement for support and road maintenance variable width limited in stratum (E1)
2. Easement for power supply variable width limited in stratum (E2)
3. Right of access variable width limited in stratum (E3)
4. Easement for electricity and other purposes 3.59 wide limited in stratum (E4)
5. Right of carriageway variable width limited in stratum (E5)
6. Easement for encroaching structures 0.6 wide limited in stratum (E6)
7. Easement for public pedestrian access variable width limited in stratum (E7)
8. Easement for drainage of water 1.5 wide (E8)

SCHEDULE OF LOTS AND ADDRESSESS:

Lot 1 – 1 Murray Rose Avenue
Lot 2 – 2 Murray Rose Avenue
Lot 3 – 3 Murray Rose Avenue
Lot 4 – 4 Murray Rose Avenue
Lot 5 – 5 Murray Rose Avenue
Lots 6-10 (inclusive) – street address not assigned by the Authority

See sheet 3 for seals and signatures

If space is insufficient use additional annexure sheet

Surveyor's Reference: 115224-18~~(D)~~ (G)

PLAN FORM 6A (2012) WARNING: Creasing or folding will lead to rejection ePlan

DEPOSITED PLAN ADMINISTRATION SHEET

Sheet 3 of 3 sheet(s)

Office Use Only

Registered: 10.7.2014

Office Use Only

DP1185060

PLAN OF SUBDIVISION OF LOTS 88 IN DP 870992, 70 IN DP 1134933, 812 IN DP 1012563 AND 1 IN DP 1122970

This sheet is for the provision of the following information as required:

- A schedule of lots and addresses - See 60(c) *SSI Regulation 2012*
- Statements of intention to create and release affecting interests in accordance with section 88B *Conveyancing Act 1919*
- Signatures and seals- see 195D *Conveyancing Act 1919*
- Any information which cannot fit in the appropriate panel of sheet 1 of the administration sheets.

Subdivision Certificate number: 01/14

Date of Endorsement: 27.5.2014

SIGNED BY ME NICHOLAS HUBBLE AS DELEGATE OF THE SYDNEY OLYMPIC AUTHORITY AND I HEREBY DECLARE THAT I HAVE NO NOTICE OF THE REVOCATION OF SUCH DELEGATION IN THE PRESENCE OF:

SIGNATURE OF WITNESS SOPA BY ITS DELEGATE

BENJAMIN WOODS
(print name of Witness)

Executed and delivered as a Deed in Sydney

Each attorney executing this Deed states that he or she has no notice of revocation or suspension of his or her power of attorney.

Signed Sealed and Delivered for GPT RE Limited
by its attorneys under power of attorney
dated 16 February 2011 registered book 4607 no. 898
in the presence of:

Witness Signature
Genevieve Flynn

Print Name

LEVEL 51
MLC CENTRE
19 MARTIN PLACE
SYDNEY NSW 2000

Attorney Signature
JACQUELINE M. O'DEA

Print Name

Attorney Signature
Lisa Bau

SIGNED SEALED AND DELIVERED
for and on behalf of Ausgrid
by TREVOR MARK ARMSTRONG
its duly constituted Attorney pursuant
to Power of Attorney registered
Book 4641 No. 639

Attorney

Witness

KATHLEEN WILLIAMS
570 GEORGE STREET
SYDNEY NSW 2000

If space is insufficient use additional annexure sheet

Surveyor's Reference: 115224-18~~(D)~~ (G)

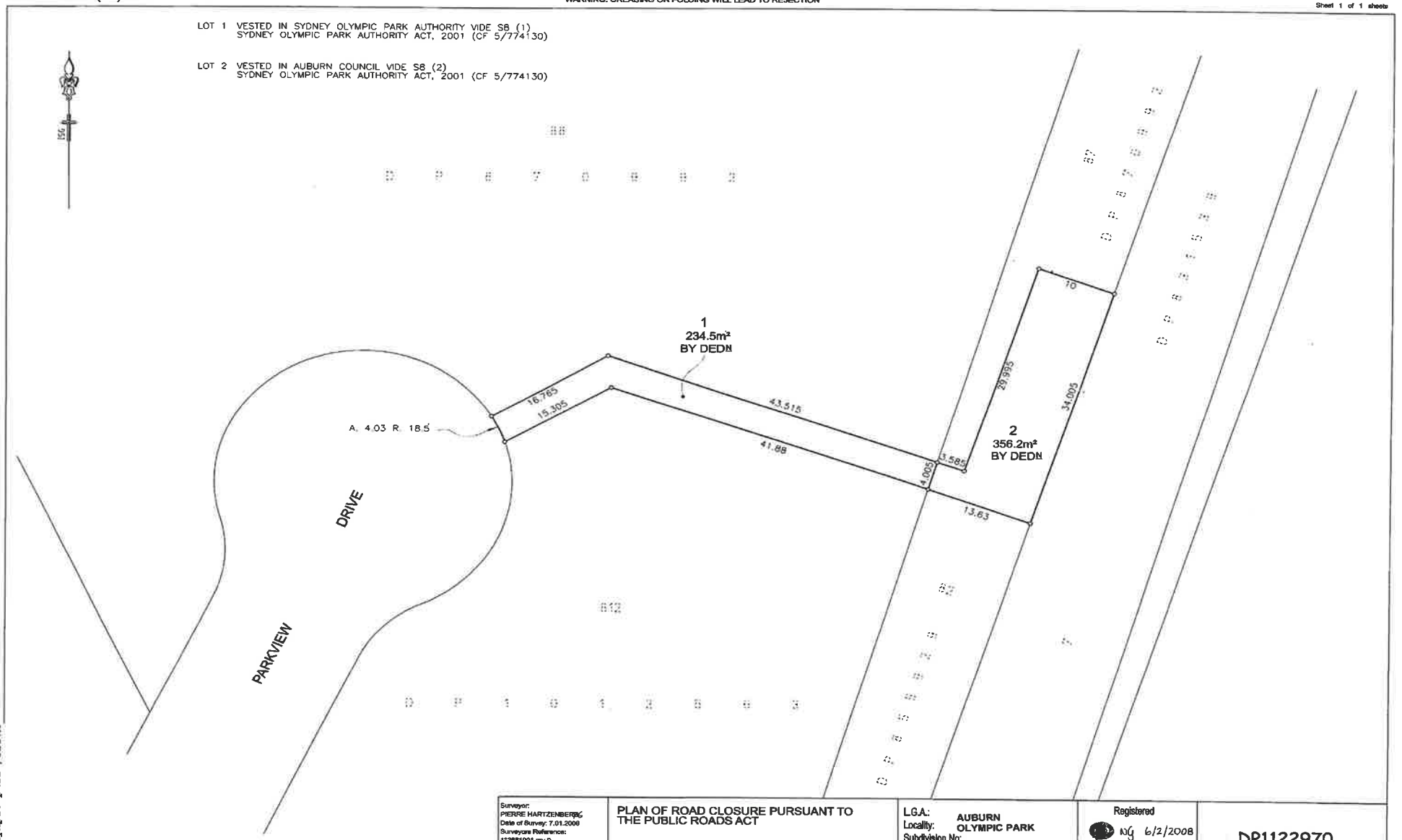
PLAN FORM 2 (A2)

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

Sheet 1 of 1 sheets

LOT 1 VESTED IN SYDNEY OLYMPIC PARK AUTHORITY VIDE S8 (1) SYDNEY OLYMPIC PARK AUTHORITY ACT, 2001 (CF 5/774130)

LOT 2 VESTED IN AUBURN COUNCIL VIDE S8 (2) SYDNEY OLYMPIC PARK AUTHORITY ACT, 2001 (CF 5/774130)



Surveyor: PIERRE HARTZENBERG Date of Survey: 7.01.2008 Surveyors Reference: 112681001 rev D	PLAN OF ROAD CLOSURE PURSUANT TO THE PUBLIC ROADS ACT	L.G.A.: AUBURN Locality: OLYMPIC PARK Subdivision No: Lengths are in metres. Reduction Ratio 1:300	Registered NG 6/2/2008 DP1122970

10 20 30 40 50 60 70 80 90 100 110 120 130 140

1997M8 – COMPILED

LOCALITY AMENDED 07/02/2008

Req:R621311 /Doc:DP 1122970 P /Rev:11-Feb-2008 /Sts:SC.OK /Pgs:ALL /Prt:01-Nov-2017 05:35 /Seq:1 of 2
Ref:olympic parl /Src:M

WARNING: Creasing or folding will lead to rejection

DEPOSITED PLAN ADMINISTRATION SHEET

Sheet 1 of 1 sheet(s)

* OFFICE USE ONLY

SIGNATURES, SEALS and STATEMENTS of intention to dedicate public roads, to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

SIGNED BY ME ROSS COGGAN AS DELEGATE OF THE SYDNEY OLYMPIC PARK AUTHORITY AND I HEREBY DECLARE THAT I HAVE NO NOTICE OF THE REVOCATION OF SUCH DELEGATION IN THE PRESENCE OF:

SIGNATURE OF WITNESS

SOPA BY ITS DEEGATE

PETER GRAY

PRINT NAME OF WITNESS

*

DP1122970

Registered: NG 6/2/2008 *

Title System: TORRENS

Purpose: PROPOSED ROAD CLOSURE

PLAN OF ROAD CLOSURE PURSUANT TO THE PUBLIC ROADS ACT

LGA: AUBURN

Locality: HOMEBUSH

Parish: CONCORD

County: CUMBERLAND

Use PLAN FORM 6A
for additional certificates, signatures, seals and statements

Crown Lands NSW/Western Lands Office Approval

I.....in approving this plan certify
(Authorised Officer)
that all necessary approvals in regard to the allocation of the land shown herein have been given

Signature:.....
Date:.....
File Number:.....
Office:.....

Subdivision Certificate

I certify that the provisions of s.109J of the Environmental Planning and Assessment Act 1979 have been satisfied in relation to:

the proposed..... set out herein
(insert 'subdivision' or 'new road')

.....
* Authorised Person/General Manager/Accredited Certifier

Consent Authority: .....
Date of Endorsement: .....
Accreditation no: .....
Subdivision Certificate no: .....
File no: .....

* Delete whichever is inapplicable.

Surveying Regulation, 2006

I, .PIERRE HARTZENBERG.....
of .HARD & FORESTER CONSULTING SURVEYORS.....
a surveyor registered under the *Surveying Act, 2002*, certify that the survey represented in this plan is accurate, has been made in accordance with the *Surveying Regulation, 2006* and was completed on:.....14/01/08.....

The survey relates to LOT 1 & 2.....
.....
(specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey)

Signature .....*Dated: 14/01/08*
Surveyor registered under the Surveying Act, 2002

Datum Line: X'- 'Y' COMPUTED
Type: Urban/Rural

Plans used in the preparation of survey/compilation.

DP855929
DP818981
DP870992

(if insufficient space use Plan Form 6A annexure sheet)

SURVEYOR'S REFERENCE: 112681001 REV0 *1997M8-COMP*

PLAN FORM 2

Plan Drawing only to appear in this space

*OFFICE USE ONLY

DP 870992

SIGNATURE AND SEALS ONLY.

DAVID RICHMOND
DIRECTOR GENERAL
CHANNEL CONTINUATION AUTHORITY

In the presence of
V RUMANO
Executive Assistant

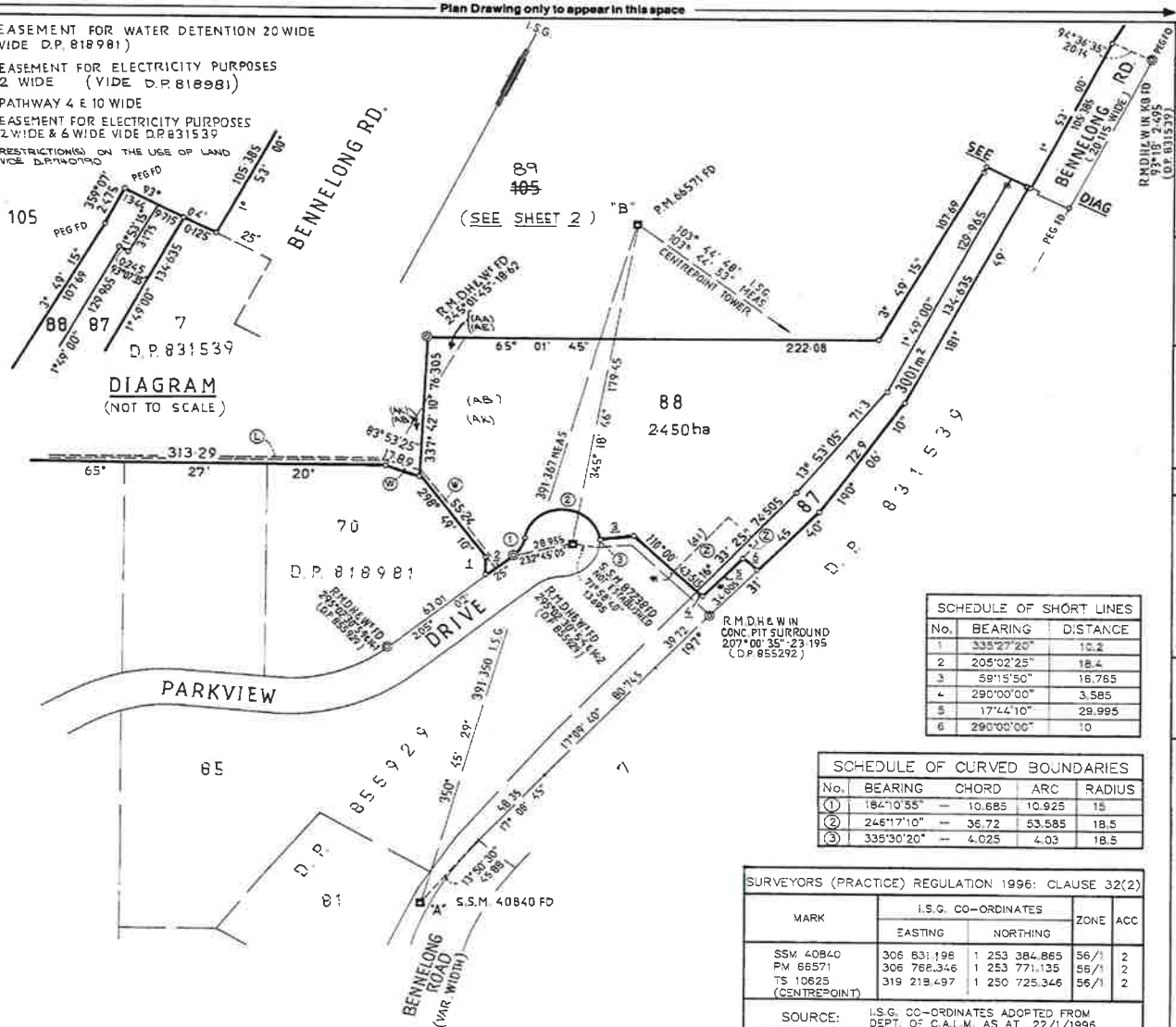
Ⓩ EASEMENT FOR WATER DETENTION 20 WIDE (VIDE D.P. 818981)

Ⓦ EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE (VIDE D.P. 818981)

* PATHWAY 4 & 10 WIDE

Ⓛ EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE & 6 WIDE VIDE D.P. 831539

(AK) RESTRICTION(S) ON THE USE OF LAND VIDE D.P. 740790



SCHEDULE OF SHORT LINES		
No.	BEARING	DISTANCE
1	335°27'20"	10.2
2	205°02'25"	18.4
3	59°15'50"	16.765
4	290°00'00"	3.585
5	17°44'10"	29.995
6	290°00'00"	10

SCHEDULE OF CURVED BOUNDARIES				
No.	BEARING	CHORD	ARC	RADIUS
(1)	184°10'55"	10.685	10.925	15
(2)	246°17'10"	36.72	53.585	18.5
(3)	335°30'20"	4.025	4.03	18.5

SURVEYORS (PRACTICE) REGULATION 1996: CLAUSE 32(2)				
MARK	I.S.G. CO-ORDINATES		ZONE	ACC
	EASTING	NORTHING		
SSM 40840	306 831.198	1 253 384.865	56/1	2
PM 66571	306 768.346	1 253 771.135	56/1	2
TS 10625 (CENTREPOINT)	319 219.497	1 250 725.346	56/1	2
SOURCE:	I.S.G. CO-ORDINATES ADOPTED FROM DEPT. OF C.A.L.M. AS AT 22/1/1996			
COMBINED SEA LEVEL & SCALE FACTOR 0.99994				

Crown Lands Office Approval

PLAN APPROVED .....
Authorised Officer

Land District .....

Paper No. .....

Field Book ..... Pages .....

Council's Certificate

I hereby certify that –

(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans), and

*(b) the requirements of ~~† Part 3 Division 2 of the Water Board Act 1987, or † Part 6 Division 7 of the Hunter Water Board (Corporation) Act 1991~~

are been complied with by the applicant in relation to the proposed subdivision
with "new road", "subdivision" or "consolidated lot") set out hereon

Division No. 40197

Date 7/8/97

(Signature) .....
General Manager/Authorised Person

Council File No. 290/L72

*This part of certificate to be deleted where the application is only for consolidated lot or the opening of a new road or where the land to be subdivided is wholly outside the areas of operations of the Water Board and the Hunter Water Corporation Ltd.

†delete if inapplicable

SURVEYOR'S REFERENCE: 34316 (13)

Registered	29-08-1997
C.A. No.	40197 OF 7/8/1997
Title System	TORRENS
Purpose	SUBDIVISION
Ref. Map:	U0052-93*
Last Plan	D.P. 818981, D.P. 849975

PLAN
OF SUBDIVISION OF
LOT 72 D.P. 818981 &
LOT 102 D.P. 849975

Lengths are in metres. Reduction Ratio 1: 1500

L G A	AUBURN
Suburb/Locality:	HOMEBUSH
Parish:	CONCORD
County:	CUMBERLAND

This is sheet 1 of my plan in 3 sheets.
(Delete if inapplicable)

I, GEOFFREY H. LITTLE
of HILL & BLUME P/L (ACN 000721004)
102 CROWN ST, WOOLLOOMOOLOO
a Surveyor registered under the Surveyors Act, 1929, hereby certify that the survey represented in this plan is accurate, has been made in accordance with the Surveying (Practice) Regulation 1996 and was completed on 16/7/97

The survey relates to LOTS 87,88 LOT 89 COMPILED
(Here specify the land actually surveyed, or specify any land shown in the plan that is not the subject of the survey)

(Signature) G.H. Little
Datum Line "A"-"B"
Zone: Suburban/Country
Surveyor registered under the Surveyors Act 1929

Plans used in preparation of survey/compilation.
D.P. 818981 D.P. 849975
D.P. 831539 D.P. 855929
D.P. 835722

PANEL FOR USE ONLY for statements of intention to dedicate public roads, to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants

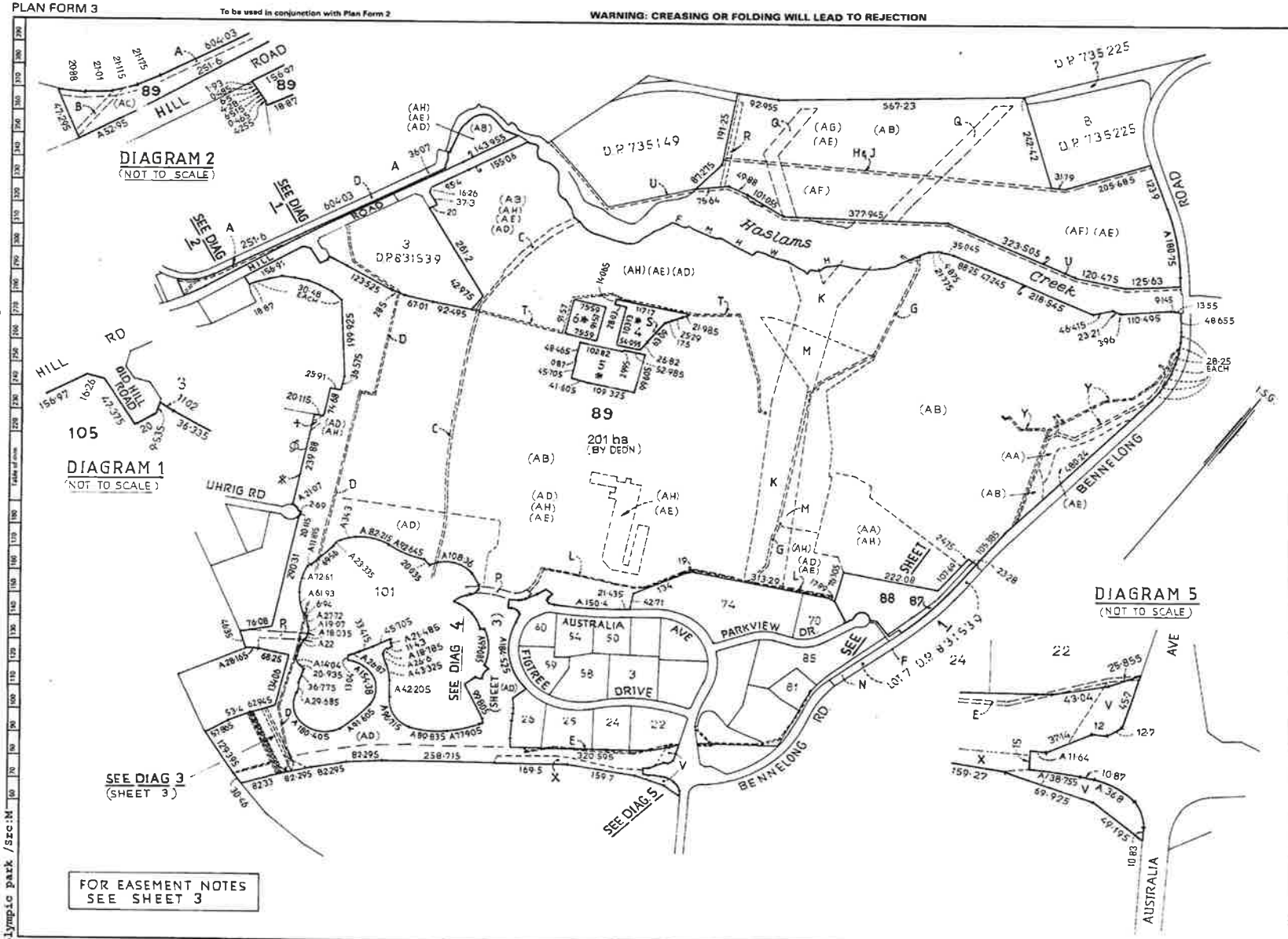
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 Table of mm 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390
M.P.S.

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

DP 870992

Req:R621324 /Doc:DP 0870992 P /Rev:01-Sep-1997 /Sts:OK.OK /Pgs:All /Prt:01-Nov-2017 05:48 /Seq:1 of 3
Ref:olympic park /Src:M

PLAN FORM 3 — To be used in conjunction with Plan Form 2 — WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION — * OFFICE USE ONLY



DP 870992

Registered: 29.08.1997

This is sheet 2 of my plan of 3 sheets dated

Surveyor registered under Surveyors Act 1929

This is sheet 2 of the plan of 3 sheets lodged by my Certificate No. 40/97 of 7/8/97

General Manager/Authorised Person

For use where space is insufficient in any panel on Plan Form 2

Reduction Ratio 1 6000

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE 34316(13)

DP 870992

Req:R621324 /Doc:DP 0870992 P /Rev:01-Sep-1997 /Sts:OK.OK /Pgs:ALL /Prt:01-Nov-2017 05:48 /Seq:2 of 3
Ref:olympic park /Src:M

PLAN FORM 3 To be used in conjunction with Plan Form 2 **WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION** * OFFICE USE ONLY

A EASEMENT FOR ACCESS VARIABLE WIDTH VIDE DP 219096 DEALING No J795907
B DRAINAGE EASEMENT 4.57 WIDE VIDE DP 219096 DEALING No J795907
C EASEMENT FOR DRAINAGE 5,6,15 & VARIABLE WIDTH VIDE DP 791168
D EASEMENT FOR UNDERGROUND CABLES 3.66 WIDE VIDE DP 451576 DEALING Q 778767
E EASEMENT TO DRAIN WATER 7 & 3 WIDE VIDE DP 774130
F RIGHT OF FOOTWAY 4 WIDE & VARIABLE VIDE DP 818981
G EASEMENT TO DRAIN WATER 5 WIDE & VARIABLE VIDE DP 818981
H EASEMENT FOR WATERMAIN VIDE DP 229640 DEALING K654256
J EASEMENT TO DRAIN WATER DEALING K868355
K EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH VIDE DP 620943 DEALING No Y 29791
L EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE & 6 WIDE VIDE DP 831539
M EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH VIDE DP 831539
N RIGHT OF CARRIAGEWAY VARIABLE WIDTH VIDE DP 109129 DEALING No J886626 & K554665 RIGHT OF WAY VARIABLE WIDTH VIDE DP 109129 DEALING No C512626
P EASEMENT FOR SERVICES 17 WIDE & VARIABLE VIDE DP 831539
Q EASEMENT FOR TRANSMISSION LINE 30 WIDE VIDE DP 831539
R PROPOSED EASEMENT TO DRAIN WATER 10 WIDE VIDE DP 831539
S EASEMENT FOR THE PASSAGE & CONVEYANCE OF CARCASSES 3.35 WIDE VIDE DP 106356 (S150341)
T EASEMENT FOR SEWERAGE PURPOSES 4 WIDE VIDE DP 831539 EXCLUDING THE PARTS WITHIN LOTS 3,4 & 6
U RIGHT OF CARRIAGEWAY 6.1 WIDE VIDE DP 229640
V EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH VIDE DP 831539
X RIGHT OF CARRIAGEWAY VARIABLE WIDTH VIDE DP 831539
Y RIGHT OF CARRIAGEWAY VARIABLE WIDTH VIDE DP 109129 DEALING No J886626 & K 554665

(AH) RESERVATIONS & CONDITIONS IN CROWN GRANT
(AD) BENEFITED BY RIGHT OF WAY – L827059
(AE) BENEFITED BY RIGHT OF CARRIAGEWAY – J886626
(AF) BENEFITED BY RIGHT OF CARRIAGEWAY – K554665
(AG) BENEFITED BY EASEMENT TO DRAIN WATER – K868355
(AA) LAND EXCLUDES MINERALS – S.141 PUBLIC WORKS ACT, 1912 J886627
(AB) LAND EXCLUDES MINERALS – S.134 PUBLIC WORKS ACT, 1900
(AC) LAND EXCLUDES MINERALS – S.141 PUBLIC WORKS ACT, 1912 LAND EXCLUDES MINERALS – S.134 PUBLIC WORKS ACT, 1900

RIGHT OF CARRIAGEWAY VIDE DP 225350
RIGHT OF CARRIAGEWAY VIDE DP 225350 DEALING K818375
EASEMENT FOR RAILWAY PURPOSES VARIABLE WIDTH VIDE DEALING M395085
PIPELINE EASEMENT 3 WIDE, 12 WIDE & VAR VIDE DP 499007 (SHEET 10) DEALING R297864, R297865, R342216
PIPELINE EASEMENT 3, 12 & VARIABLE WIDTH VIDE DP 499008 (SHEET 7) DEALING No S816045, S816046, S816047
EASEMENT FOR ELECTRICITY PURPOSES 2.44 WIDE VIDE DP 223082 DEALING No J937238
EASEMENT FOR ELECTRICITY MAINS 3.05 WIDE VIDE DP 430149 DEALING No D40474
EASEMENT FOR ELECTRICITY PURPOSES 3.05 WIDE VIDE DP 106717 DEALING No D928745
EASEMENT FOR GAS 3.05 WIDE DEALING G483307
EASEMENT FOR ELECTRICITY PURPOSES 2.44 WIDE VIDE DP 831539
EASEMENT FOR ELECTRICITY MAINS 3.05 WIDE VIDE DP 831539
EASEMENT FOR ELECTRICITY PURPOSES 3.05 WIDE VIDE DP 831539
EASEMENT FOR GAS 3.05 WIDE VIDE DP 831539
EASEMENT FOR TRANSMISSION LINE 30.48 WIDE DEALING No.J930060
EASEMENT FOR TRANSMISSION LINE 30.48 WIDE VIDE DP 831539

DIAGRAM 4
(NOT TO SCALE)

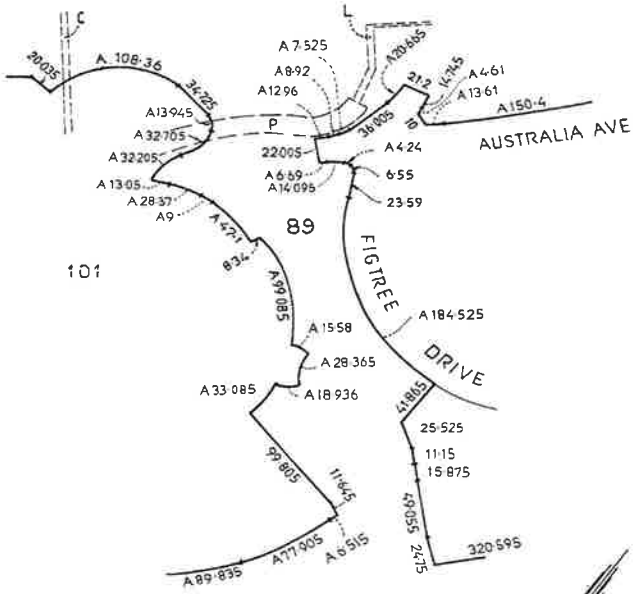
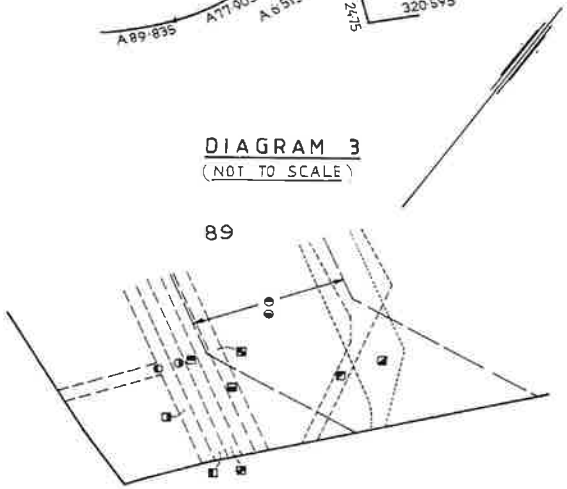


DIAGRAM 3
(NOT TO SCALE)



DP 870992
Registered: 29 08 1997
This is sheet 3 of my plan in 3 sheets dated
Surveyor registered under Surveyors Act 1929
This is sheet 3 of the plan of 3 sheets covered by my Certificate No. 40/97 of 7/8/97
General Manager/Authorised Person
For use where space is insufficient in any panel on Plan Form 2.

Reduction Ratio 1:

Plan Drawing only to appear in this space

SURVEYORS REFERENCE: 34316(13)

DP 870992

Req:R621324 /Doc:DP 0870992 P /Rev:01-Sep-1997 /Sts:OK.OK /Pgs:ALL /Prt:01-Nov-2017 05:48 /Seq:3 of 3
Ref:olympic park /Src:M

PLAN FORM 3 — To be used in conjunction with Plan Form 2 — WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION — *OFFICE USE ONLY

DP 818981

Registered: 31.7.1992

This is sheet 2 of my plan in 2 sheets dated

Surveyor registered under the Land Transfer Act 1952

This is sheet 2 of the plan of SUBDIVISION shown covered by my Certificate No. 1798 of LOT 5 D.P. 774150

Council Clerk

For use where space is insufficient in any panel on Plan Form 2

THE COMMON SEAL of HAWKE'S BAY MUNICIPAL CORPORATION was hereunto affixed in the presence of:

General Manager

G.J. CROUCH
(Print Name)

Deputy General Manager

T. HUKINS
(Print Name)

SCHEDULE OF EASEMENT BOUNDARIES

No	BEARING	DIST.
1	89° 40' 45"	28·01
2	27° 43' 45"	18·505
3	148° 09' 50"	26·66
4	168° 14' 05"	237·8
5	203° 43' 55"	148·015
6	157° 11' 20"	11·995
7	204° 37' 40"	21·2
8	155° 46' 10"	266·585
9	161° 58' 15"	5·96
10	155° 28' 10"	28·445
11	145° 59' 45"	6·16
12	155° 33' 15"	59·33
13	176° 21' 40"	21·345
14	154° 56' 55"	81·52
15	188° 41' 40"	65·925

- (W) EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE
- (E) EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE (DP590090)
- PROPOSED EASEMENT FOR TRANSMISSION LINES VAR WIDTH VIDE D.P 620943
- Ø EASEMENT TO DRAIN WATER 5 WIDE & VARIABLE

D P 221477 — D P 219674 — D P 540955 — D P 109129

SEE DIAG — SEE SHEET 74 — DIAG 2 — PARKVIEW DRIVE — HASLAMS — RATHBEWIDIN HEADWALL — RATHNOT FD — RYELL FD — PM59959FD — PM59958FD

DIAGRAM 2 (NOT TO SCALE)

DIAGRAM 3 (NOT TO SCALE)

Plan Drawing only to appear in this space

Reduction Ratio 1: 2500

Surveyor's Reference: 34316 (10)

This negative is a photograph made as a permanent record of a document in the custody of the Registrar General this day. 4th August 1992

10 20 30 40 50 60 70 Table of mm 110 120 130 140

2

Req:R621309 /Doc:DP 0818981 P /Rev:13-Jan-1993 /Sts:OK.OK /Pgs:ALL /Prt:01-Nov-2017 05:34 /Seq:1 of 2
Ref:olympic park /Src:M

Req:R621309 /Doc:DP 0818981 P /Rev:13-Jan-1993 /Sts:OK.OK /Pgs:ALL /Prt:01-Nov-2017 05:34 /Seq:2 of 2
Ref:olympic park /Src:M

PLAN FORM 2

Plan Drawing only to appear in this space

*OFFICE USE ONLY

DP 818981

Registered: 31.7.1992

CA: N°17792 OF 17.7.1992

Title System: TORRENS

Purpose: SUBDIVISION

Ref. Map: 10052-93

Last Plan: DP 774130

PLAN OF SUBDIVISION OF LOT 5 IN D.P.774130 & EASEMENT TO DRAIN WATER OVER LOT 1 D.P.540955 & LAND IN D.P.109129

Lengths are in metres. Reduction Ratio 1: 2500

Man./Shire/City: AUBURN

Locality: HOMEBUSH

Parish: CONCORD

County: CUMBERLAND

This is sheet 1 of my plan on 2 Sheets. (Delete if inapplicable)

I, GEOFFREY HAYWARD LITTLE of HILL & BLUME P/L, of ... 102 CROWN ST WOOLLOOMOOLOO

a surveyor registered under the Surveyors Act, 1929, as amended hereby certify that the survey represented in this plan ... is accurate and has been made in accordance with the Survey Practice Regulations, 1933 and every special requirements of the Department of Lands, and was completed on

1.6.90

Signature: [illegible]

Surveyor registered under the Surveyors Act, 1929, as amended. Datum Line of Azimuth: "X"-"Y"

Bearing of boundary of parcel

Plans used in preparation of survey/compilation

D.P.774130, D.P.219674, D.P.221477, D.P.540955

PANEL FOR USE ONLY. for statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements or restrictions as to user.

IT IS INTENDED TO DEDICATE PARKVIEW DRIVE 20WIDE& VARWIDTH E THE PATHWAY 10 E& 4 WIDE TO THE PUBLIC *

PURSUANT TO SEC 88B OF THE CONVEYANCING ACT 1919-1964 IT IS INTENDED TO CREATE:

1) RIGHT OF FOOTWAY 4 WIDE E VARIABLE WIDTH
2) EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE
3) EASEMENT FOR WATER DETENTION 20 WIDE
4) EASEMENT TO DRAIN WATER 5 WIDE & VARIABLE

* SUBJECT TO EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE CREATED BY D.P.590090 ACCEPTED BY COUNCIL CLERK.

SIGNATURE AND SEALS ONLY.

1 [signature]

[signature]

Director

The Common Seal of Homebush Export Meat Co. Pty Ltd A.C.N 000977024 was hereto affixed in the presence of

[signature]

Secretary

SIGNED SEALED AND DELIVERED by the COMMERCIAL DEVELOPMENT MANAGER as delegate of the MINISTER FOR PUBLIC WORKS in the presence of:

[signature]

EDWARD K. HARVEY

(print name)

[signature]

[signature]

(print name)

Crown Lands Office Approval

PLAN APPROVED ..... Authorised Officer

Land District .....

Parish No. .....

Parish Scale ..... Angles .....

Council Clerk's Certificate

I hereby certify that —

(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans), and

(b) the requirements of section 345 of the Hunter District Water, Sewerage and Drainage Act, 1924, as amended, the Hunter District Water, Sewerage, and Drainage Act, 1938, as amended

have been complied with by the applicant in relation to the proposed SUBDIVISION EXCLUDING NEW ROAD

Subdivision No. 17194

Date 17-7-92

(Signature) [signature]

Council Ref. No. 3.0(1895) Pt

* This part of certificate to be deleted where the application is only for a consolidation lot or the opening of a new road or where the land to be subdivided is wholly outside the extent of operations of the Metropolitan Water Sewerage and Drainage Board and the Hunter District Water Board.

† Delete if inapplicable

SURVEYOR'S REFERENCE: 34316 (10)

SCHEDULE OF SHORT BOUNDARIES

N°	BEARING	DIST
1	25° 35' 00"	5·895
2	239° 15' 50"	16·755
3	352° 29' 55"	5·805
4	239° 59' 15"	6
5	285° 25' 00"	39·03
6	260° 02' 20"	49·495
7	255° 59' 05"	30·99
8	235° 14' 45"	33·245
9	169° 52' 00"	8·45
10	80° 20' 20"	36·665
11	350° 06' 50"	6·945
12	67° 47' 05"	22·92
13	96° 47' 30"	37·265
14	273° 07' 00"	15·775
15	1° 10' 00"	2·495
16	273° 04' 00"	4·2
17	273° 04' 00"	4·075
18	93° 04' 00"	23·155
19	359° 07' 00"	2·475
20	15° 27' 30"	10·3
21	59° 15' 50"	15·305

SCHEDULE OF REFERENCE & PERMANENT MARKS

N°	BEARING	DIST	DIST	MARK
a	324° 01'	4·5	17·5	D.H.E WINGS FD
b	324° 01'	4·5	—	" " WING "
c	27° 02'	4·6	17·6	" " " "
d	305° 02'	1		P.M.C.B
e	305° 02'	1		"
f	340° 02'	1		"
g	340° 02'	1		"
h	295° 02'	1		"
j	295° 02'	1		"
k	77° 29' 30"	4·5	17·8	D.H.E WINGS FD
l	77° 29' 30"	4·5	17·5	D.H.E WINGS FD
m	53° 06' 30"	4·57	17·78	" " " "
n	93° 07'	6·835	—	D.H.E WING FD

SCHEDULE OF CURVED BOUNDARIES

N°	CHORD		ARC	RAD
C	260° 39' 45"	151·04	159·535	140
C1	232° 32' 25"	57·135	59·03	95
C2	227° 32' 25"	57·405	58·905	75
C3	184° 10' 30"	10·685	10·925	15
C4	266° 17' 10"	36·72	53·585	18·5
C5	335° 30' 30"	4·925	4·03	18·5
C6	24° 15' 40"	25	27·45	"
C7	45° 54' 25"	10·685	10·925	15
C8	47° 32' 25"	72·71	94·615	95
C9	52° 32' 25"	45·105	45·815	75
C10	329° 07' 55"	88·19	89·715	140
C11	338° 44' 25"	51·42	51·62	169
C12	155° 39' 55"	32·235	32·285	163
C13	198° 14' 10"	20·23	21·7	16·85
C14	260° 16' 30"	25·49	26·33	30
C15	280° 36' 55"	16·31	17·345	16·35
C16	177° 27' 55"	63·485	63·65	240
C17	178° 29' 35"	47·995	48·175	160
C18	192° 07' 45"	27·945	27·98	"

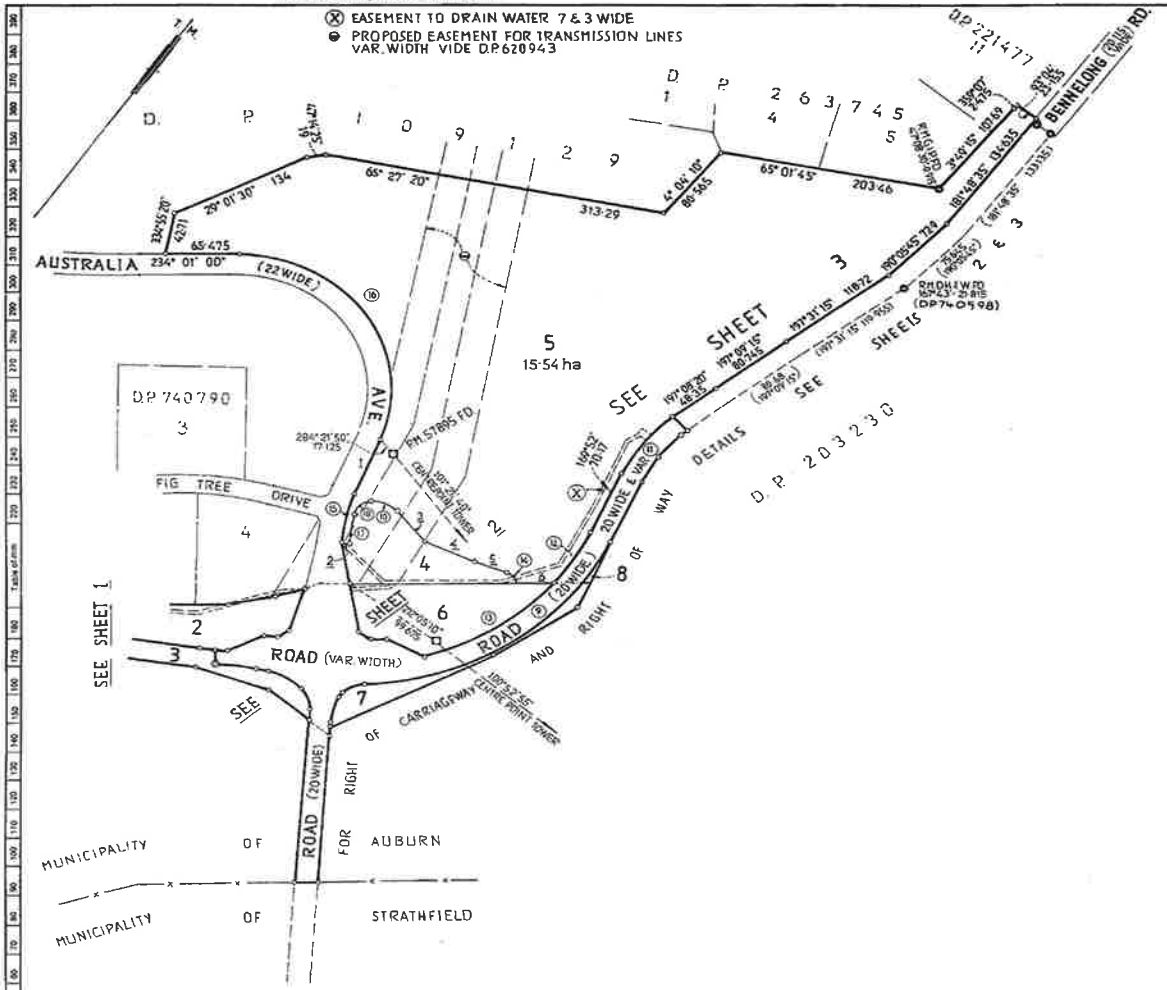
DIAGRAM 1
(NOT TO SCALE)

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

10 20 30 40 50 60 70 Table of mm 110 120 130 140

This negative is a photograph made as a permanent record of a document in the custody of the Registrar General this day. 4th August 1992

PLAN FORM 3 — To be used in conjunction with Plan Form 2 — WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION — *OFFICE USE ONLY



SCHEDULE OF CURVED BOUNDARIES

No	CHORD	ARC	RAD
(16)	183° 30' 10" 75·44	76·155	160
(17)	177° 27' 55" 63·465	63·65	240
(18)	201° 53' 55" 139·02	141·04	"
(19)	110° 36' 55" 16·31	17·345	14·35
(20)	338° 44' 25" 51·42	51·62	169
(21)	290° 45' 15" 236·125	277·27	140
(22)	335° 39' 55" 32·235	32·285	163
(23)	18° 16' 30" 20·23	20·2	16·85
(24)	80° 16' 20" 25·49	26·33	30·0

SCHEDULE OF SHORT BOUNDARIES

No	BEARING	DIST
1	347° 29' 30"	60·64
2	59° 59' 15"	6·00
3	105° 25'	39·03
4	80° 02' 20"	49·485
5	75° 59' 05"	30·89
6	55° 14' 45"	33·245

DP 774130

Registered: 10 6 1988

This is sheet 4 of my plan in 4 sheets dated 1-6-1987

g. A. Cattle.

Surveyor registered under Surveyors Act 1929

This is sheet 4 of the plan of 4 sheets covered by my Certificate No. 27 of 1987

Council Clerk

For use where space is insufficient in any panel on Plan Form 2.

D. Mashell

THE COMMON SEAL OF THE STATE RAIL AUTHORITY OF NEW SOUTH WALES WAS HEREUNTO AFFIXED IN THE PRESENCE OF:-

AUTHORISED OFFICER

Reduction Ratio 1: 3000

Plan Drawing only to appear in this space — SURVEYOR'S REFERENCE 34316/3

Reg:R621314 /Doc:DP 0774130 P /Rev:14-Oct-2014 /Sts:SC.OK /Pgs:ALL /Prt:01-Nov-2017 05:44 /Seq:4 of 4
Ref:olympic park /Src:M

PLAN FORM 2

Plan Drawing only to appear in this space

*OFFICE USE ONLY

DP 774130 (E)

SIGNATURE AND SEALS ONLY.

THE COMMON SEAL OF THE STATE RAIL AUTHORITY OF NEW SOUTH WALES WAS HEREUNTO AFFIXED IN THE PRESENCE OF:

AUTHORISED OFFICER

Crown Lands Office Approval

PLAN APPROVED ..... Authorised Officer

Land District .....

Paper No. .....

Field Book ..... Page .....

Council Clerk's Certificate

I hereby certify that —

(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans), and

*(b) the requirements of section 346 of the † Metropolitan Water, Sewerage and Drainage Act, 1924, as amended, † Hunter District Water, Sewerage, and Drainage Act, 1938, as amended

have been complied with by the applicant in relation to the proposed Subdivision and new road (Insert "new road", "subdivision" or "consolidated lot") set out herein

Subdivision No. 27/87

Date 23-12-87

(Signature) ..... Council Clerk

Council File No. 210 Bus Park

*This part of certificate to be deleted where the application is only for a consolidated lot or the opening of a new road or where the land to be subdivided is wholly outside the areas of operations of the Metropolitan Water Sewerage and Drainage Board and the Hunter District Water Board.

† Delete if inapplicable

SURVEYOR'S REFERENCE 34316/3

Registered: 10-6-1988

C.A: NO.27/87 OF 23-12-1987

Title System: TORRENS

Purpose: SUBDIVISION

Ref. Map: U0045-22 U0052-91, 93

Last Plan: DP227446, DP740600 DP977076, DP740790

PLAN OF SUBDIVISION OF LOT 6 DP 740790; PART LAND IN D.P 977076 BEING PART OF C.T. VOL 6129 FOL 216; LOT 1 IN D.P. 740600, & EASEMENT TO DRAIN WATER OVER LOT 2 & LOT 4 D.P. 740790

Lengths are in metres. Reduction Ratio 1: 1000

Mun./Shire City: AUBURN

Locality: HOMEBUSH

Parish: CONCORD

County: CUMBERLAND

This is sheet 1 of my plan in 4 sheets. (Delete if inapplicable).

I, GEOFFREY HAYWARD LITTLE of HILLE BLUME PL of 102 CROWN ST. WOOLLOOMOOLOO

a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan is accurate and has been made in accordance with the Survey Practice Regulations, 1933 and any special requirements of the Department of Lands, and was completed on

1ST JUNE 1987

Signature ..... Surveyor registered under Surveyors Act, 1929, as amended. Datum Line: Azimuth. "A" - "B"

Plans used in preparation of survey/compilation.

D.P 627506	D.P 977076
740598	227446
740599	
740600	
740790	

PANEL FOR USE ONLY for statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements or restrictions as to user.

IT IS INTENDED TO DEDICATE THE ROAD 20 WIDE & VARIABLE TO THE PUBLIC FOR ROAD PURPOSES.

PURSUANT TO SEC.88B OF THE CONVEYANCING ACT 1919-1964 IT IS INTENDED TO CREATE:-

1) EASEMENT TO DRAIN WATER 7 & 3 WIDE.

ROAD SUBJECT TO RIGHT OF WAY & RIGHT OF CARRIAGEWAY VIDE K 872956, K554665, J 886626 & C 512626

COUNCIL CLERK

SCHEDULE OF CURVED BOUNDARIES

N°	CHORD	ARC	RAD
(1)	238° 04' 55" 15·64	15·64	248·65
(2)	236° 44' 25" 4	4	*
(3)	241° 57' 10" 38·715	38·755	233·65
(4)	266° 19' 05" 36·085	36·80	53·75

MPD

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

EASEMENT WIDTH AMENDED VIDE 2014-1265 13.10.2014

Req:R621314 /Doc:DP 0774130 P /Rev:14-Oct-2014 /Sts:SC.OK /Pgs:ALL /Prt:01-Nov-2017 05:44 /Seq:1 of 4

Ref:olympic park /Src:M

PLAN FORM 3 — To be used in conjunction with Plan Form 2 — WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION — *OFFICE USE ONLY

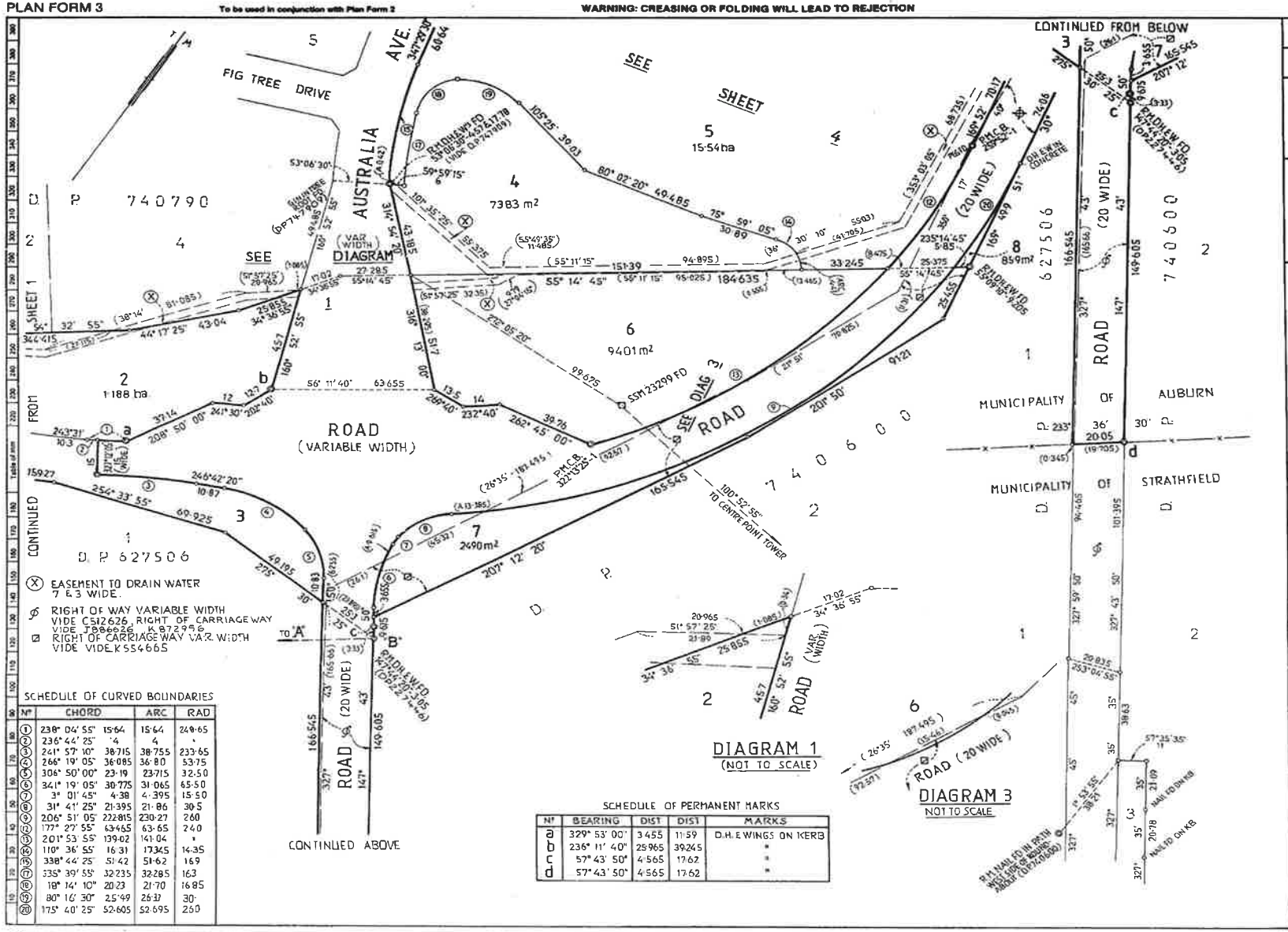


DIAGRAM 1 (NOT TO SCALE)

DIAGRAM 3 NOT TO SCALE

SCHEDULE OF CURVED BOUNDARIES

N°	CHORD		ARC	RAD
(1)	238° 04' 55"	15·64	15·64	240·65
(2)	236° 44' 25"	"4	4	"
(3)	241° 57' 10"	38·715	38·755	233·65
(4)	266° 19' 05"	36·085	36·80	53·75
(5)	306° 50' 00"	23·19	23·715	32·50
(6)	341° 19' 05"	30·775	31·065	65·50
(7)	3° 01' 45"	4·38	4·395	15·50
(8)	31° 41' 25"	21·395	21·86	30·5
(9)	206° 51' 05"	222·815	230·27	260
(10)	177° 27' 55"	63·465	63·65	240
(11)	201° 53' 55"	139·02	141·04	"
(12)	110° 36' 55"	16·31	17·345	14·35
(13)	338° 44' 25"	51·42	51·62	169
(14)	335° 39' 55"	32·235	32·285	163
(15)	18° 14' 10"	20·23	21·70	16·85
(16)	80° 16' 30"	25·49	26·37	30·
(17)	175° 40' 25"	52·605	52·695	260

SCHEDULE OF PERMANENT MARKS

N°	BEARING	DIST	DIST	MARKS
a	329° 53' 00"	3·455	11·59	D.H.E WINGS ON KERB
b	236° 11' 40"	25·965	39·245	"
c	57° 43' 50"	4·565	17·62	"
d	57° 43' 50"	4·565	17·62	

DP 774130

Registered: 10 6 1988

This is sheet 2 of my plan in 4 sheets dated 1-6-1987

G. K. Dellow
Surveyor registered under Surveyors Act 1929

This is sheet 2 of the plan of 4 sheets covered by my Certificate No. 27 of 1987

Council Clerk

For use where space is insufficient in any panel on Plan Form 2.

D. Marshall

THE COMMON SEAL OF THE STATE RAIL AUTHORITY OF NEW SOUTH WALES WAS HEREUNTO AFFIXED IN THE PRESENCE OF:-

AUTHORISED OFFICER

Reduction Ratio 1: 1000

Plan Drawing only to appear in this space — SURVEYOR'S REFERENCE 34316/3

Req:R621314 /Doc:DP 0774130 P /Rev:14-Oct-2014 /Sts:SC.OK /Pgs:ALL /Prt:01-Nov-2017 05:44 /Seq:2 of 4
Ref:olympic park /Src:M

PLAN FORM 3 — To be used in conjunction with Plan Form 2 — WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION — *OFFICE USE ONLY

DP 774130

Registered: 10.6.1988

This is sheet 3 of my plan in 4 sheets dated 1-6-1987

G. K. Fields

Surveyor registered under Surveyors Act 1929

This is sheet 3 of the plan of 4 sheets certified by my Certificate dated 1-6-1987

Council Clerk

For use where space is insufficient in any panel on Plan Form 2.

D. Marshall

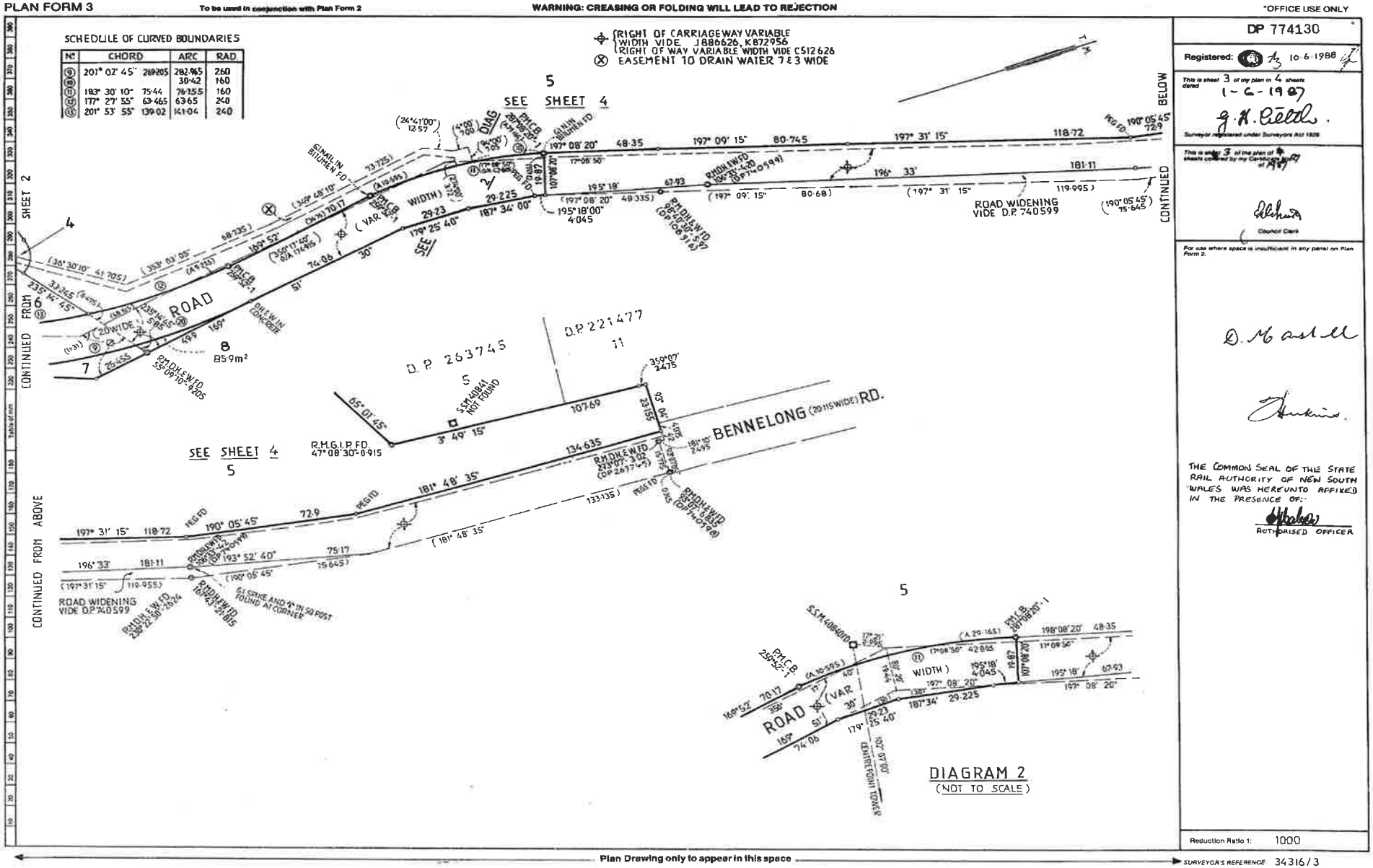
THE COMMON SEAL OF THE STATE RAIL AUTHORITY OF NEW SOUTH WALES WAS HEREUNTO AFFIXED IN THE PRESENCE OF:

AUTHORISED OFFICER

SCHEDULE OF CURVED BOUNDARIES

No	CHORD	ARC	RAD
⑨	201° 02' 45" 269·205	282·965	260
⑩		30·42	160
⑪	183° 30' 10" 75·44	78·155	160
⑫	177° 27' 55" 63·465	63·65	240
⑬	201° 53' 55" 139·02	141·04	240

⊕ RIGHT OF CARRIAGEWAY VARIABLE WIDTH VIDE J886626, K872956
RIGHT OF WAY VARIABLE WIDTH VIDE C512626
⊗ EASEMENT TO DRAIN WATER 7 & 3 WIDE



Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE 34316/3

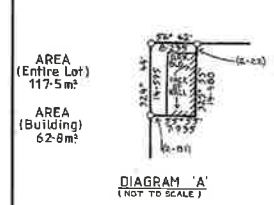
Reduction Ratio 1: 1000

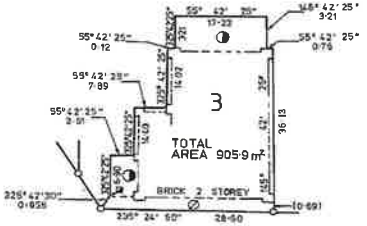
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Ref:olympic park /Src:M

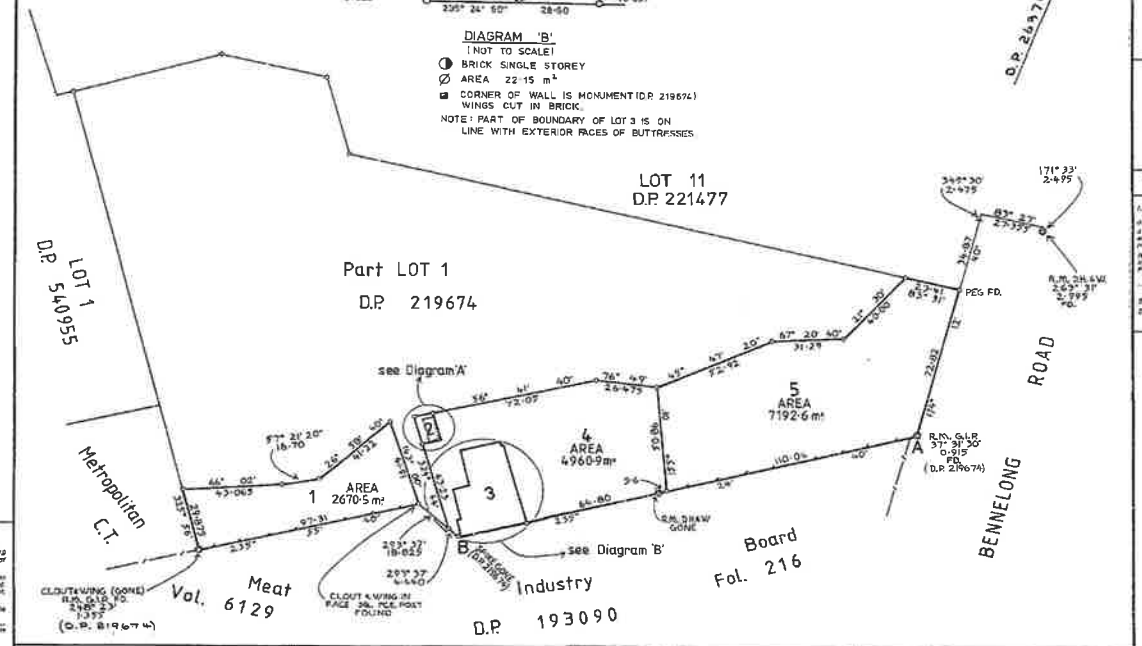
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Ref:olympic park /Src:M

PLAN FORM 2 — Plan Drawing only to appear in this space — * OFFICE USE ONLY

Signatures and seals only.







Council Clerk's Certificate

I certify that —

(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans), and

(b) the requirements of section 388 of the Metropolitan Water, Sewerage and Drainage Act, 1924, as amended, the Hunter District Water, Sewerage, and Drainage Act, 1938, as amended

have been complied with for the applicant in relation to the proposed (Strike out "new road", "subdivision" or "consolidation" as the case may be)

Subdivision No. .....

Date .....

(Signature) .....

Council Clerk

*This part of certificate to be altered where the application is only for a consolidation of lots or the opening of a new road or where the land to be subdivided is wholly outside the area of supervision of the Metropolitan Water Sewerage and Drainage Board and the Hunter District Water Board.

(Delete if inapplicable)

M.P.D.

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

SURVEYOR'S REFERENCE: S.B.29800

D.P. 263745

Registered: 8-12-1982

C.A.: .....

Title System: TORRENS

Purpose: LEASE

Ref. Map: U0052-91*93*

Last Plan: D.P. 221477, D.P. 219674

PLAN of Part Land Comprised in C.T. Vol. 14674 Fol. 177 and C.T. Vol. 9857 Fol. 79

Reduction Ratio 1: 12.00
Lengths are in metres.

Man./Blocks: Auburn
Locality: Homebush
Parish: Concord
County: Cumberland

This is sheet 1 of my plan in ..... parts
(Delete if inapplicable)

I, Ian Frederick Wootton
of Dept. of Public Works
a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan is accurate and has been made in accordance with the Survey Practice Regulation, 1933, and was completed on 1 .....
3-8-82.

Signature: I.F. Wootton

Surveyor registered under Surveyors Act, 1929, as amended.
Strike out either (1) or (2). Insert date of survey.

Panel for use only for statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements or restrictions as to user.

S.B. 29800

I, Bruce Richard Davies, Under Secretary for Lands and Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this day.

8th December, 1982

Req:R621312 /Doc:DP 0263475 P /Rev:20-Jun-1992 /Sts:OK.OK /Pgs:ALL /Prt:01-Nov-2017 05:41 /Seq:1 of 2
Ref:olympic park /Src:M

PLAN FORM 2

Plan Drawing only to appear in this space

Signature and seals only.

The Common Seal of Rednim Pty. Limited was hereunto affixed by authority of the Board of Directors in the presence of:-

Director

Secretary

Signed Sealed and delivered by the said Neil William Ingram and Dorothy Joan Ingram in the presence of:

Council Clerk's Certificate

I hereby certify that

(a) the requirements of the Local Government Act, 1919, (other than the requirement for the registration of plans), and

(b) [illegible]

have been complied with by the applicant in relation to the proposed Subdivision

Subdivision No. 23/82

Date 14.6.1982

Signature: Council Clerk

*This part of an allotment is to be ignored where the application is only for a consolidation but on the opening of a new road or where the land to be subdivided is wholly outside the limits of operations of the Metropolitan Water Sewerage and Drainage Board and the Hunter District Water Board.

(Delete if inapplicable)

BINGLE STREET (20.115 WIDE)

DANDAR STREET (20.115 WIDE)

STREET (20.115 WIDE)

BARTON STREET (20.115 WIDE)

GUNDY ROAD (20.115 WIDE)

ROAD WIDENING VARIABLE WIDTH

EASEMENT TO DRAIN WATER 3 WIDE

DIAGRAM RATIO 1:400

(A) EASEMENT TO DRAIN WATER 3 WIDE
(B) RIGHT OF CARRIAGEWAY 3 WIDE
(C) EASEMENT FOR SEWERAGE 7 WIDE

PUBLIC RESERVE

PATHWAY 1.5 WIDE

EASEMENT FOR ELECTRICITY SUBSTATION 2 WIDE

D.P. 535661

D. P. 263475

Registered: 6-9-1982

C.A.: No 23/82 of 16 6 1982

Title System: TORRENS

Purpose: SUBDIVISION

Ref. Map: SCONE SHT 3

Last Plan: D. P. 535661

PLAN OF SUBDIVISION OF LOT 26 IN D.P. 535661

Reduction Ratio 1:800
Lengths are in metres

Main/Shire Area: SCONE

Locality: SCONE

Parish: SCONE

County: BRISBANE

This sheet is of my plan in sheets (Delete if inapplicable)

I, Robert Douglas Dunlop of 50 Clarence St, Sydney 2000 (DX 988) a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan is accurate and has been made *(I/under my/under the) supervision in accordance with the Survey Practice Regulations, 1946, and was completed on 27th JANUARY 1982

Signature

Surveyor registered under Surveyors Act, 1929, as amended. Datum Line of Azimuth: SA to B

*Strike out whichever is inapplicable

Date of survey

Panel for use only for statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements or restrictions as to user

PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT 1919-1964 IT IS INTENDED TO CREATE:
1. EASEMENT TO DRAIN WATER 3 WIDE,
2. RIGHT OF CARRIAGEWAY 3 WIDE,
3. EASEMENT FOR ELECTRICITY SUBSTATION 2 WIDE
4. EASEMENT FOR SEWERAGE 7 WIDE.

IT IS INTENDED TO DEDICATE THE PATHWAY 1.5 WIDE TO THE PUBLIC.

IT IS INTENDED TO DEDICATE TO THE PUBLIC AS ROAD THAT PART OF BARTON STREET SHOWN AS ROAD WIDENING VARIABLE WIDTH, AND THAT PART OF BARTON STREET AND GUNDY ROAD SHOWN AS ROAD WIDENING VARIABLE WIDTH.

IT IS INTENDED TO CREATE LOT 16 AS PUBLIC RESERVE.

SURVEYOR'S REFERENCE: 3091L/1

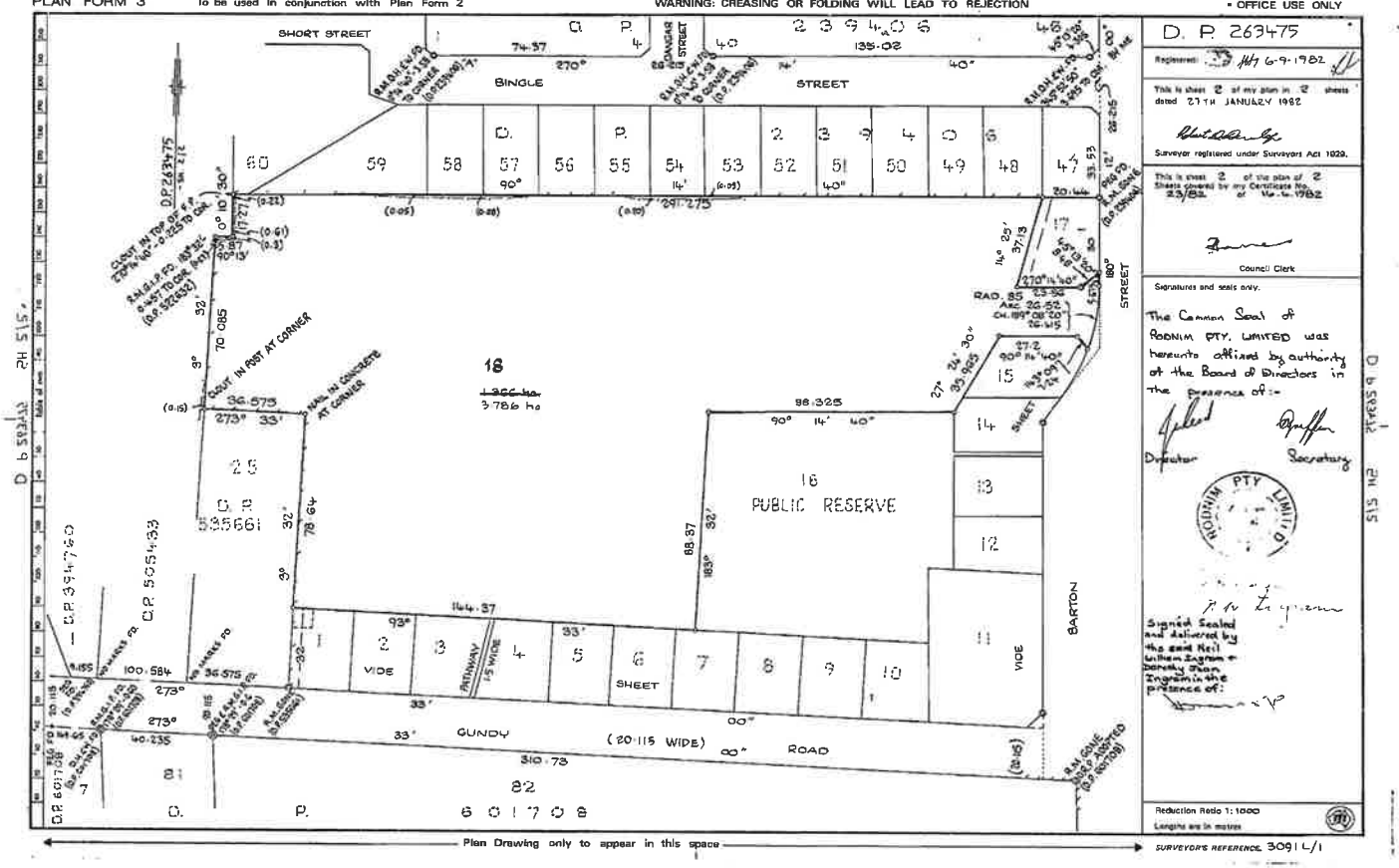
WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

M. P. D.

I, Bruce Richard Davies, Under Secretary for Lands and Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this day.

15th September, 1982

PLAN FORM 3 To be used in conjunction with Plan Form 2 WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION * OFFICE USE ONLY



D. P. 263475

Registered: 6-9-1982

This is sheet 2 of my plan in 2 sheets dated 27TH JANUARY 1982

Surveyor registered under Surveyors Act 1929.

This is sheet 2 of the plan of 2 Sheets covered by my Certificate No. 23/82 of 10-6-1982

Council Clerk

Signatures and seals only.

The Common Seal of RODNIM PTY. LIMITED was hereunto affixed by authority of the Board of Directors in the presence of:-

Director Secretary

RODNIM PTY LIMITED

Signed Sealed and delivered by the said Neil Wilson Ingram + Dorothy Joan Ingram in the presence of:

Reduction Ratio 1:1000

Lengths are in metres

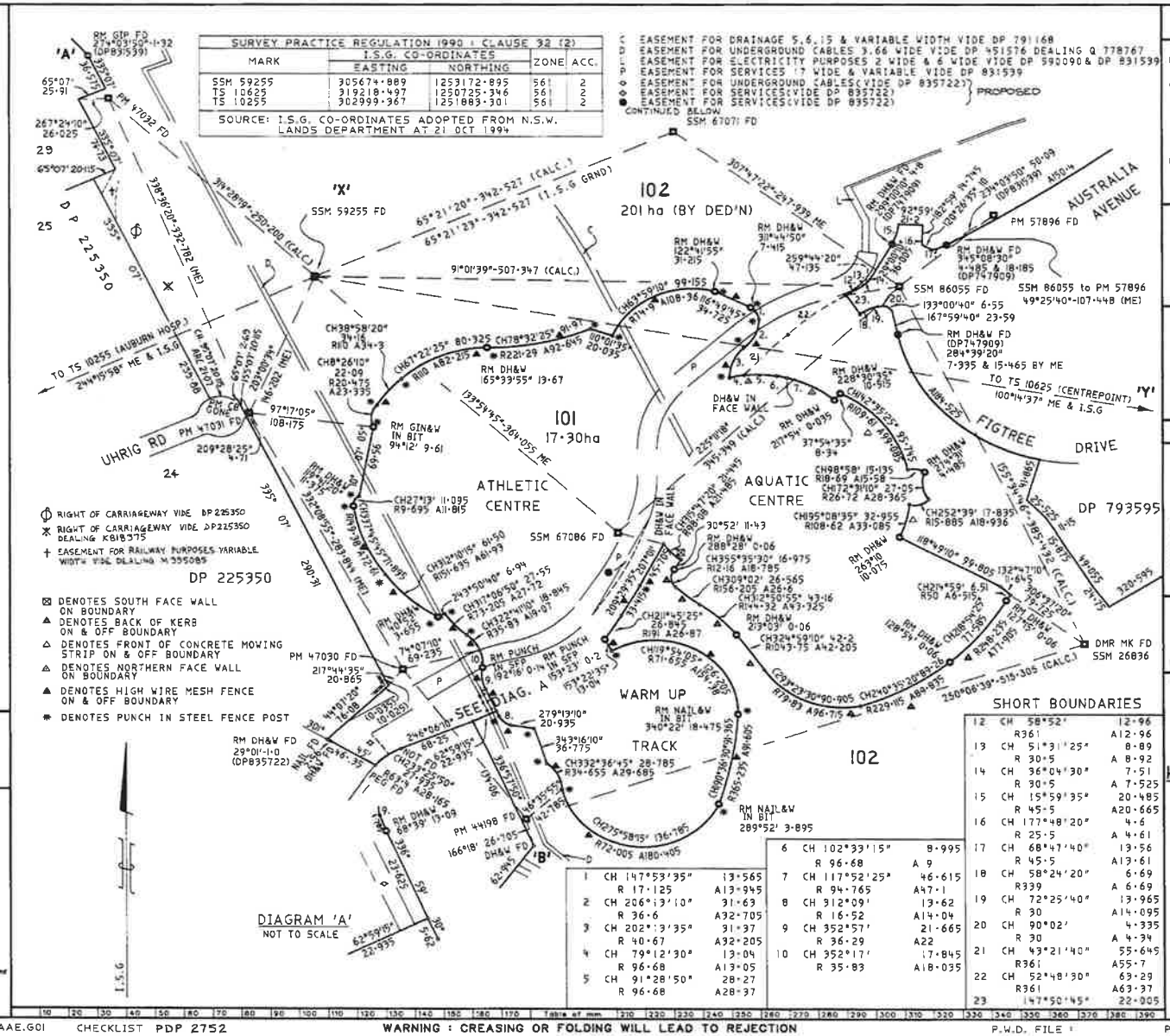
I, Bruce Richard Davies, Under Secretary for Lands and Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this day.

15th September, 1982

Req:R621312 /Doc:DP 0263475 P /Rev:20-Jun-1992 /Sts:OK.OK /Pgs:ALL /Prt:01-Nov-2017 05:41 /Seq:2 of 2
Ref:olympic park /Src:M

PLAN FORM 2 — Plan Drawing only to appear in this space — OFFICE USE ONLY

Signatures, seals and statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.



Crown Lands Office Approval

PLAN APPROVED ..... Authorised Officer

Land District .....

Paper No. .....

Field Book ..... pages .....

Council Certificate

I hereby certify that -

(a) the requirements of the Local Government Act, 1993 (other than the requirements for the registration of plans), and

* (b) the requirements of † Part 2 Division 2 of the Water Board Act 1987, or † Part 2 Division 2 of the Hunter Water Board (Corporatisation) Act 1991

have been complied with by the applicant in relation to the proposed

* ..... set out hereto

Subdivision No. .....

Date .....

(Signature) ..... General Manager/authorised person

Council File No. .....

* This part of certificate to be deleted where the application is only for a consolidated lot or the opening of a new road or where the land is to be subdivided is wholly outside the areas of operations of the Water Board and the Hunter Water Corporation Ltd.

† Insert "new road", "subdivision" or "consolidated lot"

‡ Delete if inapplicable.

SURVEYOR'S REFERENCE: 827BAAAC/AAAE.G01 CHECKLIST PDP 2752

WARNING : CREASING OR FOLDING WILL LEAD TO REJECTION

P.W.D. FILE : P.W.D. PLAN : S.B.51993

DP 849975

Registered: 7·6·1995

C.A.:

Title System: TORRENS

Purpose: SUBDIVISION

Ref. Map: U0045-22, U0052-82·84·91·93

Last Plan: DP 225350 DP831539, DP835722

PLAN OF SUBDIVISION OF LOT 1 DP 831539, LOT 1 DP 835722 AND LOT 31 DP 225350

Lengths are in metres. Reduction Ratio 1:2500

L.G.A.: AUBURN

Locality: HOMEBUSH

Parish: CONCORD

County: CUMBERLAND

This is sheet 1 of my plan in 3 sheets. (Delete if inapplicable).

I, JOHN CHARLES HUGHES of "HARD AND FORESTER PTY. LTD." 52 FREDERICK ST., ROCKDALE, 2216, a surveyor registered under the Surveyors Act 1928, hereby certify that the survey represented in this plan is accurate, has been made in accordance with the Survey Practice Regulation 1990 and was completed on

* 27th OCTOBER, 1994

Signature: .....

Surveyor registered under the Surveyors Act 1928.

Datum Line of A.....

*Insert date of survey.

"X" - "Y" (I.S.G) & "A" - "B"

Plans used in preparation of survey / compilation

DP 835722	DP 229640	DP 643434
DP 831539	DP 620943	DP 499007
DP 219096	DP 590090	DP 499008
DP 451576	DP 620943	DP 430149
DP 774130	DP 104929	DP 106717
DP 818981	DP 106356	DP 225350

PANEL FOR USE ONLY for statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

HOMEBUSH BAY - OLYMPICS 2000

LOT 101 PROPOSED TO BE LEASED

LOT 102 PROPOSED TO BE ACQUIRED

N002A3A

S.B. 51993

Req:R621310 /Doc:DP 0849975 P /Rev:16-Jun-1995 /Sts:OK.OK /Pgs:ALL /Prt:01-Nov-2017 05:34 /Seq:1 of 3
Ref:Olympic park /Src:M

PLAN FORM 3 — To be used in conjunction with Plan Form 2 — WARNING : CREASING OR FOLDING WILL LEAD TO REJECTION — OFFICE USE ONLY

DP 849975

Registered: 7-6-1995

This is sheet 2 of my plan in 3 sheets dated 27th OCTOBER 1994

Signature
Surveyor registered under Surveyors Act, 1929.

This is sheet of the plan of sheets covered by my certificate No. of

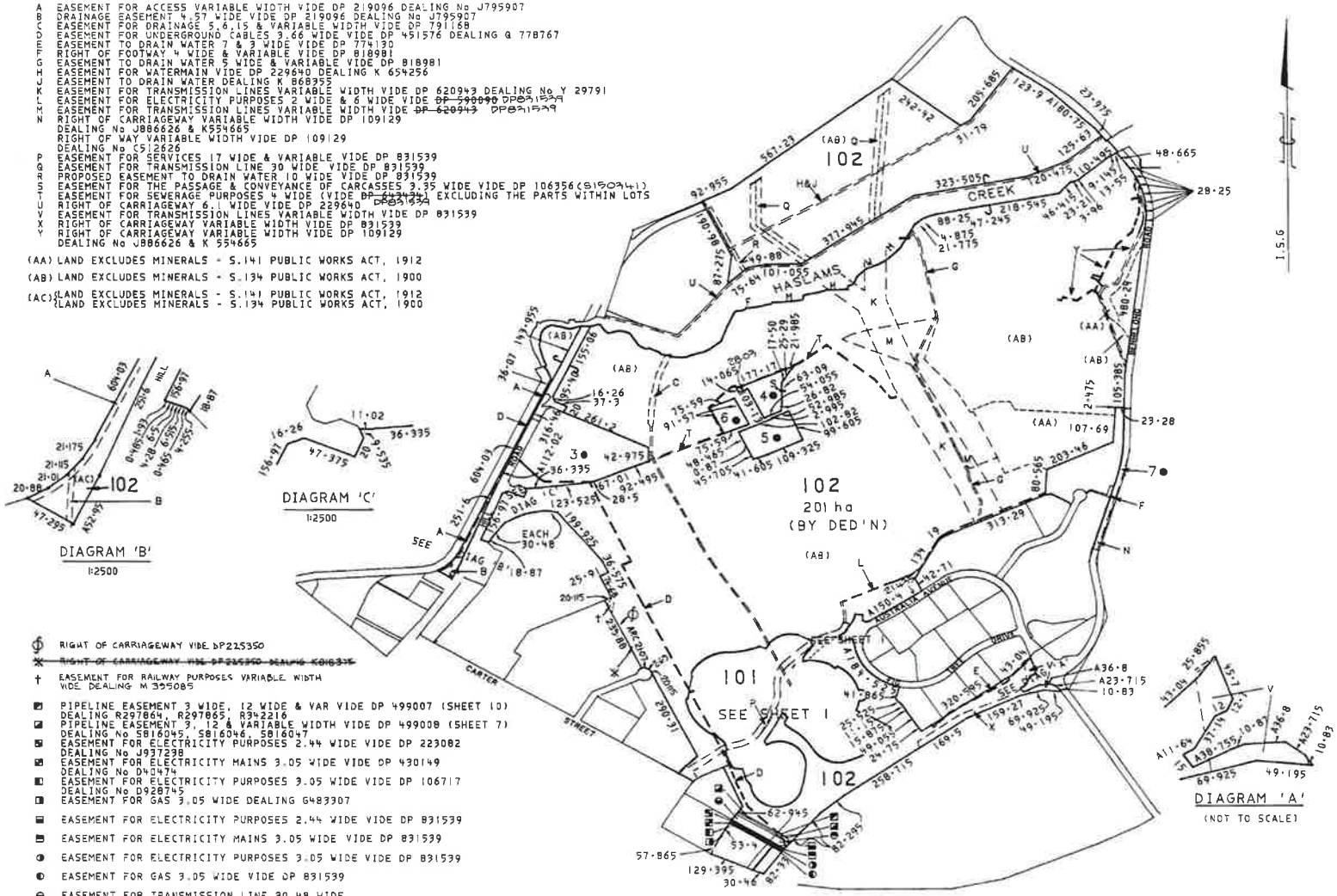
General Manager/authorised person

L.G.A.: AUBURN
Locality: HOMEBUSH
Parish: CONCORD
County: CUMBERLAND

For use where space is insufficient in any panel on Plan Form 2.

A EASEMENT FOR ACCESS VARIABLE WIDTH VIDE DP 219096 DEALING No J795907
B DRAINAGE EASEMENT 4.57 WIDE VIDE DP 219096 DEALING No J795907
C EASEMENT FOR DRAINAGE 5.6,15 & VARIABLE WIDTH VIDE DP 791168
D EASEMENT FOR UNDERGROUND CABLES 3.66 WIDE VIDE DP 451576 DEALING Q 778767
E EASEMENT TO DRAIN WATER 7 & 3 WIDE VIDE DP 774130
F RIGHT OF FOOTWAY 4 WIDE & VARIABLE VIDE DP 818981
G EASEMENT TO DRAIN WATER 5 WIDE & VARIABLE VIDE DP 818981
H EASEMENT FOR WATERMAIN VIDE DP 229640 DEALING K 654256
J EASEMENT TO DRAIN WATER DEALING K 868955
K EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH VIDE DP 620943 DEALING No Y 29791
L EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE & 6 WIDE VIDE ~~DP 590090~~ DP831539
M EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH VIDE ~~DP 620943~~ DP831539
N RIGHT OF CARRIAGEWAY VARIABLE WIDTH VIDE DP 109129
DEALING No J886626 & K554665
RIGHT OF WAY VARIABLE WIDTH VIDE DP 109129
DEALING No C512626
P EASEMENT FOR SERVICES 17 WIDE & VARIABLE VIDE DP 831539
Q EASEMENT FOR TRANSMISSION LINE 30 WIDE VIDE DP 831539
R PROPOSED EASEMENT TO DRAIN WATER 10 WIDE VIDE DP 831539
S EASEMENT FOR THE PASSAGE & CONVEYANCE OF CARCASSES 9.35 WIDE VIDE DP 106356(B150941)
T EASEMENT FOR SEWERAGE PURPOSES 4 WIDE (VIDE ~~DP 613434~~) EXCLUDING THE PARTS WITHIN LOTS ~~DP831534~~
U RIGHT OF CARRIAGEWAY 6.1 WIDE VIDE DP 229640
V EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH VIDE DP 831539
X RIGHT OF CARRIAGEWAY VARIABLE WIDTH VIDE DP 831539
Y RIGHT OF CARRIAGEWAY VARIABLE WIDTH VIDE DP 109129
DEALING No J886626 & K 554665

(AA) LAND EXCLUDES MINERALS - S.141 PUBLIC WORKS ACT, 1912
(AB) LAND EXCLUDES MINERALS - S.134 PUBLIC WORKS ACT, 1900
(AC) {LAND EXCLUDES MINERALS - S.141 PUBLIC WORKS ACT, 1912
{LAND EXCLUDES MINERALS - S.134 PUBLIC WORKS ACT, 1900



RIGHT OF CARRIAGEWAY VIDE DP215350
~~RIGHT OF CARRIAGEWAY VIDE DP215350 DEALING K016315~~
† EASEMENT FOR RAILWAY PURPOSES VARIABLE WIDTH WIDE DEALING M 395085
PIPELINE EASEMENT 3 WIDE, 12 WIDE & VAR VIDE DP 499007 (SHEET 10) DEALING R297864, R297865, R342216
PIPELINE EASEMENT 3, 12 & VARIABLE WIDTH VIDE DP 499008 (SHEET 7) DEALING No S816045, S816046, S816047
EASEMENT FOR ELECTRICITY PURPOSES 2.44 WIDE VIDE DP 223082 DEALING No J937238
EASEMENT FOR ELECTRICITY MAINS 3.05 WIDE VIDE DP 430149 DEALING No D40474
EASEMENT FOR ELECTRICITY PURPOSES 3.05 WIDE VIDE DP 106717 DEALING No D928745
EASEMENT FOR GAS 3.05 WIDE DEALING G483307
EASEMENT FOR ELECTRICITY PURPOSES 2.44 WIDE VIDE DP 831539
EASEMENT FOR ELECTRICITY MAINS 3.05 WIDE VIDE DP 831539
EASEMENT FOR ELECTRICITY PURPOSES 3.05 WIDE VIDE DP 831539
EASEMENT FOR GAS 3.05 WIDE VIDE DP 831539
EASEMENT FOR TRANSMISSION LINE 30.48 WIDE DEALING No J930060
EASEMENT FOR TRANSMISSION LINE 30.48 WIDE VIDE DP 831539
DP 831539

Lengths are in metres. Reduction Ratio 1:8000

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE :8278AAAC/AAAE.G04

S.B. 51993

PDP 2752

Req:R621310 /Doc:DP 0849975 P /Rev:16-Jun-1995 /Sts:OK.OK /Pgs:ALL /Prt:01-Nov-2017 05:34 /Seq:2 of 3
Ref:olympic park /Src:M

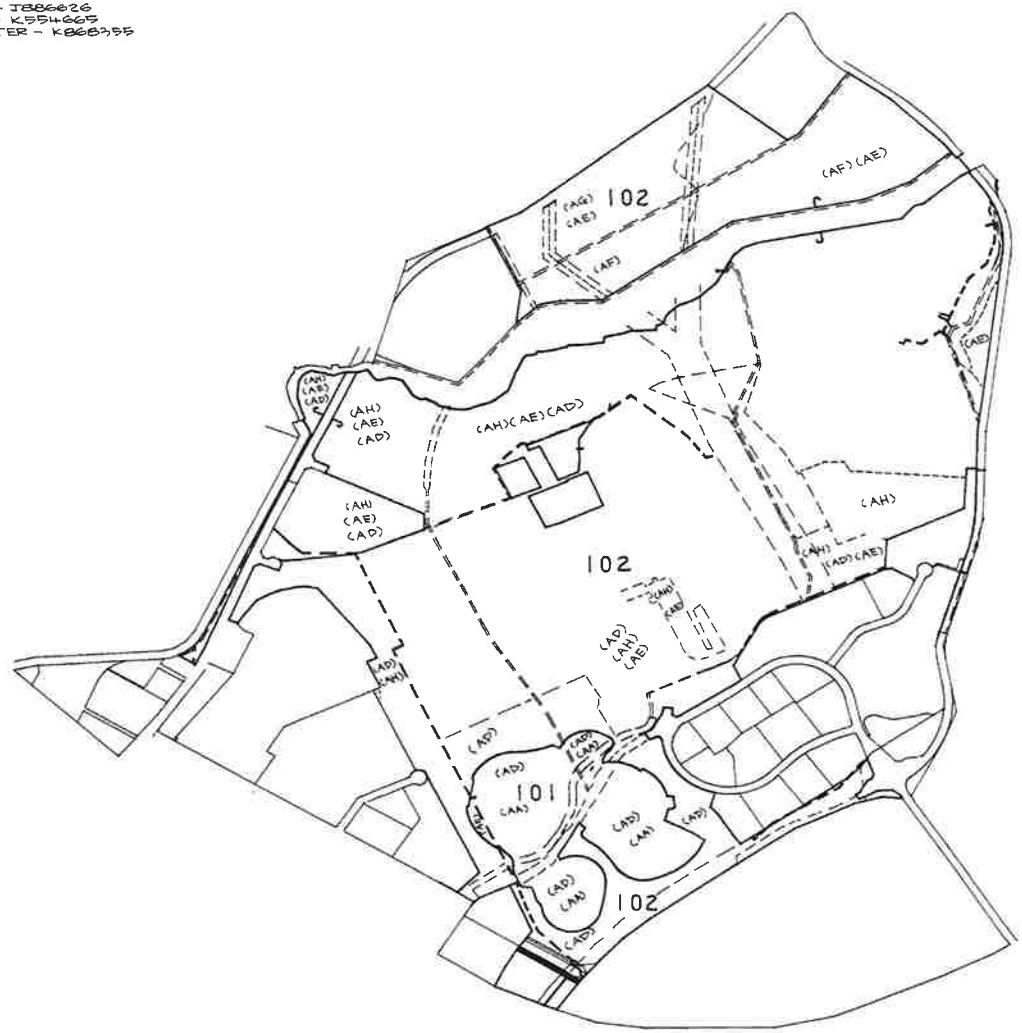
PLAN FORM 3

To be used in conjunction with Plan Form 2

WARNING : CREASING OR FOLDING WILL LEAD TO REJECTION

* OFFICE USE ONLY

(AA) LAND EXCLUDES MINERALS – J886627
(AH) RESERVATIONS & CONDITIONS IN CROWN GRANT
(AD) BENEFITED BY RIGHT OF WAY – L827059
(AE) BENEFITED BY RIGHT OF CARRIAGEWAY – J886626
(AF) BENEFITED BY RIGHT OF CARRIAGEWAY – K554665
(AG) BENEFITED BY EASEMENT TO DRAIN WATER – K868755



1:5.6

DP 849975 *

Registered : , : add 7-6-1995 *

This is sheet 3 of my plan in 3 sheets
dated 27th OCTOBER 1994

Signature :
Surveyor registered under Surveyors Act, 1929.

This is sheet of the plan of
sheets covered by my certificate No.
of

General Manager/authorised person

L.G.A.: AUBURN
Locality: HOMEBUSH
Parish: CONCORD
County: CUMBERLAND

For use where space is insufficient in any panel on Plan Form 2.

Lengths are in metres. Reduction Ratio 1:800

S.D. 51993

PDP 2752

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE : 827BAAAC/AAAE.G05

Req:R621310 /Doc:DP 0849975 P /Rev:16-Jun-1995 /Sts:OK.OK /Pgs:ALL /Prt:01-Nov-2017 05:34 /Seq:3 of 3
Ref:olympic park /Src:M

InfoTrack
An Approved LPI NSW
Information Broker

Historical Title

Information Provided Through
John McLaren & Co (NSW)
Ph. 02 9231 4872 Fax. 02 9233 6557

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
1/11/2017 9:10AM

FOLIO: 6/740790

First Title(s): OLD SYSTEM
Prior Title(s): VOL 6129 FOL 216

Recorded	Number	Type of Instrument	C.T. Issue
13/3/1987	DP740790	DEPOSITED PLAN	FOLIO CREATED EDITION 1
22/4/1988	X509870	DEPARTMENTAL DEALING	
27/5/1988	X483077	REQUEST	EDITION 2
22/6/1988	DP774130	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***

olympic park

PRINTED ON 1/11/2017

InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

InfoTrack
An Approved LPI NSW
Information Broker

Historical Title

Information Provided Through
John McLaren & Co (NSW)
Ph. 02 9231 4872 Fax. 02 9233 6557

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
1/11/2017 9:10AM

FOLIO: 5/774130

First Title(s): OLD SYSTEM
Prior Title(s): 6/740790

Recorded	Number	Type of Instrument	C.T. Issue
23/6/1988	DP774130	DEPOSITED PLAN	FOLIO CREATED EDITION 1
10/4/1989	Y27673	REQUEST	
10/4/1989	Y29791	TRANSFER GRANTING EASEMENT	EDITION 2
3/7/1990	Z98397	DEPARTMENTAL DEALING	
3/7/1990	Z80438	REQUEST	
3/7/1990	Z80439	TRANSFER OF LEASE	
3/7/1990	Z80440	TRANSFER OF LEASE	EDITION 3
3/3/1992	E295488	CAVEAT	
8/4/1992	E377182	CAVEAT	
3/8/1992	E617299	APPLICATION	
3/8/1992	DP818981	DEPOSITED PLAN	FOLIO CANCELLED RESIDUE REMAINS
17/10/2002	DP1045522	DEPOSITED PLAN	
22/11/2002	9148874	DEPARTMENTAL DEALING	FOLIO RESTORED
22/11/2002	8971451	REQUEST	FOLIO CANCELLED RESIDUE REMAINS
6/2/2008	DP1122970	DEPOSITED PLAN	
26/8/2008	AE170873	DEPARTMENTAL DEALING	
28/10/2008	AE136428	REQUEST	FOLIO CANCELLED
28/10/2008	AE292555	DEPARTMENTAL DEALING	
28/10/2008	AE292760	DEPARTMENTAL DEALING	FOLIO CANCELLED RESIDUE REMAINS
12/3/2014	AI435678	DEPARTMENTAL DEALING	
20/5/2014	AI590976	DEPARTMENTAL DEALING	FOLIO RESTORED
20/5/2014	AI374369	REQUEST	

END OF PAGE 1 - CONTINUED OVER

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
1/11/2017 9:10AM

FOLIO: 5/774130 PAGE 2

Recorded	Number	Type of Instrument	C.T. Issue
20/5/2014	AI591058	DEPARTMENTAL DEALING	FOLIO CANCELLED RESIDUE REMAINS

*** END OF SEARCH ***

olympic park PRINTED ON 1/11/2017

InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

Req:R637846 /Doc:DL E617299 /Rev:28-May-2010 /Sts:OK.SC /Pgs:ALL /Prt:03-Nov-2017 09:10 /Seq:1 of 5
Ref:olympic park /Src:M

E 617299 B

1867

APPLICATION

REAL PROPERTY ACT, 1900

(See Instructions for Completion on back of form)

AP

	of	
	$	R 1/2

DESCRIPTION OF LAND Note (a)

Torrens Title reference	If Part Only, Delete Whole and Give Details	Location
CERTIFICATE OF TITLE FOLIO IDENTIFIER 5/774130	WHOLE	HOMEBUSH

REGISTERED DEALING Note (b)

Type of Dealing	Registered Number	Torrens Title Reference

PRESENT REGISTERED PROPRIETOR Note (c)

HOMEBUSH ABATTOIR CORPORATION

Note (d) is presently recorded as REGISTERED PROPRIETOR of the ~~above mentioned registered dealing~~ land above described. Application is hereby made to record

NEW REGISTERED PROPRIETOR(S) Note (e)

HOMEBUSH BAY MINISTERIAL CORPORATION of Homebush Bay

OFFICE USE ONLY

S

Note (d) as REGISTERED PROPRIETOR of the ~~above mentioned registered dealing~~ land above described. pursuant to Section 5 of the Homebush Abattoir Corporation (Dissolution and Transfer) Act 1991, Parts 1 and 2 of which commenced on the date of assent to the Act on 27 November, 1991 and the remainder of which commenced on 1 January, 1992.

Note (f)

DATE 18TH JUNE , 1992

EXECUTION Note (g)

I hereby certify this dealing to be correct for the purposes of the Real Property Act, 1900.

~~Signed in my presence by the applicant who is personally known to me.~~

THE COMMON SEAL of HOMEBUSH BAY MINISTERIAL CORPORATION was hereunto affixed in the presence of:

~~Signature of Witness~~

~~Name of Witness (BLOCK LETTERS)~~

~~Address and occupation of Witness~~

Deputy General Manager

HOMEBUSH BAY MINISTERIAL CORPORATION Common Seal

~~Signature of Applicant~~

General Manager

TO BE COMPLETED BY LODGING PARTY Notes (h) and (i)

LODGED BY FREEHILL HOLLINGDALE AND PAGE

Ref: CATHERINE DICKSON 2255272

Delivery Box Number: 27C

LOCATION OF DOCUMENTS		
CT	OTHER	
		Herewith.
		In L.T.O. with
		Produced by

OFFICE USE ONLY

Checked	Passed	REGISTERED - -19	Secondary Directions
Signed	Extra Fee		Delivery Directions

PLEASE NOTE: This dealing should be lodged by hand at the Land Titles Office.

Req:R637846 /Doc:DL E617299 /Rev:28-May-2010 /Sts:OK.SC /Pgs:ALL /Prt:03-Nov-2017 09:10 /Seq:2 of 5
Ref:olympic park /Src:M

SHAW McDONALD
solicitors

Shell House 140 Phillip Street Sydney 2000 DX 916 Sydney FAX (02) 232 6482 Telephone (02) 233 1366

FILM WITH E617299.

Our Reference
TE:JBC:916705

Your Reference

B

1 July 1992

The Director of Land Titles,
Land Titles Office,
Queens Square,
SYDNEY N.S.W. 2000

Dear Sir,

Re: **Homebush Bay Ministerial Corporation**

We act for the above Corporation and enclose an Application to record its change of name on Certificate of Title Folio Identifier 5/774130, together with our cheque for $50.00, being the prescribed fee on lodgment of the Application.

We advise that the Certificate of Title will be produced by Messrs. Freehill, Hollingdale & Page on the lodgment of a Plan of Subdivision of Lot 5 in Deposited Plan 774130 and a Section 88B Instrument.

We enclose a copy of Sections 5 and 6 of the Homebush Abattoir Corporation (Dissolution and Transfer) Act, 1991 and draw your attention to Section 5(3)(a) and 6, in so far as those Sections relate to the absence of a Transfer and an exemption from stamp duty.

Yours faithfully,
SHAW McDONALD

Per: J Aljam.

T:T1706/3.jbc

Partners: Timothy Evans LL.B. B.Com. A.C.A Warwick Hart B.A. LL.B. Gary Patterson B.A. LL.B.
Lance Brennan B.A. LL.B. Ralph Fitzgerald B Ec. LL.B. Andrew Brown LL.M. Public Notary
Consultant: Maurice Calreavy LL.B. Associates: David Courtenay B.A. LL.B. Karen Healey B.A. Dip. Law (S.A.B)

Req:R637846 /Doc:DL E617299 /Rev:28-May-2010 /Sts:OK.SC /Pgs:ALL /Prt:03-Nov-2017 09:10 /Seq:3 of 5
Ref:olympic park /Src:M

"transfer" means the transfer of the business undertaking pursuant to section 5 (2).

PART 2—ESTABLISHMENT OF HOMEBUSH BAY MINISTERIAL CORPORATION

Establishment of Homebush Bay Ministerial Corporation

4. (1) There is constituted by this Act a body corporate with the corporate name of the Homebush Bay Ministerial Corporation.

(2) The affairs of the Ministerial Corporation are to be managed by the Minister.

(3) Any act, matter or thing done in the name of, or on behalf of, the Ministerial Corporation by the Minister, or with the authority of the Minister, is taken to have been done by the Ministerial Corporation.

(4) The Ministerial Corporation has the functions conferred or imposed on it by or under this or any other Act.

(5) The functions of the Ministerial Corporation are:

(a) to hold on behalf of the Crown, retain, transfer and dispose of assets, rights and liabilities transferred to it under this Act; and

(b) to acquire, exchange, lease, dispose of and otherwise deal with property; and

(c) to develop and manage land transferred to it under this Act or otherwise acquired by it; and

(d) to carry on any activities or business that relate to any of the above or are incidental or ancillary to any of the above, including demanding, collecting and receiving charges, rates and fees.

(6) Without limiting the generality of subsection (5), the Ministerial Corporation may transfer any such assets, rights and liabilities to the Crown or to any person on behalf of the Crown.

PART 3—DISSOLUTION OF HOMEBUSH ABATTOIR CORPORATION AND TRANSFER OF ASSETS ETC.

Dissolution of Homebush Abattoir Corporation and transfer of assets etc.

5. (1) The Homebush Abattoir Corporation is dissolved on 1 January 1992.

Req:R637846 /Doc:DL E617299 /Rev:28-May-2010 /Sts:OK.SC /Pgs:ALL /Prt:03-Nov-2017 09:10 /Seq:4 of 5
Ref:olympic park /Src:M

B

(2) The assets, rights and liabilities (if any) of the Homebush Abattoir Corporation immediately before its dissolution are transferred to the Ministerial Corporation.

(3) On the transfer the following provisions have effect:

(a) the assets of the Homebush Abattoir Corporation comprised in the business undertaking vest in the Ministerial Corporation by virtue of this section and without the need for any conveyance, transfer, assignment or assurance;

(b) the rights and liabilities of the Homebush Abattoir Corporation comprised in the business undertaking become by virtue of this section the rights and liabilities of the Ministerial Corporation;

(c) all proceedings relating to the business undertaking commenced before the transfer by or against the Homebush Abattoir Corporation and pending immediately before the transfer are taken to be proceedings pending by or against the Ministerial Corporation;

(d) any act, matter or thing done or omitted to be done in relation to the business undertaking before the transfer by, to or in respect of the Homebush Abattoir Corporation is (to the extent that that act, matter or thing has any force or effect) taken to have been done or omitted by, to or in respect of the Ministerial Corporation;

(e) a reference in an instrument of any kind to the Homebush Abattoir Corporation is to be read as a reference to the Ministerial Corporation.

(4) The operation of this section is not to be regarded:

(a) as a breach of contract or confidence or otherwise as a civil wrong; or

(b) as a breach of any contractual provision prohibiting, restricting or regulating the assignment or transfer of assets, rights or liabilities; or

(c) as giving rise to any remedy by a party to an instrument, or as causing or permitting the termination of any instrument, because of a change in the beneficial or legal ownership of any asset, right or liability.

(5) The operation of this section is not to be regarded as an event of default under any contract or other instrument.

(6) No attornment to the Ministerial Corporation by a lessee from the Homebush Abattoir Corporation is required.

Req:R637846 /Doc:DL E617299 /Rev:28-May-2010 /Sts:OK.SC /Pgs:ALL /Prt:03-Nov-2017 09:10 /Seq:5 of 5
Ref:olympic park /Src:M

Stamp duty

6. Any instrument executed only for:

(a) a purpose ancillary to or consequential on the operation of section 5; or

(b) the purpose of giving effect to that section,

is not chargeable with stamp duty.

PART 4—STAFF OF HOMEBUSH ABATTOIR CORPORATION

Transfer of staff

7. (1) A person who was employed by the Homebush Abattoir Corporation immediately before the transfer becomes, on the transfer, an employee of the Ministerial Corporation.

(2) Until varied, the employment is subject to the same terms and conditions as those on which the person was employed immediately before the transfer.

Superannuation

8. (1) An eligible employee:

(a) may continue to contribute to any superannuation scheme to which he or she was a contributor immediately before becoming an eligible employee; and

(b) is entitled to receive any payment, pension or gratuity accrued or accruing under the scheme,

as if he or she had continued to be such a contributor during service with the Ministerial Corporation.

(2) Service by the eligible employee with the Ministerial Corporation is taken to be service as an officer in his or her previous employment for the purposes of any law under which the employee continues to contribute to the scheme or by which an entitlement under the scheme is conferred.

(3) The eligible employee is to be regarded as an officer or employee, and the Ministerial Corporation is to be regarded as the employer, for the purposes of the scheme.

(4) This section ceases to apply to the eligible employee if he or she becomes a contributor to another superannuation scheme, but the eligible employee is not prevented from receiving a resignation benefit from the first superannuation scheme.

InfoTrack
An Approved LPI NSW
Information Broker

Historical Title

Information Provided Through
John McLaren & Co (NSW)
Ph. 02 9231 4872 Fax. 02 9233 6557

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
1/11/2017 9:10AM

FOLIO: 72/818981

First Title(s): OLD SYSTEM
Prior Title(s): 5/774130

Recorded	Number	Type of Instrument	C.T. Issue
3/8/1992	DP818981	DEPOSITED PLAN	FOLIO CREATED EDITION 1
1/10/1992	E799640	WITHDRAWAL OF CAVEAT	
1/10/1992	E799641	WITHDRAWAL OF CAVEAT	
22/9/1993	I378527	REQUEST	
22/9/1993	I356058	REQUEST	
22/9/1993	I378525	APPLICATION	EDITION 2
8/12/1995	O738097	REQUEST	EDITION 3
25/8/1997	3350461	DEPARTMENTAL DEALING	
29/8/1997	DP870992	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***

olympic park PRINTED ON 1/11/2017

InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

Req:R637876 /Doc:DL I378525 /Rev:20-Apr-2010 /Sts:SC.OK /Pgs:ALL /Prt:03-Nov-2017 09:13 /Seq:1 of 3
Ref:olympic park /Src:M

$200 4/6/93
E:M
V: te

CROWN INSTRUMENT NOT LIABLE TO STAMP DUTY

J K LEWIS

GENERAL MANAGER,
PROPERTY MANAGEMENT DIVISION
PROPERTY SERVICES GROUP

PER: M Mann

I 378525 X

APPLICATION

REAL PROPERTY ACT, 1900
(See Instructions for Completion on back of form)

AP | 1 of 3 | $ 50 | 5/5

	Torrens Title Reference	If Part Only, Delete Whole and Give Details	Location
DESCRIPTION OF LAND Note (a)	FOLIO IDENTIFIERS 27/793595, 71/818981, 72/818981, 73/818981 AND 74/818981	WHOLE	AT HOMEBUSH BAY

REGISTERED DEALING Note (b)	Type of Dealing	Registered Number	Torrens Title Reference

PRESENT REGISTERED PROPRIETOR Note (c): HOMEBUSH BAY MINISTERIAL CORPORATION

OFFICE USE ONLY: N

Note (d): is presently recorded as REGISTERED PROPRIETOR of the ~~aforementioned registered dealing~~ land above described. Application is hereby made to record

NEW REGISTERED PROPRIETOR(S) Note (e): HOMEBUSH BAY DEVELOPMENT CORPORATION

OFFICE USE ONLY: OVER

Note (d): as REGISTERED PROPRIETOR of the ~~aforementioned registered dealing~~ land above described.

Note (f): pursuant to an Instrument of Transfer and Delegation, a copy of which is lodged herewith and marked with the letter "A" made by the Minister for Planning and Minister for Housing for and on behalf of the Homebush Bay Ministerial Corporation in pursuance of the provisions of Section 4 of the Homebush Abattoir Corporation (Dissolution and Transfer) Act 1991.

DATE 27 May 1993

EXECUTION Note (g)

I hereby certify this dealing to be correct for the purposes of the Real Property Act, 1900.

~~Signed in my presence by the applicant who is personally known to me~~
SIGNED by me ANDREW CAPPIE-WOOD for and on behalf of the Homebush Bay Development Corporation
~~Signature of Witness~~

as duly appointed delegate but not so as to incur personal liability in the presence of:

~~Name of Witness (BLOCK LETTERS)~~

~~Address and occupation of Witness~~
JOHN DICER
100 WILLIAM STREET, EAST SYDNEY - SOLICITOR

~~Signature of Applicant~~

TO BE COMPLETED BY LODGING PARTY Notes (h) and (i)

$150
S

LODGED BY: MALLESONS STEPHEN JAQUES

JAC

Delivery Box Number 41J

LOCATION OF DOCUMENTS

CT	OTHER	
		Herewith.
		In R.G.O. with .....
		Produced by .....

OFFICE USE ONLY

Checked	Passed	REGISTERED – –19	
Signed	Extra Fee	Registrar General	

Req:R637876 /Doc:DL I378525 /Rev:20-Apr-2010 /Sts:SC.OK /Pgs:ALL /Prt:03-Nov-2017 09:13 /Seq:2 of 3
Ref:olympic park /Src:M

INSTRUCTIONS FOR COMPLETION

This form is to be used only if no other approved form is appropriate for the purpose, e.g., Application under section 46 (c) Real Property Act, 1900; Application under section 12 (4) Trustee Act, 1925–1942.

When so required under the Stamp Duties Act, 1920, this dealing should be marked by the Commissioner of Stamp Duties before lodgment at the Registrar General's Office.

Typewriting and handwriting should be clear, legible and in permanent black non-copying ink.

Alterations are not to be made by erasure; the words rejected are to be ruled through and initialled by the applicant.

If the space provided is insufficient, additional sheets of the same size and quality of paper and having the same margins as this form should be used. Each additional sheet must be identified as an annexure and signed by the applicant and the attesting witness.

Rule up all blanks.

The following instructions relate to the side notes on the form:

(a) Description of land. (If the application is only in respect of a registered dealing, rule through this panel.)

(i) TORRENS TITLE REFERENCE.—Insert the current Folio Identifier or Volume and Folio of the Certificate of Title/Crown Grant for the land the subject of the application, e.g., 135/SP12345 or Vol. 8514 Fol. 126. Title references should be listed in numerical sequence.

(ii) PART/WHOLE.—If part only of the land in the folio of the Register is the subject of the application delete the word "WHOLE" and insert the lot and plan number, portion, etc.

(iii) LOCATION.—Insert the locality shown on the Certificate of Title/Crown Grant, e.g., at Chullora. If the locality is not shown, insert the Parish and County, e.g., Ph. Lismore Co. Rous.

(b) Registered dealing. (If the application is only in respect of a certificate of title, rule through this panel.)
Show the registered number of the lease, mortgage or charge, and the title reference affected thereby, e.g., Lease—Q123456—Vol. 3456 Fol. 124.

(c) Show the full name of the registered proprietor as recorded on the Register.

(d) Strike out "land above described" or "abovementioned registered dealing", whichever does not apply.

(e) Show the full name, address and occupation or description of the person(s) to be registered as proprietor(s).

(f) Set out the terms of the request, e.g., consequent upon the appointment of, etc.

(g) Execution.

GENERALLY (i) Should there be insufficient space for execution of this application, use an annexure sheet.

(ii) The certificate of correctness under the Real Property Act, 1900, must be signed by the applicant who should execute the dealing in the presence of an adult witness to whom he is personally known.
The solicitor for the applicant may sign the certificate on behalf of the applicant, the solicitor's name (not that of his firm) to be typewritten or printed adjacent to his signature.
Any person falsely or negligently certifying is liable to the penalties provided by section 117 of the Real Property Act, 1900.

ATTORNEY (iii) If the application is executed by an attorney for the applicant pursuant to a registered power of attorney, the form of attestation must set out the full name of the attorney, and the form of execution must indicate the source of his authority, e.g., "AB by his attorney (or receiver or delegate, as the case may be) XY pursuant to power of attorney registered Book No. , and I declare that I have no notice of the revocation of the said power of attorney".

AUTHORITY (iv) If the application is executed pursuant to an authority (other than specified in (iii)) the form of execution must indicate the statutory, judicial or other authority pursuant to which the application has been executed.

CORPORATION (v) If the application is executed by a corporation under seal, the form of execution should include a statement that the seal has been properly affixed, e.g., in accordance with the Articles of Association of the corporation. Each person attesting the affixing of the seal must state his position (e.g., director, secretary) in the corporation.

(h) Insert the name, postal address, Document Exchange reference, telephone number and delivery box number of the lodging party.

(i) The lodging party is to complete the LOCATION OF DOCUMENTS panel. Place a tick in the appropriate box to indicate the whereabouts of the Certificate of Title. List, in an abbreviated form, other documents lodged, e.g., stat. dec. for statutory declaration.

OFFICE USE ONLY

DIRECTION: PROP
No. OF NAMES:

FIRST SCHEDULE DIRECTIONS

(A) FOLIO IDENTIFIER	(B) No.	(C) SHARE	(D) J	(E) NAME AND DESCRIPTION
27/793595 71-74/818981		S		HOMEBUSH BAY DEVELOPMENT CORPORATION

SECOND SCHEDULE AND OTHER DIRECTIONS

(F) FOLIO IDENTIFIER (OR REC'D. DEALING & FOLIO IDENTIFIER)	(G) DIRECTION	(H) NOTFN TYPE	(I) DEALING NUMBER	(K) DETAILS
27/793595	2U		I 445875	
71-74/818981	41J			

NP 850 D. WEST, GOVERNMENT PRINTER

Req:R637876 /Doc:DL I378525 /Rev:20-Apr-2010 /Sts:SC.OK /Pgs:ALL /Prt:03-Nov-2017 09:13 /Seq:3 of 3
Ref:olympic park /Src:M

B

EXHIBIT A WITH APPLICATION BY HOMEBUSH BAY DEVELOPMENT CORPORATION

INSTRUMENT OF TRANSFER AND DELEGATION

I, ROBERT WEBSTER, Minister for Planning and Minister for Housing, being the Minister administering the Homebush Abattoir Corporation (Dissolution and Transfer) Act 1991, in pursuance of the provisions of that Act and for and on behalf of the Homebush Bay Ministerial Corporation, make the following orders:

(1) I HEREBY TRANSFER all of the assets, rights and liabilities of the Homebush Bay Ministerial Corporation to the Homebush Bay Development Corporation, such transfer to take effect on and from 1 November 1992.

(2) I HEREBY DELEGATE to the persons holding for the time being the offices within the Property Services Group specified in the schedule hereto severally power to carry out the functions and to exercise all rights and duties of the Homebush Bay Ministerial Corporation and to affix the seal of the Homebush Bay Ministerial Corporation and execute any document on its behalf for the foregoing purposes. This delegation shall expire on 1 November 1992.

SCHEDULE

Managing Director
Director, Urban Redevelopment Division
Director, Finance
Director, Asset Management Division
Director, Property Management Division

Robert Webster

Minister for Planning and
Minister for Housing

Sgn. 21/9/92.

Req:R294202 /Doc:DL O738097 /Rev:02-Feb-2007 /Sts:NO.OK /Pgs:ALL /Prt:04-Mar-2016 11:36 /Seq:1 of 3
Ref:OLYPK /Src:T

97-11R

REQUEST

Real Property Act 1900

O 738097 N

SEE COPIES "A" & "B"

(A) STAMP DUTY
If applicable.

Office of State Revenue use only

OFFICE OF STATE REVENUE (N.S.W. TREASURY) 1994/95 $? NO STAMP DUTY IS PAYABLE ON THIS INSTRUMENT

(B) TITLE
Show no more than 20.

SEE ANNEXURE "A"	

(C) REGISTERED DEALING
If applicable.

(D) LODGED BY

L.T.O. Box	Name, Address or DX and Telephone	Dealing Code
786E	SHAW McDONALD, 8th Floor, 179 Elizabeth Street, Sydney DX 916 Sydney. Tel: 264 9111 REFERENCE (max 15 characters): Olympic TE:883686	R

(E) APPLICANT

OLYMPIC CO-ORDINATION AUTHORITY

(F) REQUEST

HOMEBUSH BAY DEVELOPMENT CORPORATION is presently recorded as registered proprietor of the land above described. The Applicant requests the Registrar General to record OLYMPIC CO-ORDINATION AUTHORITY as registered proprietor of the land above described pursuant to Section 39 and, in particular, clauses 7 and 9 of Part 2 Division 2 and clauses 11, 12 and 13 of Part 2 Division 3 of Schedule 2, of the Olympic Co-Ordination Authority Act 1995 which was assented to on 9 June, 1995 and which was proclaimed to commence on 30 June, 1995.

CHECKED BY (office use only) EM23 Olu.

Caveats Y543831 & Y624370 do not prevent registration

Req:R294202 /Doc:DL O738097 /Rev:02-Feb-2007 /Sts:NO.OK /Pgs:ALL /Prt:04-Mar-2016 11:36 /Seq:2 of 3
Ref:OLYPK /Src:T

"A"

THIS IS THE ANNEXURE MARKED WITH THE LETTER "A" REFERRED TO IN THE ATTACHED REQUEST DATED 20TH NOVEMBER , 1995 MADE BY THE OLYMPIC CO-ORDINATION AUTHORITY

TORRENS TITLE REFERENCES

FOLIO IDENTIFIERS 101/849975; 102/849975; 2/831539; 4/831539; 5/831539; 6/831539; 7/831539; 1/840154; 11/831538; 50/747909; 52/747909; 56/773763; 57/773763; 58/786296; 59/786296; 60/786296; 70/818981; 71/818981; 72/818981; 73/818981; 74/818981; 22/787402; 24/787402; 3/740790; 54/749222; 25/793595; 26/793595; 302/541070; 4/774130; 6/774130; 7/774130 AND 8/774130.

Signed in my presence by the Director-General who is personally known to me

.....
Signature of Witness

TERRY HUKINS.
.....
Name of Witness (BLOCK LETTERS)

OCA OFFICES HOMEBUSH
.....
Address of Witness

.....
Signature of Director-General
OLYMPIC CO-ORDINATION AUTHORITY

Req:R294202 /Doc:DL O738097 /Rev:02-Feb-2007 /Sts:NO.OK /Pgs:ALL /Prt:04-Mar-2016 11:36 /Seq:3 of 3
Ref:OLYPK /Src:T

(G) **STANDARD EXECUTION**

Certified correct for the purposes of the Real Property Act 1900.
Signed in my presence by the ~~Applicant~~ Director-General who is personally known to me.

DATE 14th November, 1995

Signature of Witness

TERRY HUKINS

Name of Witness (BLOCK LETTERS)

CCA OFFICES HOMEBUSH.

Address of Witness

Director-General

Signature of ~~Applicant~~

OLYMPIC CO-ORDINATION AUTHORITY

EXECUTION INCLUDING STATUTORY DECLARATION

I make this solemn declaration conscientiously believing the same to be true and by virtue of the Oaths Act 1900, and I certify this Application correct for the purposes of the Real Property Act 1900. Made and subscribed at ....
in the State of .... on ..... 19 ..... in the presence of

.....
Signature of Witness

.....
Name of Witness (BLOCK LETTERS)

.....
Address and Qualification of Witness

.....
Signature of Applicant

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Historical Title

Information Provided Through
John McLaren & Co (NSW)
Ph. 02 9231 4872 Fax. 02 9233 6557

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
1/11/2017 9:10AM

FOLIO: 88/870992

First Title(s): OLD SYSTEM
Prior Title(s): 72/818981 ~~102/849975~~

Recorded	Number	Type of Instrument	C.T. Issue
1/9/1997	DP870992	DEPOSITED PLAN	FOLIO CREATED EDITION 1
20/3/1998	3856206	LEASE	EDITION 2
30/12/1999	6461218	DEPARTMENTAL DEALING	
30/12/1999	6451582	REQUEST	EDITION 3
25/1/2002	8208818	APPLICATION	EDITION 4
5/6/2002	8631290	TRANSFER OF LEASE	
5/6/2002	8631291	SUB-LEASE	EDITION 5
2/2/2004	AA22827	REQUEST	
15/12/2005	AB885870	APPLICATION	
21/9/2007	AD419866	REQUEST	
23/4/2008	AD904704	SURRENDER OF LEASE	
11/1/2010	AF167197	SUB-LEASE	
25/7/2011	AG388028	CAVEAT	
25/7/2011	AG388038	CAVEAT	
21/12/2011	AG699597	CAVEAT	
31/5/2012	DP1174468	DEPOSITED PLAN	
14/11/2012	AH366310	SUB-LEASE	
2/12/2013	AI186894	SUB-LEASE	
7/3/2014	AI425236	CAVEAT	
10/7/2014	DP1185060	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***

olympic park PRINTED ON 1/11/2017

InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

Req:R637942 /Doc:DL 8208818 /Rev:30-Jan-2002 /Sts:NO.OK /Pgs:ALL /Prt:03-Nov-2017 09:19 /Seq:1 of 9
Ref:olympic park /Src:M

Licence: 98M111
Edition: 0107

APPLICATION TO RECORD NEW REGISTERED PROPRIETOR

New South Wales
(46) Section 46C Real Property Act 1900
Section 12(4) Trustee Act 1925

8208818K

PRIVACY NOTE: this information is legally required and will become part of the public record

STAMP DUTY

Office of State Revenue use only

??x???NEW SOUTH WALES DUTY
01-11-2001 0000792554-001
SECTION OTHR LEGN-ORIGINAL
NO DUTY PAYABLE

(A) LAND

Torrens Title - see Annexure A, Annexure B, & Annexure C

(B) REGISTERED DEALING

Number	Torrens Title

(C) LODGED BY

Delivery Box	Name, Address or DX and Telephone	CODE
185H	Clayton Utz Levels 22-35 No.1 O'Connell Street Sydney NSW 2000 DX 370 Tel: 9353 4000 Reference (optional): [redacted]/1674174 Jackson Chow.	AP

(D) APPLICANT

Sydney Olympic Park Authority

(E) PRESENT REG'D PROPRIETOR

Olympic Co-Ordination Authority

(F) NEW REG'D PROPRIETOR

Sydney Olympic Park Authority

(G) APPLICATION UNDER SECTION 46C REAL PROPERTY ACT 1900

In regard to the land/registered dealing specified above, the applicant requests the Registrar General to record the new registered proprietor on the folio of the Register, the land / registered dealing having vested in the new registered proprietor pursuant to-

(H) Sydney Olympic Park Authority Act 2001 that commenced 1 July 2001

~~**(G) APPLICATION UNDER SECTION 12(4) TRUSTEE ACT 1925**~~

In regard to the land / registered dealing specified above, the applicant requests the Registrar General to record the new registered proprietor on the folio of the Register consequent on-

(I)

DATE ____ / ____ / 2001
dd mm yyyy

SYDNEY OLYMPIC PARK AUTHORITY THE Common Seal NEW SOUTH WALES GOVERNMENT

(J) I certify that the applicant, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this application in my presence.

Certified correct for the purposes of the Real Property Act 1900 by the applicant.

Signature of witness:

Name of Witness Donna White
Address of Witness 7 Figtree Dr. Homebush Bay

Signature of applicant:

JB504

ALL HANDWRITING MUST BE IN BLOCK CAPITALS. **Page 1 of .....**

A set of notes on this form (04RP-2) is available from Land and Property Information NSW.

SYD5\122\912288.1

Req:R637942 /Doc:DL 8208818 /Rev:30-Jan-2002 /Sts:NO.OK /Pgs:ALL /Prt:03-Nov-2017 09:19 /Seq:2 of 9
Ref:olympic park /Src:M

Annexure A

Torrens Title

1.	302/541070	185H	AP
2.	8/735225	185H	DP → AP
3.	3/740790	185H	AP
4.	52/747909	185H	AP
5.	54/749222	185H	AP
6.	57/773763	185H	AP
7.	4/774130	185H	AP
8.	6/774130	185H	AP
9.	7/774130	185H	AP
10.	8/774130	185H	AP
11.	58/786296	185H	AP
12.	59/786296	185H	AP
13.	60/786296	185H	AP
14.	22/787402	185H	AP
15.	24/787402	185H	AP
16.	25/793595	185H	AP
17.	26/793595	185H	AP
18.	70/818981	185H	AP
19.	11/831538	185H	AP
20.	1/840154	185H	AP

DATE _____ / _____ / 2001
dd mm yyyy

I certify that the applicant, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this application in my presence.

Signature of witness:

Name of Witness Dave White
Address of Witness 7 Figtree Dr. Homebush Bay

Certified correct for the purposes of the Real Property Act 1900 by the applicant.

SYDNEY OLYMPIC PARK AUTHORITY THE COMMON SEAL OF NSW GOVERNMENT

Signature of applicant:

Req:R637942 /Doc:DL 8208818 /Rev:30-Jan-2002 /Sts:NO.OK /Pgs:ALL /Prt:03-Nov-2017 09:19 /Seq:3 of 9
Ref:olympic park /Src:M

Annexure B

Torrens Title

1. 101/849975 185H AP
2. 84/855929
3. 1/859608
4. 3/860205
5. 1/868636
6. 88/870992
7. 78/875562
8. 79/875562
9. 1021/875723

185H AP

10. 1022/875723
11. 1023/875723
12. 1024/875723
13. 1025/875723
14. 2005/878356
15. 2010/878356
16. 3019/879226

185H AP

17. 3020/879226 DP & AP
18. 2/883215
19. 3/883215
20. 4001/1004512

185H AP

DATE _____ / _____ / 2001
dd mm yyyy

SYDNEY OLYMPIC PARK AUTHORITY THE Common Seal NSW GOVERNMENT

I certify that the applicant, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this application in my presence.

Certified correct for the purposes of the Real Property Act 1900 by the applicant. ★

Signature of witness:

Signature of applicant:

Name of Witness Donna White
Address of Witness 7 Figtree Dr Homebush Bay

Req:R637942 /Doc:DL 8208818 /Rev:30-Jan-2002 /Sts:NO.OK /Pgs:ALL /Prt:03-Nov-2017 09:19 /Seq:4 of 9
Ref:olympic park /Src:M

Annexure C

Torrens Title

1. 5100/1009020
2. 5101/1009020
3. 5102/1009020
4. 812/1012563
5. 6000/1018860 DP
6. 813/1030022

DATE _____ / _____ / 2001
dd mm yyyy

SYDNEY OLYMPIC PARK AUTHORITY THE Common Seal NSW GOVERNMENT

I certify that the applicant, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this application in my presence.

Certified correct for the purposes of the Real Property Act 1900 by the applicant.

Signature of witness:

Name of Witness Dona White
Address of Witness 7 Figtree Dr. Homebush Bay

Signature of applicant:

Req:R637942 /Doc:DL 8208818 /Rev:30-Jan-2002 /Sts:NO.OK /Pgs:ALL /Prt:03-Nov-2017 09:19 /Seq:5 of 9
Ref:olympic park /Src:M

STATUTORY DECLARATION

I, Jackson Chow, c/o Clayton Utz, 1 O'Connell Street, Sydney, New South Wales, do solemnly and sincerely declare that:

1. I am a Solicitor at Clayton Utz, solicitors.

2. Clayton Utz act for the Sydney Olympic Park Authority (**"SOPA"**) and the Olympic Co-ordination Authority (**"OCA"**) in the transfer of land in accordance with the *Sydney Olympic Park Authority Act 2001* (**"SOPA ACT"**).

3. The SOPA Act commenced on 1 July 2001 and established under that statute, the Sydney Olympic Park Authority.

4. SOPA is now responsible for the long term future management of Sydney Olympic Park, Homebush Bay which includes OCA land in Homebush Bay, Millennium Parklands Bicentennial Park, land formally owned by the State Sports Centre Trust as well as most roads within their respective boundaries.

5. In accordance with the SOPA Act, the land known as Sydney Olympic Park has vested in SOPA.

6. Section 7 of the SOPA Act provides that:

> *"the lands comprising Sydney Olympic Park are vested in the Authority for an estate in fee simple, subject to this Part".*

Clause 3(1)(a) of Schedule 8, of the SOPA Act further provides that:

> *"the assets of OCA determined by the Director-General of OCA to be assets that relate primarily to the land that is vested in the Authority under section 7 (the transferred assets) vest in the Authority by virtue of this clause and without the need for any further conveyance, transfer, assignment or assurance,".*

7. Sydney Olympic Park is defined by reference to Schedule 1 of the SOPA Act which in turn refers to a plan labelled and marked Sydney Olympic Park (**"Plan"**).

8. Following receipt of advice from SOPA and OCA, I have examined the SOPA Act, Schedule 1 and the Plan and to the best of my knowledge, submit that the land titles specified in Annexure 1, 2 and 3 attached to this Statutory Declaration lies within Sydney Olympic Park.

9. I have further examined all original title deeds relating to the titles specified under Annexure 1,2 and 3 attached to this Statutory Declaration and submit that these titles are currently held in the ownership by OCA.



AND I MAKE this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the *Oaths Act* 1900.

Made and declared at **Sydney** on this 13th day of December 2001

Before me:

Solicitor

Req:R637942 /Doc:DL 8208818 /Rev:30-Jan-2002 /Sts:NO.OK /Pgs:ALL /Prt:03-Nov-2017 09:19 /Seq:7 of 9
Ref:olympic park /Src:M

Annexure 1

Torrens Title

1. 302/541070
2. 8/735225
3. 3/740790
4. 52/747909
5. 54/749222
6. 57/773763
7. 4/774130
8. 6/774130
9. 7/774130
10. 8/774130
11. 58/786296
12. 59/786296
13. 60/786296
14. 22/787402
15. 24/787402
16. 25/793595
17. 26/793595
18. 70/818981
19. 11/831538
20. 1/840154

This is the Annexure marked 1 referred to in the Statutory Declaration of Jackson Chow declared on 13 December 2001.

Before me:

.....

Solicitor

Req:R637942 /Doc:DL 8208818 /Rev:30-Jan-2002 /Sts:NO.OK /Pgs:ALL /Prt:03-Nov-2017 09:19 /Seq:8 of 9
Ref:olympic park /Src:M

Annexure 2

Torrens Title

1. 101/849975
2. 84/855929
3. 1/859608
4. 3/860205
5. 1/868636
6. 88/870992
7. 78/875562
8. 79/875562
9. 1021/875723
10. 1022/875723
11. 1023/875723
12. 1024/875723
13. 1025/875723
14. 2005/878356
15. 2010/878356
16. 3019/879226
17. 3020/879226
18. 2/883215
19. 3/883215
20. 4001/1004512

This is the Annexure marked 2 referred to in the Statutory Declaration of Jackson Chow declared on 13 December 2001.

Before me:

.....

Solicitor

Req:R637942 /Doc:DL 8208818 /Rev:30-Jan-2002 /Sts:NO.OK /Pgs:ALL /Prt:03-Nov-2017 09:19 /Seq:9 of 9
Ref:olympic park /Src:M

Annexure 3

Torrens Title

1. 5100/1009020
2. 5101/1009020
3. 5102/1009020
4. 812/1012563
5. 6000/1018860
6. 813/1030022

This is the Annexure marked 3 referred to in the Statutory Declaration of Jackson Chow declared on 13 December 2001.

Before me:



Solicitor

InfoTrack
An Approved LPI NSW
Information Broker

Historical Title

Information Provided Through
John McLaren & Co (NSW)
Ph. 02 9231 4872 Fax. 02 9233 6557

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
1/11/2017 9:10AM

FOLIO: 2/1185060

First Title(s): OLD SYSTEM
Prior Title(s): 88/870992 ~~1/1122970~~

Recorded	Number	Type of Instrument	C.T. Issue
10/7/2014	DP1185060	DEPOSITED PLAN	FOLIO CREATED EDITION 1
22/9/2014	AI777016	LEASE	EDITION 2
29/12/2014	AJ126940	SURRENDER OF LEASE	
29/12/2014	AJ126942	SURRENDER OF LEASE	
17/2/2015	AJ265109	CAVEAT	
4/7/2015	AJ627228	TRANSFER OF LEASE	
9/12/2015	AK51190	WITHDRAWAL OF CAVEAT	
9/12/2015	AK51192	TRANSFER OF LEASE	
9/12/2015	AK51194	MORTGAGE OF LEASE	
10/2/2016	AK207424	WITHDRAWAL OF CAVEAT	
11/2/2016	AK210973	WITHDRAWAL OF CAVEAT	
16/6/2016	AK512610	DEPARTMENTAL DEALING	
29/6/2016	AK558617	DEPARTMENTAL DEALING	
15/10/2016	AK837201	WITHDRAWAL OF CAVEAT	

*** END OF SEARCH ***

InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

InfoTrack
An Approved LPI NSW
Information Broker

Title Search

Information Provided Through
John McLaren & Co (NSW)
Ph. 02 9231 4872 Fax. 02 9233 6557

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 2/1185060

SEARCH DATE	TIME	EDITION NO	DATE
3/11/2017	8:11 AM	2	22/9/2014

LAND

LOT 2 IN DEPOSITED PLAN 1185060
AT SYDNEY OLYMPIC PARK
LOCAL GOVERNMENT AREA CITY OF PARRAMATTA
PARISH OF CONCORD COUNTY OF CUMBERLAND
TITLE DIAGRAM DP1185060

FIRST SCHEDULE

SYDNEY OLYMPIC PARK AUTHORITY

SECOND SCHEDULE (9 NOTIFICATIONS)

1 LAND EXCLUDES MINERALS (S.134 PUBLIC WORKS ACT, 1900) AFFECTING THE PART(S) SHOWN SO INDICATED IN THE TITLE DIAGRAM
2 L827059 RIGHT OF WAY 20.115 METRE(S) WIDE APPURTENANT TO THE PART(S) OF THE LAND SHOWN SO BENEFITED IN THE TITLE DIAGRAM AFFECTING THE PART(S) SHOWN SO BURDENED IN DP235225
3 DP818981 EASEMENT FOR WATER DETENTION 20 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
4 DP831539 EASEMENT FOR SERVICES 17 METRE(S) WIDE AND VARIABLE APPURTENANT TO THE PART(S) OF THE LAND SHOWN SO BENEFITED IN THE TITLE DIAGRAM
6451582 EASEMENT RELEASED IN SO FAR AS IT AFFECTS LOTS 5200 & 5201 IN DP1009021
* 5 AI425236 CAVEAT BY AUSGRID OF THE PART(S) FORMERLY IN 88/870992
* AI777016 CAVEATOR CONSENTED
6 DP1174468 EASEMENT FOR MAINTENANCE 3.7 METRE(S) WIDE APPURTENANT TO THE PART(S) OF THE LAND SHOWN SO BENEFITED IN THE TITLE DIAGRAM
7 DP1174468 EASEMENT TO PERMIT ENCROACHING STRUCTURE TO REMAIN 1 METRE(S) WIDE (LIMITED IN STRATUM) APPURTENANT TO THE PART(S) OF THE LAND SHOWN SO BENEFITED IN THE TITLE DIAGRAM
8 DP1174468 EASEMENT FOR DRAINAGE 1 METRE(S) WIDE APPURTENANT TO THE PART(S) OF THE LAND SHOWN SO BENEFITED IN THE TITLE DIAGRAM
9 AI777016 LEASE TO GPT RE LIMITED EXPIRES: 29/10/2096.
* AJ627228 TRANSFER OF LEASE AI777016 LESSEE NOW HAISHENG

END OF PAGE 1 - CONTINUED OVER

FOLIO: 2/1185060 PAGE 2

SECOND SCHEDULE (9 NOTIFICATIONS) (CONTINUED)

		OLYMPUS HOLDING PTY LIMITED
*	AK51192	TRANSFER OF LEASE AI777016 LESSEE NOW AUSTINO SYDNEY OLYMPIC PARK PTY LTD
*	AK51194	MORTGAGE OF LEASE AI777016 TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

* Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title. Warning: the information appearing under notations has not been formally recorded in the Register. InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

APPENDIX E
Borehole Logs

BOREHOLE: BH101M

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 2
Location	2 Murray Rose Ave, Sydney Olympic Park, NSW			Date Started	19/11/17
Position	Refer to Figure 2			Date Completed	19/11/17
Job No.	E23603.E02	Contractor	BG Drilling Pty Ltd	Logged AB	Date:
Client	Stockland Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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 BH101M
AD/T	-	GWNE	0.0					-	ASPHALT CONCRETE; 40 mm thick.	-		BH101M Gatic Cover
								-	FILL: Silty CLAY; low to medium plasticity, black-dark grey, with fine to medium grained light-yellow sand, no odour.	M		
			0.5	0.60	BH101M_0.2-0.3 ES 0.20-0.30 m 0.20 m PID = 4.3 ppm			CI	CLAY; medium plasticity, no odour.	D - M		Grout
			1.0	1.10	BH101M_0.8-0.9 ES 0.80-0.90 m 0.80 m PID = 5.8 ppm			-	SHALE; grey, mottled light grey, extremely weathered, with grey band of medium plasticity clay.			uPVC 50 mm Casing
			1.5		BH101M_1.3-1.4 ES 1.30-1.40 m 1.30 m PID = 3.1 ppm							Bentonite
			2.0								-	
			2.5							-		
			3.0									Sand
			3.5									
			4.0									uPVC 50 mm Slotted Screen
			4.5		BH101M_4.6-4.7 ES 4.60-4.70 m							
			5.0									

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

EIA LIB 1.03.GLB Log IS AU BOREHOLE 3 E23603 BOREHOLE LOGS.GPJ <<DrawingFile>> 30/11/2017 18:59 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: EIA 1.03 2014-07-05 Prj: EIA 1.03 2014-07-05

BOREHOLE: BH101M

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Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	2 OF 2
Location	2 Murray Rose Ave, Sydney Olympic Park, NSW			Date Started	19/11/17
Position	Refer to Figure 2			Date Completed	19/11/17
Job No.	E23603.E02	Contractor	BG Drilling Pty Ltd	Logged AB	Date:
Client	Stockland Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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
AD/T	-	GWNE	5.0	5.20				-	SHALE; grey, mottled light grey, extremely weathered, with grey band of medium plasticity clay.	-	-	BH101M: Cuttings
									Hole Terminated at 5.20 m Refusal on Hard Shale. Borehole Converted into Monitoring Well.			

5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0

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

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BOREHOLE: BH102

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Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Murray Rose Ave, Sydney Olympic Park, NSW			Date Started	19/11/17
Position	Refer to Figure 2			Date Completed	19/11/17
Job No.	E23603.E02	Contractor	BG Drilling Pty Ltd	Logged AB	Date:
Client	Stockland Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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	0.0	0.07				-	ASPHALT; 70 mm thick.			PAVEMENT
								-	FILL: Silty CLAY; low to medium plasticity, brown, with sub-angular to angular gravel, no odour.			FILL
					BH102_0.2-0.3 ES 0.20-0.30 m 0.20 m PID = 3.7 ppm							
			0.5	0.50					From 0.5 m, orange-dark brown, mottled black.			
					BH102_0.8-0.9 ES 0.80-0.90 m 0.80 m PID = 2.1 ppm					M		
			1.0									
			1.5									
			2.0	2.10				CI	CLAY; orange/dark brown medium plasticity, no odour.	M		RESIDUAL SOIL
				2.30				-	SHALE; grey-brown, extremely weathered, no odour.			BEDROCK
			2.5		BH102_2.5-2.6 ES 2.50-2.60 m 2.50 m PID = 2.9 ppm					D - M		
			3.0									
					BH102_3.2-3.3 ES 3.20-3.30 m 3.20 m PID = 2.5 ppm							
			3.5	3.50					Hole Terminated at 3.50 m Target Depth Reached. Backfilled with Drilling Spoil.			
			4.0									
			4.5									
			5.0									

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

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BOREHOLE: BH103

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Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Murray Rose Ave, Sydney Olympic Park, NSW			Date Started	19/11/17
Position	Refer to Figure 2			Date Completed	19/11/17
Job No.	E23603.E02	Contractor	BG Drilling Pty Ltd	Logged AB	Date:
Client	Stockland Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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	0.0	0.07				-	ASPHALT; 70 mm thick.	-		PAVEMENT
								-	FILL: Silty CLAY; low to medium plasticity, orange-brown, with sub-angular to angular gravel, no odour.			RESIDUAL SOIL
					BH103_0.2-0.3 ES 0.20-0.30 m 0.20 m PID = 4.5 ppm					M		
			0.5	0.60					From 0.6 m, dark brown-grey, with sub-angular to angular gravel, slight hydrocarbon odour.			
			1.0		BH103_1.0-1.1 ES 1.00-1.10 m 1.00 m PID = 3.4 ppm					M		
			1.5	1.80				-	SHALE; brown-grey, extremely weathered, no odour.			BEDROCK
			2.0		BH103_2.0-2.1 ES 2.00-2.10 m 2.00 m PID = 1.8 ppm							
				2.40					From 2.4 m, clay bands.	D - M		
			2.5		BH103_2.6-2.7 ES 2.60-2.70 m 2.60 m PID = 1.1 ppm							
			3.0	3.00					Hole Terminated at 3.00 m Target Depth Reached. Backfilled with Drilling Spoil.			
			3.5									
			4.0									
			4.5									
			5.0									

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

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BOREHOLE: BH104M

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Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 2
Location	2 Murray Rose Ave, Sydney Olympic Park, NSW			Date Started	19/11/17
Position	Refer to Figure 2			Date Completed	19/11/17
Job No.	E23603.E02	Contractor	BG Drilling Pty Ltd	Logged AB	Date:
Client	Stockland Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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
AD/T	-	GWNE	0.0	0.07				-	ASPHALT; 70 mm thick.	-		BH104M
								-	FILL; Sandy Silty CLAY; low to medium plasticity, brown, sand is fine to medium grained, with sub-angular to angular gravel, no odour.			
			0.5		BH104M_0.25-0.35 QD1/QT1 0.25-0.35 m 0.25 m PID = 2.7 ppm					D - M		
			1.0		BH104M_1.0-1.1 ES 1.00-1.10 m 1.00 m PID = 1.5 ppm							
				1.30				-	SHALE; brown, extremely weathered, with iron stone and clay bands, no odour.			
			1.5		BH104M_1.5-1.6 ES 1.50-1.60 m 1.50 m PID = 2.9 ppm					M		Grout
				1.90					From 1.9 m, dark grey-brown.			
			2.0		BH104M_2.0-2.1 ES 2.00-2.10 m 2.00 m PID = 1.7 ppm						-	
			2.5									uPVC 50 mm Casing
			3.0		BH104M_2.9-3.0 ES 2.90-3.00 m 2.90 m PID = 2.1 ppm							
			3.5							D - M		
				4.00					From 4.0 m, dark grey-grey shale.			Bentonite
			4.0									
			4.5									
			5.0									

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

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BOREHOLE: BH104M

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Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	2 OF 2
Location	2 Murray Rose Ave, Sydney Olympic Park, NSW			Date Started	19/11/17
Position	Refer to Figure 2			Date Completed	19/11/17
Job No.	E23603.E02	Contractor	BG Drilling Pty Ltd	Logged AB	Date:
Client	Stockland Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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 BH104M
AD/T	-	GWNE	5.0					-	SHALE; brown, extremely weathered, with iron stone and clay bands, no odour.	D - M	-	Sand
			5.5									
			6.0									
			6.5									
			7.0									uPVC 50 mm Slotted Screen
		▽	7.5		BH104M_7.7-7.8 ES 7.70-7.80 m 7.70 m PID = 6 ppm	■						
			8.0									
			8.5									Cuttings
			9.0	9.00					Hole Terminated at 9.00 m Target Depth Reached. Borehole Converted into Monitoring Well.			
			9.5									
			10.0									

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

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BOREHOLE: BH105

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Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Murray Rose Ave, Sydney Olympic Park, NSW			Date Started	19/11/17
Position	Refer to Figure 2			Date Completed	19/11/17
Job No.	E23603.E02	Contractor	BG Drilling Pty Ltd	Logged AB	Date:
Client	Stockland Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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
			0.0	0.07				-	ASPHALT; 70 mm thick.	-		PAVEMENT
								-	FILL; Clayey SAND; fine to medium grained, brown, clay is low plasticity, no odour.	D - M		FILL
			0.5		BH105_0.2-0.3 ES 0.20-0.30 m 0.20 m PID = 4.7 ppm							
				0.90				-	FILL: Silty CLAY; low plasticity, brown, mottled red-yellow, no odour.	M		
			1.0		BH105_1.1-1.2 ES 1.10-1.20 m 1.10 m PID = 5.2 ppm							
AD/T	-	GWNE	1.5	1.50				-	SHALE; brown, extremely weathered, no odour.	D	-	BEDROCK
			2.0		BH105_1.7-1.8 ES 1.70-1.80 m 1.70 m PID = 3.6 ppm							
			2.5									
					BH105_2.7-2.8 ES 2.70-2.80 m 2.70 m PID = 3.9 ppm							
			3.0	3.00					Hole Terminated at 3.00 m Target Depth Reached. Backfilled with Drilling Spoil.			
			3.5									
			4.0									
			4.5									
			5.0									

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

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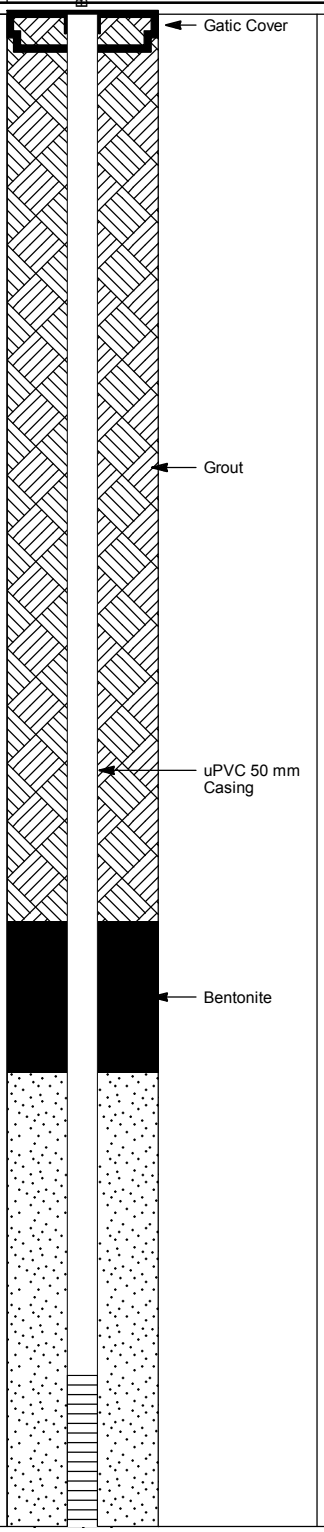
BOREHOLE: BH106M

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Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 2
Location	2 Murray Rose Ave, Sydney Olympic Park, NSW			Date Started	19/11/17
Position	Refer to Figure 2			Date Completed	19/11/17
Job No.	E23603.E02	Contractor	BG Drilling Pty Ltd	Logged AB	Date:
Client	Stockland Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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
AD/T	-	GWNE	0.0	0.07				-	ASPHALT; 70 mm thick.	-	
					BH106M_0.25-0.35 ES 0.25-0.35 m 0.25 m PID = 5.4 ppm			-	FILL; Sandy Silty CLAY; low to medium plasticity, brown, with fine to medium, sub-angular to angular gravel, no odour.	M	
			0.5	0.60				-	FILL; Sandy GRAVEL; coarse, black, with white specs, sand is fine to medium grained, no odour.	D - M	
					BH106M_0.8-0.9 ES 0.80-0.90 m 0.80 m PID = 6.6 ppm						
			1.0	1.30				-	FILL; Silty CLAY; low plasticity, orange, mottled grey, no odour.	D - M	
			1.5		BH106M_1.5-1.6 ES 1.50-1.60 m 1.50 m PID = 5.1 ppm						
			2.0	2.10				-	SHALE; grey-brown, extremely weathered, no odour.		
					BH106M_2.3-2.4 ES 2.30-2.40 m 2.30 m PID = 3.4 ppm						-
			2.5								
			3.0		BH106M_3.0-3.1 ES 3.00-3.10 m 3.00 m PID = 1.5 ppm						
			3.5							D	
			4.0								
			4.5								
			5.0								

PIEZOMETER DETAILS
ID Static Water Level
BH106M



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

EIA LIB 1.03.GLB Log IS AU BOREHOLE 3 E23603 BOREHOLE LOGS.GPJ <<DrawingFile>> 30/11/2017 18:59 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: EIA 1.03 2014-07-05 Prj: EIA 1.03 2014-07-05

BOREHOLE: BH106M

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	2 OF 2
Location	2 Murray Rose Ave, Sydney Olympic Park, NSW			Date Started	19/11/17
Position	Refer to Figure 2			Date Completed	19/11/17
Job No.	E23603.E02	Contractor	BG Drilling Pty Ltd	Logged AB	Date:
Client	Stockland Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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
AD/T	-	GWNE	5.0					-	SHALE; grey-brown, extremely weathered, no odour.	D		BH106M
			5.5									Sand
			6.0									
			6.5									uPVC 50 mm Slotted Screen
			7.0		BH106M_7.0-7.1 ES 7.00-7.10 m 7.00 m PID = 1.9 ppm					M	-	
			7.5									
			8.0									
			8.5									Cuttings
			9.0	9.00					Hole Terminated at 9.00 m Target Depth Reached. Borehole Converted into Monitoring Well.			
			9.5									
			10.0									

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

EIA LIB 1.03.GLB Log IS AU BOREHOLE 3 E23603 BOREHOLE LOGS.GPJ <<DrawingFile>> 30/11/2017 18:59 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: EIA 1.03 2014-07-05 Prj: EIA 1.03 2014-07-05

BOREHOLE: BH107

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Murray Rose Ave, Sydney Olympic Park, NSW			Date Started	19/11/17
Position	Refer to Figure 2			Date Completed	19/11/17
Job No.	E23603.E02	Contractor	BG Drilling Pty Ltd	Logged AB	Date:
Client	Stockland Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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	0.0	0.07				-	ASPHALT; 70 mm thick.	-		PAVEMENT
					BH107_0.2-0.3 ES 0.20-0.30 m 0.20 m PID = 5.3 ppm			-	FILL: Silty CLAY; medium plasticity, brown, mottled grey-orange, with ironstone bands, no odour.	M		FILL
			0.5	0.50					From 0.5 m, dark grey-grey, with rubber pieces and slight hydrocarbon odour.			
					BH107_0.8-0.9 ES 0.80-0.90 m 0.80 m PID = 7.4 ppm					M		
			1.0	1.20				CL-CI	CLAY; low to medium plasticity, orange-dark brown, mottled yellow-red-light grey, no odour.			RESIDUAL SOIL
			1.5		BH107_1.4-1.5 ES 1.40-1.50 m 1.40 m PID = 5.7 ppm					M	-	
			2.0	2.30				-	SHALE; light brown, extremely weathered, no odour.			BEDROCK
			2.5		BH107_2.5-2.6 ES 2.50-2.60 m 2.50 m PID = 3.3 ppm					D - M		
			3.0	3.00					Hole Terminated at 3.00 m Target Depth Reached. Backfilled with Drilling Spoil.			
			3.5									
			4.0									
			4.5									
			5.0									

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

EIA LIB 1.03.GLB Log IS AU BOREHOLE 3 E23603 BOREHOLE LOGS.GPJ <<DrawingFile>> 30/11/2017 18:59 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: EIA 1.03 2014-07-05 Prj: EIA 1.03 2014-07-05

BOREHOLE: BH108

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	2 Murray Rose Ave, Sydney Olympic Park, NSW			Date Started	19/11/17
Position	Refer to Figure 2			Date Completed	19/11/17
Job No.	E23603.E02	Contractor	BG Drilling Pty Ltd	Logged AB	Date:
Client	Stockland Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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	0.0	0.05				-	ASPHALT: 50mm thick.	-		PAVEMENT
								-	FILL: Silty CLAY; low to medium plasticity, orange-brown, with fine to medium grained light-yellow sand, no odour.			FILL
			0.5		BH108_0.2-0.3 ES 0.20-0.30 m 0.20 m PID = 2.7 ppm					M		
			1.0		BH108_0.9-1.0 ES 0.90-1.00 m 0.90 m PID = 1.3 ppm							
				1.20				CI	CLAY; medium plasticity, no odour.		-	RESIDUAL SOIL
			1.5		BH108_1.4-1.5 ES 1.40-1.50 m 1.40 m PID = 2.1 ppm					M		
			2.0		BH108_2.2-2.3 ES 2.20-2.30 m 2.20 m PID = 1.9 ppm							
			2.5	2.50					Hole Terminated at 2.50 m Target Depth Reached. Backfilled with Drilling Spoil.			
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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

EIA LIB 1.03.GLB Log IS AU BOREHOLE 3 E23603 BOREHOLE LOGS.GPJ <<DrawingFile>> 30/11/2017 18:59 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: EIA 1.03 2014-07-05 Prj: EIA 1.03 2014-07-05

APPENDIX F
Field Data Sheets & Calibration Certificate

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address: 2 Murray Rose Avenue, Sydney Olympic Park		Job Number:	E23603
Client:	Stockland Pty Ltd	Date:	06-Dec-17
Field Staff:	Alejandra Beltran	Sampling Location ID	BH101M
Well Location:	See figure	Round No:	1
MEDIUM	☒Groundwater ☐Surface Water	☐Stormwater	☐Other:
SAMPLING POINT INFO			
Well Installation Date:	19-Nov-17	Stickup (m):	-0.085 (+ above ground - below ground)
Initial Well Depth (mbgl):	4.8	Screen Interval (mBTOC):	
Previous Sampling Date:		Previous SWL (mBTOC):	0.
PID READINGS			
PID Headspace (ppm):		PID Background (ppm):	
PID Breathing Space (ppm):			
PRE PURGE			
Total Well Depth (mbgl):	4.83	Well Head Condition:	good
SWL (mbtoc):	4.15	Water Column (m):	0.6m
PHASE SEPARATED HYDROCARBONS (PSH)			
Depth to PSH (mbtoc):		PSH Visually Confirmed (Bailer):	none observed.
PSH Thickness (mm):			
PURGE AND SAMPLE			
Sampling Method	☒Bladder ☐Peristaltic ☐Submersible		☐Other:
Depth of Pump Inlet:		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:

Dry well - not enough water for sampling.

SIGNATURE:

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address: 2 Murray Rose Avenue, Sydney Olympic Park		Job Number:	E23603
Client:	Stockland Pty Ltd	Date:	06-Dec-17
Field Staff:	Alejandra Beltran	Sampling Location ID	BH104M
Well Location:	See figure	Round No:	1
MEDIUM	☒Groundwater ☐Surface Water	☐Stormwater	☐Other:
SAMPLING POINT INFO			
Well Installation Date:	19-Nov-17	Stickup (m):	-0.085 (+ above ground - below ground)
Initial Well Depth (mbgl):	8.1	Screen Interval (mBTOC):	
Previous Sampling Date:	/	Previous SWL (mBTOC):	0
PID READINGS			
PID Headspace (ppm):	/	PID Background (ppm):	/
PID Breathing Space (ppm):			
PRE PURGE			
Total Well Depth (mbgl):	8.40	Well Head Condition:	Good.
SWL (mbtoc):	5.15 + 0.085 = 6.0 mBGL	Water Column (m):	2.4
PHASE SEPARATED HYDROCARBONS (PSH)			
Depth to PSH (mbtoc):	/	PSH Visually Confirmed (Bailer):	none observed.
PSH Thickness (mm):			
PURGE AND SAMPLE			
Sampling Method	☒Bladder ☐Peristaltic ☐Submersible	☐Other:	
Depth of Pump Inlet:		Fill Timer:	10
Pump Pressure Regulator (psi):	20	Discharge Timer:	5
Weather Conditions:	overcast	Cycle:	CPM 4.
Pump on time:	8:35	Pump off time:	8:55
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.)
8:40	0.15	5.15	20.1	6578	30.5	0.3	7.8	light brown/grey,
8:42	0.30	5.21	21.18	6501	48.9	0.0	7.68	
8:44	0.45	5.25	21.12	6472	54.3	0.0	7.65	1-m turbidity, no
8:46	0.60	5.30	21.16	6488	58.0	0.0	7.55	
8:48	0.75	5.37	21.19	6492	63.5	0.17	7.49	odour, no sheen.
8:50	0.90	5.39	21.29	6496	65.3	0.20	7.41	
8:52	1.05	5.43	21.39	6499	71.7	0.27	7.40	
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

GWQT1, GWQD1

SIGNATURE:

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address: 2 Murray Rose Avenue, Sydney Olympic Park		Job Number:	E23603
Client:	Stockland Pty Ltd	Date:	06-Dec-17
Field Staff:	Alejandra Beltran	Sampling Location ID	BH106M
Well Location:	See figure	Round No:	1
MEDIUM	☒Groundwater ☐Surface Water	☐Stormwater	☐Other:

SAMPLING POINT INFO

Well Installation Date:	19-Nov-17	Stickup (m):	-0.07 (+ above ground - below ground)
Initial Well Depth (mbgl):	7.5m	Screen Interval (mBTOC):	
Previous Sampling Date:	/	Previous SWL (mBTOC):	0m.

PID READINGS

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

PRE PURGE

Total Well Depth (mbgl):	7.54	Well Head Condition:	Good
SWL (mbtoc):	5.42 +0.07 = 5.49mBGL	Water Column (m):	2.05

PHASE SEPARATED HYDROCARBONS (PSH)

Depth to PSH (mbtoc):	/	PSH Visually Confirmed (Bailer):	None observed.
PSH Thickness (mm):	/		

PURGE AND SAMPLE

Sampling Method	☒Bladder ☐Peristaltic	☐Submersible	☐Other:
Depth of Pump Inlet:	6.5m	Fill Timer:	10
Pump Pressure Regulator (psi):	20	Discharge Timer:	5
Weather Conditions:	Sunny/overcast.	Cycle:	CPM 4
Pump on time:	10:00	Pump off time:	10:20

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.)
10:05	0.15	5.42	20.1	~~1055~~	~~24.8~~ ~~1055~~	1.93	8.19	light grey, l-m
10:07	0.30	5.45	21.13	966	54.5	1.01	7.89	turbidity, no odour,
10:09	0.45	5.48	21.01	855	105.8	0.83	6.93	
10:11	0.60	5.5	21.40	819	119.4	0.82	6.67	
10:13	0.75	5.5	21.0	796	130.3	0.78	6.55	no sheen.
10:15	0.9	5.55	21.06	793	136.4	0.63	6.46	
10:17	1.05	5.65	21.19	796	139.2	0.58	6.40	
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

SIGNATURE: AB

EI Australia
Suite 6.01, 55 Miller Street
PYRMONT, NSW, 2009

ABN 33 102 449 507
E service@eiaustralia.com.au
W www.eiaustralia.com.au
T 02 9516 0722

CALIBRATION CERTIFICATE FOR PHOTO IONISATION DETECTOR

Instrument: Mini RAE 3000

Serial Number: 592-906667 - EI **PID02** ☐ **OR** 592-901345 - EI **PID03** ☒

Instrument Conditions: good

Calibration gas species: Isobutylene.

Calibration gas concentration: 100 ppm

Gas bottle number: 676450 Cyl 171

This PID has been calibrated to Isobutylene gas with the span concentration displayed as

100 ppm at 100.1 ppm span setting (allowable range +/-10ppm from span setting).

The PID is initially zero calibrated in fresh air.

Remaining gas in bottle: 7250. psi (if reading is <250 psi, notify Equipment Manager to arrange new gas bottle order)

The above detector was calibrated in accordance with manufacturer's specifications.

Signed: AB

Date: 19-11-17

Time: 07:50

APPENDIX G
Chain of Custody and Sample Receipt Forms

source: M630_SR_20171121163409.pdf page: 4 SGS Ref: SE172863_COC

Sheet 1 of 2

Site: 2 Murray Rose Avenue, Sydney Olympic Park NSW

Project No: E23603

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	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS				TCLP PAHs	TCLP HM [A]	TCLP HM [B]
BH101M 0.2-0.3	1	J,ZLB	19-11-17	AM/PM		X		X																
BH102 0.2-0.3	2							X																
BH102 0.8-0.9																								
BH103 0.2-0.3	3							X																
BH103 1.0-1.1																								
BH104M 0.25-0.35	4							X																
BH104M 1.0-1.1	5							X																
BH105 0.2-0.3	6							X																
BH105 1.1-1.2																								
BH106M 0.25-0.35	7							X																
BH106M 0.8-0.9	8							X																
BH107 0.2-0.3	9							X																

Comments

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

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

LABORATORY TURNAROUND

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

SGS EHS Alexandria Laboratory
SE172863 COC
Received: 21 – Nov – 2017

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

Sampler's Comments:

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

Sampler's Name (EI):	Received by (SGS):
Print: Alejandra Beltran	Print:
Signature:	Signature:
Date: 21-11-17.	Date: 24/11/17 e3:00

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

Sheet 2 of 2

Site: 2 Murray Rose Avenue, Sydney Olympic Park NSW

Project No: E23603

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	TRH/BTEX/Lead	~~TRH~~/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS				TCLP PAHs	TCLP HM [A]	TCLP HM [B]
BH107 – 0.8-0.9	10	J, ZLB	19-11-17	AM/PM		X		X																
BH108 – 0.2-0.3	11	↓	↓	↓		X		X																
BH108 – 0.9-1.0	12	↓	↓	↓		X		X																
QD1	13	J	↓	↓		X				X														
QTB1	14	VC	lab prepared			X						X												
QTS1	15	VC	lab prepared			X						X												
QR1	16	2xVC, S, 2xP	19-11-17	AM/PM	X					X														
QRB1		2xP, S, 2xVC	19-11-17	AM/PM	X																			

Comments

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

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

LABORATORY TURNAROUND

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

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

Sampler's Comments: Please hold QRB1

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

Sampler's Name (EI): Alejandra Beltran
Print
Signature
Date 21-11-17.

Received by (SGS):
Print
Signature
Date 21/11/17 3:00

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

SE172863

CLIENT DETAILS

Contact	Alejandra Beltran
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	Alejandra.beltran@eiaustralia.com.au
Project	**E23603 2 Murray Rose Ave Sydney Oly Park**
Order Number	**E23603**
Samples	16

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 21/11/2017
Report Due	Tue 28/11/2017
SGS Reference	**SE172863**

SUBMISSION DETAILS

This is to confirm that 16 samples were received on Tuesday 21/11/2017. Results are expected to be ready by COB Tuesday 28/11/2017.
Please quote SGS reference SE172863 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	15 Soil, 1 Water
Date documentation received	21/11/2017	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	10.0°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

Three soil and one water sample have been placed on hold.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

SAMPLE RECEIPT ADVICE

SE172863

CLIENT DETAILS

Client EI AUSTRALIA

Project E23603 2 Murray Rose Ave Sydney Oly Park

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	BH101M_0.2-0.3	29	14	26	11	7	10	12	8
002	BH102_0.2-0.3	29	14	26	11	7	10	12	8
003	BH103_0.2-0.3	29	14	26	11	7	10	12	8
004	BH104M_0.25-0.35	29	14	26	11	7	10	12	8
005	BH104M_1.0-1.1	29	14	26	11	7	10	12	8
006	BH105_0.2-0.3	29	14	26	11	7	10	12	8
007	BH106M_0.25-0.35	29	14	26	11	7	10	12	8
008	BH106M_0.8-0.9	29	14	26	11	7	10	12	8
009	BH107_0.2-0.3	29	14	26	11	7	10	12	8
010	BH107_0.8-0.9	29	14	26	11	7	10	12	8
011	BH108_0.2-0.3	29	14	26	11	7	10	12	8
012	BH108_0.9-1.0	29	14	26	11	7	10	12	8
013	QD1	-	-	-	-	7	10	12	8
014	QTB1	-	-	-	-	-	-	12	-
015	QTS1	-	-	-	-	-	-	12	-

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

SE172863

CLIENT DETAILS

Client EI AUSTRALIA

Project E23603 2 Murray Rose Ave Sydney Oly Park

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	BH101M_0.2-0.3	2	1	1	-	-
002	BH102_0.2-0.3	2	1	1	-	-
003	BH103_0.2-0.3	2	1	1	-	-
004	BH104M_0.25-0.35	2	1	1	-	-
005	BH104M_1.0-1.1	2	1	1	-	-
006	BH105_0.2-0.3	2	1	1	-	-
007	BH106M_0.25-0.35	2	1	1	-	-
008	BH106M_0.8-0.9	2	1	1	-	-
009	BH107_0.2-0.3	2	1	1	-	-
010	BH107_0.8-0.9	2	1	1	-	-
011	BH108_0.2-0.3	2	1	1	-	-
012	BH108_0.9-1.0	2	1	1	-	-
013	QD1	-	1	1	-	-
014	QTB1	-	-	1	-	-
016	QR1	-	-	-	12	8

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

SE172863

CLIENT DETAILS

Client EI AUSTRALIA

Project E23603 2 Murray Rose Ave Sydney Oly Park

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water
016	QR1	1	7	10

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 .

source: M630_SR_20171201102742.pdf page: 1 SGS Ref: SE172863A_COC

RE: Report Job SE172863, your reference E23603 2 Murray Rose Ave Sydney Oly Park, order number E23603

Alejandra Beltran - EIAustralia <alejandra.beltran@eiaustralia.com.au>

Fri 1/12/2017 10:12 AM

To: AU.Environmental.Sydney (Sydney) <AU.Environmental.Sydney@sgs.com>;

Cc: AU.SampleReceipt.Sydney (Sydney) <AU.SampleReceipt.Sydney@sgs.com>;

Importance: High

SGS EHS Alexandria Laboratory
SE172863A COC
Received: 01 – Dec – 2017

Hi SGS, #17

Please kindly test for zinc in QRB1 on a 48hr TAT.

With thanks,

Alejandra Beltran | Civil/Environmental Engineer

E: alejandra.beltran@eiaustralia.com.au
T: 02 9516 0722
Suite 6.01, 55 Miller Street, Pyrmont, NSW 2009
www.eiaustralia.com.au

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-----Original Message-----
From: AU.Environmental.Sydney@SGS.com [mailto:AU.Environmental.Sydney@SGS.com]
Sent: 29 November, 2017 8:24 PM
To: Alejandra Beltran - EIAustralia <alejandra.beltran@eiaustralia.com.au>; Laboratory Results - EIAustralia <lab@eiaustralia.com.au>
Subject: Report Job SE172863, your reference E23603 2 Murray Rose Ave Sydney Oly Park, order number E23603

Dear Alejandra,

Please find attached the report for SGS job SE172863, your reference E23603 2 Murray Rose Ave Sydney Oly Park, order number E23603.

-IMPORTANT INFORMATION ABOUT YOUR REPORT- To align with NEPM 1999 (2013), SGS Environmental has changed the way Silica Gel Clean-up of TRH extracts is reported. TPH Silica Gel has now become TRH – Silica. NEPM 1999(2013) seeks to clarify TRH and TPH in Schedule B3, 10.2.7.

If you have any questions or concerns, please don't hesitate to contact your SGS Client Services representative.

Regards,
Huong Crawford

Information in this email and any attachments is confidential and intended solely for the use of the individual(s) to whom it is addressed or otherwise directed. Please note that any views or opinions presented in this email are solely those of the

SAMPLE RECEIPT ADVICE

SE172863A

CLIENT DETAILS

Contact	Alejandra Beltran
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	Alejandra.beltran@eiaustralia.com.au
Project	**E23603 Murray Rose Ave Sydney Oly Park A**
Order Number	**E23603**
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	Fri 1/12/2017
Report Due	Tue 5/12/2017
SGS Reference	**SE172863A**

SUBMISSION DETAILS

This is to confirm that 17 samples were received on Friday 1/12/2017. Results are expected to be ready by COB Tuesday 5/12/2017. Please quote SGS reference SE172863A 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	1 Water
Date documentation received	1/12/17@10:12am	Type of documentation received	Email
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	10.0°C	Sufficient sample for analysis	Yes
Turnaround time requested	Two Days		

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

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

SAMPLE RECEIPT ADVICE

SE172863A

CLIENT DETAILS

Client EI AUSTRALIA

Project E23603 Murray Rose Ave Sydney Oly Park A

SUMMARY OF ANALYSIS

No.	Sample ID	Trace Metals (Dissolved) in Water by ICPMS
017	QRB1	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 .

source: M630_SR_20171201125836.pdf page: 1 SGS Ref: SE172863B_COC

RE: Report Job SE172863, your reference E23603 2 Murray Rose Ave Sydney Oly Park, order number E23603

Alejandra Beltran - EIAustralia <alejandra.beltran@eiaustralia.com.au>

Fri 1/12/2017 1:00 PM

To: AU.Environmental.Sydney (Sydney) <AU.Environmental.Sydney@sgs.com>;

Cc: AU.SampleReceipt.Sydney (Sydney) <AU.SampleReceipt.Sydney@sgs.com>; Tony Guirguis - EIAustralia <tony.guirguis@eiaustralia.com.au>;

Importance: High

SGS EHS Alexandria Laboratory
SE172863B COC
Received: 01 – Dec – 2017

Hi SGS,

Please run TCLP tests as outlined below:

- BH104M_0.25-0.35 - TCLP for Nickel #4
- BH102_0.2-0.3 - TCLP for Benzo(a)pyrene #2
- BH105_0.2-0.3 - TCLP for Benzo(a) pyrene #6

Pleas complete these on a 72hr TAT.

With thanks,

Alejandra Beltran | Civil/Environmental Engineer

E: alejandra.beltran@eiaustralia.com.au
T: 02 9516 0722
Suite 6.01, 55 Miller Street, Pyrmont, NSW 2009 www.eiaustralia.com.au

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-----Original Message-----
From: AU.Environmental.Sydney@SGS.com [mailto:AU.Environmental.Sydney@SGS.com]
Sent: 29 November, 2017 8:24 PM
To: Alejandra Beltran - EIAustralia <alejandra.beltran@eiaustralia.com.au>; Laboratory Results - EIAustralia <lab@eiaustralia.com.au>
Subject: Report Job SE172863, your reference E23603 2 Murray Rose Ave Sydney Oly Park, order number E23603

Dear Alejandra,

Please find attached the report for SGS job SE172863, your reference E23603 2 Murray Rose Ave Sydney Oly Park, order number E23603.

-IMPORTANT INFORMATION ABOUT YOUR REPORT- To align with NEPM 1999 (2013), SGS Environmental has changed the way Silica Gel Clean-up of TRH extracts is reported. TPH Silica Gel has now become TRH – Silica. NEPM 1999(2013) seeks to clarify TRH and TPH in Schedule B3, 10.2.7.

If you have any questions or concerns, please don't hesitate to contact your SGS Client Services representative.

SAMPLE RECEIPT ADVICE

SE172863B

CLIENT DETAILS

Contact	Alejandra Beltran
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	Alejandra.beltran@eiaustralia.com.au
Project	**E23603 Murray Rose Ave Sydney Oly Park A**
Order Number	**E23603**
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	Fri 1/12/2017
Report Due	Wed 6/12/2017
SGS Reference	**SE172863B**

SUBMISSION DETAILS

This is to confirm that 17 samples were received on Friday 1/12/2017. Results are expected to be ready by COB Wednesday 6/12/2017.
Please quote SGS reference SE172863B 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	3 Soil
Date documentation received	1/12/17@1:00pm	Type of documentation received	Email
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	10.0°C	Sufficient sample for analysis	Yes
Turnaround time requested	Three Days		

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

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SAMPLE RECEIPT ADVICE

SE172863B

CLIENT DETAILS

Client EI AUSTRALIA

Project E23603 Murray Rose Ave Sydney Oly Park A

SUMMARY OF ANALYSIS

No.	Sample ID	Metals in TCLP Extract by ICPOES	PAH (Polynuclear Aromatic Hydrocarbons) in TCLP	TCLP (Toxicity Characteristic Leaching	TCLP (Toxicity Characteristic Leaching
002	BH102_0.2-0.3	-	4	-	6
004	BH104M_0.25-0.35	1	-	6	-
006	BH105_0.2-0.3	-	4	-	6

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 .

source: M630_SR_20171121163409.pdf page: 1 SGS Ref: SE172864_COC

Sheet 1 of 2

Site: 2 Murray Rose Avenue, Sydney Olympic Park NSW

Project No: E23603

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 Δ /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM Δ /TRH/BTEX/PAHs	HM Δ /TRH/BTEX	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS				TCLP PAHs	TCLP HM Δ	TCLP HM B
BH101M – 0.8-0.9	1	J, ZLB	19-11-17	AM/PM		X			X															
BH101M – 1.3-1.4																								
BH101M – 4.6-4.7																								
BH102 – 2.5-2.6																								
BH102 – 3.2-3.3																								
BH103 – 2.0-2.1																								
BH103 – 2.6-2.7																								
BH104M – 1.5-1.6	2								X															
BH104M – 2.0-2.1																								
BH104M – 2.9-3.0																								
BH104M – 7.7-7.8																								
BH105 – 1.7-1.8	3								X															

Comments

HM Δ
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

SGS EHS Alexandria Laboratory
SE172864 COC
Received: 21 – Nov – 2017

LABORATORY TURNAROUND

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

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

Sampler's Comments:

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

Sampler's Name (EI):	Received by (SGS):
Alejandra Beltran	
Print	Print
Signature	Signature
Date 21-11-17.	Date 21/11/17 3:00

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

Sheet 2 of 2

Site: 2 Murray Rose Avenue, Sydney Olympic Park NSW

Project No: E23603

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	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS				TCLP PAHs	TCLP HM [A]	TCLP HM [B]
BH105 – 2.7-2.8		J, ZLB	19-11-17	AM/PM		X																		
BH106M – 1.5-1.6	4	↓	↓	↓		↓			X															
BH106M – 2.3-2.4																								
BH106M – 3.0-3.1																								
BH106M – 7.0-7.1																								
BH107 – 1.4-1.5	5								X															
BH107 – 2.5-2.6																								
BH108 – 1.4-1.5																								
BH108 – 2.2-2.3		↓	↓	↓		↓																		

Comments

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

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

LABORATORY TURNAROUND

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

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

Sampler's Comments:

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

Sampler's Name (EI): Alexandra Beltran

Print: Alexandra Beltran

Signature:

Date: 21-11-17.

Received by (SGS):

Print:

Signature:

Date: 21/11/17 @ 3:05

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

SE172864

CLIENT DETAILS

Contact	Alejandra Beltran
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	Alejandra.beltran@eiaustralia.com.au
Project	**E23603 2 Murray Rose Ave Sydney Oly Park**
Order Number	**E23603**
Samples	5

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 21/11/2017
Report Due	Tue 28/11/2017
SGS Reference	**SE172864**

SUBMISSION DETAILS

This is to confirm that 5 samples were received on Tuesday 21/11/2017. Results are expected to be ready by COB Tuesday 28/11/2017. Please quote SGS reference SE172864 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	21/11/2017	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	10.0°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.

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SAMPLE RECEIPT ADVICE

SE172864

CLIENT DETAILS

Client EI AUSTRALIA

Project E23603 2 Murray Rose Ave Sydney Oly Park

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH101M_0.8-0.9	1	26	7	10	12	8
002	BH104M_1.5-1.6	1	26	7	10	12	8
003	BH105_1.7-1.8	1	26	7	10	12	8
004	BH106M_1.5-1.6	1	26	7	10	12	8
005	BH107_1.4-1.5	1	26	7	10	12	8

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
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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

SE172864

CLIENT DETAILS

Client EI AUSTRALIA

Project E23603 2 Murray Rose Ave Sydney Oly Park

SUMMARY OF ANALYSIS

No.	Sample ID	Moisture Content
001	BH101M_0.8-0.9	1
002	BH104M_1.5-1.6	1
003	BH105_1.7-1.8	1
004	BH106M_1.5-1.6	1
005	BH107_1.4-1.5	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 murray rose avenue, Sydney Olympic Park NSW

Project No: E23603

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	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS			TCLP PAHs	TCLP HM [A]	TCLP HM [B]
QT1	1	J	19-11-17	AM/PM						X													

Comments

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

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

ENVIROLAB

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

Job No: 180336
Date Received: 21/11/17
Time Received: 17:35
Received by: MT
Temp: Cool/Ambient 18.9
Cooling: Ice/Icepack
Security: Intact/Broken/None

LABORATORY TURNAROUND

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

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

Sampler's Comments:

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

Sampler's Name (EI):	Received by (Envirolab):
Alejandra Beltran	MT
Print	*Print*
Signature	*Signature*
Date 21-11-17.	*Date* 21/11/17 17:35.

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	E23603, Sydney Olympic Park
Envirolab Reference	180336
Date Sample Received	21/11/2017
Date Instructions Received	21/11/2017
Date Results Expected to be Reported	28/11/2017

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	1 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	19.9
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	✓	✓	✓

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.

source: M630_SR_20171206171018.pdf page: 1 SGS Ref: SE173444_COC

Sheet 1 of 1

Site: 2 Murray Rose Avenue, Sydney Olympic Park NSW

Project No: E23603

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	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS	Total Phenols			TCLP PAHs	TCLP HM [A]	TCLP HM [B]
BH104M	1	2xP, S, 2xVC	6-12-17	AM	X				X					X					X						
BH103M	2	2xP, S, 2xVC	↓	↓	↓				X					X					X						
GWQD1	3	S, P, 2xVC								X															
GWQR1	4	S, P, 2xVC								X															
GWQRB1		S, P, 2xVC	↓	↓																					
GWQTB1	5	VC	lab prepared									X													
GWQTS1	6	VC	lab prepared		↓							X													

Comments

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

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

LABORATORY TURNAROUND

- ☐ Standard
- ☐ 24 Hours
- ☒ 48 Hours
- ☐ 72 Hours
- ☐ Other_____

SGS EHS Alexandra Laboratory

SE173444 COC
Received: 06 – Dec – 2017

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

Sampler's Comments:
Hold ~~@~~ GWQRB1

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

Sampler's Name (EI): Alejandra Beltran
Print
Signature
Date 6-12-17

Received by (SGS):
Print
Signature
Date 6/12/17

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

SE173444

CLIENT DETAILS

Contact	Alejandra Beltran
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	Alejandra.beltran@eiaustralia.com.au
Project	**E23603 2 Murray Rose Av, Sydney Oly Park**
Order Number	**E23603**
Samples	6

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	Wed 6/12/2017
Report Due	Fri 8/12/2017
SGS Reference	**SE173444**

SUBMISSION DETAILS

This is to confirm that 6 samples were received on Wednesday 6/12/2017. Results are expected to be ready by COB Friday 8/12/2017. Please quote SGS reference SE173444 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	6 Water
Date documentation received	6/12/2017	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	Two Days		

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

One water sample has been placed on hold.

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SAMPLE RECEIPT ADVICE

SE173444

CLIENT DETAILS

Client EI AUSTRALIA

Project E23603 2 Murray Rose Av, Sydney Oly Park

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	PAH (Polynuclear Aromatic Hydrocarbons) in Water	Total Phenolics in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	BH104M	1	22	1	7	10	79	8
002	BH106M	1	22	1	7	10	79	8
003	GWQD1	1	-	-	7	10	12	8
004	GWQR1	1	-	-	7	10	12	8
005	GWQTB1	-	-	-	-	-	12	-
006	GWQTS1	-	-	-	-	-	12	-

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 .

source: MI630_SR_20171208162029.pdf page: 1 SGS Ref: SE173444A_COC

RE: Report Job SE173444, your reference E23603 2 Murray Rose Av, Sydney Oly Park, order number E23603

Alejandra Beltran - EIAustralia <alejandra.beltran@eiaustralia.com.au>

Fri 8/12/2017 4:18 PM

To: AU.Environmental.Sydney (Sydney) <AU.Environmental.Sydney@sgs.com>;

Cc: AU.SampleReceipt.Sydney (Sydney) <AU.SampleReceipt.Sydney@sgs.com>;

SGS EHS Alexandria Laboratory
SE173444A COC
Received: 08 – Dec – 2017

HI SGS,

x 1

Please kindly test GWQRB1 for zinc on a 24hr TAT.

Cheers,
Alejandra
-----Original Message-----
From: AU.Environmental.Sydney@SGS.com [mailto:AU.Environmental.Sydney@SGS.com]
Sent: 8 December, 2017 4:15 PM
To: Alejandra Beltran - EIAustralia <alejandra.beltran@eiaustralia.com.au>; Laboratory Results - EIAustralia <lab@eiaustralia.com.au>
Subject: Report Job SE173444, your reference E23603 2 Murray Rose Av, Sydney Oly Park, order number E23603

Dear Alejandra,

Please find attached the report for SGS job SE173444, your reference E23603 2 Murray Rose Av, Sydney Oly Park, order number E23603.

-IMPORTANT INFORMATION ABOUT YOUR REPORT- To align with NEPM 1999 (2013), SGS Environmental has changed the way Silica Gel Clean-up of TRH extracts is reported. TPH Silica Gel has now become TRH – Silica. NEPM 1999(2013) seeks to clarify TRH and TPH in Schedule B3, 10.2.7.

If you have any questions or concerns, please don't hesitate to contact your SGS Client Services representative.

Regards,
Paul Harley

Information in this email and any attachments is confidential and intended solely for the use of the individual(s) to whom it is addressed or otherwise directed. Please note that any views or opinions presented in this email are solely those of the author and do not necessarily represent those of the Company. Finally, the recipient should check this email and any attachments for the presence of viruses. The Company accepts no liability for any damage caused by any virus transmitted by this email. All SGS services are rendered in accordance with the applicable SGS conditions of service available on request and accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx

SAMPLE RECEIPT ADVICE

SE173444A

CLIENT DETAILS

Contact	Alejandra Beltran
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	Alejandra.beltran@eiaustralia.com.au
Project	**E23603 2 Murray Rose Av, Sydney Oly Park**
Order Number	**E23603**
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	Fri 8/12/2017
Report Due	Mon 11/12/2017
SGS Reference	**SE173444A**

SUBMISSION DETAILS

This is to confirm that 7 samples were received on Friday 8/12/2017. Results are expected to be ready by COB Monday 11/12/2017. Please quote SGS reference SE173444A 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	1 Water
Date documentation received	8/12/17@4:18PM	Type of documentation received	Email
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	Next Day		

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

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

SAMPLE RECEIPT ADVICE

SE173444A

CLIENT DETAILS

Client EI AUSTRALIA

Project E23603 2 Murray Rose Av, Sydney Oly Park

SUMMARY OF ANALYSIS

No.	Sample ID	Trace Metals (Dissolved) in Water by ICPMS
007	GWQRB1	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 Murray Rose Avenue, Sydney Olympic Park NSW

Project No: E23603

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	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS	TCLP PAHs	TCLP HM [A]	TCLP HM [B]
GW QT1	1	S, P, 2xVC	06-12-17	AM	X					X											

Comments

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

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

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

Job No: 181479

Date Received: 6.12.17
Time Received: 17:15
Received by: JE
Temp: Cool/Ambient 5.5°C
Cooling: Ice/Icepack
Security: Intact/Broken/None

LABORATORY TURNAROUND

- ☐ Standard
- ☐ 24 Hours
- ☒ 48 Hours
- ☐ 72 Hours
- ☐ Other_____

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

Sampler's Comments:

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

Sampler's Name (EI):	Received by (Envirolab):
Print: Alejandra Beltran	Print: JE
Signature:	Signature:
Date: 06-12-17	Date: 6.12.17 17:15

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	Accounts Email, Lab Email

Sample Login Details

Your reference	E23603 - 2 Murray Rose Ave, Syd Olympic Park
Envirolab Reference	181478
Date Sample Received	06/12/2017
Date Instructions Received	06/12/2017
Date Results Expected to be Reported	08/12/2017

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	1 water
Turnaround Time Requested	2 days
Temperature on Receipt (°C)	5.5
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.

APPENDIX H
Laboratory Analytical Reports

eiaustralia

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Alejandra Beltran
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	Alejandra.beltran@eiaustralia.com.au
Project	**E23603 2 Murray Rose Ave Sydney Oly Park**
Order Number	**E23603**
Samples	16

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	**SE172863 R0**
Date Received	21/11/2017
Date Reported	29/11/2017

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 Identifiers Yusuf Kuthpudin and Ravee Sivasubramaniam .

SIGNATORIES

Akheeqar Beniameen
Chemist

Dong Liang
Metals/Inorganics Team Leader

Huong Crawford
Production Manager

Kamrul Ahsan
Senior Chemist

Ravee Sivasubramaniam
Hygiene Team Leader

Shane McDermott
Inorganic/Metals Chemist

VOC's in Soil [AN433] Tested: 23/11/2017

PARAMETER	UOM	LOR	BH101M_0.2-0.3 SOIL - 19/11/2017 SE172863.001	BH102_0.2-0.3 SOIL - 19/11/2017 SE172863.002	BH103_0.2-0.3 SOIL - 19/11/2017 SE172863.003	BH104M_0.25-0.35 SOIL - 19/11/2017 SE172863.004	BH104M_1.0-1.1 SOIL - 19/11/2017 SE172863.005
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	BH105_0.2-0.3 SOIL - 19/11/2017 SE172863.006	BH106M_0.25-0.35 SOIL - 19/11/2017 SE172863.007	BH106M_0.8-0.9 SOIL - 19/11/2017 SE172863.008	BH107_0.2-0.3 SOIL - 19/11/2017 SE172863.009	BH107_0.8-0.9 SOIL - 19/11/2017 SE172863.010
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	**12**	<0.1	**0.1**	<0.1	<0.1

PARAMETER	UOM	LOR	BH108_0.2-0.3 SOIL - 19/11/2017 SE172863.011	BH108_0.9-1.0 SOIL - 19/11/2017 SE172863.012	QD1 SOIL - 19/11/2017 SE172863.013	QTB1 SOIL - 19/11/2017 SE172863.014	QTS1 SOIL - 19/11/2017 SE172863.015
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[71%]
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[83%]
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[79%]
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	[81%]
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[81%]
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	-

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 23/11/2017

PARAMETER	UOM	LOR	BH101M_0.2-0.3 SOIL - 19/11/2017 SE172863.001	BH102_0.2-0.3 SOIL - 19/11/2017 SE172863.002	BH103_0.2-0.3 SOIL - 19/11/2017 SE172863.003	BH104M_0.25-0.35 SOIL - 19/11/2017 SE172863.004	BH104M_1.0-1.1 SOIL - 19/11/2017 SE172863.005
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	BH105_0.2-0.3 SOIL - 19/11/2017 SE172863.006	BH106M_0.25-0.35 SOIL - 19/11/2017 SE172863.007	BH106M_0.8-0.9 SOIL - 19/11/2017 SE172863.008	BH107_0.2-0.3 SOIL - 19/11/2017 SE172863.009	BH107_0.8-0.9 SOIL - 19/11/2017 SE172863.010
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	BH108_0.2-0.3 SOIL - 19/11/2017 SE172863.011	BH108_0.9-1.0 SOIL - 19/11/2017 SE172863.012	QD1 SOIL - 19/11/2017 SE172863.013
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: 23/11/2017

PARAMETER	UOM	LOR	BH101M_0.2-0.3 SOIL - 19/11/2017 SE172863.001	BH102_0.2-0.3 SOIL - 19/11/2017 SE172863.002	BH103_0.2-0.3 SOIL - 19/11/2017 SE172863.003	BH104M_0.25-0.35 SOIL - 19/11/2017 SE172863.004	BH104M_1.0-1.1 SOIL - 19/11/2017 SE172863.005
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 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	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	BH105_0.2-0.3 SOIL - 19/11/2017 SE172863.006	BH106M_0.25-0.35 SOIL - 19/11/2017 SE172863.007	BH106M_0.8-0.9 SOIL - 19/11/2017 SE172863.008	BH107_0.2-0.3 SOIL - 19/11/2017 SE172863.009	BH107_0.8-0.9 SOIL - 19/11/2017 SE172863.010
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	**170**	<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 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	**180**	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	**170**	<110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH108_0.2-0.3 SOIL - 19/11/2017 SE172863.011	BH108_0.9-1.0 SOIL - 19/11/2017 SE172863.012	QD1 SOIL - 19/11/2017 SE172863.013
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 (F2)	mg/kg	25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	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: 23/11/2017

PARAMETER	UOM	LOR	BH101M_0.2-0.3 SOIL - 19/11/2017 SE172863.001	BH102_0.2-0.3 SOIL - 19/11/2017 SE172863.002	BH103_0.2-0.3 SOIL - 19/11/2017 SE172863.003	BH104M_0.25-0.35 SOIL - 19/11/2017 SE172863.004	BH104M_1.0-1.1 SOIL - 19/11/2017 SE172863.005
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	1.1	<0.1	0.1	0.2
Anthracene	mg/kg	0.1	<0.1	0.2	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	2.4	<0.1	0.7	0.4
Pyrene	mg/kg	0.1	<0.1	2.5	<0.1	0.9	0.4
Benzo(a)anthracene	mg/kg	0.1	<0.1	1.2	<0.1	0.5	0.2
Chrysene	mg/kg	0.1	<0.1	1.0	<0.1	0.5	0.2
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	1.4	<0.1	0.7	0.2
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.6	<0.1	0.3	0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	1.1	<0.1	0.5	0.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.6	<0.1	0.3	<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	0.4	<0.1	0.2	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	1.5	<0.2	0.7	0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	1.6	<0.3	0.8	0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	1.5	<0.2	0.8	0.3
Total PAH (18)	mg/kg	0.8	<0.8	12	<0.8	4.7	1.9
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	12	<0.8	4.7	1.9

PARAMETER	UOM	LOR	BH105_0.2-0.3 SOIL - 19/11/2017 SE172863.006	BH106M_0.25-0.35 SOIL - 19/11/2017 SE172863.007	BH106M_0.8-0.9 SOIL - 19/11/2017 SE172863.008	BH107_0.2-0.3 SOIL - 19/11/2017 SE172863.009	BH107_0.8-0.9 SOIL - 19/11/2017 SE172863.010
Naphthalene	mg/kg	0.1	2.4	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	1.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	0.9	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	1.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	0.5	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	1.5	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	10	<0.1	0.5	0.3	<0.1
Anthracene	mg/kg	0.1	2.9	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	7.8	0.3	0.4	0.8	0.3
Pyrene	mg/kg	0.1	7.1	0.3	0.4	0.9	0.3
Benzo(a)anthracene	mg/kg	0.1	3.4	0.2	0.2	0.4	0.2
Chrysene	mg/kg	0.1	3.3	0.2	0.2	0.4	0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	3.6	0.4	0.2	0.5	0.2
Benzo(k)fluoranthene	mg/kg	0.1	1.3	0.2	0.1	0.2	0.1
Benzo(a)pyrene	mg/kg	0.1	2.8	0.3	0.1	0.4	0.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	1.2	0.2	<0.1	0.2	0.1
Dibenzo(ah)anthracene	mg/kg	0.1	0.2	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	0.7	0.1	<0.1	0.2	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	3.9	0.4	<0.2	0.6	0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	3.9	0.5	<0.3	0.7	0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	3.9	0.4	0.2	0.6	0.3
Total PAH (18)	mg/kg	0.8	52	2.1	2.1	4.2	1.4
Total PAH (NEPM/WHO 16)	mg/kg	0.8	50	2.1	2.1	4.2	1.4

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 23/11/2017 (continued)

PARAMETER	UOM	LOR	BH108_0.2-0.3 SOIL - 19/11/2017 SE172863.011	BH108_0.9-1.0 SOIL - 19/11/2017 SE172863.012
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: 23/11/2017

PARAMETER	UOM	LOR	BH101M_0.2-0.3 SOIL - 19/11/2017 SE172863.001	BH102_0.2-0.3 SOIL - 19/11/2017 SE172863.002	BH103_0.2-0.3 SOIL - 19/11/2017 SE172863.003	BH104M_0.25-0.35 SOIL - 19/11/2017 SE172863.004	BH104M_1.0-1.1 SOIL - 19/11/2017 SE172863.005
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: 23/11/2017 (continued)

PARAMETER	UOM	LOR	BH105_0.2-0.3 SOIL - 19/11/2017 SE172863.006	BH106M_0.25-0.35 SOIL - 19/11/2017 SE172863.007	BH106M_0.8-0.9 SOIL - 19/11/2017 SE172863.008	BH107_0.2-0.3 SOIL - 19/11/2017 SE172863.009	BH107_0.8-0.9 SOIL - 19/11/2017 SE172863.010
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: 23/11/2017 (continued)

PARAMETER	UOM	LOR	BH108_0.2-0.3 SOIL - 19/11/2017 SE172863.011	BH108_0.9-1.0 SOIL - 19/11/2017 SE172863.012
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: 23/11/2017

PARAMETER	UOM	LOR	BH101M_0.2-0.3 SOIL - 19/11/2017 SE172863.001	BH102_0.2-0.3 SOIL - 19/11/2017 SE172863.002	BH103_0.2-0.3 SOIL - 19/11/2017 SE172863.003	BH104M_0.25-0.35 SOIL - 19/11/2017 SE172863.004	BH104M_1.0-1.1 SOIL - 19/11/2017 SE172863.005
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	BH105_0.2-0.3 SOIL - 19/11/2017 SE172863.006	BH106M_0.25-0.35 SOIL - 19/11/2017 SE172863.007	BH106M_0.8-0.9 SOIL - 19/11/2017 SE172863.008	BH107_0.2-0.3 SOIL - 19/11/2017 SE172863.009	BH107_0.8-0.9 SOIL - 19/11/2017 SE172863.010
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	BH108_0.2-0.3 SOIL - 19/11/2017 SE172863.011	BH108_0.9-1.0 SOIL - 19/11/2017 SE172863.012
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: 23/11/2017

PARAMETER	UOM	LOR	BH101M_0.2-0.3 SOIL - 19/11/2017 SE172863.001	BH102_0.2-0.3 SOIL - 19/11/2017 SE172863.002	BH103_0.2-0.3 SOIL - 19/11/2017 SE172863.003	BH104M_0.25-0.35 SOIL - 19/11/2017 SE172863.004	BH104M_1.0-1.1 SOIL - 19/11/2017 SE172863.005
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	BH105_0.2-0.3 SOIL - 19/11/2017 SE172863.006	BH106M_0.25-0.35 SOIL - 19/11/2017 SE172863.007	BH106M_0.8-0.9 SOIL - 19/11/2017 SE172863.008	BH107_0.2-0.3 SOIL - 19/11/2017 SE172863.009	BH107_0.8-0.9 SOIL - 19/11/2017 SE172863.010
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	BH108_0.2-0.3 SOIL - 19/11/2017 SE172863.011	BH108_0.9-1.0 SOIL - 19/11/2017 SE172863.012
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: 27/11/2017

PARAMETER	UOM	LOR	BH101M_0.2-0.3 SOIL - 19/11/2017 SE172863.001	BH102_0.2-0.3 SOIL - 19/11/2017 SE172863.002	BH103_0.2-0.3 SOIL - 19/11/2017 SE172863.003	BH104M_0.25-0.35 SOIL - 19/11/2017 SE172863.004	BH104M_1.0-1.1 SOIL - 19/11/2017 SE172863.005
Arsenic, As	mg/kg	3	4	7	9	5	9
Cadmium, Cd	mg/kg	0.3	<0.3	0.4	<0.3	<0.3	0.5
Chromium, Cr	mg/kg	0.3	4.2	15	14	12	16
Copper, Cu	mg/kg	0.5	54	33	24	34	29
Lead, Pb	mg/kg	1	9	28	17	13	41
Nickel, Ni	mg/kg	0.5	2.4	11	25	50	7.2
Zinc, Zn	mg/kg	0.5	20	63	31	50	52

PARAMETER	UOM	LOR	BH105_0.2-0.3 SOIL - 19/11/2017 SE172863.006	BH106M_0.25-0.35 SOIL - 19/11/2017 SE172863.007	BH106M_0.8-0.9 SOIL - 19/11/2017 SE172863.008	BH107_0.2-0.3 SOIL - 19/11/2017 SE172863.009	BH107_0.8-0.9 SOIL - 19/11/2017 SE172863.010
Arsenic, As	mg/kg	3	10	11	110	6	7
Cadmium, Cd	mg/kg	0.3	<0.3	0.3	<0.3	0.4	<0.3
Chromium, Cr	mg/kg	0.3	8.9	14	5.7	11	6.6
Copper, Cu	mg/kg	0.5	24	27	74	25	36
Lead, Pb	mg/kg	1	17	27	43	21	23
Nickel, Ni	mg/kg	0.5	13	20	9.7	7.2	7.7
Zinc, Zn	mg/kg	0.5	45	42	46	26	38

PARAMETER	UOM	LOR	BH108_0.2-0.3 SOIL - 19/11/2017 SE172863.011	BH108_0.9-1.0 SOIL - 19/11/2017 SE172863.012	QD1 SOIL - 19/11/2017 SE172863.013
Arsenic, As	mg/kg	3	6	8	7
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	9.7	12	13
Copper, Cu	mg/kg	0.5	23	28	36
Lead, Pb	mg/kg	1	15	15	18
Nickel, Ni	mg/kg	0.5	13	30	55
Zinc, Zn	mg/kg	0.5	26	39	50

Mercury in Soil [AN312] Tested: 27/11/2017

PARAMETER	UOM	LOR	BH101M_0.2-0.3 SOIL - 19/11/2017 SE172863.001	BH102_0.2-0.3 SOIL - 19/11/2017 SE172863.002	BH103_0.2-0.3 SOIL - 19/11/2017 SE172863.003	BH104M_0.25-0.35 SOIL - 19/11/2017 SE172863.004	BH104M_1.0-1.1 SOIL - 19/11/2017 SE172863.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	BH105_0.2-0.3 SOIL - 19/11/2017 SE172863.006	BH106M_0.25-0.35 SOIL - 19/11/2017 SE172863.007	BH106M_0.8-0.9 SOIL - 19/11/2017 SE172863.008	BH107_0.2-0.3 SOIL - 19/11/2017 SE172863.009	BH107_0.8-0.9 SOIL - 19/11/2017 SE172863.010
Mercury	mg/kg	0.05	<0.05	<0.05	**0.08**	<0.05	<0.05

PARAMETER	UOM	LOR	BH108_0.2-0.3 SOIL - 19/11/2017 SE172863.011	BH108_0.9-1.0 SOIL - 19/11/2017 SE172863.012	QD1 SOIL - 19/11/2017 SE172863.013
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 24/11/2017

PARAMETER	UOM	LOR	BH101M_0.2-0.3 SOIL - 19/11/2017 SE172863.001	BH102_0.2-0.3 SOIL - 19/11/2017 SE172863.002	BH103_0.2-0.3 SOIL - 19/11/2017 SE172863.003	BH104M_0.25-0.35 SOIL - 19/11/2017 SE172863.004	BH104M_1.0-1.1 SOIL - 19/11/2017 SE172863.005
% Moisture	%w/w	0.5	11	19	16	7.1	10

PARAMETER	UOM	LOR	BH105_0.2-0.3 SOIL - 19/11/2017 SE172863.006	BH106M_0.25-0.35 SOIL - 19/11/2017 SE172863.007	BH106M_0.8-0.9 SOIL - 19/11/2017 SE172863.008	BH107_0.2-0.3 SOIL - 19/11/2017 SE172863.009	BH107_0.8-0.9 SOIL - 19/11/2017 SE172863.010
% Moisture	%w/w	0.5	6.7	11	8.6	16	15

PARAMETER	UOM	LOR	BH108_0.2-0.3 SOIL - 19/11/2017 SE172863.011	BH108_0.9-1.0 SOIL - 19/11/2017 SE172863.012	QD1 SOIL - 19/11/2017 SE172863.013	QTB1 SOIL - 19/11/2017 SE172863.014
% Moisture	%w/w	0.5	14	12	7.5	<0.5

Fibre Identification in soil [AN602] Tested: 27/11/2017

PARAMETER	UOM	LOR	BH101M_0.2-0.3 SOIL - 19/11/2017 SE172863.001	BH102_0.2-0.3 SOIL - 19/11/2017 SE172863.002	BH103_0.2-0.3 SOIL - 19/11/2017 SE172863.003	BH104M_0.25-0.35 SOIL - 19/11/2017 SE172863.004	BH104M_1.0-1.1 SOIL - 19/11/2017 SE172863.005
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	BH105_0.2-0.3 SOIL - 19/11/2017 SE172863.006	BH106M_0.25-0.35 SOIL - 19/11/2017 SE172863.007	BH106M_0.8-0.9 SOIL - 19/11/2017 SE172863.008	BH107_0.2-0.3 SOIL - 19/11/2017 SE172863.009	BH107_0.8-0.9 SOIL - 19/11/2017 SE172863.010
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	BH108_0.2-0.3 SOIL - 19/11/2017 SE172863.011	BH108_0.9-1.0 SOIL - 19/11/2017 SE172863.012
Asbestos Detected	No unit	-	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01

VOCs in Water [AN433] Tested: 27/11/2017

PARAMETER	UOM	LOR	QR1 WATER - 19/11/2017 SE172863.016
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: 27/11/2017

PARAMETER	UOM	LOR	QR1 WATER - 19/11/2017 SE172863.016
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: 23/11/2017

PARAMETER	UOM	LOR	QR1 WATER - 19/11/2017 SE172863.016
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 (F2)	µg/L	60	<60
TRH >C16-C34 (F3)	µg/L	500	<500
TRH >C34-C40 (F4)	µg/L	500	<500
TRH C10-C36	µg/L	450	<450
TRH C10-C40	µg/L	650	<650
TRH >C10-C16 (F2) - Naphthalene	µg/L	60	<60

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 23/11/2017

PARAMETER	UOM	LOR	QR1 WATER - 19/11/2017 SE172863.016
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	**91**

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 28/11/2017

PARAMETER	UOM	LOR	QR1 WATER - 19/11/2017 SE172863.016
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, in accordance with USEPA 6020A.
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 Petroleum Hydrocarbons (TPH) 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.		

Samples 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 criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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ANALYTICAL REPORT

Accreditation No. 2562

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Project	**E23603 2 Murray Rose Ave Sydney Oly Park**
Order Number	**E23603**
Samples	12

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SGS Reference	**SE172863 R0**
Date Received	21 Nov 2017
Date Reported	29 Nov 2017

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 Identifiers Yusuf Kuthpudin and Ravee Sivasubramaniam .

SIGNATORIES

Akheeqar Beniameen
Chemist

Dong Liang
Metals/Inorganics Team Leader

Huong Crawford
Production Manager

Kamrul Ahsan
Senior Chemist

Ravee Sivasubramaniam
Hygiene Team Leader

Shane McDermott
Inorganic/Metals Chemist

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE172863.001	BH101M_0.2-0.3	Soil	174g Clay, Sand, Soil, Rocks	19 Nov 2017	No Asbestos Found	<0.01
SE172863.002	BH102_0.2-0.3	Soil	163g Clay, Soil, Rocks	19 Nov 2017	No Asbestos Found	<0.01
SE172863.003	BH103_0.2-0.3	Soil	92g Clay, Rocks	19 Nov 2017	No Asbestos Found	<0.01
SE172863.004	BH104M_0.25-0.35	Soil	136g Clay, Soil, Rocks	19 Nov 2017	No Asbestos Found	<0.01
SE172863.005	BH104M_1.0-1.1	Soil	180g Clay, Soil, Rocks	19 Nov 2017	No Asbestos Found	<0.01
SE172863.006	BH105_0.2-0.3	Soil	122g Clay, Soil	19 Nov 2017	No Asbestos Found	<0.01
SE172863.007	BH106M_0.25-0.35	Soil	88g Clay, Rocks	19 Nov 2017	No Asbestos Found	<0.01
SE172863.008	BH106M_0.8-0.9	Soil	103g Soil, Rocks	19 Nov 2017	No Asbestos Found	<0.01
SE172863.009	BH107_0.2-0.3	Soil	189g Clay, Rocks	19 Nov 2017	No Asbestos Found	<0.01
SE172863.010	BH107_0.8-0.9	Soil	137g Clay, Soil, Rocks	19 Nov 2017	No Asbestos Found	<0.01
SE172863.011	BH108_0.2-0.3	Soil	140g Clay, Rocks	19 Nov 2017	No Asbestos Found	<0.01
SE172863.012	BH108_0.9-1.0	Soil	97g Clay, Rocks	19 Nov 2017	No Asbestos Found	<0.01

METHOD SUMMARY

SE172863 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.

Sampled by the client.

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 criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/ Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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ANALYTICAL REPORT

Accreditation No. 2562

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Project	**E23603 Murray Rose Ave Sydney Oly Park A**
Order Number	**E23603**
Samples	17

LABORATORY DETAILS

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SGS Reference	**SE172863A R0**
Date Received	1/12/2017
Date Reported	6/12/2017

COMMENTS

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

SIGNATORIES



Dong Liang
Metals/Inorganics Team Leader

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 6/12/2017

PARAMETER	UOM	LOR	QRB1 WATER - 19/11/2017 SE172863A.017
Zinc, Zn	µg/L	5	<5

METHOD	METHODOLOGY SUMMARY
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.

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.		

Samples 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 criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/ Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Project	**E23603 Murray Rose Ave Sydney Oly Park A**
Order Number	**E23603**
Samples	17

LABORATORY DETAILS

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SGS Reference	**SE172863B R0**
Date Received	1/12/2017
Date Reported	7/12/2017

COMMENTS

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

SIGNATORIES

Akheeqar Beniameen
Chemist

Bennet Lo
Senior Organic Chemist/Metals Chemist

Dong Liang
Metals/Inorganics Team Leader

Ly Kim Ha
Organic Section Head

TCLP (Toxicity Characteristic Leaching Procedure) for Organics/SVOC [AN006] Tested: 5/12/2017

PARAMETER	UOM	LOR	BH102_0.2-0.3 SOIL - 19/11/2017 SE172863B.002	BH105_0.2-0.3 SOIL - 19/11/2017 SE172863B.006
pH 1:20	pH Units	-	6.8	6.7
pH 1:20 plus HCL	pH Units	-	1.7	1.7
Extraction Solution Used	No unit	-	1	1
Mass of Sample Used*	g	-	25	25
Volume of ExtractionSolution Used*	mL	-	500	500
pH TCLP after 18 hours	pH Units	-	4.9	4.9

PAH (Polynuclear Aromatic Hydrocarbons) in TCLP Extract [AN420] Tested: 1/12/2017

PARAMETER	UOM	LOR	BH102_0.2-0.3 SOIL - 19/11/2017 SE172863B.002	BH105_0.2-0.3 SOIL - 19/11/2017 SE172863B.006
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1

TCLP (Toxicity Characteristic Leaching Procedure) for Metals [AN006] Tested: 5/12/2017

PARAMETER	UOM	LOR	BH104M_0.25-0.35 SOIL - 19/11/2017 SE172863B.004
pH 1:20	pH Units	-	**7.9**
pH 1:20 plus HCL	pH Units	-	**1.7**
Extraction Solution Used	No unit	-	**1**
Mass of Sample Used*	g	-	**13**
Volume of ExtractionSolution Used*	mL	-	**250**
pH TCLP after 18 hours	pH Units	-	**5.0**

Metals in TCLP Extract by ICPOES [AN320] Tested: 5/12/2017

PARAMETER	UOM	LOR	BH104M_0.25-0.35 SOIL - 19/11/2017 SE172863B.004
Nickel, Ni	mg/L	0.005	**0.064**

METHOD	METHODOLOGY SUMMARY
AN006	Contaminants of interest in a waste material are leached out of the waste with a selected leaching solution under controlled conditions. The ratio of sample to extraction fluid is 100g to 2L (1 to 20 by mass). The concentration of each contaminant of interest is determined in the leachate by appropriate methods after separation from the sample by filtering. Base on USEPA 1311.
AN006	Extraction Fluid #1: This fluid is made by combining 128.6mL of dilute sodium hydroxide solution and 11.5mL glacial acetic acid with water and diluting to a volume of 2 litres. The pH of this fluid should be 4.93 ± 0.05.
AN006	Extraction Fluid #2: This fluid is made by diluting 5.7mL glacial acetic acid with water to a volume of 1 litre. The pH of this fluid should be 2.88 ± 0.05.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN320	Metals by ICP-OES: Samples are preserved with 10% nitric acid for a wide range of metals and some non-metals. This solution is measured by Inductively Coupled Plasma. Solutions are aspirated into an argon plasma at 8000-10000K and emit characteristic energy or light as a result of electron transitions through unique energy levels. The emitted light is focused onto a diffraction grating where it is separated into components .
AN320	Photomultipliers or CCDs are used to measure the light intensity at specific wavelengths. This intensity is directly proportional to concentration. Corrections are required to compensate for spectral overlap between elements . Reference APHA 3120 B.
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).

FOOTNOTES

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The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/ Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Order Number	**E23603**
Samples	5

LABORATORY DETAILS

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SGS Reference	**SE172864 R0**
Date Received	21/11/2017
Date Reported	29/11/2017

COMMENTS

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

SIGNATORIES

Akheeqar Beniameen
Chemist

Huong Crawford
Production Manager

Kamrul Ahsan
Senior Chemist

VOC's in Soil [AN433] Tested: 23/11/2017

PARAMETER	UOM	LOR	BH101M_0.8-0.9 SOIL - 19/11/2017 SE172864.001	BH104M_1.5-1.6 SOIL - 19/11/2017 SE172864.002	BH105_1.7-1.8 SOIL - 19/11/2017 SE172864.003	BH106M_1.5-1.6 SOIL - 19/11/2017 SE172864.004	BH107_1.4-1.5 SOIL - 19/11/2017 SE172864.005
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

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 23/11/2017

PARAMETER	UOM	LOR	BH101M_0.8-0.9 SOIL - 19/11/2017 SE172864.001	BH104M_1.5-1.6 SOIL - 19/11/2017 SE172864.002	BH105_1.7-1.8 SOIL - 19/11/2017 SE172864.003	BH106M_1.5-1.6 SOIL - 19/11/2017 SE172864.004	BH107_1.4-1.5 SOIL - 19/11/2017 SE172864.005
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

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 23/11/2017

PARAMETER	UOM	LOR	BH101M_0.8-0.9 SOIL - 19/11/2017 SE172864.001	BH104M_1.5-1.6 SOIL - 19/11/2017 SE172864.002	BH105_1.7-1.8 SOIL - 19/11/2017 SE172864.003	BH106M_1.5-1.6 SOIL - 19/11/2017 SE172864.004	BH107_1.4-1.5 SOIL - 19/11/2017 SE172864.005
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 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 23/11/2017

PARAMETER	UOM	LOR	BH101M_0.8-0.9 SOIL - 19/11/2017 SE172864.001	BH104M_1.5-1.6 SOIL - 19/11/2017 SE172864.002	BH105_1.7-1.8 SOIL - 19/11/2017 SE172864.003	BH106M_1.5-1.6 SOIL - 19/11/2017 SE172864.004	BH107_1.4-1.5 SOIL - 19/11/2017 SE172864.005
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	**2.3**	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.5**	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	**1.9**	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	**1.7**	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.6**	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.6**	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.6**	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.2**	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.4**	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.2**	<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	**0.6**	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	**0.7**	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	**0.7**	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	**9.3**	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	**9.3**	<0.8

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 27/11/2017

PARAMETER	UOM	LOR	BH101M_0.8-0.9 SOIL - 19/11/2017 SE172864.001	BH104M_1.5-1.6 SOIL - 19/11/2017 SE172864.002	BH105_1.7-1.8 SOIL - 19/11/2017 SE172864.003	BH106M_1.5-1.6 SOIL - 19/11/2017 SE172864.004	BH107_1.4-1.5 SOIL - 19/11/2017 SE172864.005
Arsenic, As	mg/kg	3	4	6	5	11	4
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	0.3
Chromium, Cr	mg/kg	0.3	9.6	7.3	6.5	11	17
Copper, Cu	mg/kg	0.5	15	43	35	35	31
Lead, Pb	mg/kg	1	25	28	23	93	22
Nickel, Ni	mg/kg	0.5	1.0	13	6.3	4.6	1.9
Zinc, Zn	mg/kg	0.5	11	65	37	25	15

Mercury in Soil [AN312] Tested: 27/11/2017

PARAMETER	UOM	LOR	BH101M_0.8-0.9 SOIL - 19/11/2017 SE172864.001	BH104M_1.5-1.6 SOIL - 19/11/2017 SE172864.002	BH105_1.7-1.8 SOIL - 19/11/2017 SE172864.003	BH106M_1.5-1.6 SOIL - 19/11/2017 SE172864.004	BH107_1.4-1.5 SOIL - 19/11/2017 SE172864.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 24/11/2017

PARAMETER	UOM	LOR	BH101M_0.8-0.9 SOIL - 19/11/2017 SE172864.001	BH104M_1.5-1.6 SOIL - 19/11/2017 SE172864.002	BH105_1.7-1.8 SOIL - 19/11/2017 SE172864.003	BH106M_1.5-1.6 SOIL - 19/11/2017 SE172864.004	BH107_1.4-1.5 SOIL - 19/11/2017 SE172864.005
% Moisture	%w/w	0.5	**18**	**9.0**	**7.4**	**16**	**23**

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 Petroleum Hydrocarbons (TPH) 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	Carcinogenic PAHs may be expressed as Benzo(a)pyrene equivalents by applying the BaP toxicity equivalence factor (NEPM 1999, June 2013, B7). These can be reported as the individual PAHs and as a sum of carcinogenic PAHs. The sum is reported three ways, the first assuming all <LOR results are zero, the second assuming all < LOR results are half the LOR and the third assuming all <LOR results are the LOR.
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

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**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
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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 criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/ Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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CERTIFICATE OF ANALYSIS 180336

Client Details

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

Sample Details

Your Reference	**E23603, Sydney Olympic Park**
Number of Samples	1 Soil
Date samples received	21/11/2017
Date completed instructions received	21/11/2017

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	28/11/2017
Date of Issue	24/11/2017

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

Results Approved By
Dragana Tomas, Senior Chemist
Long Pham, Team Leader, Metals
Steven Luong, Senior Chemist

Authorised By



David Springer, General Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		180336-1
Your Reference	UNITS	QT1
Date Sampled		19/11/2017
Type of sample		Soil
Date extracted	-	22/11/2017
Date analysed	-	23/11/2017
TRH C_6 - C_9	mg/kg	<25
TRH C_6 - C_{10}	mg/kg	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	113

svTRH (C10-C40) in Soil		
Our Reference		180336-1
Your Reference	UNITS	QT1
Date Sampled		19/11/2017
Type of sample		Soil
Date extracted	-	22/11/2017
Date analysed	-	22/11/2017
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	<100
TRH >C_{34} -C_{40}	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	78

Acid Extractable metals in soil		
Our Reference		180336-1
Your Reference	UNITS	QT1
Date Sampled		19/11/2017
Type of sample		Soil
Date prepared	-	22/11/2017
Date analysed	-	22/11/2017
Arsenic	mg/kg	5
Cadmium	mg/kg	<0.4
Chromium	mg/kg	15
Copper	mg/kg	39
Lead	mg/kg	13
Mercury	mg/kg	<0.1
Nickel	mg/kg	69
Zinc	mg/kg	44

Moisture		
Our Reference	UNITS	180336-1
Your Reference		QT1
Date Sampled		19/11/2017
Type of sample		Soil
Date prepared	-	22/11/2017
Date analysed	-	23/11/2017
Moisture	%	6.7

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-003	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-003	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-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	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-016	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-1	[NT]
Date extracted	-			22/11/2017	[NT]	[NT]	[NT]	[NT]	22/11/2017	[NT]
Date analysed	-			23/11/2017	[NT]	[NT]	[NT]	[NT]	23/11/2017	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	116	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	116	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	[NT]	[NT]	101	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	[NT]	[NT]	114	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	121	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	123	[NT]
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	122	[NT]
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	103	[NT]	[NT]	[NT]	[NT]	104	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			22/11/2017	[NT]	[NT]	[NT]	[NT]	22/11/2017	[NT]
Date analysed	-			22/11/2017	[NT]	[NT]	[NT]	[NT]	22/11/2017	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	106	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	104	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	106	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	106	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	104	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	106	[NT]
Surrogate o-Terphenyl	%		Org-003	105	[NT]	[NT]	[NT]	[NT]	87	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			22/11/2017	[NT]	[NT]	[NT]	[NT]	22/11/2017	[NT]
Date analysed	-			22/11/2017	[NT]	[NT]	[NT]	[NT]	22/11/2017	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	111	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	105	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	112	[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.

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: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-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.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Project	**E23603 2 Murray Rose Av, Sydney Oly Park**
Order Number	**E23603**
Samples	6

LABORATORY DETAILS

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SGS Reference	**SE173444 R0**
Date Received	6/12/2017
Date Reported	8/12/2017

COMMENTS

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

SIGNATORIES



Akheeqar Beniameen
Chemist



Dong Liang
Metals/Inorganics Team Leader



Kamrul Ahsan
Senior Chemist

VOCs in Water [AN433] Tested: 7/12/2017

PARAMETER	UOM	LOR	BH104M WATER - 6/12/2017 SE173444.001	BH106M WATER - 6/12/2017 SE173444.002	GWQD1 WATER - 6/12/2017 SE173444.003	GWQR1 WATER - 6/12/2017 SE173444.004	GWQTB1 WATER - 6/12/2017 SE173444.005
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	-	-	-
Chloromethane	µg/L	5	<5	<5	-	-	-
Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3	<0.3	-	-	-
Bromomethane	µg/L	10	<10	<10	-	-	-
Chloroethane	µg/L	5	<5	<5	-	-	-
Trichlorofluoromethane	µg/L	1	<1	<1	-	-	-
Acetone (2-propanone)	µg/L	10	<10	<10	-	-	-
Iodomethane	µg/L	5	<5	<5	-	-	-
1,1-dichloroethene	µg/L	0.5	<0.5	<0.5	-	-	-
Acrylonitrile	µg/L	0.5	<0.5	<0.5	-	-	-
Dichloromethane (Methylene chloride)	µg/L	5	<5	<5	-	-	-
Allyl chloride	µg/L	2	<2	<2	-	-	-
Carbon disulfide	µg/L	2	<2	<2	-	-	-
trans-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	-	-	-
MtBE (Methyl-tert-butyl ether)	µg/L	2	<2	<2	-	-	-
1,1-dichloroethane	µg/L	0.5	<0.5	<0.5	-	-	-
Vinyl acetate	µg/L	10	<10	<10	-	-	-
MEK (2-butanone)	µg/L	10	<10	<10	-	-	-
cis-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	-	-	-
Bromochloromethane	µg/L	0.5	<0.5	<0.5	-	-	-
Chloroform (THM)	µg/L	0.5	<0.5	<0.5	-	-	-
2,2-dichloropropane	µg/L	0.5	<0.5	<0.5	-	-	-
1,2-dichloroethane	µg/L	0.5	<0.5	<0.5	-	-	-
1,1,1-trichloroethane	µg/L	0.5	<0.5	<0.5	-	-	-
1,1-dichloropropene	µg/L	0.5	<0.5	<0.5	-	-	-
Carbon tetrachloride	µg/L	0.5	<0.5	<0.5	-	-	-
Dibromomethane	µg/L	0.5	<0.5	<0.5	-	-	-
1,2-dichloropropane	µg/L	0.5	<0.5	<0.5	-	-	-
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5	<0.5	-	-	-
2-nitropropane	µg/L	100	<100	<100	-	-	-
Bromodichloromethane (THM)	µg/L	0.5	<0.5	<0.5	-	-	-
MIBK (4-methyl-2-pentanone)	µg/L	5	<5	<5	-	-	-
cis-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	-	-	-
trans-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	-	-	-
1,1,2-trichloroethane	µg/L	0.5	<0.5	<0.5	-	-	-
1,3-dichloropropane	µg/L	0.5	<0.5	<0.5	-	-	-
Dibromochloromethane (THM)	µg/L	0.5	<0.5	<0.5	-	-	-
2-hexanone (MBK)	µg/L	5	<5	<5	-	-	-
1,2-dibromoethane (EDB)	µg/L	0.5	<0.5	<0.5	-	-	-
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5	<0.5	-	-	-
1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	-	-	-
Chlorobenzene	µg/L	0.5	<0.5	<0.5	-	-	-
Bromoform (THM)	µg/L	0.5	<0.5	<0.5	-	-	-
cis-1,4-dichloro-2-butene	µg/L	1	<1	<1	-	-	-
Styrene (Vinyl benzene)	µg/L	0.5	<0.5	<0.5	-	-	-
1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	-	-	-
1,2,3-trichloropropane	µg/L	0.5	<0.5	<0.5	-	-	-
trans-1,4-dichloro-2-butene	µg/L	1	<1	<1	-	-	-

VOCs in Water [AN433] Tested: 7/12/2017 (continued)

PARAMETER	UOM	LOR	BH104M WATER - 6/12/2017 SE173444.001	BH106M WATER - 6/12/2017 SE173444.002	GWQD1 WATER - 6/12/2017 SE173444.003	GWQR1 WATER - 6/12/2017 SE173444.004	GWQTB1 WATER - 6/12/2017 SE173444.005
Isopropylbenzene (Cumene)	µg/L	0.5	<0.5	<0.5	-	-	-
Bromobenzene	µg/L	0.5	<0.5	<0.5	-	-	-
n-propylbenzene	µg/L	0.5	<0.5	<0.5	-	-	-
2-chlorotoluene	µg/L	0.5	<0.5	<0.5	-	-	-
4-chlorotoluene	µg/L	0.5	<0.5	<0.5	-	-	-
1,3,5-trimethylbenzene	µg/L	0.5	<0.5	<0.5	-	-	-
tert-butylbenzene	µg/L	0.5	<0.5	<0.5	-	-	-
1,2,4-trimethylbenzene	µg/L	0.5	<0.5	<0.5	-	-	-
sec-butylbenzene	µg/L	0.5	<0.5	<0.5	-	-	-
1,3-dichlorobenzene	µg/L	0.5	<0.5	<0.5	-	-	-
1,4-dichlorobenzene	µg/L	0.3	<0.3	<0.3	-	-	-
p-isopropyltoluene	µg/L	0.5	<0.5	<0.5	-	-	-
1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	-	-	-
n-butylbenzene	µg/L	0.5	<0.5	<0.5	-	-	-
1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	<0.5	-	-	-
1,2,4-trichlorobenzene	µg/L	0.5	<0.5	<0.5	-	-	-
Hexachlorobutadiene	µg/L	0.5	<0.5	<0.5	-	-	-
1,2,3-trichlorobenzene	µg/L	0.5	<0.5	<0.5	-	-	-
Total VOC	µg/L	10	<10	<10	-	-	-

VOCs in Water [AN433] Tested: 7/12/2017 (continued)

PARAMETER	UOM	LOR	GWQTS1 WATER - 6/12/2017 SE173444.006
Benzene	µg/L	0.5	[85%]
Toluene	µg/L	0.5	[103%]
Ethylbenzene	µg/L	0.5	[101%]
m/p-xylene	µg/L	1	[104%]
o-xylene	µg/L	0.5	[102%]
Total Xylenes	µg/L	1.5	-
Total BTEX	µg/L	3	-
Naphthalene	µg/L	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: 7/12/2017 (continued)

PARAMETER	UOM	LOR	GWQTS1 WATER - 6/12/2017 SE173444.006
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: 7/12/2017

PARAMETER	UOM	LOR	BH104M WATER - 6/12/2017 SE173444.001	BH106M WATER - 6/12/2017 SE173444.002	GWQD1 WATER - 6/12/2017 SE173444.003	GWQR1 WATER - 6/12/2017 SE173444.004
TRH C6-C9	µg/L	40	<40	<40	<40	<40
Benzene (F0)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
TRH C6-C10	µg/L	50	<50	<50	<50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	<50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 7/12/2017

PARAMETER	UOM	LOR	BH104M WATER - 6/12/2017 SE173444.001	BH106M WATER - 6/12/2017 SE173444.002	GWQD1 WATER - 6/12/2017 SE173444.003	GWQR1 WATER - 6/12/2017 SE173444.004
TRH C10-C14	µg/L	50	<50	<50	<50	<50
TRH C15-C28	µg/L	200	<200	<200	<200	<200
TRH C29-C36	µg/L	200	<200	<200	<200	<200
TRH C37-C40	µg/L	200	<200	<200	<200	<200
TRH >C10-C16 (F2)	µg/L	60	<60	<60	<60	<60
TRH >C16-C34 (F3)	µg/L	500	<500	<500	<500	<500
TRH >C34-C40 (F4)	µg/L	500	<500	<500	<500	<500
TRH C10-C36	µg/L	450	<450	<450	<450	<450
TRH C10-C40	µg/L	650	<650	<650	<650	<650
TRH >C10-C16 (F2) - Naphthalene	µg/L	60	<60	<60	<60	<60

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 7/12/2017

PARAMETER	UOM	LOR	BH104M WATER - 6/12/2017 SE173444.001	BH106M WATER - 6/12/2017 SE173444.002
Naphthalene	µg/L	0.1	<0.1	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1	<0.1
Fluorene	µg/L	0.1	<0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1	<0.1
Anthracene	µg/L	0.1	<0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1	<0.1
Pyrene	µg/L	0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1
Total PAH (18)	µg/L	1	<1	<1

Total Phenolics in Water [AN289] Tested: 7/12/2017

PARAMETER	UOM	LOR	BH104M WATER - 6/12/2017 SE173444.001	BH106M WATER - 6/12/2017 SE173444.002
Total Phenols	mg/L	0.01	<0.01	<0.01

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 8/12/2017

PARAMETER	UOM	LOR	BH104M WATER - 6/12/2017 SE173444.001	BH106M WATER - 6/12/2017 SE173444.002	GWQD1 WATER - 6/12/2017 SE173444.003	GWQR1 WATER - 6/12/2017 SE173444.004
Arsenic, As	µg/L	1	**4**	<1	**4**	<1
Cadmium, Cd	µg/L	0.1	<0.1	**0.1**	**0.1**	<0.1
Chromium, Cr	µg/L	1	<1	<1	<1	<1
Copper, Cu	µg/L	1	**7**	**5**	**7**	<1
Lead, Pb	µg/L	1	<1	<1	<1	<1
Nickel, Ni	µg/L	1	**13**	**34**	**10**	<1
Zinc, Zn	µg/L	5	**88**	**170**	**130**	**67**

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 8/12/2017

PARAMETER	UOM	LOR	BH104M WATER - 6/12/2017 SE173444.001	BH106M WATER - 6/12/2017 SE173444.002	GWQD1 WATER - 6/12/2017 SE173444.003	GWQR1 WATER - 6/12/2017 SE173444.004
Mercury	mg/L	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.
AN289	Analysis of Total Phenols in Soil Sediment and Water: Steam distillable phenols react with 4-aminoantipyrine at pH 7.9±0.1 in the presence of potassium ferricyanide to form a coloured antipyrine dye analysed by Discrete Analyser. Reference APHA 5530 B/D.
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, in accordance with USEPA 6020A.
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.		

Samples 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 criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/ Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Project	**E23603 2 Murray Rose Av, Sydney Oly Park**
Order Number	**E23603**
Samples	7

LABORATORY DETAILS

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SGS Reference	**SE173444A R0**
Date Received	8/12/2017
Date Reported	11/12/2017

COMMENTS

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

SIGNATORIES



Dong Liang
Metals/Inorganics Team Leader

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 11/12/2017

PARAMETER	UOM	LOR	GWQRB1 WATER - 6/12/2017 SE173444A.007
Zinc, Zn	µg/L	5	**70**

METHOD	METHODOLOGY SUMMARY
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.

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.		

Samples 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 criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/ Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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CERTIFICATE OF ANALYSIS 181478

Client Details

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

Sample Details

Your Reference	**E23603 - 2 Murray Rose Ave, Syd Olympic Park**
Number of Samples	1 water
Date samples received	06/12/2017
Date completed instructions received	06/12/2017

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	08/12/2017
Date of Issue	08/12/2017

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Results Approved By
Dragana Tomas, Senior Chemist
Jaimie Loa-Kum-Cheung, Senior Chemist

Authorised By



David Springer, General Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference		181478-1
Your Reference	UNITS	GWQT1
Date Sampled		06/12/2017
Type of sample		water
Date extracted	-	07/12/2017
Date analysed	-	08/12/2017
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
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	%	101
Surrogate toluene-d8	%	98
Surrogate 4-BFB	%	99

svTRH (C10-C40) in Water		
Our Reference		181478-1
Your Reference	UNITS	GWQT1
Date Sampled		06/12/2017
Type of sample		water
Date extracted	-	07/12/2017
Date analysed	-	07/12/2017
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	%	85

HM in water - dissolved		
Our Reference	UNITS	181478-1
Your Reference		GWQT1
Date Sampled		06/12/2017
Type of sample		water
Date prepared	-	07/12/2017
Date analysed	-	07/12/2017
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	2
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	2
Zinc-Dissolved	µg/L	27

Method ID	Methodology Summary
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-003	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-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	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-W1	[NT]
Date extracted	-			07/12/2017	[NT]	[NT]	[NT]	[NT]	07/12/2017	[NT]
Date analysed	-			08/12/2017	[NT]	[NT]	[NT]	[NT]	08/12/2017	[NT]
TRH C_6 - C_9	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	112	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	112	[NT]
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	115	[NT]
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-016	101	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate toluene-d8	%		Org-016	99	[NT]	[NT]	[NT]	[NT]	104	[NT]
Surrogate 4-BFB	%		Org-016	99	[NT]	[NT]	[NT]	[NT]	104	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			07/12/2017	[NT]	[NT]	[NT]	[NT]	07/12/2017	[NT]
Date analysed	-			07/12/2017	[NT]	[NT]	[NT]	[NT]	07/12/2017	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	105	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	121	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	105	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	121	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-003	71	[NT]	[NT]	[NT]	[NT]	90	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			07/12/2017	[NT]	[NT]	[NT]	[NT]	07/12/2017	[NT]
Date analysed	-			07/12/2017	[NT]	[NT]	[NT]	[NT]	07/12/2017	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	90	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	94	[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.

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: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-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.

APPENDIX I
QA/QC Assessment

I1 QUALITY CONTROL PROGRAM

I1.1 PROJECT QA/QC PROTOCOLS

The overall quality assurance comprises an assessment of the reliability of the field procedures and the laboratory results against standard industry practices, documented sampling and analysis plans or remediation action plans. A summary of the project QA/QC protocols to be followed during the investigation works is presented in **Table I-1.**

Table I-1 QA/QC Protocols

Task	Description	Project
Field QA/QC		
General	Work was undertaken following standard field procedures which are based on industry accepted standard practice.	Soil samples were placed in 250 gram glass jars, which were filled to minimise headspace, and sealed using Teflon-coated lids.
	All fieldwork was supervised by a suitably qualified and experienced scientist or engineer.	Yes
Soil screening with PID	The PID was serviced and calibrated as per the manufacturer requirements. PID calibrated at the beginning and end of each day of fieldwork.	Yes
Equipment decontamination / Rinsate Samples	Sampling equipment to be decontaminated after the collection of each sample by washing with phosphate-free detergent (such as Decon 90) and potable water, followed by a final distilled water rinse. One rinsate blank would be collected per sampling event and analysed for the primary contaminants. All results should be non-detect.	Yes **Soil:** All analytes came back as below LORs; with the exception of Zinc in rinsate QR1 (95 µg/L). The rinsate blank (QRB1) was tested for zinc and the concentration was at <5 µg/L. Thus, results were deemed acceptable. Furthermore, zinc was not a chemical of concern identified in soils at the site. See discussion in **Section 10**. **Water:** All analytes came back as below LORs; with the exception of priority metals arsenic, copper, nickel and zinc in the GWQD1 and GWQT1 of BH104M; and zinc in rinsate GWQR1 and rinsate blank GWQRB1. The inter laboratory results for the priority metals were below the intra laboratory reported values. The concentrations obtained for zinc in GWQR1 and GWQRB1 were low (67 µg/L and 70 µg/L respectively). Results are presented in **Table I-1.1.1** and **Table I-1.1.2.**

Task	Description	Project
Transport	Samples were stored in ice-brick cooled cooler box and transported to the primary and secondary laboratories. To ensure the integrity of the samples from collection to receipt by the analytical laboratory, samples were sent by courier to the laboratories under 'chain of custody' describing sample preservation, and transport duration.	Yes
Field Duplicates	Field duplicates are samples that are split in the field and subsequently analysed. The results from these samples are compared to results from primary samples to assess the accuracy and precision of the analytical method.	Field Duplicates QD1/QT1 of primary sample BH104M_0.25-0.35; and GWQD1/GWQT1 of primary sample BH104M were assessed. The assessment of the blind field duplicates (BFD) and interlab duplicates (ILD) are presented in **Table I1.1.1** and **Table I1.1.2.**
Trip Blanks	Trip blank samples were prepared and analysed by the primary laboratory for BTEX and naphthalene. Analytical results for trip blank samples below the laboratory PQLs, indicate that ideal sample transport and handling conditions are achieved.	Yes
Trip Spikes	Trip spike samples were prepared and analysed by the primary laboratory for BTEX. Acceptance criteria of BTEX spike recoveries are between 70% - 130%.	Yes
QA samples	Field and laboratory QA samples will be analysed as follows: intra-laboratory and inter-laboratory duplicate samples will be collected at a rate of 1 pair per 20 primary samples	Yes
Laboratory QA/QC		
Laboratory analysis	The laboratories selected are NATA accredited for the analytes selected and perform their own internal QA/QC programs	Yes SGS - primary laboratory Envirolab - secondary laboratory The laboratory QA/QC reports are included in **Appendix J.**
	Appropriate detection limits were used for the analyses to be undertaken.	Practical Quantitation Limits for all tested parameters during the assessment are presented in laboratory result tables.
	Methods followed are generally in accordance with the requirements of NEPM (2013).	Yes
Holding Times	Holding times are the maximum permissible elapsed time in days from the collection of the sample to its extraction and/or analysis. All extraction and analyses should be completed within standard guidelines.	All samples were analysed within holding times.

Task	Description	Project
Laboratory Duplicates	Laboratory duplicates are field samples that are split in the laboratory and subsequently analysed a number of times in the same batch. These sub-samples are selected by the laboratory to assess the accuracy and precision of the analytical method. The selected laboratories should undertake QA/QC procedures such as calibration standards, laboratory control samples, surrogates, reference materials, sample duplicates and matrix spikes. Intra-laboratory duplicates should be performed at a frequency of 1 per 10 samples.	**Soil:** The Laboratory duplicate samples for the soil showed calculated RPDs were within acceptable ranges and conformed to the DAC. **Water:** The Laboratory duplicate samples for the soil showed calculated RPDs were within acceptable ranges and conformed to the DAC; with the exception of priority metals arsenic, copper, nickel and zinc in the GWQD1 and GWQT1 of BH104M; and zinc in rinsate GWQR1 and rinsate blank GWQRB1. The inter laboratory results for the priority metals were below the intra laboratory reported values. The concentrations obtained for zinc in GWQR1 and GWQRB1 were low (67 µg/L and 70 µg/L respectively).
Laboratory Control Standard	A laboratory control standard is a standard reference material used in preparing primary standards. The concentration should be equivalent to a mid-range standard to confirm the primary calibration. Laboratory control samples should be performed on a frequency of 1 per 20 samples or at least one per analytical run.	The recoveries of Laboratory Control Samples for the analysis batches were within acceptable ranges.
Matrix Spikes / Matrix Spike Duplicates (MS/MSD)	MS/MSDs are field samples to which a predetermined stock solution of known concentration has been added. The samples are then analysed for recovery of the known addition. Recoveries should be within the stated laboratory control limits of 70 to 130% and duplicates should have RPDs of less than 50%.	**Soil:** Matrix spike and matrix spike duplicate for the analysis batches were within acceptable range. **Water:** Matrix spike and matrix spike duplicate for the analysis batches were within acceptable range. .
Surrogate Spikes	Surrogate spikes provide a means of checking, for every analysis that no gross errors have occurred at any stage of the procedure leading to significant analyte loss. Recoveries should be within the stated laboratory control limits of 70 to 130%.	Surrogate spikes for the analysis batches were within acceptable ranges.
QA/QC Conclusion	The QA/QC indicators should either all comply with the required standards or showed no variations that would have no significant effect on the quality of the data.	EI considers that although some discrepancies were noted; the data generally confirms that the analytical results for the various phases of laboratory testing were valid and useable for interpretation purposes.

I1.2 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.

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.

In cases where RPD value was 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.

I2 FIELD QA/QC DATA PROGRAM

I2.1 FIELD QA SAMPLING PROGRAM

The field quality assurance/quality control (QA/QC) samples collected during the investigation works are summarised on **Table I-2.** Inter-lab duplicates were analysed by the secondary laboratory, Envirolab. Analytical results of the Field QA samples are tabulated in **Table I-1.1.1** and **Table I-1.1.2**, alongside calculated RPDs between the primary and field duplicate samples.

Table I-2 Field QA Sampling Program

Activity	Matrix	No. Primary Samples	Primary Sample ID	Intra-Lab/Inter-Lab Duplicate ID	No. of Duplicates	Duplicate Ratio
Field QA Samples - Duplicates						
Soil Investigation	Soil	17	BH104M_0.25-0.35	QD1; QT1	2	2:17
Ground Water Investigation	Water	2	BH104M	GWQD1; GWQT1	2	2:2

Activity	Matrix	No. Primary Samples	Primary Sample ID	Intra-Lab/Inter-Lab Duplicate ID	No. of Duplicates	Duplicate Ratio
Other Field QA Samples						
Soil Investigation	Soil		-	QTB1 – Trip blank QTS1 – Trip spike QR1 – Rinsate QRB1 – Rinsate Blank		-
Ground Water Investigation	Water		-	GWQTB1 – Trip blank GWQTS1 – Trip spike GWQR1 – Rinsate GWQRB1 – Rinsate Blank		-

I2.2 Field Data Quality Indicators

A discussion of the field data quality indicators is presented below.

Table I-3 Field Data Quality Indicators

QA/QC Measures	Field Data Quality Indicators	Conformance / Comments
Precision – A quantitative measure of the variability (or reproducibility) of data	Standard operation procedures appropriate and complied with	Yes **Soil:** RPD Assessment criteria met by all of the results. **Water:** All analytes came back as below LORs and within the RPD assessment criteria; with the exception of priority metals arsenic, copper, nickel and zinc in the GWQD1 and GWQT1 of BH104M. The inter laboratory results for the priority metals were below the intra laboratory reported values.
Completeness – A measure of the amount of useable data from a data collection activity	Each critical location sampled	Yes
	Samples collected at targeted locations and depth	Yes
	SAQP appropriate and complied with	Yes
	Experienced sampler	Yes
	Field documentation correct	Yes
Comparability – The confidence (expressed qualitatively) that	Same sampling method used on each occasion/location	Yes
	Experienced sampler	Yes

QA/QC Measures	Field Data Quality Indicators	Conformance / Comments
data may be considered to be equivalent for each sampling and analytical event	Climatic conditions (temperature, rainfall, wind)	Climate conditions were recorded to be fine, sunny and overcast. These climatic conditions unlikely had significant influence on the results of the investigation.
	Same type of samples collected (filtered, size, fractions)	Yes
Representativeness – The confidence (expressed qualitatively) that data are representative of each medium present onsite	Appropriate media sampled according to SAQP	Yes
	Each media identified in SAQP sampled	Yes
	Appropriate sample collection methodologies, handling, storage and preservation techniques used	Yes
	Consistency between field observations and laboratory results.	Yes
Accuracy – A quantitative measure of the closeness of reported data to the "true" value	Standard operation procedures appropriate and complied with	Yes
	Calibration of instruments against known standards	Yes

I2.3 CONCLUSION FOR THE FIELD QA/QC

Based on the above review of the field QA/QC data EI considered the field QA/QC programme carried out during the investigations to be appropriate and the results to be acceptable.

I3 LABORATORY QA/QC

I3.1 LABORATORY ACCREDITATION

Primary and intra-laboratory duplicate samples were analysed by SGS Alexandria Environmental, NSW; inter-laboratory triplicate samples were analysed by Envirolab, Chatswood NSW; all laboratories are accredited by NATA for the analyses undertaken.

A discussion of the laboratory DQIs is presented in **Table I-4** below.

Table I-4 Lab Data Quality Indicators

QA/QC Measures	Laboratory Data Quality Indicators	Conformance/Comments
Completeness – A measure of the amount of useable data from a data collection activity	All critical samples analysed according to SAQP and proposal	Yes
	All analytes analysed according to SAQP in proposal	Yes
	Appropriate methods and PQLs	Yes

QA/QC Measures	Laboratory Data Quality Indicators	Conformance/Comments
	Sample documentation complete	Yes
	Sample holding times complied with	Yes
Comparability – The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event	Same sample analytical methods used (including clean-up)	Yes
	Same Sample PQLs	Yes
	Same laboratories (NATA-accredited)	Yes
	Same units	Yes
Representativeness – The confidence (expressed qualitatively) that data are representative of each medium present onsite	All key samples analysed according to SAQP in the proposal.	Yes
	Analysis of laboratory-prepared volatile trip spikes and trip blanks	Yes
Precision – A quantitative measure of the variability (or reproducibility) of data	Analysis of laboratory and inter-laboratory duplicates	Yes
	Analysis of field duplicates	Yes
Accuracy – A quantitative measure of the closeness of reported data to the "true" value	Analysis of rinsate blanks	Yes
	Analysis of reagent blanks	Not applicable
	Analysis of method blanks	Yes
	Analysis of matrix spikes (MS)	Yes
	Analysis of matrix spike duplicates (MSD)	Yes
	Analysis of surrogate spikes	Yes
	Analysis of reference materials	Not applicable
	Analysis of laboratory control samples	Yes
	Analysis of laboratory-prepared spikes	Yes

Overall, it is considered that the laboratory data quality objectives for this project have been attained.

I3.2 CONCLUSIONS ON LAB QA/QC

Based on the laboratory QA/QC results EI considers that although a small number of discrepancies were identified, such as the lead concentrations in the soil sample which displayed the RPD to exceed the 30-50% range referenced from AS4482.1 (2005); these were attributed to the non-homogenous nature of the submitted samples. The data generally confirms that the analytical results for the various phases of laboratory testing were valid and useable for interpretation purposes.

I4 Summary of Project QA/QC

The sampling methods (including sample preservation, transport and decontamination procedures) and laboratory methods followed during this investigation works were mostly consistent with EI protocols and meeting the DQOs for this project. It is therefore considered that the data is sufficiently precise and accurate and that the results can be relied upon for interpretation.

Table I-1.1.1 Summary of QA/QC Results for Soil Validation Samples
Site: 2 Murray Rose Avenue, Sydney Olympic Park
Job No: E23603.E02

Date	Sample Identification	Description	TRH				BTEX				Heavy Metals							
			F1	F2	F3	F4	Benzene	Toluene	Ethylbenzene	Xylene (total)	Arsenic	Cadmium	Chromium (Total)	Copper	Lead	Mercury	Nickel	Zinc
Intra-laboratory Duplicate																		
19-11-17	BH104M_0.25-0.35	Primary Soil Sample	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	5	<0.3	12	34	13	<0.05	50	50
19-11-17	QD1	Intra-laboratory duplicate of BH104M_0.25-0.35	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	7	<0.3	13	36	18	<0.05	55	50
		RPD	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*33.33*	*0.00*	*8.00*	*5.71*	*32.26*	*0.00*	*9.52*	*0.00*
Inter-laboratory Duplicate																		
19-11-17	BH104M_0.25-0.35	Primary Soil Sample	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	5	<0.3	12	34	13	<0.05	50	50
19-11-17	QT1	Inter-laboratory duplicate of BH104M_0.25-0.35	<25	<50	<100	<100	<0.2	<0.5	<1	<3	5	<0.4	15	39	13	<0.1	69	44
		RPD	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*22.22*	*13.70*	*0.00*	*0.00*	*31.93*	*12.77*
Trip Blanks																		
19-11-17	Trip Blank	Soil	-	-	-	-	<0.1	<0.1	<0.1	<0.3	-	-	-	-	-	-	-	-
Trip Spikes																		
19-11-17	Trip Spike	Soil	-	-	-	-	[71%]	[83%]	[79%]	NA	-	-	-	-	-	-	-	-
Rinsate Blanks																		
19-11-17	QR1	De-ionised water	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	<0.1	<1	91
19-11-17	QRB1	De-ionised water	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5

52.17	Indicates values where a single result is found to be less than detection, with the duplicate sample found to be over the detection limit.
82.35	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.

F1 = TRH C6-C10 less the sum of BTEX
F2 = TRH >C10-C16 less naphthalene
F3 = TRH >C16-C34
F4 = TRH >C34-C40

Table I-1.1.2 Summary of QA/QC Results for Soil Validation Samples
Site: 2 Murray Rose Avenue, Sydney Olympic Park
Job No: E23603.E02

Date	Sample Identification	Description	TRH				BTEX				Heavy Metals							
			F1	F2	F3	F4	Benzene	Toluene	Ethylbenzene	Xylene (total)	Arsenic	Cadmium	Chromium (Total)	Copper	Lead	Mercury	Nickel	Zinc
Intra-laboratory Duplicate																		
06-12-17	BH104M	Primary Groundwater Sample	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	4	<0.1	<1	7	<1	<0.1	13	88
06-12-17	GWQD1	Intra-laboratory duplicate of BH104M	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	4	0.1	<1	7	<1	<0.1	10	130
		RPD	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*26.09*	*38.53*
Inter-laboratory Duplicate																		
06-12-17	BH104M	Primary Groundwater Sample	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	4	<0.1	<1	7	<1	<0.1	13	88
06-12-17	GWQT1	Inter-laboratory duplicate of BH104M	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	2	<1	<0.05	2	27
		RPD	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	133.33	*0.00*	*0.00*	111.11	*0.00*	*0.00*	146.67	106.09
Trip Blanks																		
06-12-17	Trip Blank	Water	-	-	-	-	<0.5	<0.5	<0.5	<1.5	-	-	-	-	-	-	-	-
Trip Spikes																		
06-12-17	Trip Spike	Water	-	-	-	-	[85%]	[103%]	[101%]	N.A.	-	-	-	-	-	-	-	-
Rinsate Blanks																		
06-12-17	GWQR1	De-ionised water	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	<0.1	<1	67
06-12-17	GWQRB1	De-ionised water	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70

52.17 Indicates values where a single result is found to be less than detection, with the duplicate sample found to be over the detection limit.
82.35 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.

F1 = TRH C6-C10 less the sum of BTEX
F2 = TRH >C10-C16 less naphthalene
F3 = TRH >C16-C34
F4 = TRH >C34-C40

UCL Statistics for Uncensored Full Data Sets

Arsenic.

User Selected Options	
Date/Time of Computation	01-Dec-17 11:41:30 AM
From File	UCL 95% data.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

C0

General Statistics

Total Number of Observations	18	Number of Distinct Observations	10
		Number of Missing Observations	1
Minimum	4	Mean	13.5
Maximum	110	Median	7.5
SD	24.31	Std. Error of Mean	5.729
Coefficient of Variation	1.801	Skewness	4.116

Normal GOF Test

Shapiro Wilk Test Statistic	0.362	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.897	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.43	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.209	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	23.47	95% Adjusted-CLT UCL (Chen-1995)	28.86
		95% Modified-t UCL (Johnson-1978)	24.39

Gamma GOF Test

A-D Test Statistic	2.789	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.762	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.351	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.209	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.198	k star (bias corrected MLE)	1.035
Theta hat (MLE)	11.27	Theta star (bias corrected MLE)	13.04
nu hat (MLE)	43.13	nu star (bias corrected)	37.28
MLE Mean (bias corrected)	13.5	MLE Sd (bias corrected)	13.27
		Approximate Chi Square Value (0.05)	24.3
Adjusted Level of Significance	0.0357	Adjusted Chi Square Value	23.29

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	20.71	95% Adjusted Gamma UCL (use when n<50)	21.6

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.737	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.897	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.25	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.209	Data Not Lognormal at 5% Significance Level

	A	B	C	D	E	F	G	H	I	J	K	L
56	Data Not Lognormal at 5% Significance Level											
57												
58	Lognormal Statistics											
59					Minimum of Logged Data	1.386				Mean of logged Data		2.131
60					Maximum of Logged Data	4.7				SD of logged Data		0.75
61												
62	Assuming Lognormal Distribution											
63					95% H-UCL	16.95				90% Chebyshev (MVUE) UCL		17.16
64					95% Chebyshev (MVUE) UCL	19.97				97.5% Chebyshev (MVUE) UCL		23.88
65					99% Chebyshev (MVUE) UCL	31.55						
66												
67	Nonparametric Distribution Free UCL Statistics											
68	Data do not follow a Discernible Distribution (0.05)											
69												
70	Nonparametric Distribution Free UCLs											
71					95% CLT UCL	22.92				95% Jackknife UCL		23.47
72					95% Standard Bootstrap UCL	23.03				95% Bootstrap-t UCL		84.8
73					95% Hall's Bootstrap UCL	72.53				95% Percentile Bootstrap UCL		24.61
74					95% BCA Bootstrap UCL	30.56						
75					90% Chebyshev(Mean, Sd) UCL	30.69				95% Chebyshev(Mean, Sd) UCL		38.47
76					97.5% Chebyshev(Mean, Sd) UCL	49.28				99% Chebyshev(Mean, Sd) UCL		70.51
77												
78	Suggested UCL to Use											
79					95% Chebyshev (Mean, Sd) UCL	38.47						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
83	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
84	For additional insight the user may want to consult a statistician.											
85												

UCL Statistics for Uncensored Full Data Sets

Nickel.

User Selected Options	
Date/Time of Computation	01-Dec-17 11:43:53 AM
From File	UCL 95% data.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

C2

General Statistics

Total Number of Observations	18	Number of Distinct Observations	15
		Number of Missing Observations	1
Minimum	2.4	Mean	27.01
Maximum	110	Median	13
SD	30.95	Std. Error of Mean	7.294
Coefficient of Variation	1.146	Skewness	2.025

Normal GOF Test

Shapiro Wilk Test Statistic	0.704	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.897	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.239	Lilliefors GOF Test
5% Lilliefors Critical Value	0.209	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	39.7	95% Adjusted-CLT UCL (Chen-1995)	42.73
		95% Modified-t UCL (Johnson-1978)	40.28

Gamma GOF Test

A-D Test Statistic	0.69	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.763	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.203	Kolmogrov-Smirnoff Gamma GOF Test
5% K-S Critical Value	0.209	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.166	k star (bias corrected MLE)	1.009
Theta hat (MLE)	23.16	Theta star (bias corrected MLE)	26.77
nu hat (MLE)	41.98	nu star (bias corrected)	36.32
MLE Mean (bias corrected)	27.01	MLE Sd (bias corrected)	26.89
		Approximate Chi Square Value (0.05)	23.53
Adjusted Level of Significance	0.0357	Adjusted Chi Square Value	22.54

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	41.7	95% Adjusted Gamma UCL (use when n<50)	43.53

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.966	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.897	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.153	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.209	Data appear Lognormal at 5% Significance Level

	A	B	C	D	E	F	G	H	I	J	K	L
56	Data appear Lognormal at 5% Significance Level											
57												
58	Lognormal Statistics											
59					Minimum of Logged Data	0.875				Mean of logged Data		2.81
60					Maximum of Logged Data	4.7				SD of logged Data		0.997
61												
62	Assuming Lognormal Distribution											
63					95% H-UCL	51.63				90% Chebyshev (MVUE) UCL		46.82
64					95% Chebyshev (MVUE) UCL	56.13				97.5% Chebyshev (MVUE) UCL		69.05
65					99% Chebyshev (MVUE) UCL	94.43						
66												
67	Nonparametric Distribution Free UCL Statistics											
68	Data appear to follow a Discernible Distribution at 5% Significance Level											
69												
70	Nonparametric Distribution Free UCLs											
71					95% CLT UCL	39.01				95% Jackknife UCL		39.7
72					95% Standard Bootstrap UCL	38.77				95% Bootstrap-t UCL		55.11
73					95% Hall's Bootstrap UCL	97.28				95% Percentile Bootstrap UCL		39.54
74					95% BCA Bootstrap UCL	42.25						
75					90% Chebyshev(Mean, Sd) UCL	48.89				95% Chebyshev(Mean, Sd) UCL		58.8
76					97.5% Chebyshev(Mean, Sd) UCL	72.56				99% Chebyshev(Mean, Sd) UCL		99.59
77												
78	Suggested UCL to Use											
79					95% Adjusted Gamma UCL	43.53						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
83	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
84	For additional insight the user may want to consult a statistician.											
85												

UCL Statistics for Uncensored Full Data Sets

Benzo(a)Pyrene

User Selected Options	
Date/Time of Computation	01-Dec-17 11:46:39 AM
From File	UCL 95% data.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

C4

General Statistics

Total Number of Observations	18	Number of Distinct Observations	7
		Number of Missing Observations	1
Minimum	0.1	Mean	0.383
Maximum	2.8	Median	0.15
SD	0.651	Std. Error of Mean	0.153
Coefficient of Variation	1.698	Skewness	3.42

Normal GOF Test

Shapiro Wilk Test Statistic	0.49	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.897	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.332	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.209	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.65	95% Adjusted-CLT UCL (Chen-1995)	0.768
		95% Modified-t UCL (Johnson-1978)	0.671

Gamma GOF Test

A-D Test Statistic	2.122	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.769	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.256	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.21	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.936	k star (bias corrected MLE)	0.817
Theta hat (MLE)	0.409	Theta star (bias corrected MLE)	0.469
nu hat (MLE)	33.71	nu star (bias corrected)	29.42
MLE Mean (bias corrected)	0.383	MLE Sd (bias corrected)	0.424
		Approximate Chi Square Value (0.05)	18.04
Adjusted Level of Significance	0.0357	Adjusted Chi Square Value	17.19

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.625	95% Adjusted Gamma UCL (use when n<50)	0.656

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.778	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.897	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.273	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.209	Data Not Lognormal at 5% Significance Level

	A	B	C	D	E	F	G	H	I	J	K	L
56	Data Not Lognormal at 5% Significance Level											
57												
58	Lognormal Statistics											
59					Minimum of Logged Data	-2.303				Mean of logged Data		-1.58
60					Maximum of Logged Data	1.03				SD of logged Data		0.965
61												
62	Assuming Lognormal Distribution											
63					95% H-UCL	0.601				90% Chebyshev (MVUE) UCL		0.555
64					95% Chebyshev (MVUE) UCL	0.663				97.5% Chebyshev (MVUE) UCL		0.813
65					99% Chebyshev (MVUE) UCL	1.108						
66												
67	Nonparametric Distribution Free UCL Statistics											
68	Data do not follow a Discernible Distribution (0.05)											
69												
70	Nonparametric Distribution Free UCLs											
71					95% CLT UCL	0.636				95% Jackknife UCL		0.65
72					95% Standard Bootstrap UCL	0.627				95% Bootstrap-t UCL		1.531
73					95% Hall's Bootstrap UCL	1.633				95% Percentile Bootstrap UCL		0.667
74					95% BCA Bootstrap UCL	0.822						
75					90% Chebyshev(Mean, Sd) UCL	0.844				95% Chebyshev(Mean, Sd) UCL		1.052
76					97.5% Chebyshev(Mean, Sd) UCL	1.342				99% Chebyshev(Mean, Sd) UCL		1.91
77												
78	Suggested UCL to Use											
79					95% Chebyshev (Mean, Sd) UCL	1.052						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
83	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
84	For additional insight the user may want to consult a statistician.											
85												

	A	B	C	D	E	F	G	H	I	J	K	L
1	UCL Statistics for Uncensored Full Data Sets											
2												
3	User Selected Options											
4	Date/Time of Computation	04-Dec-17 12:23:44 PM										
5	From File	WorkSheet.xls										
6	Full Precision	OFF										
7	Confidence Coefficient	95%										
8	Number of Bootstrap Operations	2000										
9												
10												
11	C0											
12												
13	General Statistics											
14	Total Number of Observations	18					Number of Distinct Observations	6				
15							Number of Missing Observations	1				
16	Minimum	0.3					Mean	0.633				
17	Maximum	3.9					Median	0.3				
18	SD	0.878					Std. Error of Mean	0.207				
19	Coefficient of Variation	1.386					Skewness	3.452				
20												
21	Normal GOF Test											
22	Shapiro Wilk Test Statistic	0.448					Shapiro Wilk GOF Test					
23	5% Shapiro Wilk Critical Value	0.897					Data Not Normal at 5% Significance Level					
24	Lilliefors Test Statistic	0.37					Lilliefors GOF Test					
25	5% Lilliefors Critical Value	0.209					Data Not Normal at 5% Significance Level					
26	Data Not Normal at 5% Significance Level											
27												
28	Assuming Normal Distribution											
29	95% Normal UCL						95% UCLs (Adjusted for Skewness)					
30	95% Student's-t UCL	0.993					95% Adjusted-CLT UCL (Chen-1995)	1.154				
31							95% Modified-t UCL (Johnson-1978)	1.021				
32												
33	Gamma GOF Test											
34	A-D Test Statistic	3.608					Anderson-Darling Gamma GOF Test					
35	5% A-D Critical Value	0.757					Data Not Gamma Distributed at 5% Significance Level					
36	K-S Test Statistic	0.417					Kolmogrov-Smirnoff Gamma GOF Test					
37	5% K-S Critical Value	0.207					Data Not Gamma Distributed at 5% Significance Level					
38	Data Not Gamma Distributed at 5% Significance Level											
39												
40	Gamma Statistics											
41	k hat (MLE)	1.454					k star (bias corrected MLE)	1.249				
42	Theta hat (MLE)	0.436					Theta star (bias corrected MLE)	0.507				
43	nu hat (MLE)	52.34					nu star (bias corrected)	44.95				
44	MLE Mean (bias corrected)	0.633					MLE Sd (bias corrected)	0.567				
45							Approximate Chi Square Value (0.05)	30.57				
46	Adjusted Level of Significance	0.0357					Adjusted Chi Square Value	29.43				
47												
48	Assuming Gamma Distribution											
49	95% Approximate Gamma UCL (use when n>=50))	0.931					95% Adjusted Gamma UCL (use when n<50)	0.967				
50												
51	Lognormal GOF Test											
52	Shapiro Wilk Test Statistic	0.594					Shapiro Wilk Lognormal GOF Test					
53	5% Shapiro Wilk Critical Value	0.897					Data Not Lognormal at 5% Significance Level					
54	Lilliefors Test Statistic	0.415					Lilliefors Lognormal GOF Test					
55	5% Lilliefors Critical Value	0.209					Data Not Lognormal at 5% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L
56	Data Not Lognormal at 5% Significance Level											
57												
58	Lognormal Statistics											
59					Minimum of Logged Data	-1.204				Mean of logged Data		-0.839
60					Maximum of Logged Data	1.361				SD of logged Data		0.724
61												
62	Assuming Lognormal Distribution											
63					95% H-UCL	0.837				90% Chebyshev (MVUE) UCL		0.854
64					95% Chebyshev (MVUE) UCL	0.99				97.5% Chebyshev (MVUE) UCL		1.18
65					99% Chebyshev (MVUE) UCL	1.552						
66												
67	Nonparametric Distribution Free UCL Statistics											
68	Data do not follow a Discernible Distribution (0.05)											
69												
70	Nonparametric Distribution Free UCLs											
71					95% CLT UCL	0.974				95% Jackknife UCL		0.993
72					95% Standard Bootstrap UCL	0.965				95% Bootstrap-t UCL		2.241
73					95% Hall's Bootstrap UCL	2.235				95% Percentile Bootstrap UCL		0.994
74					95% BCA Bootstrap UCL	1.244						
75					90% Chebyshev(Mean, Sd) UCL	1.254				95% Chebyshev(Mean, Sd) UCL		1.535
76					97.5% Chebyshev(Mean, Sd) UCL	1.925				99% Chebyshev(Mean, Sd) UCL		2.692
77												
78	Suggested UCL to Use											
79					95% Chebyshev (Mean, Sd) UCL	1.535						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
83	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
84	For additional insight the user may want to consult a statistician.											
85												

APPENDIX J
Laboratory QA/AC Policies and DQOs

STATEMENT OF QA/QC PERFORMANCE

SE172863 R0

CLIENT DETAILS

Contact	Alejandra Beltran
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	Alejandra.beltran@eiaustralia.com.au
Project	**E23603 2 Murray Rose Ave Sydney Oly Park**
Order Number	**E23603**
Samples	16

LABORATORY DETAILS

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Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
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Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE172863 R0**
Date Received	21 Nov 2017
Date Reported	29 Nov 2017

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 and was supplied by the Client.
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:

Matrix Spike	Mercury (dissolved) in Water	1 item
	Mercury 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	15 Soil, 1 Water
Date documentation received	21/11/2017	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	10.0°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

HOLDING TIME SUMMARY

SE172863 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
BH101M_0.2-0.3	SE172863.001	LB137293	19 Nov 2017	21 Nov 2017	19 Nov 2018	27 Nov 2017	19 Nov 2018	29 Nov 2017
BH102_0.2-0.3	SE172863.002	LB137293	19 Nov 2017	21 Nov 2017	19 Nov 2018	27 Nov 2017	19 Nov 2018	29 Nov 2017
BH103_0.2-0.3	SE172863.003	LB137293	19 Nov 2017	21 Nov 2017	19 Nov 2018	27 Nov 2017	19 Nov 2018	29 Nov 2017
BH104M_0.25-0.35	SE172863.004	LB137293	19 Nov 2017	21 Nov 2017	19 Nov 2018	27 Nov 2017	19 Nov 2018	29 Nov 2017
BH104M_1.0-1.1	SE172863.005	LB137293	19 Nov 2017	21 Nov 2017	19 Nov 2018	27 Nov 2017	19 Nov 2018	29 Nov 2017
BH105_0.2-0.3	SE172863.006	LB137293	19 Nov 2017	21 Nov 2017	19 Nov 2018	27 Nov 2017	19 Nov 2018	29 Nov 2017
BH106M_0.25-0.35	SE172863.007	LB137293	19 Nov 2017	21 Nov 2017	19 Nov 2018	27 Nov 2017	19 Nov 2018	29 Nov 2017
BH106M_0.8-0.9	SE172863.008	LB137293	19 Nov 2017	21 Nov 2017	19 Nov 2018	27 Nov 2017	19 Nov 2018	29 Nov 2017
BH107_0.2-0.3	SE172863.009	LB137293	19 Nov 2017	21 Nov 2017	19 Nov 2018	27 Nov 2017	19 Nov 2018	29 Nov 2017
BH107_0.8-0.9	SE172863.010	LB137293	19 Nov 2017	21 Nov 2017	19 Nov 2018	27 Nov 2017	19 Nov 2018	29 Nov 2017
BH108_0.2-0.3	SE172863.011	LB137293	19 Nov 2017	21 Nov 2017	19 Nov 2018	27 Nov 2017	19 Nov 2018	29 Nov 2017
BH108_0.9-1.0	SE172863.012	LB137293	19 Nov 2017	21 Nov 2017	19 Nov 2018	27 Nov 2017	19 Nov 2018	29 Nov 2017

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	SE172863.016	LB137331	19 Nov 2017	21 Nov 2017	17 Dec 2017	28 Nov 2017	17 Dec 2017	28 Nov 2017

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101M_0.2-0.3	SE172863.001	LB137278	19 Nov 2017	21 Nov 2017	17 Dec 2017	27 Nov 2017	17 Dec 2017	29 Nov 2017
BH102_0.2-0.3	SE172863.002	LB137278	19 Nov 2017	21 Nov 2017	17 Dec 2017	27 Nov 2017	17 Dec 2017	29 Nov 2017
BH103_0.2-0.3	SE172863.003	LB137278	19 Nov 2017	21 Nov 2017	17 Dec 2017	27 Nov 2017	17 Dec 2017	29 Nov 2017
BH104M_0.25-0.35	SE172863.004	LB137278	19 Nov 2017	21 Nov 2017	17 Dec 2017	27 Nov 2017	17 Dec 2017	29 Nov 2017
BH104M_1.0-1.1	SE172863.005	LB137278	19 Nov 2017	21 Nov 2017	17 Dec 2017	27 Nov 2017	17 Dec 2017	29 Nov 2017
BH105_0.2-0.3	SE172863.006	LB137279	19 Nov 2017	21 Nov 2017	17 Dec 2017	27 Nov 2017	17 Dec 2017	28 Nov 2017
BH106M_0.25-0.35	SE172863.007	LB137279	19 Nov 2017	21 Nov 2017	17 Dec 2017	27 Nov 2017	17 Dec 2017	28 Nov 2017
BH106M_0.8-0.9	SE172863.008	LB137279	19 Nov 2017	21 Nov 2017	17 Dec 2017	27 Nov 2017	17 Dec 2017	28 Nov 2017
BH107_0.2-0.3	SE172863.009	LB137279	19 Nov 2017	21 Nov 2017	17 Dec 2017	27 Nov 2017	17 Dec 2017	28 Nov 2017
BH107_0.8-0.9	SE172863.010	LB137279	19 Nov 2017	21 Nov 2017	17 Dec 2017	27 Nov 2017	17 Dec 2017	28 Nov 2017
BH108_0.2-0.3	SE172863.011	LB137279	19 Nov 2017	21 Nov 2017	17 Dec 2017	27 Nov 2017	17 Dec 2017	28 Nov 2017
BH108_0.9-1.0	SE172863.012	LB137279	19 Nov 2017	21 Nov 2017	17 Dec 2017	27 Nov 2017	17 Dec 2017	28 Nov 2017
QD1	SE172863.013	LB137279	19 Nov 2017	21 Nov 2017	17 Dec 2017	27 Nov 2017	17 Dec 2017	28 Nov 2017

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101M_0.2-0.3	SE172863.001	LB137193	19 Nov 2017	21 Nov 2017	03 Dec 2017	24 Nov 2017	29 Nov 2017	28 Nov 2017
BH102_0.2-0.3	SE172863.002	LB137193	19 Nov 2017	21 Nov 2017	03 Dec 2017	24 Nov 2017	29 Nov 2017	28 Nov 2017
BH103_0.2-0.3	SE172863.003	LB137193	19 Nov 2017	21 Nov 2017	03 Dec 2017	24 Nov 2017	29 Nov 2017	28 Nov 2017
BH104M_0.25-0.35	SE172863.004	LB137193	19 Nov 2017	21 Nov 2017	03 Dec 2017	24 Nov 2017	29 Nov 2017	28 Nov 2017
BH104M_1.0-1.1	SE172863.005	LB137193	19 Nov 2017	21 Nov 2017	03 Dec 2017	24 Nov 2017	29 Nov 2017	28 Nov 2017
BH105_0.2-0.3	SE172863.006	LB137193	19 Nov 2017	21 Nov 2017	03 Dec 2017	24 Nov 2017	29 Nov 2017	28 Nov 2017
BH106M_0.25-0.35	SE172863.007	LB137193	19 Nov 2017	21 Nov 2017	03 Dec 2017	24 Nov 2017	29 Nov 2017	28 Nov 2017
BH106M_0.8-0.9	SE172863.008	LB137193	19 Nov 2017	21 Nov 2017	03 Dec 2017	24 Nov 2017	29 Nov 2017	28 Nov 2017
BH107_0.2-0.3	SE172863.009	LB137193	19 Nov 2017	21 Nov 2017	03 Dec 2017	24 Nov 2017	29 Nov 2017	28 Nov 2017
BH107_0.8-0.9	SE172863.010	LB137193	19 Nov 2017	21 Nov 2017	03 Dec 2017	24 Nov 2017	29 Nov 2017	28 Nov 2017
BH108_0.2-0.3	SE172863.011	LB137193	19 Nov 2017	21 Nov 2017	03 Dec 2017	24 Nov 2017	29 Nov 2017	28 Nov 2017
BH108_0.9-1.0	SE172863.012	LB137193	19 Nov 2017	21 Nov 2017	03 Dec 2017	24 Nov 2017	29 Nov 2017	28 Nov 2017
QD1	SE172863.013	LB137193	19 Nov 2017	21 Nov 2017	03 Dec 2017	24 Nov 2017	29 Nov 2017	28 Nov 2017
QTB1	SE172863.014	LB137193	19 Nov 2017	21 Nov 2017	03 Dec 2017	24 Nov 2017	29 Nov 2017	28 Nov 2017

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101M_0.2-0.3	SE172863.001	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH102_0.2-0.3	SE172863.002	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH103_0.2-0.3	SE172863.003	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH104M_0.25-0.35	SE172863.004	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH104M_1.0-1.1	SE172863.005	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH105_0.2-0.3	SE172863.006	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH106M_0.25-0.35	SE172863.007	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH106M_0.8-0.9	SE172863.008	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH107_0.2-0.3	SE172863.009	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017

HOLDING TIME SUMMARY

SE172863 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
BH107_0.8-0.9	SE172863.010	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH108_0.2-0.3	SE172863.011	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH108_0.9-1.0	SE172863.012	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
QD1	SE172863.013	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101M_0.2-0.3	SE172863.001	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH102_0.2-0.3	SE172863.002	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH103_0.2-0.3	SE172863.003	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH104M_0.25-0.35	SE172863.004	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH104M_1.0-1.1	SE172863.005	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH105_0.2-0.3	SE172863.006	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH106M_0.25-0.35	SE172863.007	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH106M_0.8-0.9	SE172863.008	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH107_0.2-0.3	SE172863.009	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH107_0.8-0.9	SE172863.010	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH108_0.2-0.3	SE172863.011	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH108_0.9-1.0	SE172863.012	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
QD1	SE172863.013	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017

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
BH101M_0.2-0.3	SE172863.001	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH102_0.2-0.3	SE172863.002	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH103_0.2-0.3	SE172863.003	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH104M_0.25-0.35	SE172863.004	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH104M_1.0-1.1	SE172863.005	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH105_0.2-0.3	SE172863.006	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH106M_0.25-0.35	SE172863.007	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH106M_0.8-0.9	SE172863.008	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH107_0.2-0.3	SE172863.009	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH107_0.8-0.9	SE172863.010	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH108_0.2-0.3	SE172863.011	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH108_0.9-1.0	SE172863.012	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
QD1	SE172863.013	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101M_0.2-0.3	SE172863.001	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH102_0.2-0.3	SE172863.002	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH103_0.2-0.3	SE172863.003	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH104M_0.25-0.35	SE172863.004	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH104M_1.0-1.1	SE172863.005	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH105_0.2-0.3	SE172863.006	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH106M_0.25-0.35	SE172863.007	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH106M_0.8-0.9	SE172863.008	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH107_0.2-0.3	SE172863.009	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH107_0.8-0.9	SE172863.010	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH108_0.2-0.3	SE172863.011	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH108_0.9-1.0	SE172863.012	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
QD1	SE172863.013	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017

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
BH101M_0.2-0.3	SE172863.001	LB137244	19 Nov 2017	21 Nov 2017	18 May 2018	27 Nov 2017	18 May 2018	28 Nov 2017
BH102_0.2-0.3	SE172863.002	LB137244	19 Nov 2017	21 Nov 2017	18 May 2018	27 Nov 2017	18 May 2018	28 Nov 2017
BH103_0.2-0.3	SE172863.003	LB137244	19 Nov 2017	21 Nov 2017	18 May 2018	27 Nov 2017	18 May 2018	28 Nov 2017
BH104M_0.25-0.35	SE172863.004	LB137244	19 Nov 2017	21 Nov 2017	18 May 2018	27 Nov 2017	18 May 2018	28 Nov 2017
BH104M_1.0-1.1	SE172863.005	LB137244	19 Nov 2017	21 Nov 2017	18 May 2018	27 Nov 2017	18 May 2018	28 Nov 2017
BH105_0.2-0.3	SE172863.006	LB137244	19 Nov 2017	21 Nov 2017	18 May 2018	27 Nov 2017	18 May 2018	28 Nov 2017
BH106M_0.25-0.35	SE172863.007	LB137244	19 Nov 2017	21 Nov 2017	18 May 2018	27 Nov 2017	18 May 2018	28 Nov 2017

HOLDING TIME SUMMARY

SE172863 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
BH106M_0.8-0.9	SE172863.008	LB137244	19 Nov 2017	21 Nov 2017	18 May 2018	27 Nov 2017	18 May 2018	28 Nov 2017
BH107_0.2-0.3	SE172863.009	LB137244	19 Nov 2017	21 Nov 2017	18 May 2018	27 Nov 2017	18 May 2018	28 Nov 2017
BH107_0.8-0.9	SE172863.010	LB137244	19 Nov 2017	21 Nov 2017	18 May 2018	27 Nov 2017	18 May 2018	28 Nov 2017
BH108_0.2-0.3	SE172863.011	LB137244	19 Nov 2017	21 Nov 2017	18 May 2018	27 Nov 2017	18 May 2018	28 Nov 2017
BH108_0.9-1.0	SE172863.012	LB137244	19 Nov 2017	21 Nov 2017	18 May 2018	27 Nov 2017	18 May 2018	28 Nov 2017
QD1	SE172863.013	LB137244	19 Nov 2017	21 Nov 2017	18 May 2018	27 Nov 2017	18 May 2018	28 Nov 2017

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	SE172863.016	LB137077	19 Nov 2017	21 Nov 2017	18 May 2018	23 Nov 2017	18 May 2018	27 Nov 2017

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
BH101M_0.2-0.3	SE172863.001	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH102_0.2-0.3	SE172863.002	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH103_0.2-0.3	SE172863.003	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH104M_0.25-0.35	SE172863.004	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH104M_1.0-1.1	SE172863.005	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH105_0.2-0.3	SE172863.006	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH106M_0.25-0.35	SE172863.007	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH106M_0.8-0.9	SE172863.008	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH107_0.2-0.3	SE172863.009	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH107_0.8-0.9	SE172863.010	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH108_0.2-0.3	SE172863.011	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH108_0.9-1.0	SE172863.012	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
QD1	SE172863.013	LB137114	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017

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	SE172863.016	LB137086	19 Nov 2017	21 Nov 2017	26 Nov 2017	23 Nov 2017	02 Jan 2018	27 Nov 2017

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101M_0.2-0.3	SE172863.001	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH102_0.2-0.3	SE172863.002	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH103_0.2-0.3	SE172863.003	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH104M_0.25-0.35	SE172863.004	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH104M_1.0-1.1	SE172863.005	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH105_0.2-0.3	SE172863.006	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH106M_0.25-0.35	SE172863.007	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH106M_0.8-0.9	SE172863.008	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH107_0.2-0.3	SE172863.009	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH107_0.8-0.9	SE172863.010	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH108_0.2-0.3	SE172863.011	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH108_0.9-1.0	SE172863.012	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
QD1	SE172863.013	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
QTB1	SE172863.014	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
QTS1	SE172863.015	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE172863.016	LB137255	19 Nov 2017	21 Nov 2017	26 Nov 2017	24 Nov 2017	03 Jan 2018	29 Nov 2017

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101M_0.2-0.3	SE172863.001	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH102_0.2-0.3	SE172863.002	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH103_0.2-0.3	SE172863.003	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH104M_0.25-0.35	SE172863.004	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH104M_1.0-1.1	SE172863.005	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017

HOLDING TIME SUMMARY

SE172863 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
BH105_0.2-0.3	SE172863.006	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH106M_0.25-0.35	SE172863.007	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH106M_0.8-0.9	SE172863.008	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH107_0.2-0.3	SE172863.009	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH107_0.8-0.9	SE172863.010	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH108_0.2-0.3	SE172863.011	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH108_0.9-1.0	SE172863.012	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
QD1	SE172863.013	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
QTB1	SE172863.014	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
QTS1	SE172863.015	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017

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	SE172863.016	LB137255	19 Nov 2017	21 Nov 2017	26 Nov 2017	24 Nov 2017	03 Jan 2018	29 Nov 2017

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)	BH101M_0.2-0.3	SE172863.001	%	60 - 130%	95
	BH102_0.2-0.3	SE172863.002	%	60 - 130%	103
	BH103_0.2-0.3	SE172863.003	%	60 - 130%	99
	BH104M_0.25-0.35	SE172863.004	%	60 - 130%	93
	BH104M_1.0-1.1	SE172863.005	%	60 - 130%	97
	BH105_0.2-0.3	SE172863.006	%	60 - 130%	82
	BH106M_0.25-0.35	SE172863.007	%	60 - 130%	107
	BH106M_0.8-0.9	SE172863.008	%	60 - 130%	96
	BH107_0.2-0.3	SE172863.009	%	60 - 130%	102
	BH107_0.8-0.9	SE172863.010	%	60 - 130%	106
	BH108_0.2-0.3	SE172863.011	%	60 - 130%	101
	BH108_0.9-1.0	SE172863.012	%	60 - 130%	98

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH101M_0.2-0.3	SE172863.001	%	60 - 130%	78
	BH102_0.2-0.3	SE172863.002	%	60 - 130%	72
	BH103_0.2-0.3	SE172863.003	%	60 - 130%	78
	BH104M_0.25-0.35	SE172863.004	%	60 - 130%	78
	BH104M_1.0-1.1	SE172863.005	%	60 - 130%	78
	BH105_0.2-0.3	SE172863.006	%	60 - 130%	78
	BH106M_0.25-0.35	SE172863.007	%	60 - 130%	74
	BH106M_0.8-0.9	SE172863.008	%	60 - 130%	78
	BH107_0.2-0.3	SE172863.009	%	60 - 130%	82
	BH107_0.8-0.9	SE172863.010	%	60 - 130%	72
	BH108_0.2-0.3	SE172863.011	%	60 - 130%	74
	BH108_0.9-1.0	SE172863.012	%	60 - 130%	78
d14-p-terphenyl (Surrogate)	BH101M_0.2-0.3	SE172863.001	%	60 - 130%	80
	BH102_0.2-0.3	SE172863.002	%	60 - 130%	76
	BH103_0.2-0.3	SE172863.003	%	60 - 130%	74
	BH104M_0.25-0.35	SE172863.004	%	60 - 130%	80
	BH104M_1.0-1.1	SE172863.005	%	60 - 130%	80
	BH105_0.2-0.3	SE172863.006	%	60 - 130%	76
	BH106M_0.25-0.35	SE172863.007	%	60 - 130%	80
	BH106M_0.8-0.9	SE172863.008	%	60 - 130%	78
	BH107_0.2-0.3	SE172863.009	%	60 - 130%	80
	BH107_0.8-0.9	SE172863.010	%	60 - 130%	74
	BH108_0.2-0.3	SE172863.011	%	60 - 130%	72
	BH108_0.9-1.0	SE172863.012	%	60 - 130%	78

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH101M_0.2-0.3	SE172863.001	%	70 - 130%	78
	BH102_0.2-0.3	SE172863.002	%	70 - 130%	72
	BH103_0.2-0.3	SE172863.003	%	70 - 130%	78
	BH104M_0.25-0.35	SE172863.004	%	70 - 130%	78
	BH104M_1.0-1.1	SE172863.005	%	70 - 130%	78
	BH105_0.2-0.3	SE172863.006	%	70 - 130%	78
	BH106M_0.25-0.35	SE172863.007	%	70 - 130%	74
	BH106M_0.8-0.9	SE172863.008	%	70 - 130%	78
	BH107_0.2-0.3	SE172863.009	%	70 - 130%	82
	BH107_0.8-0.9	SE172863.010	%	70 - 130%	72
	BH108_0.2-0.3	SE172863.011	%	70 - 130%	74
	BH108_0.9-1.0	SE172863.012	%	70 - 130%	78
d14-p-terphenyl (Surrogate)	BH101M_0.2-0.3	SE172863.001	%	70 - 130%	80
	BH102_0.2-0.3	SE172863.002	%	70 - 130%	76
	BH103_0.2-0.3	SE172863.003	%	70 - 130%	74
	BH104M_0.25-0.35	SE172863.004	%	70 - 130%	80
	BH104M_1.0-1.1	SE172863.005	%	70 - 130%	80
	BH105_0.2-0.3	SE172863.006	%	70 - 130%	76
	BH106M_0.25-0.35	SE172863.007	%	70 - 130%	80
	BH106M_0.8-0.9	SE172863.008	%	70 - 130%	78

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)	BH107_0.2-0.3	SE172863.009	%	70 - 130%	80
	BH107_0.8-0.9	SE172863.010	%	70 - 130%	74
	BH108_0.2-0.3	SE172863.011	%	70 - 130%	72
	BH108_0.9-1.0	SE172863.012	%	70 - 130%	78
d5-nitrobenzene (Surrogate)	BH101M_0.2-0.3	SE172863.001	%	70 - 130%	76
	BH102_0.2-0.3	SE172863.002	%	70 - 130%	80
	BH103_0.2-0.3	SE172863.003	%	70 - 130%	74
	BH104M_0.25-0.35	SE172863.004	%	70 - 130%	74
	BH104M_1.0-1.1	SE172863.005	%	70 - 130%	72
	BH105_0.2-0.3	SE172863.006	%	70 - 130%	74
	BH106M_0.25-0.35	SE172863.007	%	70 - 130%	76
	BH106M_0.8-0.9	SE172863.008	%	70 - 130%	72
	BH107_0.2-0.3	SE172863.009	%	70 - 130%	76
	BH107_0.8-0.9	SE172863.010	%	70 - 130%	72
	BH108_0.2-0.3	SE172863.011	%	70 - 130%	72
	BH108_0.9-1.0	SE172863.012	%	70 - 130%	74

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH101M_0.2-0.3	SE172863.001	%	60 - 130%	95
	BH102_0.2-0.3	SE172863.002	%	60 - 130%	103
	BH103_0.2-0.3	SE172863.003	%	60 - 130%	99
	BH104M_0.25-0.35	SE172863.004	%	60 - 130%	93
	BH104M_1.0-1.1	SE172863.005	%	60 - 130%	97
	BH105_0.2-0.3	SE172863.006	%	60 - 130%	82
	BH106M_0.25-0.35	SE172863.007	%	60 - 130%	107
	BH106M_0.8-0.9	SE172863.008	%	60 - 130%	96
	BH107_0.2-0.3	SE172863.009	%	60 - 130%	102
	BH107_0.8-0.9	SE172863.010	%	60 - 130%	106
	BH108_0.2-0.3	SE172863.011	%	60 - 130%	101
	BH108_0.9-1.0	SE172863.012	%	60 - 130%	98

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH101M_0.2-0.3	SE172863.001	%	60 - 130%	105
	BH102_0.2-0.3	SE172863.002	%	60 - 130%	79
	BH103_0.2-0.3	SE172863.003	%	60 - 130%	78
	BH104M_0.25-0.35	SE172863.004	%	60 - 130%	78
	BH104M_1.0-1.1	SE172863.005	%	60 - 130%	86
	BH105_0.2-0.3	SE172863.006	%	60 - 130%	85
	BH106M_0.25-0.35	SE172863.007	%	60 - 130%	71
	BH106M_0.8-0.9	SE172863.008	%	60 - 130%	71
	BH107_0.2-0.3	SE172863.009	%	60 - 130%	81
	BH107_0.8-0.9	SE172863.010	%	60 - 130%	79
	BH108_0.2-0.3	SE172863.011	%	60 - 130%	75
	BH108_0.9-1.0	SE172863.012	%	60 - 130%	80
	QD1	SE172863.013	%	60 - 130%	85
	QTB1	SE172863.014	%	60 - 130%	85
	QTS1	SE172863.015	%	60 - 130%	93
d4-1,2-dichloroethane (Surrogate)	BH101M_0.2-0.3	SE172863.001	%	60 - 130%	78
	BH102_0.2-0.3	SE172863.002	%	60 - 130%	80
	BH103_0.2-0.3	SE172863.003	%	60 - 130%	74
	BH104M_0.25-0.35	SE172863.004	%	60 - 130%	74
	BH104M_1.0-1.1	SE172863.005	%	60 - 130%	86
	BH105_0.2-0.3	SE172863.006	%	60 - 130%	89
	BH106M_0.25-0.35	SE172863.007	%	60 - 130%	76
	BH106M_0.8-0.9	SE172863.008	%	60 - 130%	85
	BH107_0.2-0.3	SE172863.009	%	60 - 130%	84
	BH107_0.8-0.9	SE172863.010	%	60 - 130%	83
	BH108_0.2-0.3	SE172863.011	%	60 - 130%	88
	BH108_0.9-1.0	SE172863.012	%	60 - 130%	79
	QD1	SE172863.013	%	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.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	QTB1	SE172863.014	%	60 - 130%	71
	QTS1	SE172863.015	%	60 - 130%	85
d8-toluene (Surrogate)	BH101M_0.2-0.3	SE172863.001	%	60 - 130%	85
	BH102_0.2-0.3	SE172863.002	%	60 - 130%	75
	BH103_0.2-0.3	SE172863.003	%	60 - 130%	74
	BH104M_0.25-0.35	SE172863.004	%	60 - 130%	82
	BH104M_1.0-1.1	SE172863.005	%	60 - 130%	73
	BH105_0.2-0.3	SE172863.006	%	60 - 130%	86
	BH106M_0.25-0.35	SE172863.007	%	60 - 130%	70
	BH106M_0.8-0.9	SE172863.008	%	60 - 130%	76
	BH107_0.2-0.3	SE172863.009	%	60 - 130%	78
	BH107_0.8-0.9	SE172863.010	%	60 - 130%	70
	BH108_0.2-0.3	SE172863.011	%	60 - 130%	74
	BH108_0.9-1.0	SE172863.012	%	60 - 130%	77
	QD1	SE172863.013	%	60 - 130%	80
	QTB1	SE172863.014	%	60 - 130%	86
	QTS1	SE172863.015	%	60 - 130%	86
Dibromofluoromethane (Surrogate)	BH101M_0.2-0.3	SE172863.001	%	60 - 130%	73
	BH102_0.2-0.3	SE172863.002	%	60 - 130%	83
	BH103_0.2-0.3	SE172863.003	%	60 - 130%	74
	BH104M_0.25-0.35	SE172863.004	%	60 - 130%	74
	BH104M_1.0-1.1	SE172863.005	%	60 - 130%	88
	BH105_0.2-0.3	SE172863.006	%	60 - 130%	87
	BH106M_0.25-0.35	SE172863.007	%	60 - 130%	87
	BH106M_0.8-0.9	SE172863.008	%	60 - 130%	81
	BH107_0.2-0.3	SE172863.009	%	60 - 130%	87
	BH107_0.8-0.9	SE172863.010	%	60 - 130%	92
	BH108_0.2-0.3	SE172863.011	%	60 - 130%	74
	BH108_0.9-1.0	SE172863.012	%	60 - 130%	72
	QD1	SE172863.013	%	60 - 130%	80
	QTB1	SE172863.014	%	60 - 130%	73
	QTS1	SE172863.015	%	60 - 130%	82

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QR1	SE172863.016	%	40 - 130%	107
d4-1,2-dichloroethane (Surrogate)	QR1	SE172863.016	%	40 - 130%	102
d8-toluene (Surrogate)	QR1	SE172863.016	%	40 - 130%	112
Dibromofluoromethane (Surrogate)	QR1	SE172863.016	%	40 - 130%	107

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH101M_0.2-0.3	SE172863.001	%	60 - 130%	105
	BH102_0.2-0.3	SE172863.002	%	60 - 130%	79
	BH103_0.2-0.3	SE172863.003	%	60 - 130%	78
	BH104M_0.25-0.35	SE172863.004	%	60 - 130%	78
	BH104M_1.0-1.1	SE172863.005	%	60 - 130%	86
	BH105_0.2-0.3	SE172863.006	%	60 - 130%	85
	BH106M_0.25-0.35	SE172863.007	%	60 - 130%	71
	BH106M_0.8-0.9	SE172863.008	%	60 - 130%	71
	BH107_0.2-0.3	SE172863.009	%	60 - 130%	81
	BH107_0.8-0.9	SE172863.010	%	60 - 130%	79
	BH108_0.2-0.3	SE172863.011	%	60 - 130%	75
	BH108_0.9-1.0	SE172863.012	%	60 - 130%	80
	QD1	SE172863.013	%	60 - 130%	85
d4-1,2-dichloroethane (Surrogate)	BH101M_0.2-0.3	SE172863.001	%	60 - 130%	78
	BH102_0.2-0.3	SE172863.002	%	60 - 130%	80
	BH103_0.2-0.3	SE172863.003	%	60 - 130%	74
	BH104M_0.25-0.35	SE172863.004	%	60 - 130%	74
	BH104M_1.0-1.1	SE172863.005	%	60 - 130%	86
	BH105_0.2-0.3	SE172863.006	%	60 - 130%	89
	BH106M_0.25-0.35	SE172863.007	%	60 - 130%	76

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 %
d4-1,2-dichloroethane (Surrogate)	BH106M_0.8-0.9	SE172863.008	%	60 - 130%	85
	BH107_0.2-0.3	SE172863.009	%	60 - 130%	84
	BH107_0.8-0.9	SE172863.010	%	60 - 130%	83
	BH108_0.2-0.3	SE172863.011	%	60 - 130%	88
	BH108_0.9-1.0	SE172863.012	%	60 - 130%	79
	QD1	SE172863.013	%	60 - 130%	72
d8-toluene (Surrogate)	BH101M_0.2-0.3	SE172863.001	%	60 - 130%	85
	BH102_0.2-0.3	SE172863.002	%	60 - 130%	75
	BH103_0.2-0.3	SE172863.003	%	60 - 130%	74
	BH104M_0.25-0.35	SE172863.004	%	60 - 130%	82
	BH104M_1.0-1.1	SE172863.005	%	60 - 130%	73
	BH105_0.2-0.3	SE172863.006	%	60 - 130%	86
	BH106M_0.25-0.35	SE172863.007	%	60 - 130%	70
	BH106M_0.8-0.9	SE172863.008	%	60 - 130%	76
	BH107_0.2-0.3	SE172863.009	%	60 - 130%	78
	BH107_0.8-0.9	SE172863.010	%	60 - 130%	70
	BH108_0.2-0.3	SE172863.011	%	60 - 130%	74
	BH108_0.9-1.0	SE172863.012	%	60 - 130%	77
	QD1	SE172863.013	%	60 - 130%	80
Dibromofluoromethane (Surrogate)	BH101M_0.2-0.3	SE172863.001	%	60 - 130%	73
	BH102_0.2-0.3	SE172863.002	%	60 - 130%	83
	BH103_0.2-0.3	SE172863.003	%	60 - 130%	74
	BH104M_0.25-0.35	SE172863.004	%	60 - 130%	74
	BH104M_1.0-1.1	SE172863.005	%	60 - 130%	88
	BH105_0.2-0.3	SE172863.006	%	60 - 130%	87
	BH106M_0.25-0.35	SE172863.007	%	60 - 130%	87
	BH106M_0.8-0.9	SE172863.008	%	60 - 130%	81
	BH107_0.2-0.3	SE172863.009	%	60 - 130%	87
	BH107_0.8-0.9	SE172863.010	%	60 - 130%	92
	BH108_0.2-0.3	SE172863.011	%	60 - 130%	74
	BH108_0.9-1.0	SE172863.012	%	60 - 130%	72
	QD1	SE172863.013	%	60 - 130%	80

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QR1	SE172863.016	%	40 - 130%	107
d4-1,2-dichloroethane (Surrogate)	QR1	SE172863.016	%	60 - 130%	102
d8-toluene (Surrogate)	QR1	SE172863.016	%	40 - 130%	112
Dibromofluoromethane (Surrogate)	QR1	SE172863.016	%	40 - 130%	107

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
LB137331.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB137278.001	Mercury	mg/kg	0.05	<0.05
LB137279.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB137114.001		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)	%	-	94

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB137114.001		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)	%	-	72
		d14-p-terphenyl (Surrogate)	%	-	82

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB137114.001	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

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
LB137114.001		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)	%	-	72
		2-fluorobiphenyl (Surrogate)	%	-	72
		d14-p-terphenyl (Surrogate)	%	-	82

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB137114.001		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)	%	-	94

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB137244.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB137077.001	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	Result
LB137114.001	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
LB137086.001	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

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.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB137022.001	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	Dibromofluoromethane (Surrogate)	%	-	76
		d4-1,2-dichloroethane (Surrogate)	%	-	84
		d8-toluene (Surrogate)	%	-	81
		Bromofluorobenzene (Surrogate)	%	-	85
	Totals	Total BTEX	mg/kg	0.6	<0.6

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB137255.001	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	Dibromofluoromethane (Surrogate)	%	-	100
		d4-1,2-dichloroethane (Surrogate)	%	-	102
		d8-toluene (Surrogate)	%	-	99
		Bromofluorobenzene (Surrogate)	%	-	95

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB137022.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	76
		d4-1,2-dichloroethane (Surrogate)	%	-	84
		d8-toluene (Surrogate)	%	-	81

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB137255.001		TRH C6-C9	µg/L	40	<40
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	100
		d4-1,2-dichloroethane (Surrogate)	%	-	102
		d8-toluene (Surrogate)	%	-	99
		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 %
SE172949.002	LB137331.014	Mercury	µg/L	0.0001	0.0027	0.0025	17	8

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE172861.009	LB137278.024	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE172863.005	LB137278.014	Mercury	mg/kg	0.05	<0.05	<0.05	154	0
SE172863.010	LB137279.014	Mercury	mg/kg	0.05	<0.05	<0.05	180	0
SE172863.013	LB137279.018	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 %
SE172851.010	LB137193.011	% Moisture	%w/w	0.5	17	17	36	1
SE172861.006	LB137193.022	% Moisture	%w/w	0.5	16	16	36	1
SE172863.006	LB137193.033	% Moisture	%w/w	0.5	6.7	7.7	44	13
SE172997.001	LB137193.044	% Moisture	%w/w	0.5	82.6	83.0	31	1

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE172863.010	LB137114.014		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	0.14	30	11

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE172863.010	LB137114.014	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

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 %
SE172863.010	LB137114.014		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	8
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	10

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE172863.010	LB137114.014		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	184	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	0.3	0.2	73	17
			Pyrene	mg/kg	0.1	0.3	0.2	69	20
			Benzo(a)anthracene	mg/kg	0.1	0.2	0.1	99	7
			Chrysene	mg/kg	0.1	0.1	0.1	107	15
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.2	0.2	86	22
			Benzo(k)fluoranthene	mg/kg	0.1	0.1	<0.1	135	0
			Benzo(a)pyrene	mg/kg	0.1	0.2	0.1	99	21
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.1	<0.1	130	10
			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	TEQ (mg/kg)	0.2	0.2	<0.2	113	8
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.3	<0.3	110	6
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.3	0.2	91	18
			Total PAH (18)	mg/kg	0.8	1.4	1.1	95	26
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	3
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	8
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	10

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE172863.010	LB137114.014		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	11

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 %
SE172861.001	LB137244.024	Arsenic, As	mg/kg	3	<3	<3	78	5
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	8.6	8.7	36	2
		Copper, Cu	mg/kg	0.5	21	20	32	6
		Lead, Pb	mg/kg	1	28	23	34	19
		Nickel, Ni	mg/kg	0.5	6.4	5.6	38	15
		Zinc, Zn	mg/kg	0.5	30	29	37	4
SE172863.005	LB137244.014	Arsenic, As	mg/kg	3	9	11	40	16
		Cadmium, Cd	mg/kg	0.3	0.5	0.3	106	28
		Chromium, Cr	mg/kg	0.3	16	16	33	1
		Copper, Cu	mg/kg	0.5	29	24	32	18
		Lead, Pb	mg/kg	1	41	32	33	26
		Nickel, Ni	mg/kg	0.5	7.2	7.4	37	3

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.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE172863.005	LB137244.014	Zinc, Zn	mg/kg	0.5	52	51	34	2

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE172863.016	LB137077.014	Arsenic, As	µg/L	1	<1	<1	200	0
		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	<1	<1	200	0
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	<1	<1	200	0
		Zinc, Zn	µg/L	5	91	92	20	1

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE172863.010	LB137114.014		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 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	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 %
SE172863.010	LB137022.014	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	Dibromofluoromethane (Surrogate)	mg/kg	-	4.6	4.5	50	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	4.4	50	6
			d8-toluene (Surrogate)	mg/kg	-	3.5	3.6	50	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	3.7	50	6
		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
SE172864.005	LB137022.025	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	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	4.2	50	0
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	4.4	50	2
			d8-toluene (Surrogate)	mg/kg	-	3.9	3.5	50	11
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	3.6	50	15
		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 %
SE172863.010	LB137022.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.6	4.5	30	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	4.4	30	6
			d8-toluene (Surrogate)	mg/kg	-	3.5	3.6	30	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	3.7	30	6
		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
SE172864.005	LB137022.025		TRH C6-C10	mg/kg	25	<25	<25	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.

Volatile Petroleum Hydrocarbons in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE172864.005	LB137022.025		TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	4.2	30	0
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	4.4	30	2
			d8-toluene (Surrogate)	mg/kg	-	3.9	3.5	30	11
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	3.6	30	15
		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 %
SE172850.003	LB137255.023	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.1	4.3	30	16
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.7	4.3	30	10
			d8-toluene (Surrogate)	µg/L	-	5.0	3.8	30	28
			Bromofluorobenzene (Surrogate)	µg/L	-	5.1	4.8	30	5
		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 %
LB137278.002	Mercury	mg/kg	0.05	0.20	0.2	70 - 130	102
LB137279.002	Mercury	mg/kg	0.05	0.18	0.2	70 - 130	88

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB137114.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	107
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	105
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	82
		Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	100
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	93
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	80
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	40 - 130	96

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB137114.002		Dichlorvos	mg/kg	0.5	1.6	2	60 - 140	79
		Diazinon (Dimpylate)	mg/kg	0.5	1.5	2	60 - 140	77
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.6	2	60 - 140	81
		Ethion	mg/kg	0.2	1.6	2	60 - 140	78
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	74
		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 %
LB137114.002		Naphthalene	mg/kg	0.1	3.2	4	60 - 140	80
		Acenaphthylene	mg/kg	0.1	3.4	4	60 - 140	86
		Acenaphthene	mg/kg	0.1	3.2	4	60 - 140	81
		Phenanthrene	mg/kg	0.1	3.3	4	60 - 140	82
		Anthracene	mg/kg	0.1	3.3	4	60 - 140	82
		Fluoranthene	mg/kg	0.1	3.3	4	60 - 140	82
		Pyrene	mg/kg	0.1	3.2	4	60 - 140	79
		Benzo(a)pyrene	mg/kg	0.1	3.6	4	60 - 140	90
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	72
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	74
		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	Result	Expected	Criteria %	Recovery %
LB137114.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	96

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 %
LB137244.002	Arsenic, As	mg/kg	3	49	50	80 - 120	99
	Cadmium, Cd	mg/kg	0.3	50	50	80 - 120	99
	Chromium, Cr	mg/kg	0.3	49	50	80 - 120	97
	Copper, Cu	mg/kg	0.5	50	50	80 - 120	99
	Lead, Pb	mg/kg	1	49	50	80 - 120	99
	Nickel, Ni	mg/kg	0.5	49	50	80 - 120	99
	Zinc, Zn	mg/kg	0.5	49	50	80 - 120	99

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB137077.002	Arsenic, As	µg/L	1	19	20	80 - 120	97
	Cadmium, Cd	µg/L	0.1	19	20	80 - 120	96
	Chromium, Cr	µg/L	1	20	20	80 - 120	98
	Copper, Cu	µg/L	1	20	20	80 - 120	101
	Lead, Pb	µg/L	1	20	20	80 - 120	100
	Nickel, Ni	µg/L	1	20	20	80 - 120	100
	Zinc, Zn	µg/L	5	19	20	80 - 120	97

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.

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB137114.002		TRH C10-C14	mg/kg	20	43	40	60 - 140	108
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	105
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	93
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	44	40	60 - 140	110
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	95
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	100

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB137086.002		TRH C10-C14	µg/L	50	1100	1200	60 - 140	96
		TRH C15-C28	µg/L	200	1400	1200	60 - 140	113
		TRH C29-C36	µg/L	200	1500	1200	60 - 140	126
	TRH F Bands	TRH >C10-C16 (F2)	µg/L	60	1300	1200	60 - 140	104
		TRH >C16-C34 (F3)	µg/L	500	1400	1200	60 - 140	120
		TRH >C34-C40 (F4)	µg/L	500	800	600	60 - 140	134

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB137022.002	Monocyclic	Benzene	mg/kg	0.1	2.1	2.9	60 - 140	72
	Aromatic	Toluene	mg/kg	0.1	2.3	2.9	60 - 140	78
		Ethylbenzene	mg/kg	0.1	2.2	2.9	60 - 140	76
		m/p-xylene	mg/kg	0.2	4.4	5.8	60 - 140	75
		o-xylene	mg/kg	0.1	2.2	2.9	60 - 140	76
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	89
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	89
		d8-toluene (Surrogate)	mg/kg	-	4.7	5	60 - 140	94
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.7	5	60 - 140	94

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB137255.002	Monocyclic	Benzene	µg/L	0.5	50	45.45	60 - 140	110
	Aromatic	Toluene	µg/L	0.5	50	45.45	60 - 140	110
		Ethylbenzene	µg/L	0.5	50	45.45	60 - 140	110
		m/p-xylene	µg/L	1	100	90.9	60 - 140	110
		o-xylene	µg/L	0.5	50	45.45	60 - 140	110
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.2	5	60 - 140	103
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.3	5	60 - 140	106
		d8-toluene (Surrogate)	µg/L	-	4.5	5	60 - 140	89
		Bromofluorobenzene (Surrogate)	µg/L	-	5.4	5	60 - 140	107

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB137022.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	82
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	79
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	89
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	89
		d8-toluene (Surrogate)	mg/kg	-	4.7	5	60 - 140	94
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.7	5	60 - 140	94
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	99

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB137255.002		TRH C6-C10	µg/L	50	980	946.63	60 - 140	104
		TRH C6-C9	µg/L	40	810	818.71	60 - 140	98
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.4	5	60 - 140	107
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.4	5	60 - 140	108
		d8-toluene (Surrogate)	µg/L	-	5.1	5	60 - 140	102
		Bromofluorobenzene (Surrogate)	µg/L	-	5.2	5	60 - 140	103
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	680	639.67	60 - 140	107

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%
SE172859.001	LB137331.004	Mercury	mg/L	0.0001	0.0039	<0.0001	0.008	53 ④

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE172851.009	LB137278.004	Mercury	mg/kg	0.05	0.67	0.79	0.2	-63 ⑤
SE172864.001	LB137279.004	Mercury	mg/kg	0.05	0.20	<0.05	0.2	93

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE172863.001	LB137114.019		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	118
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	117
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	78
			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	112
			Endrin	mg/kg	0.2	0.2	<0.2	0.2	109
			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	105
			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	0.14	-	99

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE172863.001	LB137114.019		Dichlorvos	mg/kg	0.5	1.6	<0.5	2	79
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	1.6	<0.5	2	80
			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	2.0	<0.2	2	98
			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	1.7	<0.2	2	84
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
			Total OP Pesticides*	mg/kg	1.7	6.9	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	76
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	78

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%
SE172863.001	LB137114.019		Naphthalene	mg/kg	0.1	3.3	<0.1	4	83
			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	99
			Acenaphthene	mg/kg	0.1	3.1	<0.1	4	77
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	4.0	<0.1	4	98
			Anthracene	mg/kg	0.1	3.9	<0.1	4	98
			Fluoranthene	mg/kg	0.1	3.9	<0.1	4	96
			Pyrene	mg/kg	0.1	3.6	<0.1	4	87
			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	3.1	<0.1	4	78
			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	3.1	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	3.3	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	3.2	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	29	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	-	74
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	76
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	78

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE172863.001	LB137114.019		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	0.4	<0.2	0.4	109
			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	-	100

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%
SE172864.001	LB137244.004	Arsenic, As	mg/kg	3	56	4	50	104
		Cadmium, Cd	mg/kg	0.3	55	<0.3	50	109
		Chromium, Cr	mg/kg	0.3	61	9.6	50	102
		Copper, Cu	mg/kg	0.5	71	15	50	112
		Lead, Pb	mg/kg	1	70	25	50	89
		Nickel, Ni	mg/kg	0.5	55	1.0	50	107
		Zinc, Zn	mg/kg	0.5	66	11	50	110

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE171636B.03	LB137077.004	Zinc, Zn	µg/L	5	190	170	20	100

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE172863.001	LB137114.019	TRH C10-C14	mg/kg	20	45	<20	40	113
		TRH C15-C28	mg/kg	45	50	<45	40	125
		TRH C29-C36	mg/kg	45	<45	<45	40	95
		TRH C37-C40	mg/kg	100	<100	<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.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE172863.001	LB137114.019		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 (F2)	mg/kg	25	46	<25	40	115
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	46	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	113
			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%
SE172863.001	LB137022.004	Monocyclic	Benzene	mg/kg	0.1	1.8	<0.1	2.9	61
		Aromatic	Toluene	mg/kg	0.1	1.9	<0.1	2.9	65
			Ethylbenzene	mg/kg	0.1	1.9	<0.1	2.9	63
			m/p-xylene	mg/kg	0.2	3.7	<0.2	5.8	64
			o-xylene	mg/kg	0.1	1.9	<0.1	2.9	66
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	3.7	-	76
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	3.9	-	78
			d8-toluene (Surrogate)	mg/kg	-	4.1	4.2	-	81
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	5.2	-	84
		Totals	Total Xylenes	mg/kg	0.3	5.6	<0.3	-	-
			Total BTEX	mg/kg	0.6	11	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE172863.001	LB137022.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	76
			TRH C6-C9	mg/kg	20	<20	<20	23.2	73
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	3.7	-	76
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	3.9	-	78
			d8-toluene (Surrogate)	mg/kg	-	4.1	4.2	-	81
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	5.2	-	84
		VPH F	Benzene (F0)	mg/kg	0.1	1.8	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	104

MATRIX SPIKE DUPLICATES

SE172863 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: http://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 Analytical Report comments for further information.

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STATEMENT OF QA/QC PERFORMANCE

SE172863A R0

CLIENT DETAILS

Contact	Alejandra Beltran
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	Alejandra.beltran@eiaustralia.com.au
Project	**E23603 Murray Rose Ave Sydney Oly Park A**
Order Number	**E23603**
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	**SE172863A R0**
Date Received	01 Dec 2017
Date Reported	06 Dec 2017

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 and was supplied by the Client.
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	1/12/17@10:12am	Type of documentation received	Email
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	10.0°C	Sufficient sample for analysis	Yes
Turnaround time requested	Three Days		

HOLDING TIME SUMMARY

SE172863A 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.

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
QRB1	SE172863A.017	LB137950	19 Nov 2017	01 Dec 2017	18 May 2018	06 Dec 2017	18 May 2018	06 Dec 2017

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.

Trace Metals (Dissolved) in Water by ICPMS — Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB137950.001	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.

Trace Metals (Dissolved) in Water by ICPMS — **Method: ME-(AU)-[ENV]AN318**

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE173305.004	LB137950.014	Zinc, Zn	µg/L	5	289.020859522	92.44647485	17	1
SE173398.001	LB137950.023	Zinc, Zn	µg/L	5	10.74547061	11.68272272	60	8

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 %
LB137950.002	Zinc, Zn	µg/L	5	20	20	80 - 120	99

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 — **Method: ME-(AU)-[ENV]AN318**

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE172863A.01	LB137950.004	Zinc, Zn	µg/L	5	21	<5	20	107

MATRIX SPIKE DUPLICATES

SE172863A 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: http://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 Analytical Report comments for further information.

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STATEMENT OF QA/QC PERFORMANCE

SE172863B R0

CLIENT DETAILS

Contact	Alejandra Beltran
Client	EI AUSTRALIA
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Telephone	61 2 95160722
Facsimile	(Not specified)
Email	Alejandra.beltran@eiaustralia.com.au
Project	**E23603 Murray Rose Ave Sydney Oly Park A**
Order Number	**E23603**
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	**SE172863B R0**
Date Received	01 Dec 2017
Date Reported	07 Dec 2017

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 and was supplied by the Client.
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	TCLP (Toxicity Characteristic Leaching Procedure) for Organics/SVOC	2 items

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	3 Soil
Date documentation received	1/12/17@1:00pm	Type of documentation received	Email
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	10.0°C	Sufficient sample for analysis	Yes
Turnaround time requested	Three Days		

HOLDING TIME SUMMARY

SE172863B 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.

Metals in TCLP Extract by ICPOES

Method: ME-(AU)-[ENV]AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH104M_0.25-0.35	SE172863B.004	LB137935	19 Nov 2017	01 Dec 2017	18 May 2018	05 Dec 2017	03 Jun 2018	07 Dec 2017

PAH (Polynuclear Aromatic Hydrocarbons) in TCLP Extract

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH102_0.2-0.3	SE172863B.002	LB137741	19 Nov 2017	01 Dec 2017	10 Dec 2017	01 Dec 2017	10 Jan 2018	06 Dec 2017
BH105_0.2-0.3	SE172863B.006	LB137741	19 Nov 2017	01 Dec 2017	10 Dec 2017	01 Dec 2017	10 Jan 2018	06 Dec 2017

TCLP (Toxicity Characteristic Leaching Procedure) for Metals

Method: ME-(AU)-[ENV]AN006

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH104M_0.25-0.35	SE172863B.004	LB137926	19 Nov 2017	01 Dec 2017	18 May 2018	05 Dec 2017	18 May 2018	07 Dec 2017

TCLP (Toxicity Characteristic Leaching Procedure) for Organics/SVOC

Method: ME-(AU)-[ENV]AN006

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH102_0.2-0.3	SE172863B.002	LB137928	19 Nov 2017	01 Dec 2017	03 Dec 2017	05 Dec 2017†	19 Dec 2017	06 Dec 2017
BH105_0.2-0.3	SE172863B.006	LB137928	19 Nov 2017	01 Dec 2017	03 Dec 2017	05 Dec 2017†	19 Dec 2017	06 Dec 2017

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 TCLP Extract — **Method: ME-(AU)-[ENV]AN420**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH102_0.2-0.3	SE172863B.002	%	40 - 130%	56
	BH105_0.2-0.3	SE172863B.006	%	40 - 130%	46
d14-p-terphenyl (Surrogate)	BH102_0.2-0.3	SE172863B.002	%	40 - 130%	62
	BH105_0.2-0.3	SE172863B.006	%	40 - 130%	50
d5-nitrobenzene (Surrogate)	BH102_0.2-0.3	SE172863B.002	%	40 - 130%	58
	BH105_0.2-0.3	SE172863B.006	%	40 - 130%	48

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.

Metals in TCLP Extract by ICPOES

Method: ME-(AU)-[ENV]AN320

Sample Number	Parameter	Units	LOR	Result
LB137935.001	Nickel, Ni	mg/L	0.005	<0.005

PAH (Polynuclear Aromatic Hydrocarbons) in TCLP Extract

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB137741.001		Benzo(a)pyrene	µg/L	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	40
		2-fluorobiphenyl (Surrogate)	%	-	42
		d14-p-terphenyl (Surrogate)	%	-	40

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.

Original	Duplicate	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.

Metals in TCLP Extract by ICPOES

Method: ME-(AU)-[ENV]AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB137935.002	Nickel, Ni	mg/L	0.005	2.0	2	80 - 120	100

PAH (Polynuclear Aromatic Hydrocarbons) in TCLP Extract

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB137741.002		Benzo(a)pyrene	µg/L	0.1	29	40	60 - 140	72
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.2	0.5	40 - 130	42
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.2	0.5	40 - 130	42
		d14-p-terphenyl (Surrogate)	µg/L	-	0.3	0.5	40 - 130	52

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.

No matrix spikes were required for this job.

MATRIX SPIKE DUPLICATES

SE172863B 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: http://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 Analytical Report comments for further information.

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STATEMENT OF QA/QC PERFORMANCE

SE172864 R0

CLIENT DETAILS

Contact	Alejandra Beltran
Client	EI AUSTRALIA
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Telephone	61 2 95160722
Facsimile	(Not specified)
Email	Alejandra.beltran@eiaustralia.com.au
Project	**E23603 2 Murray Rose Ave Sydney Oly Park**
Order Number	**E23603**
Samples	5

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	**SE172864 R0**
Date Received	21 Nov 2017
Date Reported	29 Nov 2017

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 and was supplied by the Client.
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	5 Soil
Date documentation received	21/11/2017	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	10.0°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

HOLDING TIME SUMMARY

SE172864 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.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101M_0.8-0.9	SE172864.001	LB137279	19 Nov 2017	21 Nov 2017	17 Dec 2017	27 Nov 2017	17 Dec 2017	28 Nov 2017
BH104M_1.5-1.6	SE172864.002	LB137279	19 Nov 2017	21 Nov 2017	17 Dec 2017	27 Nov 2017	17 Dec 2017	28 Nov 2017
BH105_1.7-1.8	SE172864.003	LB137279	19 Nov 2017	21 Nov 2017	17 Dec 2017	27 Nov 2017	17 Dec 2017	28 Nov 2017
BH106M_1.5-1.6	SE172864.004	LB137279	19 Nov 2017	21 Nov 2017	17 Dec 2017	27 Nov 2017	17 Dec 2017	28 Nov 2017
BH107_1.4-1.5	SE172864.005	LB137279	19 Nov 2017	21 Nov 2017	17 Dec 2017	27 Nov 2017	17 Dec 2017	28 Nov 2017

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101M_0.8-0.9	SE172864.001	LB137203	19 Nov 2017	21 Nov 2017	03 Dec 2017	24 Nov 2017	29 Nov 2017	28 Nov 2017
BH104M_1.5-1.6	SE172864.002	LB137203	19 Nov 2017	21 Nov 2017	03 Dec 2017	24 Nov 2017	29 Nov 2017	28 Nov 2017
BH105_1.7-1.8	SE172864.003	LB137203	19 Nov 2017	21 Nov 2017	03 Dec 2017	24 Nov 2017	29 Nov 2017	28 Nov 2017
BH106M_1.5-1.6	SE172864.004	LB137203	19 Nov 2017	21 Nov 2017	03 Dec 2017	24 Nov 2017	29 Nov 2017	28 Nov 2017
BH107_1.4-1.5	SE172864.005	LB137203	19 Nov 2017	21 Nov 2017	03 Dec 2017	24 Nov 2017	29 Nov 2017	28 Nov 2017

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
BH101M_0.8-0.9	SE172864.001	LB137021	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH104M_1.5-1.6	SE172864.002	LB137021	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH105_1.7-1.8	SE172864.003	LB137021	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH106M_1.5-1.6	SE172864.004	LB137021	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017
BH107_1.4-1.5	SE172864.005	LB137021	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	28 Nov 2017

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
BH101M_0.8-0.9	SE172864.001	LB137244	19 Nov 2017	21 Nov 2017	18 May 2018	27 Nov 2017	18 May 2018	28 Nov 2017
BH104M_1.5-1.6	SE172864.002	LB137244	19 Nov 2017	21 Nov 2017	18 May 2018	27 Nov 2017	18 May 2018	28 Nov 2017
BH105_1.7-1.8	SE172864.003	LB137244	19 Nov 2017	21 Nov 2017	18 May 2018	27 Nov 2017	18 May 2018	28 Nov 2017
BH106M_1.5-1.6	SE172864.004	LB137244	19 Nov 2017	21 Nov 2017	18 May 2018	27 Nov 2017	18 May 2018	28 Nov 2017
BH107_1.4-1.5	SE172864.005	LB137244	19 Nov 2017	21 Nov 2017	18 May 2018	27 Nov 2017	18 May 2018	28 Nov 2017

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
BH101M_0.8-0.9	SE172864.001	LB137021	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	27 Nov 2017
BH104M_1.5-1.6	SE172864.002	LB137021	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	27 Nov 2017
BH105_1.7-1.8	SE172864.003	LB137021	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	27 Nov 2017
BH106M_1.5-1.6	SE172864.004	LB137021	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	27 Nov 2017
BH107_1.4-1.5	SE172864.005	LB137021	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	27 Nov 2017

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101M_0.8-0.9	SE172864.001	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH104M_1.5-1.6	SE172864.002	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH105_1.7-1.8	SE172864.003	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH106M_1.5-1.6	SE172864.004	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH107_1.4-1.5	SE172864.005	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH101M_0.8-0.9	SE172864.001	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH104M_1.5-1.6	SE172864.002	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH105_1.7-1.8	SE172864.003	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH106M_1.5-1.6	SE172864.004	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017
BH107_1.4-1.5	SE172864.005	LB137022	19 Nov 2017	21 Nov 2017	03 Dec 2017	23 Nov 2017	02 Jan 2018	29 Nov 2017

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

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH101M_0.8-0.9	SE172864.001	%	70 - 130%	90
	BH104M_1.5-1.6	SE172864.002	%	70 - 130%	94
	BH105_1.7-1.8	SE172864.003	%	70 - 130%	96
	BH106M_1.5-1.6	SE172864.004	%	70 - 130%	98
	BH107_1.4-1.5	SE172864.005	%	70 - 130%	94
d14-p-terphenyl (Surrogate)	BH101M_0.8-0.9	SE172864.001	%	70 - 130%	96
	BH104M_1.5-1.6	SE172864.002	%	70 - 130%	102
	BH105_1.7-1.8	SE172864.003	%	70 - 130%	104
	BH106M_1.5-1.6	SE172864.004	%	70 - 130%	102
	BH107_1.4-1.5	SE172864.005	%	70 - 130%	100
d5-nitrobenzene (Surrogate)	BH101M_0.8-0.9	SE172864.001	%	70 - 130%	96
	BH104M_1.5-1.6	SE172864.002	%	70 - 130%	96
	BH105_1.7-1.8	SE172864.003	%	70 - 130%	98
	BH106M_1.5-1.6	SE172864.004	%	70 - 130%	98
	BH107_1.4-1.5	SE172864.005	%	70 - 130%	96

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH101M_0.8-0.9	SE172864.001	%	60 - 130%	83
	BH104M_1.5-1.6	SE172864.002	%	60 - 130%	85
	BH105_1.7-1.8	SE172864.003	%	60 - 130%	91
	BH106M_1.5-1.6	SE172864.004	%	60 - 130%	76
	BH107_1.4-1.5	SE172864.005	%	60 - 130%	84
d4-1,2-dichloroethane (Surrogate)	BH101M_0.8-0.9	SE172864.001	%	60 - 130%	77
	BH104M_1.5-1.6	SE172864.002	%	60 - 130%	77
	BH105_1.7-1.8	SE172864.003	%	60 - 130%	93
	BH106M_1.5-1.6	SE172864.004	%	60 - 130%	76
	BH107_1.4-1.5	SE172864.005	%	60 - 130%	86
d8-toluene (Surrogate)	BH101M_0.8-0.9	SE172864.001	%	60 - 130%	87
	BH104M_1.5-1.6	SE172864.002	%	60 - 130%	84
	BH105_1.7-1.8	SE172864.003	%	60 - 130%	85
	BH106M_1.5-1.6	SE172864.004	%	60 - 130%	73
	BH107_1.4-1.5	SE172864.005	%	60 - 130%	79
Dibromofluoromethane (Surrogate)	BH101M_0.8-0.9	SE172864.001	%	60 - 130%	80
	BH104M_1.5-1.6	SE172864.002	%	60 - 130%	83
	BH105_1.7-1.8	SE172864.003	%	60 - 130%	75
	BH106M_1.5-1.6	SE172864.004	%	60 - 130%	73
	BH107_1.4-1.5	SE172864.005	%	60 - 130%	83

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH101M_0.8-0.9	SE172864.001	%	60 - 130%	83
	BH104M_1.5-1.6	SE172864.002	%	60 - 130%	85
	BH105_1.7-1.8	SE172864.003	%	60 - 130%	91
	BH106M_1.5-1.6	SE172864.004	%	60 - 130%	76
	BH107_1.4-1.5	SE172864.005	%	60 - 130%	84
d4-1,2-dichloroethane (Surrogate)	BH101M_0.8-0.9	SE172864.001	%	60 - 130%	77
	BH104M_1.5-1.6	SE172864.002	%	60 - 130%	77
	BH105_1.7-1.8	SE172864.003	%	60 - 130%	93
	BH106M_1.5-1.6	SE172864.004	%	60 - 130%	76
	BH107_1.4-1.5	SE172864.005	%	60 - 130%	86
d8-toluene (Surrogate)	BH101M_0.8-0.9	SE172864.001	%	60 - 130%	87
	BH104M_1.5-1.6	SE172864.002	%	60 - 130%	84
	BH105_1.7-1.8	SE172864.003	%	60 - 130%	85
	BH106M_1.5-1.6	SE172864.004	%	60 - 130%	73
	BH107_1.4-1.5	SE172864.005	%	60 - 130%	79
Dibromofluoromethane (Surrogate)	BH101M_0.8-0.9	SE172864.001	%	60 - 130%	80
	BH104M_1.5-1.6	SE172864.002	%	60 - 130%	83
	BH105_1.7-1.8	SE172864.003	%	60 - 130%	75
	BH106M_1.5-1.6	SE172864.004	%	60 - 130%	73
	BH107_1.4-1.5	SE172864.005	%	60 - 130%	83

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
LB137279.001	Mercury	mg/kg	0.05	<0.05

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB137021.001		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)	%	-	102
		2-fluorobiphenyl (Surrogate)	%	-	100
		d14-p-terphenyl (Surrogate)	%	-	106

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB137244.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB137021.001	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
LB137022.001	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	Dibromofluoromethane (Surrogate)	%	-	76
		d4-1,2-dichloroethane (Surrogate)	%	-	84
		d8-toluene (Surrogate)	%	-	81
		Bromofluorobenzene (Surrogate)	%	-	85
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

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 Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Sample Number		Parameter	Units	LOR	Result
LB137022.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	76
		d4-1,2-dichloroethane (Surrogate)	%	-	84
		d8-toluene (Surrogate)	%	-	81

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 %
SE172863.010	LB137279.014	Mercury	mg/kg	0.05	0.029729674	30.0369542659	180	0
SE172863.013	LB137279.018	Mercury	mg/kg	0.05	0.011065526	60.0141751960	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE172864.002	LB137203.022	% Moisture	%w/w	0.5	9.0	8.6	41	4
SE172864.005	LB137203.026	% Moisture	%w/w	0.5	23	23	34	1
SE173000.007	LB137203.011	% Moisture	%w/w	0.5	27	31	33	13

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE172855.003	LB137021.025		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	0.1	<0.1	125	18
			Pyrene	mg/kg	0.1	0.2	0.1	95	45
			Benzo(a)anthracene	mg/kg	0.1	<0.3	<0.2	83	0
			Chrysene	mg/kg	0.1	<0.3	<0.2	78	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.7	0.4	48	45
			Benzo(k)fluoranthene	mg/kg	0.1	0.3	0.1	83	63
			Benzo(a)pyrene	mg/kg	0.1	0.3	0.2	71	53
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.2	0.1	101	14
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	148	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0.4	0.3	67	52
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.5	0.4	76	40
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.5	0.3	60	46
			Total PAH (18)	mg/kg	0.8	2.2	1.2	77	57
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.6	30	10
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	8
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.6	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 %
SE172861.001	LB137244.024	Arsenic, As	mg/kg	3	<3	<3	78	5
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	8.6	8.7	36	2
		Copper, Cu	mg/kg	0.5	21	20	32	6
		Lead, Pb	mg/kg	1	28	23	34	19
		Nickel, Ni	mg/kg	0.5	6.4	5.6	38	15
		Zinc, Zn	mg/kg	0.5	30	29	37	4
SE172863.005	LB137244.014	Arsenic, As	mg/kg	3	9.199702890	10.837122497	40	16
		Cadmium, Cd	mg/kg	0.3	0.4514999549	0.3411376516	106	28
		Chromium, Cr	mg/kg	0.3	15.64443774	195.5457957	81	33
		Copper, Cu	mg/kg	0.5	29.1956423	8724.390432	153	32
		Lead, Pb	mg/kg	1	41.3618663	9051.923075	6924	33
		Nickel, Ni	mg/kg	0.5	7.1996970	3797.414105	2961	37
		Zinc, Zn	mg/kg	0.5	52.0056991	0860.802026	0584	34

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE172855.003	LB137021.025	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

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 (continued)

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE172855.003	LB137021.025		TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	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 %
SE172863.010	LB137022.014	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	0.02	0.02	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.58	4.45	50	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.14	4.41	50	6
			d8-toluene (Surrogate)	mg/kg	-	3.51	3.55	50	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.97	3.74	50	6
		Totals	Total Xylenes	mg/kg	0.3	0	0	200	0
			Total BTEX	mg/kg	0.6	0	0	200	0
SE172864.005	LB137022.025	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	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	4.2	50	0
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	4.4	50	2
			d8-toluene (Surrogate)	mg/kg	-	3.9	3.5	50	11
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	3.6	50	15
		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 %
SE172863.010	LB137022.014		TRH C6-C10	mg/kg	25	0	0	200	0
			TRH C6-C9	mg/kg	20	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.58	4.45	30	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.14	4.41	30	6
			d8-toluene (Surrogate)	mg/kg	-	3.51	3.55	30	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.97	3.74	30	6
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0	0	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	0	0	200	0
SE172864.005	LB137022.025		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	4.2	30	0
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	4.4	30	2
			d8-toluene (Surrogate)	mg/kg	-	3.9	3.5	30	11
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	3.6	30	15
		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 %
LB137279.002	Mercury	mg/kg	0.05	0.18	0.2	70 - 130	88

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB137021.002		Naphthalene	mg/kg	0.1	4.0	4	60 - 140	100
		Acenaphthylene	mg/kg	0.1	4.0	4	60 - 140	101
		Acenaphthene	mg/kg	0.1	4.1	4	60 - 140	101
		Phenanthrene	mg/kg	0.1	3.9	4	60 - 140	98
		Anthracene	mg/kg	0.1	4.1	4	60 - 140	103
		Fluoranthene	mg/kg	0.1	4.2	4	60 - 140	105
		Pyrene	mg/kg	0.1	3.9	4	60 - 140	98
		Benzo(a)pyrene	mg/kg	0.1	4.0	4	60 - 140	101
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	104
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	96
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	100

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 %
LB137244.002	Arsenic, As	mg/kg	3	49	50	80 - 120	99
	Cadmium, Cd	mg/kg	0.3	50	50	80 - 120	99
	Chromium, Cr	mg/kg	0.3	49	50	80 - 120	97
	Copper, Cu	mg/kg	0.5	50	50	80 - 120	99
	Lead, Pb	mg/kg	1	49	50	80 - 120	99
	Nickel, Ni	mg/kg	0.5	49	50	80 - 120	99
	Zinc, Zn	mg/kg	0.5	49	50	80 - 120	99

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB137021.002		TRH C10-C14	mg/kg	20	42	40	60 - 140	105
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	95
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	73
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	41	40	60 - 140	103
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	85
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	70

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB137022.002	Monocyclic	Benzene	mg/kg	0.1	2.1	2.9	60 - 140	72
	Aromatic	Toluene	mg/kg	0.1	2.3	2.9	60 - 140	78
		Ethylbenzene	mg/kg	0.1	2.2	2.9	60 - 140	76
		m/p-xylene	mg/kg	0.2	4.4	5.8	60 - 140	75
		o-xylene	mg/kg	0.1	2.2	2.9	60 - 140	76
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	89
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	89
		d8-toluene (Surrogate)	mg/kg	-	4.7	5	60 - 140	94
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.7	5	60 - 140	94

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB137022.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	82
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	79
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	89
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	89
		d8-toluene (Surrogate)	mg/kg	-	4.7	5	60 - 140	94
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.7	5	60 - 140	94
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	99

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%
SE172864.001	LB137279.004	Mercury	mg/kg	0.05	0.20	<0.05	0.2	93

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE172847.003	LB137021.024		Naphthalene	mg/kg	0.1	3.8	0	4	94
			2-methylnaphthalene	mg/kg	0.1	<0.1	0	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	0	-	-
			Acenaphthylene	mg/kg	0.1	3.8	0.01	4	95
			Acenaphthene	mg/kg	0.1	3.8	0	4	96
			Fluorene	mg/kg	0.1	<0.1	0	-	-
			Phenanthrene	mg/kg	0.1	3.7	0.02	4	93
			Anthracene	mg/kg	0.1	4.0	0.02	4	98
			Fluoranthene	mg/kg	0.1	4.2	0.05	4	103
			Pyrene	mg/kg	0.1	3.8	0.04	4	93
			Benzo(a)anthracene	mg/kg	0.1	<0.1	0.03	-	-
			Chrysene	mg/kg	0.1	<0.1	0.02	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.05	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.04	-	-
			Benzo(a)pyrene	mg/kg	0.1	3.7	0.02	4	92
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.01	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	0.01	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	3.7	0	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	3.9	0.242	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	3.8	0.121	-	-
			Total PAH (18)	mg/kg	0.8	31	0	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.51	-	94
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	90
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.54	-	96

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%
SE172864.001	LB137244.004	Arsenic, As	mg/kg	3	56	4	50	104
		Cadmium, Cd	mg/kg	0.3	55	<0.3	50	109
		Chromium, Cr	mg/kg	0.3	61	9.6	50	102
		Copper, Cu	mg/kg	0.5	71	15	50	112
		Lead, Pb	mg/kg	1	70	25	50	89
		Nickel, Ni	mg/kg	0.5	55	1.0	50	107
		Zinc, Zn	mg/kg	0.5	66	11	50	110

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE172847.002	LB137021.024		TRH C10-C14	mg/kg	20	40	0	40	100
			TRH C15-C28	mg/kg	45	<45	0	40	93
			TRH C29-C36	mg/kg	45	<45	0	40	73
			TRH C37-C40	mg/kg	100	<100	0	-	-
			TRH C10-C36 Total	mg/kg	110	<110	0	-	-
			TRH C10-C40 Total (F bands)	mg/kg	210	<210	0	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	39	0	40	98
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	39	0	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	40	85
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE172863.001	LB137022.004	Monocyclic	Benzene	mg/kg	0.1	1.8	0	2.9	61
		Aromatic	Toluene	mg/kg	0.1	1.9	0	2.9	65
			Ethylbenzene	mg/kg	0.1	1.9	0.01	2.9	63
			m/p-xylene	mg/kg	0.2	3.7	0.02	5.8	64
			o-xylene	mg/kg	0.1	1.9	0.01	2.9	66

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%
SE172863.001	LB137022.004	Polycyclic	Naphthalene	mg/kg	0.1	<0.1	0.03	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	3.67	-	76
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	3.91	-	78
			d8-toluene (Surrogate)	mg/kg	-	4.1	4.24	-	81
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	5.23	-	84
		Totals	Total Xylenes	mg/kg	0.3	5.6	0.03	-	-
			Total BTEX	mg/kg	0.6	11	0.04	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE172863.001	LB137022.004		TRH C6-C10	mg/kg	25	<25	0	24.65	76
			TRH C6-C9	mg/kg	20	<20	0	23.2	73
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	3.67	-	76
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	3.91	-	78
			d8-toluene (Surrogate)	mg/kg	-	4.1	4.24	-	81
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	5.23	-	84
		VPH F	Benzene (F0)	mg/kg	0.1	1.8	0	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	-0.04	7.25	104

MATRIX SPIKE DUPLICATES

SE172864 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: http://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 Analytical Report comments for further information.

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STATEMENT OF QA/QC PERFORMANCE

SE173444 R0

CLIENT DETAILS

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Project	**E23603 2 Murray Rose Av, Sydney Oly Park**
Order Number	**E23603**
Samples	6

LABORATORY DETAILS

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SGS Reference	**SE173444 R0**
Date Received	06 Dec 2017
Date Reported	08 Dec 2017

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 and was supplied by the Client.
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	6 Water
Date documentation received	6/12/2017	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	Two Days		

HOLDING TIME SUMMARY

SE173444 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.

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
BH104M	SE173444.001	LB138193	06 Dec 2017	06 Dec 2017	03 Jan 2018	08 Dec 2017	03 Jan 2018	08 Dec 2017
BH106M	SE173444.002	LB138193	06 Dec 2017	06 Dec 2017	03 Jan 2018	08 Dec 2017	03 Jan 2018	08 Dec 2017
GWQD1	SE173444.003	LB138193	06 Dec 2017	06 Dec 2017	03 Jan 2018	08 Dec 2017	03 Jan 2018	08 Dec 2017
GWQR1	SE173444.004	LB138193	06 Dec 2017	06 Dec 2017	03 Jan 2018	08 Dec 2017	03 Jan 2018	08 Dec 2017

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
BH104M	SE173444.001	LB138099	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017
BH106M	SE173444.002	LB138099	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017
GWQD1	SE173444.003	LB138099	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017
GWQR1	SE173444.004	LB138099	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH104M	SE173444.001	LB138066	06 Dec 2017	06 Dec 2017	03 Jan 2018	07 Dec 2017	03 Jan 2018	07 Dec 2017
BH106M	SE173444.002	LB138066	06 Dec 2017	06 Dec 2017	03 Jan 2018	07 Dec 2017	03 Jan 2018	07 Dec 2017

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
BH104M	SE173444.001	LB138156	06 Dec 2017	06 Dec 2017	04 Jun 2018	08 Dec 2017	04 Jun 2018	08 Dec 2017
BH106M	SE173444.002	LB138156	06 Dec 2017	06 Dec 2017	04 Jun 2018	08 Dec 2017	04 Jun 2018	08 Dec 2017
GWQD1	SE173444.003	LB138156	06 Dec 2017	06 Dec 2017	04 Jun 2018	08 Dec 2017	04 Jun 2018	08 Dec 2017
GWQR1	SE173444.004	LB138156	06 Dec 2017	06 Dec 2017	04 Jun 2018	08 Dec 2017	04 Jun 2018	08 Dec 2017

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
BH104M	SE173444.001	LB138099	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017
BH106M	SE173444.002	LB138099	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017
GWQD1	SE173444.003	LB138099	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017
GWQR1	SE173444.004	LB138099	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH104M	SE173444.001	LB138097	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017
BH106M	SE173444.002	LB138097	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017
GWQD1	SE173444.003	LB138097	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017
GWQR1	SE173444.004	LB138097	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017
GWQTB1	SE173444.005	LB138097	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017
GWQTS1	SE173444.006	LB138097	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH104M	SE173444.001	LB138097	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017
BH106M	SE173444.002	LB138097	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017
GWQD1	SE173444.003	LB138097	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017
GWQR1	SE173444.004	LB138097	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017
GWQTB1	SE173444.005	LB138097	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017
GWQTS1	SE173444.006	LB138097	06 Dec 2017	06 Dec 2017	13 Dec 2017	07 Dec 2017	16 Jan 2018	08 Dec 2017

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)	BH104M	SE173444.001	%	40 - 130%	40
	BH106M	SE173444.002	%	40 - 130%	42
d14-p-terphenyl (Surrogate)	BH104M	SE173444.001	%	40 - 130%	48
	BH106M	SE173444.002	%	40 - 130%	50
d5-nitrobenzene (Surrogate)	BH104M	SE173444.001	%	40 - 130%	44
	BH106M	SE173444.002	%	40 - 130%	44

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH104M	SE173444.001	%	40 - 130%	96
	BH106M	SE173444.002	%	40 - 130%	102
	GWQD1	SE173444.003	%	40 - 130%	98
	GWQR1	SE173444.004	%	40 - 130%	89
	GWQTB1	SE173444.005	%	40 - 130%	91
	GWQTS1	SE173444.006	%	40 - 130%	114
d4-1,2-dichloroethane (Surrogate)	BH104M	SE173444.001	%	40 - 130%	83
	BH106M	SE173444.002	%	40 - 130%	76
	GWQD1	SE173444.003	%	40 - 130%	112
	GWQR1	SE173444.004	%	40 - 130%	96
	GWQTB1	SE173444.005	%	40 - 130%	92
	GWQTS1	SE173444.006	%	40 - 130%	76
d8-toluene (Surrogate)	BH104M	SE173444.001	%	40 - 130%	102
	BH106M	SE173444.002	%	40 - 130%	112
	GWQD1	SE173444.003	%	40 - 130%	111
	GWQR1	SE173444.004	%	40 - 130%	94
	GWQTB1	SE173444.005	%	40 - 130%	74
	GWQTS1	SE173444.006	%	40 - 130%	93
Dibromofluoromethane (Surrogate)	BH104M	SE173444.001	%	40 - 130%	84
	BH106M	SE173444.002	%	40 - 130%	85
	GWQD1	SE173444.003	%	40 - 130%	119
	GWQR1	SE173444.004	%	40 - 130%	105
	GWQTB1	SE173444.005	%	40 - 130%	97
	GWQTS1	SE173444.006	%	40 - 130%	84

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH104M	SE173444.001	%	40 - 130%	90
	BH106M	SE173444.002	%	40 - 130%	95
	GWQD1	SE173444.003	%	40 - 130%	98
	GWQR1	SE173444.004	%	40 - 130%	89
d4-1,2-dichloroethane (Surrogate)	BH104M	SE173444.001	%	60 - 130%	80
	BH106M	SE173444.002	%	60 - 130%	74
	GWQD1	SE173444.003	%	60 - 130%	112
	GWQR1	SE173444.004	%	60 - 130%	96
d8-toluene (Surrogate)	BH104M	SE173444.001	%	40 - 130%	86
	BH106M	SE173444.002	%	40 - 130%	93
	GWQD1	SE173444.003	%	40 - 130%	111
	GWQR1	SE173444.004	%	40 - 130%	94
Dibromofluoromethane (Surrogate)	BH104M	SE173444.001	%	40 - 130%	82
	BH106M	SE173444.002	%	40 - 130%	85
	GWQD1	SE173444.003	%	40 - 130%	119
	GWQR1	SE173444.004	%	40 - 130%	105

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
LB138193.001	Mercury	mg/L	0.0001	<0.0001

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB138099.001		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)	%	-	74
		2-fluorobiphenyl (Surrogate)	%	-	82
		d14-p-terphenyl (Surrogate)	%	-	98

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result
LB138066.001	Total Phenols	mg/L	0.01	<0.01

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB138156.001	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
LB138099.001	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
LB138097.001	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

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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
LB138097.001	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	Dibromofluoromethane (Surrogate)	%	-	92
		d4-1,2-dichloroethane (Surrogate)	%	-	81
		d8-toluene (Surrogate)	%	-	112
		Bromofluorobenzene (Surrogate)	%	-	104
	Trihalomethanes	Chloroform (THM)	µg/L	0.5	<0.5
		Bromodichloromethane (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
LB138097.001	Trihalomethanes	Dibromochloromethane (THM)	µg/L	0.5	<0.5
		Bromoform (THM)	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB138097.001		TRH C6-C9	µg/L	40	<40
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	89
		d4-1,2-dichloroethane (Surrogate)	%	-	79
		d8-toluene (Surrogate)	%	-	92
		Bromofluorobenzene (Surrogate)	%	-	96

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 %
SE173444.001	LB138193.014	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0
SE173444.004	LB138193.018	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 %
SE173443.001	LB138099.018		Naphthalene	µg/L	0.1	0.02	0.01	200	0
			2-methylnaphthalene	µg/L	0.1	0.02	0.01	200	0
			1-methylnaphthalene	µg/L	0.1	0.01	0.01	200	0
			Acenaphthylene	µg/L	0.1	0	0	200	0
			Acenaphthene	µg/L	0.1	0.01	0.01	200	0
			Fluorene	µg/L	0.1	0.01	0	200	0
			Phenanthrene	µg/L	0.1	0.02	0.01	200	0
			Anthracene	µg/L	0.1	0.01	0	200	0
			Fluoranthene	µg/L	0.1	0	0	200	0
			Pyrene	µg/L	0.1	0	0	200	0
			Benzo(a)anthracene	µg/L	0.1	0.02	0.02	200	0
			Chrysene	µg/L	0.1	0.01	0.01	200	0
			Benzo(b&j)fluoranthene	µg/L	0.1	0	0	200	0
			Benzo(k)fluoranthene	µg/L	0.1	0	0	200	0
			Benzo(a)pyrene	µg/L	0.1	0	0.02	200	0
			Indeno(1,2,3-cd)pyrene	µg/L	0.1	0	0	200	0
			Dibenzo(ah)anthracene	µg/L	0.1	0	0	200	0
			Benzo(ghi)perylene	µg/L	0.1	0	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.22	0.22	30	0
			2-fluorobiphenyl (Surrogate)	µg/L	-	0.21	0.21	30	0
			d14-p-terphenyl (Surrogate)	µg/L	-	0.32	0.31	30	3

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE173414.001	LB138066.018	Total Phenols	mg/L	0.01	0.0028	0.0026	200	0

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE173448.002	LB138156.014	Arsenic, As	µg/L	1	2.358	2.474	56	5
		Cadmium, Cd	µg/L	0.1	0.012	0.009	200	0
		Chromium, Cr	µg/L	1	0.377	0.422	200	0
		Copper, Cu	µg/L	1	2.137	2.148	62	1
		Lead, Pb	µg/L	1	7.315	7.278	29	1
		Nickel, Ni	µg/L	1	1.13	1.129	104	0
		Zinc, Zn	µg/L	5	17.677	18.083	43	2
SE173448.004	LB138156.017	Arsenic, As	µg/L	1	2.398	2.467	56	3
		Cadmium, Cd	µg/L	0.1	0.009	0.01	200	0
		Chromium, Cr	µg/L	1	0.4	0.381	200	0
		Copper, Cu	µg/L	1	1.314	1.316	91	0
		Lead, Pb	µg/L	1	6.766	6.694	30	1
		Nickel, Ni	µg/L	1	0.986	0.953	118	0
		Zinc, Zn	µg/L	5	15.239	15.209	48	0

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE173443.001	LB138099.018		TRH C10-C14	µg/L	50	0	0	200	0
			TRH C15-C28	µg/L	200	0	0	200	0
			TRH C29-C36	µg/L	200	0	0	200	0
			TRH C37-C40	µg/L	200	0	0	200	0
			TRH C10-C36	µg/L	450	0	0	200	0
			TRH C10-C40	µg/L	650	0	0	200	0
		TRH F Bands	TRH >C10-C16 (F2)	µg/L	60	0	0	200	0
			TRH >C10-C16 (F2) - Naphthalene	µg/L	60	0	0	200	0
			TRH >C16-C34 (F3)	µg/L	500	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.

TRH (Total Recoverable Hydrocarbons) in Water (continued)

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE173443.001	LB138099.018	TRH F Bands	TRH >C34-C40 (F4)	µg/L	500	0	0	200	0

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE173443.001	LB138097.019	Fumigants	2,2-dichloropropane	µg/L	0.5	0	0	200	0
			1,2-dichloropropane	µg/L	0.5	0	0	200	0
			cis-1,3-dichloropropene	µg/L	0.5	0	0	200	0
			trans-1,3-dichloropropene	µg/L	0.5	0	0	200	0
			1,2-dibromoethane (EDB)	µg/L	0.5	0	0	200	0
		Halogenated	Dichlorodifluoromethane (CFC-12)	µg/L	5	0	0	200	0
		Aliphatics	Chloromethane	µg/L	5	0.89	0	200	0
			Vinyl chloride (Chloroethene)	µg/L	0.3	0	0	200	0
			Bromomethane	µg/L	10	0.3	0	200	0
			Chloroethane	µg/L	5	0	0	200	0
			Trichlorofluoromethane	µg/L	1	0.43	0	200	0
			Iodomethane	µg/L	5	0.02	0	200	0
			1,1-dichloroethene	µg/L	0.5	0.02	0	200	0
			Dichloromethane (Methylene chloride)	µg/L	5	0.9	0	200	0
			Allyl chloride	µg/L	2	0	0	200	0
			trans-1,2-dichloroethene	µg/L	0.5	0.03	0	200	0
			1,1-dichloroethane	µg/L	0.5	0.01	0	200	0
			cis-1,2-dichloroethene	µg/L	0.5	1.46	1.43	65	2
			Bromochloromethane	µg/L	0.5	0.04	0	200	0
			1,2-dichloroethane	µg/L	0.5	0.01	0	200	0
			1,1,1-trichloroethane	µg/L	0.5	0	0	200	0
			1,1-dichloropropene	µg/L	0.5	0	0	200	0
			Carbon tetrachloride	µg/L	0.5	0	0	200	0
			Dibromomethane	µg/L	0.5	0	0	200	0
			Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	0	0	200	0
			1,1,2-trichloroethane	µg/L	0.5	0.05	0	200	0
			1,3-dichloropropane	µg/L	0.5	0.13	0	200	0
			Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	0	0	200	0
			1,1,1,2-tetrachloroethane	µg/L	0.5	0	0	200	0
			cis-1,4-dichloro-2-butene	µg/L	1	0	0	200	0
			1,1,2,2-tetrachloroethane	µg/L	0.5	0.07	0	200	0
			1,2,3-trichloropropane	µg/L	0.5	0	0	200	0
			trans-1,4-dichloro-2-butene	µg/L	1	0.16	0	200	0
			1,2-dibromo-3-chloropropane	µg/L	0.5	0	0	200	0
			Hexachlorobutadiene	µg/L	0.5	0	0	200	0
		Halogenated	Chlorobenzene	µg/L	0.5	0.02	0	200	0
		Aromatics	Bromobenzene	µg/L	0.5	0	0	200	0
			2-chlorotoluene	µg/L	0.5	0	0	200	0
			4-chlorotoluene	µg/L	0.5	0	0	200	0
			1,3-dichlorobenzene	µg/L	0.5	0.02	0	200	0
			1,4-dichlorobenzene	µg/L	0.3	0	0	200	0
			1,2-dichlorobenzene	µg/L	0.5	0	0	200	0
			1,2,4-trichlorobenzene	µg/L	0.5	0	0	200	0
			1,2,3-trichlorobenzene	µg/L	0.5	0	0	200	0
		Monocyclic	Benzene	µg/L	0.5	0.06	0.06	200	0
		Aromatic	Toluene	µg/L	0.5	0.07	0.06	200	0
			Ethylbenzene	µg/L	0.5	0.01	0.01	200	0
			m/p-xylene	µg/L	1	0.04	0.03	200	0
			o-xylene	µg/L	0.5	0.01	0.01	200	0
			Styrene (Vinyl benzene)	µg/L	0.5	0.34	0	200	0
			Isopropylbenzene (Cumene)	µg/L	0.5	0	0	200	0
			n-propylbenzene	µg/L	0.5	0	0	200	0
			1,3,5-trimethylbenzene	µg/L	0.5	0	0	200	0
			tert-butylbenzene	µg/L	0.5	0	0	200	0
			1,2,4-trimethylbenzene	µg/L	0.5	0	0	200	0
			sec-butylbenzene	µg/L	0.5	0	0	200	0
			p-isopropyltoluene	µg/L	0.5	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.

VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE173443.001	LB138097.019	Monocyclic	n-butylbenzene	µg/L	0.5	0	0	200	0
		Nitrogenous	Acrylonitrile	µg/L	0.5	0	0	200	0
		Oxygenated	Acetone (2-propanone)	µg/L	10	0	0	200	0
		Compounds	MtBE (Methyl-tert-butyl ether)	µg/L	2	0	0	200	0
			Vinyl acetate	µg/L	10	0.58	0	200	0
			MEK (2-butanone)	µg/L	10	0	0	200	0
			MIBK (4-methyl-2-pentanone)	µg/L	5	0	0	200	0
			2-hexanone (MBK)	µg/L	5	0	0	200	0
		Polycyclic	Naphthalene	µg/L	0.5	0.02	0.02	200	0
		Sulphonated	Carbon disulfide	µg/L	2	0.06	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.84	3.99	30	19
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.33	4.46	30	3
			d8-toluene (Surrogate)	µg/L	-	5.98	5.03	30	17
			Bromofluorobenzene (Surrogate)	µg/L	-	4.54	4.52	30	0
		Trihalomethan	Chloroform (THM)	µg/L	0.5	0.05	0	200	0
		es	Bromodichloromethane (THM)	µg/L	0.5	0	0	200	0
			Dibromochloromethane (THM)	µg/L	0.5	0	0	200	0
			Bromoform (THM)	µg/L	0.5	0	0	200	0
SE173444.004	LB138097.020	Monocyclic	Benzene	µg/L	0.5	<0.5	0.1	200	0
		Aromatic	Toluene	µg/L	0.5	<0.5	0.37	165	0
			Ethylbenzene	µg/L	0.5	<0.5	0.02	200	0
			m/p-xylene	µg/L	1	<1	0.06	200	0
			o-xylene	µg/L	0.5	<0.5	0.02	200	0
		Polycyclic	Naphthalene	µg/L	0.5	<0.5	0.02	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.2	4.39	30	17
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.8	3.92	30	20
			d8-toluene (Surrogate)	µg/L	-	4.7	4.6	30	2
			Bromofluorobenzene (Surrogate)	µg/L	-	4.5	4.58	30	3

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE173443.001	LB138097.019		TRH C6-C10	µg/L	50	0	0	200	0
			TRH C6-C9	µg/L	40	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.77	4.07	30	16
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.21	4.31	30	2
			d8-toluene (Surrogate)	µg/L	-	4.39	4.61	30	5
			Bromofluorobenzene (Surrogate)	µg/L	-	4.42	4.41	30	0
		VPH F Bands	Benzene (F0)	µg/L	0.5	0.05	0.06	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	-0.15	-0.17	200	0
SE173444.004	LB138097.020		TRH C6-C10	µg/L	50	<50	1.09	200	0
			TRH C6-C9	µg/L	40	<40	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.2	4.39	30	17
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.8	3.92	30	20
			d8-toluene (Surrogate)	µg/L	-	4.7	4.6	30	2
			Bromofluorobenzene (Surrogate)	µg/L	-	4.5	4.58	30	3
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	0.1	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	0.52	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.

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB138099.002		Naphthalene	µg/L	0.1	28	40	60 - 140	71
		Acenaphthylene	µg/L	0.1	27	40	60 - 140	68
		Acenaphthene	µg/L	0.1	35	40	60 - 140	88
		Phenanthrene	µg/L	0.1	33	40	60 - 140	81
		Anthracene	µg/L	0.1	36	40	60 - 140	89
		Fluoranthene	µg/L	0.1	31	40	60 - 140	78
		Pyrene	µg/L	0.1	29	40	60 - 140	74
		Benzo(a)pyrene	µg/L	0.1	30	40	60 - 140	75
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.5	40 - 130	64
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	72
		d14-p-terphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	84

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB138066.002	Total Phenols	mg/L	0.01	0.23	0.25	80 - 120	92

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB138156.002		Arsenic, As	µg/L	1	20	20	80 - 120	101
		Cadmium, Cd	µg/L	0.1	20	20	80 - 120	100
		Chromium, Cr	µg/L	1	21	20	80 - 120	103
		Copper, Cu	µg/L	1	21	20	80 - 120	104
		Lead, Pb	µg/L	1	21	20	80 - 120	104
		Nickel, Ni	µg/L	1	21	20	80 - 120	105
		Zinc, Zn	µg/L	5	20	20	80 - 120	102

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB138099.002		TRH C10-C14	µg/L	50	1000	1200	60 - 140	85
		TRH C15-C28	µg/L	200	1200	1200	60 - 140	103
		TRH C29-C36	µg/L	200	1200	1200	60 - 140	103
	TRH F Bands	TRH >C10-C16 (F2)	µg/L	60	1100	1200	60 - 140	94
		TRH >C16-C34 (F3)	µg/L	500	1200	1200	60 - 140	102
		TRH >C34-C40 (F4)	µg/L	500	710	600	60 - 140	118

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB138097.002	Halogenated	1,1-dichloroethene	µg/L	0.5	50	45.45	60 - 140	110
	Aliphatics	1,2-dichloroethane	µg/L	0.5	50	45.45	60 - 140	110
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	49	45.45	60 - 140	108
	Halogenated	Chlorobenzene	µg/L	0.5	50	45.45	60 - 140	110
	Monocyclic	Benzene	µg/L	0.5	50	45.45	60 - 140	110
	Aromatic	Toluene	µg/L	0.5	50	45.45	60 - 140	110
		Ethylbenzene	µg/L	0.5	50	45.45	60 - 140	110
		m/p-xylene	µg/L	1	100	90.9	60 - 140	110
		o-xylene	µg/L	0.5	50	45.45	60 - 140	109
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.1	5	60 - 140	101
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.2	5	60 - 140	103
		d8-toluene (Surrogate)	µg/L	-	4.3	5	60 - 140	86
		Bromofluorobenzene (Surrogate)	µg/L	-	5.0	5	60 - 140	100
	Trihalomethan	Chloroform (THM)	µg/L	0.5	50	45.45	60 - 140	110

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB138097.002		TRH C6-C10	µg/L	50	930	946.63	60 - 140	98
		TRH C6-C9	µg/L	40	750	818.71	60 - 140	92
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.0	5	60 - 140	101
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.8	5	60 - 140	96
		d8-toluene (Surrogate)	µg/L	-	5.1	5	60 - 140	103
		Bromofluorobenzene (Surrogate)	µg/L	-	5.1	5	60 - 140	102
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	620	639.67	60 - 140	97

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%
SE173300.013	LB138193.004	Mercury	mg/L	0.0001	0.0072	-0.0398	0.008	90

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE173444.002	LB138066.017	Total Phenols	mg/L	0.01	0.22	<0.01	0.25	90

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE173364.001	LB138156.004	Copper, Cu	µg/L	1	24	2.958	20	104
		Zinc, Zn	µg/L	5	24	3.573	20	104

VOCs in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE173444.003	LB138097.021	Monocyclic	Benzene	µg/L	0.5	<0.5	45.45	104
		Aromatic	Toluene	µg/L	0.5	<0.5	45.45	102
			Ethylbenzene	µg/L	0.5	<0.5	45.45	106
			m/p-xylene	µg/L	1	<1	90.9	107
			o-xylene	µg/L	0.5	<0.5	45.45	102
		Polycyclic	Naphthalene	µg/L	0.5	<0.5	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.9	-	94
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.6	-	83
			d8-toluene (Surrogate)	µg/L	-	5.6	-	91
			Bromofluorobenzene (Surrogate)	µg/L	-	4.9	-	96

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE173444.003	LB138097.021		TRH C6-C10	µg/L	50	<50	946.63	99
			TRH C6-C9	µg/L	40	<40	818.71	95
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.9	-	94
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.6	-	83
			d8-toluene (Surrogate)	µg/L	-	5.6	-	91
			Bromofluorobenzene (Surrogate)	µg/L	-	4.9	-	96
		VPH F	Benzene (F0)	µg/L	0.5	<0.5	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	639.67	102

MATRIX SPIKE DUPLICATES

SE173444 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: http://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 Analytical Report comments for further information.

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STATEMENT OF QA/QC PERFORMANCE

SE173444A R0

CLIENT DETAILS

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Order Number	**E23603**
Samples	7

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SGS Reference	**SE173444A R0**
Date Received	08 Dec 2017
Date Reported	11 Dec 2017

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 and was supplied by the Client.
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

SE173444A 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.

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
GWQRB1	SE173444A.007	LB138271	06 Dec 2017	08 Dec 2017	04 Jun 2018	11 Dec 2017	04 Jun 2018	11 Dec 2017

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.

Trace Metals (Dissolved) in Water by ICPMS — **Method: ME-(AU)-[ENV]AN318**

Sample Number	Parameter	Units	LOR	Result
LB138271.001	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.

Trace Metals (Dissolved) in Water by ICPMS — **Method: ME-(AU)-[ENV]AN318**

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE173444A.007	LB138271.004	Zinc, Zn	µg/L	5	70	71	22	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.

Trace Metals (Dissolved) in Water by ICPMS — **Method: ME-(AU)-[ENV]AN318**

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB138271.002	Zinc, Zn	µg/L	5	20	20	80 - 120	101

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.

No matrix spikes were required for this job.

MATRIX SPIKE DUPLICATES

SE173444A 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: http://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 Analytical Report comments for further information.

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